Organization Development for Revitalization of Information Technology Sector of Pakistan

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DECLARATION

The substance of this thesis is the original work of the author and due references and acknowledgements has been made, where necessary, to the work of others. No part of this thesis has been already accepted for any degree, and it is not being currently submitted in candidature of any degree.

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I dedicate this research to my wife ‘Mrs. Binish Ali’, for she has given up a lot of what we had together. This is equally her success. She is a perfect wife.

============

I am thankful to my parents (Mr. Maj (r) Muhammad Zafar Ul Ahsan and Mrs. Shamim Zafar) for helping me become a better human being, a better Muslim and a better Pakistani. You have been perfect and I exist because of you.

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DISCLAIMER

The given thesis has solely been completed by ensuring 100% transparency of the research process to the thesis supervisor. It is made sure in this thesis that each and every word is written by the author himself and zero plagiarism occurs. In cases where quotations are made from various text / ‘other literature’, it is made sure that citations are made accordingly. Similarly illustrations, tables and necessary data if used from other resources, categorically identify their respective source(s).

It is also made sure that entire discussion in this thesis is genuine, legitimate and authentic to the best of knowledge of the author. Views, ideas, frameworks, analysis and inferences presented in this thesis are solely result of research process outcome and not views of author himself.

Finally it is extremely important to note that the research conducted for this thesis is from Jan 2006 to Dec 2008. All discussion entails analysis of the data collected between or before this period. It is important to note that improvement ideas, recommendations, frameworks Etc proposed in this thesis can be considered easily applicable in the IT industry of Pakistan for the next 5 to 10 years at least (subject to any major changes in the overall industrial setup).
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ABSTRACT

“Information Technology” and “Organization Development” are the two expressions that rarely seem to appear before us collectively if we observe the Information Technology (IT) Industry of Pakistan. At national level many reforms have been made by Government of Pakistan for the uplift, sustainability, growth and development of IT Sector of Pakistan. It is indeed great to study the fact that national IT sector has seemingly shown massive improvements as far as fetching Gross Domestic Product (GDP) is concerned. Ignoring the consequences faced by the IT industry of Pakistan due to the political set backs, one can see clear and distinct growth in Information Technology Sector in Pakistan. Despite the fact, that everything seems so positive about IT sector of Pakistan compared to other industrial setups within Pakistan, the comparative growth of the IT sector has not been as promising as in other parts of South Asia despite similar cultural background.

Many studies reveal and focus on the so called core economical, political and technological factors that are responsible for the low performance of IT sector of Pakistan with respect to other South Asian economies, but none seem to bring into focus and discuss the factors responsible for this declined performance at grass root level. Here the term “grass root level” refers to the factors that are responsible for low productivity, poor quality, low comparative performance and deprived business management practices of IT organizations of Pakistan. These grass root level factors may be termed as soft factors and factors related to Organization Development.

This study argues that Organization Development practices needs enhanced focus for better organizational performance of IT organization in Pakistan and thereby highlights the importance of Organization Development framework for the high performance of IT sector of Pakistan. The study seeks to achieve several interconnected objectives. It examines the role and requirements of “Organization Development” for IT industry of Pakistan. It identifies deficiencies, issues and problems that arise due to inadequate focus of IT organizations of Pakistan on Organization Development methods and techniques and also presents analysis against all identified loopholes. In addition to this the study also presents the preferred Organization Development practices (the best practices) and methods (specially customized for Pakistani IT industry) for Organization Development. Focus is also laid on deployment methodologies as change management tool which can be used for practical implementation of the identified best practices and the customized methods. In summary this study helps to understand the deficiencies in general organizational setup of IT industry of Pakistan and at the same time assists the IT entrepreneurs, executives, senior management and policy makers within IT organization in Pakistan to revitalize their organizations for its long term stability, sustenance and high performance using Organization Development as a framework. This study can also prove to be beneficial for all investors within and outside Pakistan who intend to setup IT based organization in Pakistan. Emphasis is made on policy formulation and its management, employee behavior and psychology, human resource management, quality, productivity, process management and change management. All aspects of the study are presented, analyzed and explored with conscience concern of local culture.
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By: Ali Ahsan

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CC  Call Center
USA  United States of America
UK  United Kingdom
EU  European Union
UAE  United Arab Emirates
PCs  Personal Computers
CMMI  Capability Maturity Model
Integrated
PCMM  People's Capability Maturity Model
CMM  Capability Maturity Model
PCB  Pakistan Computer Bureau of Pakistan
PASHA  Pakistan Software House
Association of Pakistan
ISO  International Organization for Standards
EGD  Electronic Government Directorate of Pakistan
HR  Human Resource
HRM  Human Resource Management
SBP  State Bank of Pakistan
R & D  Research And Development
GMs  General Manager
CEO  Chief Executive Officer
CFO  Chief Financial Officer
HoD  Head of Organization
PM  Project Manager
ISB  Islamabad
KH  Karachi
LHR  Lahore
HEC  Higher Education Commission of Pakistan
FDI  Foreign Direct Investment
MoF  Ministry of Finance of Pakistan
FBS  Federal Bureau of Statistics of Pakistan
SEI  Software Engineering Institute
KPA  Key Process Area

UNDP  United Nations Development Program
BOI  Board of Investment of Pakistan
MOPED  Ministry of Planning & Development of Pakistan
UNPAN  United Nations Online Network in Public Administration & Finance
CMU  Carnegie Mellon University
OC  Organizational Culture
OR  Organizational Leadership
ES  Employee Satisfaction
M  Factor Marked As Motivational Factor
S  Factor Marked As Satisfier Factor
MFacti  Motivational factor
MFreqi  Motivational factor's frequency
Avg MVi Average Motivational Factor's Variance
MSi  Motivational factor's score
MLij  Motivation level of employee
MFi  Motivational factor's expectancy
GME  Granted motivation
IMFF  Imperative Motivational Factors Framework
Eq  Equation
FBS  Federal Bureau of Statistics Pakistan
CSR  Corporate Social Responsibility
PK  Pakistan
IND  India
SL  Sri Lanka
SR  Social Responsibility
SA  South Asia
BN  Bangladesh
Admin  Administration
OK  OK
SCAMPI  Standard CMMI Appraisal Method for Process Improvement
MeE  Ministry of Education of Pakistan
SDLC  Software Development Life Cycle

**LIST OF GENERAL ACRONYMS**

IT Organizations – Organizations
IT Organizations in Pakistan – Organizations in Pakistan
Companies / Company – Organizations / Organization
I / O Psychologist – Industrial and Organizational Psychologist
Issues – Problems or Concerns
Issues Concerning IT industry of Pakistan
Soft Issues – Soft Factors
Cultural Issues – Organizational Culture (With reference to Pakistan mainly)
Leadership – Organizational Leadership (With reference to Pakistan mainly)
Employee Satisfaction – Satisfaction of Employee in IT industry of Pakistan
Motivational Factors – Factors Affecting Motivation

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22. WWW.ODNENETWORK.ORG
23. HTTP://WWW.ELDRITCHPRESS.ORG/FWT/TI.HTML

**THESIS KEYWORDS**

1. Organization Development
2. Revitalization
3. Information Technology
4. Industry
5. Pakistan
6. Organization(s)
7. Management
8. Software Industry
9. Soft Factors

**Note:** Chapter 7, 12 & 13 also contain lists of some chapter specific abbreviations.

**Note:** Chapter 7 contains a list of some specific acronyms.
LIST OF IMPORTANT AND EXTREMELY USEFUL ENCYCLOPEDIAS

1. ENCYCLOPEDIA OF MANAGEMENT
2. INTERNATIONAL ENCYCLOPEDIA OF SOCIAL SCIENCES
3. WIKIPEDIA ENCYCLOPEDIA

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- ORGANIZATIONAL SCIENCE (http://wpweb2.tepper.cmu.edu/orgsci/index.htm)
- ACADEMY OF MANAGEMENT JOURNAL (http://www.aoap.cornell.edu/amjnew/)
- ACADEMY OF MANAGEMENT REVIEW (http://www.aoap.cornell.edu/amr/)
- STRATEGIC MANAGEMENT JOURNAL (http://www3.interscience.wiley.com/cgi-bin/jhome/2144)
- MANAGEMENT SCIENCE (http://management.sagepub.com)
- JOURNAL OF MANAGEMENT (http://joms.sagepub.com/)
- JOURNAL OF APPLIED PSYCHOLOGY (http://www.apa.org/journals/apl/)
- ORGANIZATION STUDIES (http://oSsagepub.com)
- ORGANIZATION (http://oRsagepub.com/)
- MANAGEMENT LEARNING (http://mlq.sagepub.com/)
- INTERNATIONAL JOURNAL OF KNOWLEDGE CULTURE AND CHANGE MANAGEMENT (http://www.management-journal.com/)
- JOURNAL OF ORGANIZATIONAL CHANGE MANAGEMENT (http://www.emeraldinsight.com/info/journals/jocm/jocm.jsp)
- EUROPEAN MANAGEMENT REVIEW (http://www.palgrave-journals.com/emr/index.htm)
- ANTHROPOLOGY OF WORK REVIEW (http://www.aaanet.org/saw/awr/index.htm)
- RESEARCH IN ORGANIZATIONAL BEHAVIOUR (http://www Elsevier.com/wps/find/bookdescription.csx/home/704903/description#description)
- JOURNAL OF ORGANIZATIONAL BEHAVIOUR

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(KEy BOOKS ONLY)

- Reinventing Organization Development: New Approaches to Change in Organizations by David L. Bradford, W. Warner Burke - 2005
- Organization Development: Theory, Practice, and Research by Wendell L. French, Cecil Bell, Robert A. Zawacki - 1978
- The Consultant’s Big Book of Organization Development Tools: 50 Reproducible by Melvin L. Silberman - 2002
- Organization Development at Work: Conversations on the Values, Applications by Margaret Wheatley, Robert Tannenbaum, Paula Yardley Griffin, Kristine Quade - 2003

Organization Development for Revitalization of Information Technology Sector of Pakistan By: Ali Ahsan (All Rights Reserved) Pg:XVIII
**IMPORTANT HIGHLIGHTS (RESEARCH EXTRACTS)**

It is important to specify here that 5 publications (4 conference research papers and 1 journal paper) have been extracted from five chapters of this thesis. Details of these publications would appear in the respective chapters.

### International Research Publication Status Chapters Wise

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<td>1 Research Paper Published in 11th QMOD conference organized at Lund University, Campus Helsingborg, Sweden from 20th August 2008 to 22nd August 2008 (<a href="http://www.ch.lu.se/qmod">http://www.ch.lu.se/qmod</a>).</td>
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<td>1 Research Paper Published in 7th WSEAS International Conference on Software Engineering, Parallel and Distributed Systems (SEPADS '08) held in University of Cambridge, Cambridge, UK from February 20th to February 22nd, 2008. Proceeding published by WSEAS Press, ISBN: 978-960-6766-42-8, ISSN: 1790-5117.</td>
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**ANNEX**

**Research By Product:**

CHAPTER ONE:
INTRODUCTION
CHAPTER ONE: INTRODUCTION

1.1 Background

1.1.1 IT Sector of Pakistan

This section of the study would help us comprehend the infrastructure of the IT industry of Pakistan in summary. The IT sector of Pakistan has witnessed major changes since the year 2000. Government policies have been made in such a manner over the time that has helped IT industry to boost its revenue and profit. Currently the revenue of IT industry of Pakistan is increasing at the pace of 30 to 40% year by year. This constructive growth certainly gives an extremely healthy picture of the IT industry of Pakistan, but the spotlight of our research is on the comparative growth and development of this industry with respect to other South Asian economies (in particular India). As per the ‘Bearing Point’ case study named ‘Strategy for Increasing Exports of BPO’ conducted for PSEB in 2005:

“Pakistan’s IT industry is still well below its potential. Ideally, it should be 1/5th of the size of the Indian IT industry, as Pakistan’s economy is generally 1/5th of the Indian economy. The size of the Indian IT-ITES industry is US $ 26 billion, with domestic market contributing US $ 8.2 billion and international IT-ITES revenue US $ 17.9 billion, which implies that Pakistan’s IT industry has not kept pace with the other sectors of the economy and its size should have at least been about US $ 4.5 billion. It is also interesting that the ratio of Pakistan’s export revenue to the domestic revenue is only 17 %, whereas the same ratio of the Indian IT industry is 218 %, which indicates that there is a huge potential for growth of the IT industry of Pakistan. Moreover, since a much smaller domestic base can support a much bigger export market, Pakistan’s current IT domestic market has the potential to service a much bigger international market.”

Pakistan IT industry consists of 75,000 professional and it produces IT services and products for national (public and private sector) and international consumers. There are three technology parks constructed in ISB, KHI and KHR that are mainly used by IT firms and software houses within the country. In addition to this, GOP is rigorously focusing on Airport Technology Parks in KHI and ISB and Biosphere Technology Park. Focus is made on the development of manpower all across Pakistan at its highest priority. This initiative is mainly taken care of by HEC. Pakistan’s IT industry has a strong edge of well trained English speaking manpower. As per Government of Pakistan’s Board of Investment latest figures:

“Foreign direct investment (FDI) in IT & Telecom sector has increased up to US $ 1,937.6 million in year 2005-06 which was merely US $ 221.9 million in 2003-04 and it is expected to go further up in the next fiscal year.”

Table 1.0 explains fundamental characteristics of IT sector of Pakistan at a glance:

<table>
<thead>
<tr>
<th>Indicator</th>
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<tbody>
<tr>
<td>Cities &amp; Towns Connected With Internet</td>
<td>2,389 (September, 2006) Cities &amp; Towns</td>
</tr>
<tr>
<td>Internet Connections/ Subscribers</td>
<td>2.4 Million (September, 2006)</td>
</tr>
<tr>
<td>Internet Users</td>
<td>Approximately 12 Million (Sept, 2006)</td>
</tr>
<tr>
<td>Access to Internet</td>
<td>97% of Population</td>
</tr>
<tr>
<td>Broadband Subscribers</td>
<td>90,000 (November, 2006)</td>
</tr>
<tr>
<td>Number of ISPs</td>
<td>127 (Nov, 2006)</td>
</tr>
<tr>
<td>Numbers of Cities on Fiber Optic</td>
<td>592 (December, 2005)</td>
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<tr>
<td>Bandwidth Availability</td>
<td>3,053 MB Purchased And 2,113 MB Delivered.</td>
</tr>
<tr>
<td>Cost Per E-1 Connection (2MB)</td>
<td>US$ 1, 450 per Month</td>
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<tr>
<td>Total Number of IT Companies Working In Pakistan</td>
<td>730 (Registered PSEB Members)</td>
</tr>
<tr>
<td>Total Number of Substantial IT Companies</td>
<td>487 (Active PSEB Members)</td>
</tr>
<tr>
<td>Total Number of Foreign IT&amp; Telecom Companies Working In Pakistan</td>
<td>58</td>
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<tr>
<td>Total Number of ISO 9000 Certified Companies</td>
<td>100</td>
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<tr>
<td>Total Number of Companies CMM Assessed</td>
<td>One CMMI Level 5 Company</td>
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<tr>
<td>Total Number of Medical Transcription Companies</td>
<td>15 (May, 2005)</td>
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<tr>
<td>Software Industry Turnover</td>
<td>around US$ 70-80 Million</td>
</tr>
<tr>
<td>Total IT Spending In Fiscal Year 2003-2004</td>
<td>around US$ 600 Million</td>
</tr>
<tr>
<td>IT &amp; IT Enabled Services</td>
<td>US $72,210 Million</td>
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<tr>
<td>Exports during 2005-2006</td>
<td>(Transacted Through State Bank of Pakistan)</td>
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<tr>
<td>Number of IT Professionals Engaged</td>
<td>Around 13,000</td>
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<td>In Export Oriented Software Development</td>
<td>Adam60,000</td>
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<tr>
<td>Number of IT Graduates Produced Per Year</td>
<td>Around 20,000</td>
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<td>Number of Universities Offering</td>
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* First IT company opened in 1976 in Pakistan.
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<th>Indicator</th>
<th>Value</th>
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<tr>
<td>IT / CS Programs</td>
<td>100+</td>
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<tr>
<td>Total Number of IT Professionals</td>
<td></td>
</tr>
<tr>
<td>Employed In The Country</td>
<td>100,000</td>
</tr>
<tr>
<td>Number of Software Technology Parks (STPs)</td>
<td>10 (November, 2006)</td>
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<tr>
<td>Total Amount Of Space Utilized In STPs</td>
<td>750,000 Sq. Ft.</td>
</tr>
<tr>
<td>Total Number of Call Center</td>
<td>310 (December, 2006)</td>
</tr>
<tr>
<td>Number of Call Center Agents</td>
<td></td>
</tr>
<tr>
<td>Working For International Clients</td>
<td>Around 3,500+</td>
</tr>
<tr>
<td>Foreign Direct Investment (FDI) In IT Sector</td>
<td>US$ 30.2 Million (2005-2006)</td>
</tr>
</tbody>
</table>


As per the figures from PASHA (2007), Pakistan’s IT industry is growing at a phenomenal rate of 56%. The overall sector consists of 1,010 IT companies, including 60 foreign based companies and 125 ISO certified companies. The industry employs 90,000 professionals all over the country an increase of 35% is observed in the possession of personal computer since the last 10 years. Complete tax exemption has been given by GOP on income for export of computer software and related services.

### 1.1.1.1 IT Industry Sub Sectors

The IT sector of Pakistan can mainly be categorized into three sub components as follows:

a) Internet

b) Software Development & IT Services

c) Computer Hardware Manufacturing

Internet penetrated in Pakistan in the year 1993 and since then the internet usage and service providers have been increasing. Table 1.1 explains the summary of internet growth in Pakistan:

#### Table 1.1 Internet Connectivity in Pakistan (1998-September, 2006)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities Connected with Internet</td>
<td>-</td>
<td>29</td>
<td>295</td>
<td>558</td>
<td>1,081</td>
<td>1,350</td>
<td>2288</td>
<td>2389</td>
</tr>
<tr>
<td>Bandwidth (Mbits)</td>
<td>8.095</td>
<td>16.185</td>
<td>24.795</td>
<td>91.896</td>
<td>232.469</td>
<td>410</td>
<td>1400</td>
<td>1500</td>
</tr>
<tr>
<td>No of ISPs</td>
<td>44</td>
<td>68</td>
<td>98</td>
<td>111</td>
<td>127</td>
<td>127</td>
<td>145</td>
<td>152</td>
</tr>
<tr>
<td>Fiber Optic Installation (No. of Cities)</td>
<td>60</td>
<td>72</td>
<td>93</td>
<td>135</td>
<td>258</td>
<td>300</td>
<td>592</td>
<td>593</td>
</tr>
<tr>
<td>Internet Bandwidth Rates (E1 Line)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6,000</td>
<td>6,000</td>
<td>5,400</td>
<td>2,000</td>
<td>2,000</td>
</tr>
</tbody>
</table>


Table 1.2 explains the summary of internet subscription in Pakistan over years:

#### Table 1.2 No. of Internet Subscriber in Pakistan (1998-2006)

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Internet Subscriber</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>100,000</td>
</tr>
<tr>
<td>1999</td>
<td>250,000</td>
</tr>
<tr>
<td>2000</td>
<td>500,000</td>
</tr>
<tr>
<td>2001</td>
<td>750,000</td>
</tr>
<tr>
<td>2002</td>
<td>1,000,000</td>
</tr>
<tr>
<td>2003</td>
<td>1,600,000</td>
</tr>
<tr>
<td>2004</td>
<td>2,000,000</td>
</tr>
<tr>
<td>2005</td>
<td>2,100,000</td>
</tr>
<tr>
<td>2006</td>
<td>2,400,000</td>
</tr>
</tbody>
</table>


As per the PTA Telecom Quarterly Review of March 2006, Pakistan had 19,642 DSL subscribers by March 2006. By looking at the data presented above, confident predictions can be made that Pakistan’s IT industry has a progressive and promising future as far as internet growth is concerned. Coming to software development, the software industry turnover in Pakistan is estimated to be US$ 70 – US$ 80 million per annum. This low turnover is a matter of our concern in this study. Partially it can be declared that this low turnover is due to the reality that many software organizations do not report their software sales, but the other point of view is that this low turnover can be due to certain organizational hiccups that are faced by IT organizations. The later reason of low turnover will turn out to be part of hypothesis in this research.

Pakistan has 270 software houses. USA, UK, EU, South Africa, Japan, Australia, and the Middle East are the major client of Pakistan’s software industry. Pakistan’s IT industry has competitive advantage of
low cost and skilled manpower. Main categories of software products produced by software industry include (but not limited to) ERP solutions & applications for textiles, banking, pharmaceutical, insurance, financial sectors, engineering, design applications, E-commerce, E-business, CRM, Call center solutions, multimedia and training applications, medical & legal transcriptions etc.

Summarizing the third sub component, computer hardware manufacturing activity is extremely low in Pakistan as it is extremely capital intensive in nature. Major activities under this category exist in form of computer vendors who just help assemble the imported computer parts. Very few local companies like INBOX, RAFFLES, MICRO PAK etc. have developed assembly lines and they produce small components and market products in their own names.  

1.1.1.2 Summary of Government Initiatives

Pakistan’s IT industry has and will continue to support the national progress, the progress of individuals and institutions within Pakistan. Absence of automation at all levels in public and private sector leaves a major productivity loophole for the entire country. This gap can only be filled by using IT as a tool. For this, Pakistan needs a progressive, productive, efficient and effective industrial setup and that can only be achieved through high quality organizations. The current day IT setup in Pakistan, unlike the last decade, is influencing all aspects of Pakistan’s economy; ranging from trade & manufacturing to services, education, human development, research, entertainment, culture, defense, communications etc. Government of Pakistan aims to transform Pakistan’s economy to knowledge based economy. In order to achieve this objective, National ICT R & D fund has been established in January 2007 by Ministry of Information Technology. Also GOP has taken some significant steps, summary of which is as follows:  

1) Focus is laid by GOP on value education related to information technology. 
2) Internet access is massively being made available in universities and schools. 
3) Computer labs are being established by PCB at secondary and higher secondary school level. 
4) Special emphasis is being put on provision of IT teachers in order to facilitate IT learning. 
5) Specialized trainings are being conducted in order to facilitate technical knowledge transfer. 
6) Focus is made on international standards like ISO and CMMI, so as to ensure quality product and process management within IT organizations. 
7) STPs are being constructed all over Pakistan. 
8) Special funding is ensured for E Governance projects. 
9) Government has planned trainings of 5,000 public sector employees from federal, provincial and AJK government. 
10) National Citizens’ Database and Data Warehouses is being established by GOP. 
11) GOP has set the concept of paperless economy as main national IT objective. 

1.1.1.3 Summary of Government Policy

GOP envisions IT sector of Pakistan as not only a development mover, but correlates good governance with the national IT objectives. Key findings of the IT Policy of Pakistan (2000) are as follows:  

1) Concerning Human Resource Development:
   a. Produce high quality IT graduates to meet the increasing export target. 
   b. Strengthen IT institutions and their infrastructure. 
   c. Ensure high quality IT faculty. 
   d. Provide IT education at school and college level. 
   e. Award scholarships to IT students. 
   f. Train blue color employees. 
2) Concerning Infrastructure Development:
   a. Develop telecom infrastructure country wide and ensure that Pakistan becomes the regional hub for telecommunication and information flow. 
   b. Encourage participation of private sector. 
   c. Ensure connectivity of Pakistan’s remote area using Geo Satellite. 
   d. Establish technology parks. 
   e. Provide internet accessibility throughout the country. 
   f. Increase bandwidth and reduce bandwidth tariff. 
   g. Establish infrastructure for research on emerging technologies. 
3) Concerning Government Infrastructure:
   a. Improve efficiency and ensure better transparency through automation. 
   b. Enable measurement of functional performance quantitatively. 
   c. Move to paperless environment. 
   d. Establish IT law of Pakistan.
4) Concerning Citizens:
   a. Enable bill payments and customer management online.
   b. Apply IT to industries to improve productivity and thereafter standard of living of citizens.
   c. Enable automation of banks.
   d. Create jobs by strengthening IT industry.

5) Concerning Exports:
   a. Enable E-business and E-Commerce.
   b. Ensure significant increase in direct export.
   c. Focus on software and hardware industry development.

1.1.1.4 Challenges
GOP is currently facing serious challenges for the uplift of IT infrastructure and services within the country. Till date, the decision of what the national IT vision, mission and objectives are is still vague. Different resources report different analysis of the IT industry of Pakistan and the challenges faced by it. Much of these analyses have the same view point and most of these discuss the IT management at national and economic level. None seem to present mission, vision, objectives and analysis of business activities within IT organizations. It can be assumed that (although not commonly realized by all institutions within Pakistan) a view point exists for IT uplift, IT strategies and IT policies at national level, but what factors must be well thought-out by IT organizations in Pakistan for better performance are still undefined and unknown. Important is, that we must have analysis and presentation of facts, that what and how IT organizations must practice and perform for their revitalization and hence for the uplift of the entire sector. From a geographical point of view Pakistan can be seen as a hot IT destination.8 Ehsan (2007) talks about studying patterns followed in IT Sector by successful neighboring countries. According to this study, the analysis of these patterns must not be limited to macro (national) level indicators, rather micro management performed by organizations within these countries (China and India mainly) must be partial focus for IT uplift and revitalization at national level. In other words vision, mission and objectives for revitalization and uplift of IT sector of Pakistan must not be confined to policy makers; rather it should also focus on organization development of all IT organizations in Pakistan.

1.1.1.5 National Strategy Summary
The national IT strategy must envelop the following according to Ehsan (2007): “
1) To assist in the development of a “job-ready” workforce, with citizens who are able to meet the work requirements of the Information Highway.
2) To ensure that National Information Infrastructure (NII) remains on the leading edge.
3) To maximize the economic benefits to the country from the Information Highway.
4) To continue to foster and encourage the growth of information technology in Private Sector.
5) To ensure that the regulatory environment is conducive to business growth and improved quality of life.
6) To make maximum use of information technology to lay down the building block for Good Governance in a corruption-free environment.”

1.1.2 IT Industry in South Asia
This section would only talk about the hard economic factors related to ICT. Soft factors will not be discussed in this section. Much of comparison studies and data is not available from any reliable resource therefore the discussion is only restricted to data obtained from UNPAN. If we observe the data from Annex 1 to Annex 15 then we would realize that Malaysia presents the best ICT as percentage of its GDP. Second to Malaysia we have presence of other East Asian economies like Thailand and Vietnam. A good question could be that, is it the variability in commodities that give us different figures and does not allow South Asian economies to compete with those in East Asia, or is it the difference of culture and micro or macro management factors that hinder ICT development in these countries. This question remains unanswered. Much of the data for 2001 is not available for Pakistan, Nepal, Afghanistan, Iran, Myanmar and Qatar; therefore it becomes hard to compare Pakistan’s economy with other economies. We can, however, observe Bangladesh’s ‘ICT % of GDP’ and data related to ‘Highly Skilled Job Market’ and we can see a very positive picture relative to other South Asian economies. Heeks and Nicholson (2002) talk about success factors for software exports in developing economies.19 In this study they not only discussed important aspects of demand, national vision and strategy, international linkages and trust, software industry characteristics and other input factors like R & D, finance and technology, but people and soft factors are also discussed.19 This study is conducted primarily for Pakistan comparing it to India, Israel and Ireland, who are the key software...
exporters all around the world. Russia, China and Philippines are also considered in this study as a focal point as they are secondary software exporters.†

Table 1.3 explains the comparison of IT industry of Pakistan with that of India:

<table>
<thead>
<tr>
<th>Country</th>
<th>Estimated Global IT Revenue</th>
<th>IT Personnel</th>
<th>Internet Bandwidth Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>USD 2 billion</td>
<td>75,000</td>
<td>600 MHS2</td>
</tr>
<tr>
<td>India</td>
<td>USD 36 billion</td>
<td>965,200</td>
<td>6.21 GB/S</td>
</tr>
<tr>
<td>Ratio</td>
<td></td>
<td>1:12.87</td>
<td>1:10.35</td>
</tr>
</tbody>
</table>


1.1.3 IT Sector of Pakistan and the National Economy

As per the economic survey (2005-2006), Pakistan’s economy experienced growth rate of 8.4% in 2005 (2nd highest in the world) and 7% in 2006. For the first time in the history of the country, FDI reached a remarkable level of 1,000%. Tremendous investment in IT and Telecomm contributed a lot to this high percentage. The country’s economy has experienced an overall positive trend since 2002. As per MoF, investment to GDP (%) has been very positive over the years. Since 2002 (as per the economic survey 2005-2006) the unemployment rate has gone down from 8.27% to 6.7%. In addition to this, data from Federal Bureau of Statistics of Pakistan reveal increasing exports from US $ 9.1 Billion (2002) to US $ 17.5 Billion (2007). PSEB (2007) reports, that currently the IT sector of Pakistan is a Two Billion Dollars industry including One Billion Dollar Export.16 Section 1.1.3.1 presents statistical view of Pakistan’s IT industry.

1.1.3.1 IT Industry Statistics

Table 1.4 explains the location of IT companies:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>City</th>
<th>Figure</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Islamabad / Rawalpindi</td>
<td>307</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>Lahore</td>
<td>290</td>
<td>28</td>
</tr>
<tr>
<td>3</td>
<td>Karachi</td>
<td>344</td>
<td>38</td>
</tr>
<tr>
<td>4</td>
<td>Others</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>954</td>
<td>100</td>
</tr>
</tbody>
</table>


Table 1.5 explains the IT exports by region:

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage (%)</th>
<th>Country</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>58</td>
<td>Japan</td>
<td>2</td>
</tr>
<tr>
<td>UK</td>
<td>9</td>
<td>Hong Kong</td>
<td>1</td>
</tr>
<tr>
<td>Thailand</td>
<td>4</td>
<td>Germany</td>
<td>1</td>
</tr>
<tr>
<td>UAE</td>
<td>3</td>
<td>Australia</td>
<td>1</td>
</tr>
<tr>
<td>Canada</td>
<td>2</td>
<td>Singapore</td>
<td>1</td>
</tr>
<tr>
<td>China</td>
<td>2</td>
<td>Others</td>
<td>16</td>
</tr>
</tbody>
</table>


Table 1.6 explains the exports by IT services:

<table>
<thead>
<tr>
<th>Mode</th>
<th>IT Export</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cross Border</td>
<td>USD 150 million</td>
</tr>
<tr>
<td>2. Consumption Abroad</td>
<td>USD 200 million</td>
</tr>
<tr>
<td></td>
<td>(Average USD 250,000 expenditure by over 800 entities)</td>
</tr>
<tr>
<td>3. Commercial Presence Abroad</td>
<td>USD 450 million</td>
</tr>
</tbody>
</table>

† Bearing Point case study named “Strategy For Increasing Exports of BPO”, conducted for PSEB states that “India and Canada are the two leading players. Collectively they have approximately 75 % share (or US $ 30 billion) of the market. Out of the total offshoring market size of US $ 40 billion, India and Canada have 45% and 32% of the market share or US $ 17.2 billion and US $ 12.6 billion respectively). China is a distant 3rd with 8% of the market share or approximately US $ 2 billion in ITPS offshoring revenue. However, China is the market leader in the outsourcing of computer hardware products. Hardware revenues, including exports, accounted for 85% of Chinese IT Industry in 2004. China has established itself as a leader of the computer hardware in the same way as India has taken a lead in the IT services and software. Computer hardware constitutes a significant part of the worldwide IT spending and the projected hardware global revenue for the current year is expected to be about US$ 387 billion. The numbers of PCs in use worldwide are expected to increase from 575 million at the present time to almost 1.3 billion by the end of the decade. The share of the mature PC markets in Europe, US, and Asia in this phenomenal increase of about 725 million PCs is projected to be only about 150 million PCs, the rest will be provided by the emerging markets with China leading the way.”
4. Temporary Movement USD 250 million
   (At least 5000 workers earning at least USD 50,000 per year on average)

Grand Total USD 1,050 million


Table 1.7 explains local industry revenue:

<table>
<thead>
<tr>
<th>Area</th>
<th>Revenue FY 05-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC/Laptops/Servers</td>
<td>USD 600 million</td>
</tr>
<tr>
<td>1,000,000 new and used CPU @ USD 600 per CPU</td>
<td></td>
</tr>
<tr>
<td>Peripherals – 1/3 of Computer Sales</td>
<td>USD 200 million</td>
</tr>
<tr>
<td>International Software Vendors</td>
<td>USD 150 million</td>
</tr>
<tr>
<td>IT Services</td>
<td>USD 200 million</td>
</tr>
<tr>
<td>Software and services, IT enabled services, (Other than sales to Multinationals, Multilaterals, and Foreign Missions)</td>
<td>USD 1,150 million</td>
</tr>
<tr>
<td>Total Domestic IT Revenue</td>
<td>USD 1,150 million</td>
</tr>
</tbody>
</table>


Table 1.8 explains local industry size:

<table>
<thead>
<tr>
<th>Export of IT Services</th>
<th>Local IT Industry Revenue</th>
<th>Total Industry Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD 1,050 Million</td>
<td>USD 1,150 Million</td>
<td>USD 2.2 Billion</td>
</tr>
</tbody>
</table>


Figure 1.0 explains growth percentage of IT industry from 2003 to 2010:


Figure 1.1 explains growth percentage of IT industry revenue growth:

Table 1.9 explains industry projections from 2005 to 2010:

<table>
<thead>
<tr>
<th>Categories</th>
<th>05-06</th>
<th>06-07</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export Revenue (SBP) in USD Millions</td>
<td>75</td>
<td>120</td>
<td>198</td>
<td>330</td>
<td>550</td>
</tr>
<tr>
<td>Export Revenue in USD Millions</td>
<td>150</td>
<td>239</td>
<td>396</td>
<td>660</td>
<td>1,100</td>
</tr>
<tr>
<td>Export Revenue Global in USD Millions</td>
<td>1,000</td>
<td>1,250</td>
<td>1,584</td>
<td>2,640</td>
<td>4,400</td>
</tr>
<tr>
<td>Domestic Revenue in USD Millions</td>
<td>1,000</td>
<td>1,862</td>
<td>2,476</td>
<td>3,294</td>
<td>4,381</td>
</tr>
<tr>
<td>Total IT Revenue in USD Millions</td>
<td>2,000</td>
<td>3,112</td>
<td>4,060</td>
<td>5,934</td>
<td>8,781</td>
</tr>
<tr>
<td>IT Graduates Working in the Economy</td>
<td>90,000</td>
<td>110,319</td>
<td>138,388</td>
<td>178,046</td>
<td>235,459</td>
</tr>
<tr>
<td>Total HR Working in IT Industry</td>
<td>52,500</td>
<td>74,729</td>
<td>127,756</td>
<td>177,262</td>
<td>250,000</td>
</tr>
<tr>
<td>IT Graduates working in the Export IT Firms</td>
<td>10,000</td>
<td>16,569</td>
<td>27,615</td>
<td>46,025</td>
<td>76,709</td>
</tr>
<tr>
<td>IT Graduates working in Domestic IT Firms</td>
<td>25,000</td>
<td>33,250</td>
<td>44,223</td>
<td>58,816</td>
<td>78,225</td>
</tr>
<tr>
<td>Bandwidth in Mbps</td>
<td>608</td>
<td>1,222</td>
<td>2,456</td>
<td>4,937</td>
<td>9,924</td>
</tr>
</tbody>
</table>


1.1.4 Ministry of Information Technology

The Ministry of Information Technology (MoIT) is responsible for launching Information Technology and Telecommunications related programs and projects aimed at economic development of the country. MoIT consists of one division named as Information Technology and Telecommunications Division and twelve departments. The departments that we would be mostly concerned about in the case study are Electronic Government Directorate (EGD), Pakistan Computer Bureau (PCB) and Pakistan Software Export Board (PSEB). An extremely latest activity performed by MoIT is to establish the National ICT R & D Fund. This fund will mainly be used to transform the country’s economy to knowledge economy. MoIT’s main objectives include transformation of local government to E Government, development of software industry of Pakistan, ensuring exact infrastructure for the country and ensuring development of high quality human resource for the industry.9

1.1.5 Pakistan Software Export Board (PSEB)

PSEB is a guarantee limited company that was established in September 1997. Prior to this PSEB operated with the name of ‘Private Software Export Board’. Private Software Export Board was established in Jun 1995 in order to provide ‘one stop facilitation’ on behalf of the government agencies. Boards of Directors of PSEB are selected from representatives from the government, higher and well known industrialist and the private sector. Main objective of PSEB is to promote Information Technology industry in Pakistan and to ensure growth of industry from 2 billion dollars (2006) to 10 billion dollars (2010). PSEB has been working on couple of programs in order to accomplish its objectives; summary of these programs is as under:10

1. Development of software technology parks all across Pakistan.
2. Assistance of IT organizations in obtaining certification from international quality standards like ISO and CMMI.
3. Development of human resource for the IT sector of Pakistan. [National Internship Program has mainly been conducted by PSEB that has given 2500 interns to the industry, 80% of these interns have already been placed in the industry as employees].

Table 1.10a and Table 1.10b explains industry HR requirements:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Industry HR (Exports)</td>
<td>10,000</td>
<td>16,569</td>
<td>27,615</td>
<td>46,025</td>
<td>76,709</td>
</tr>
<tr>
<td>IT Industry HR (Domestic)</td>
<td>25,000</td>
<td>33,250</td>
<td>44,223</td>
<td>58,816</td>
<td>78,225</td>
</tr>
<tr>
<td>Public Sector (Government, Semi—government and Defense)</td>
<td>25,000</td>
<td>24,500</td>
<td>30,250</td>
<td>33,275</td>
<td>36,603</td>
</tr>
<tr>
<td>SECP-registered Public and Private-sector Companies</td>
<td>25,000</td>
<td>27,500</td>
<td>30,250</td>
<td>33,275</td>
<td>36,603</td>
</tr>
<tr>
<td>Educational Sector</td>
<td>5,000</td>
<td>5,500</td>
<td>6,050</td>
<td>6,655</td>
<td>7,321</td>
</tr>
<tr>
<td>Total</td>
<td>90,000</td>
<td>110,319</td>
<td>138,388</td>
<td>178,046</td>
<td>235,459</td>
</tr>
</tbody>
</table>

B) IT HR REQUIREMENTS (ACCORDING TO SKILLS SET)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IT HR (High-end)</td>
<td>24,000</td>
<td>32,005</td>
<td>44,247</td>
<td>63,224</td>
<td>93,117</td>
</tr>
<tr>
<td>IT HR (Middle-of-the-road)</td>
<td>25,000</td>
<td>33,250</td>
<td>44,223</td>
<td>58,816</td>
<td>78,225</td>
</tr>
<tr>
<td>IT HR (Low-end)</td>
<td>34,000</td>
<td>40,814</td>
<td>49,832</td>
<td>62,013</td>
<td>78,842</td>
</tr>
<tr>
<td>SECP-registered Public and Private-sector Companies</td>
<td>32,000</td>
<td>37,500</td>
<td>44,309</td>
<td>52,808</td>
<td>63,500</td>
</tr>
<tr>
<td>Total IT HR</td>
<td>90,000</td>
<td>110,319</td>
<td>138,388</td>
<td>178,046</td>
<td>235,459</td>
</tr>
</tbody>
</table>

4. Promotion of Pakistan’s IT industry through liaison with the national and international media.
5. Creation of liaison of Pakistan’s IT industry with government agencies.
6. Performing international / national level studies for facilitation of the IT industry of Pakistan.
7. Perform comparative studies of Pakistan’s IT industry w.r.t other intenational economies (related to ICT).
8. Perform registration of IT organizations within Pakistan.
9. Maintain and propose improvements in IT policy of Pakistan.
10. Create linkages of IT industry with the Telecomm industry in order to facilitate broadband bandwidth.
11. Create linkages of IT industry with the Universities in Pakistan in order to facilitate research.
12. Determine HR requirements for the industry.
13. Facilitate international marketing for local companies.
14. Facilitate national / international entrepreneurs and investors interested to invest in Pakistan.
15. Facilitate national / international companies and parties interested to outsource in Pakistan.
16. Others…

1.1.6 Pakistan Software House Association (PASHA)

PASHA was created in 1992 by the then nine major software houses of Pakistan. Currently the membership has developed over 200. PASHA’s main objective is to protect the software industry rights and to encourage development of software and service industry in Pakistan. It was due to efforts of PASHA that GOP granted industrial sector status to software and service sector of Pakistan in 1990s. PASHA has been working on a lot of diversified activities for the betterment of the software industry of Pakistan; summary of these activities is as under:

1. GOP granted several incentives to software sector of Pakistan like tax exemption status to software exports till 2016, 100% repatriation of profits in IT sector companies, 100% foreign equity in IT sector companies, zero percent customs duty on ICT equipment import and seven year tax holidays. All these incentives were consequence of unprecedented efforts from PASHA.
2. PASHA has been participating in various tradeshows all across the globe and has also taken delegates to various countries in order to promote ICT Sector of Pakistan at international level.
3. PASHA has been functioning in areas related to intellectual property rights in the software industry of Pakistan and has also been working with the media to highlight the issues of the software and service industry of Pakistan.
4. PASHA creates strong relationship with MoIT and PSEB in order to create a strong liaison with GOP. In addition to this it works in close coordination with GOP in order to achieve the commonly set objectives. It also serves as a consulting body for GOP for all policy formulation related to software and service industry of Pakistan.
5. PASHA looks after the interests of its members. Several statistical studies are conducted by this body, focusing on business and industry that are of interest to its members. In addition to this it also perform special investigation studies and research. It is a common platform for information sharing between its members.
6. Others…

1.1.7 Pakistan Computer Bureau (PCB)

PCB was initially established in 1971 as an attached department of cabinet division; later in 1999 it was transferred to IT and Telecom Division, MoIT. Primary objectives of PCB include (but not limited to):

1. Ensuring proper trainings of public sector staff so as to enable them to use information technology as an operational tool.
2. To perform software development and computerization for GOP.
3. Assist MoIT.
4. Others…

1.1.8 Electronic Government Directorate (EGD)

EGD was established in October 2002 by GOP as a cell operating under MoIT. EGD’s major role is to facilitate projects related to E-Gov. EGD not only implements E-Gov projects for GOP but also performs all planning, monitoring and technical management and assistance for such projects. In addition to this, the scope of work of EGD also involves projects related to E-Services for citizens of Pakistan. Mandate of EGD include (but not limited to) ensuring; functioning, operations and infrastructure for GOP in electronic format.
1.1.9 Special Funds

Special funds have been established by GOP in order to achieve the objective of promoting R & D in Pakistan particularly in sector of IT and Telecom. GOP has set up two important R & D funds for the researchers. The first is PTCL R & D Fund and the second is National ICT R & D Fund.

1.2 Philosophical Background

“Pakistan is currently viewed as a tier 3 country in a widely quoted taxonomy of software exporting nations (Carmel, 2003). It is widely believed that, with the wealth of talent and strengths available, the country deserves a better place in this global pecking order of software exporting nations—at least a tier 2 status like Russia and China, or even a tier 1 status alongside archival India.”

Artifacts presented in Section 1.1 of this chapter help us gain understanding of the IT industry of Pakistan. The question that still remains unanswered after detailed literature review and industrial analysis is that “Why an organization within Pakistan’s IT industry does not perform as good as an Indian IT organization?” or for that matter w.r.t any company in South Asia.

This discussion cannot be answered in view of the fact that Pakistan is currently facing security issues (security lapses in 2007) and can also not be answered by saying that Pakistan’s IT industry cannot be compared to IT industry of India due to the size of the economy. In other words, the question discussed earlier can also be asked as “On an average, do IT organizations in Pakistan perform as well as an Indian IT organization?”

We, in this study are considering answering the identified question(s) by neglecting the security and the economy size issue. The same assumption can also be observed in the ‘Best Practice Study’ performed by Osama (2005). At this point of time it is difficult to predict exactly, the answer to the question above because this will be taken care of later after detailed survey and analysis of our hypothesis. Similar questions, as discussed above, have been asked in study conducted by Osama (2005) for Pakistan Software Export Board. The questions seem of close concern to our study and are quoted as follows:

- Why hasn’t the Pakistani software industry been able to produce a single world class software firm (e.g. Wipro, Infosys or TCS of India) in the last 10 to 15 years?
- Why haven’t we been able to grow Pakistani software exports beyond a certain level ($30-60 million per annum) for the last 5 years?
- Does Pakistani software industry merely represent a lower level of development or an altogether different development trajectory as compared to known peer nations?
- What constitutes a generalized set of best practices in the local software industry (i.e. what differentiates better performers from those that don’t perform that well)?

Study performed by Osama (2005) for PSEB is exactly the kind of work which the industry needs for general improvement. The main difference however from viewpoint of this case is that the study by Osama (2005) is an exploratory analysis of the business practices and revenue model. The most interesting part of the study performed by Osama (2005) is that he presents an extremely helpful statistical snapshot of Pakistan’s IT industry.

Focus on general management (or in perspective of this study we can say OD) is almost negligible despite the fact that the author himself agrees that organization learn from one another and also finds it important that organizations must have ‘Organizational Strategies’. In opinion of this study, it is important to realize that ‘Organizational Strategies’ need not be limited to business development, revenue generation, product management and marketing, but soft factors for instance process improvement, organization culture, team building, leadership, motivation etc must also be matter of our concern for strategic planning. ‘Best Practice Study’ by Osama (2005), page 6 reveals that some of the organizations within Pakistan do consider some soft factors (like for instance employee satisfaction through profit sharing, stock sharing, quality management and additional benefits). Although; GOP has taken a lot of initiatives for better performance of the IT industry of Pakistan but none have been in context of OD. Studies all over the

‡ Annex 1 to 15 suggest that IT organizations and thereby IT industry of Pakistan performs better than other South Asian competitors, India, however, is an exceptional case. Here in text we consider this assumption implicit that industries in South Asia (other than India) are not as much capitalizing on IT industry as GOP. Despite this implication the relative performance of IT industry of Pakistan is not as good as it should be.

§ At this point of time we are not considering the sub categories of IT organizations as identified in Section 1.1.1.

** According to Osama (2005)” On the whole, the 60 software houses included in our statistical sample employ over 4000 technical and professional employees—for an average of 62 employees per organization. Roughly one third (32%) of the software companies reported annual revenues of more than a million dollars with some reporting more than $5M, another third (36%) between $200K and $1M, and the rest (32%) less than $200K. 6 of the companies had more than 250 employees and another 8 had between 100 and 250 employees. On the whole these 60 companies had experienced an employment growth of about 27.5% and a revenue growth of 37.4% over the last year—pointing at better utilization of excess capacity or value-addition per employee, or both. Around 40% of the companies in our sample were subsidiaries of foreign companies—with majority of them having a parent company in the United States. 55% of the companies had one or more front offices abroad (50% in the US, 1% each in UK and Middle East, and 3% in the Asia Pacific region). 45% of the respondents had quality certification (mostly ISO-9000 with only 3% having CMMI). 33.7% of the companies had dedicated quality assurance teams.

† Important tables and snapshots have been included as Annex to this study; some have also been put up in Section 1.1.3.1. Study conducted by Osama (2005) was against 40 most prominent IT companies.

†† Interviews with the senior management of Telecom organizations in Pakistan suggest that most of the Telecom operator companies focus a great deal on employees and organization maturity, the same case cannot be generalized for IT organizations within Pakistan.
world help us understand that well structured institutional arrangements lead to better management. This thesis would focus entirely on this agenda. Continuing our discussion further it is important to highlight that PCMM talks about people management and OD in technical environments for improving management and developing workforce. It is indeed great to see that SEI not only sees product and process improvement as a key element for productivity improvement (using CMMI framework) but also talks about people’s improvement using PCMM. PCMM is not commonly understood and practiced or implemented in Pakistan. India, however, has been a major key player in this area. It is worth mentioning that despite India’s extremely positive initiative for PCMM it still faces people related issue in IT / Software sector. Annex 41 suggest us that employee attrition and lack of manpower and skills is one of the main problem of the Indian software industry. Dr. Richard Heeks has been mainly working on ICT development in developing countries. His work partially signifies the importance of ‘People Management’ in ICT Industry. ‘Chapter Two’ presents literature review against his publication. Plainly speaking Heeks’ work simply complements the hypothesis of this research.

Talking about the philosophical concepts related directly to OD, this research strictly opposes the concept of ‘Emotional Labor’ by sociologist Arlie Hochschild for IT industry of Pakistan. The author believes that concept of ‘Emotional Labor’ is currently practiced and imposed to some extent in IT industry of Pakistan and this is a major hurdle for employee freedom and work flexibility, which, are the key essential for software development (particularly in societies where people are considered emotional). Adding up, the researcher encourages concepts of ‘Design Thinking’ and ‘Systems Thinking’ through out the research and feels that software organizations in Pakistan (or for that matter anywhere around the world) exhibit random traits of nonlinear dynamical systems and hence their future dynamics are totally dependent on their initial condition. This can also be explained under the light of ‘Chaos Theory’ and ‘Butterfly Affect’. This study (to some extent in perspective of higher level view) uses techniques of analysis of ‘Causalities’ of various issues. The author of this research thesis performs the research with a view of an I/O psychologist and therefore special emphasis is put on issues related to leadership, training, motivation, employee satisfaction, organizational understanding and employee research.

1.3 Research Title

“Organization Development for Revitalization of Information Technology Sector of Pakistan.”

1.4 Motivation for the Study

Several factors are widely believed to be a hindrance in the country’s aspiration to become a significant software exporter, not the least important of which are macro and geopolitical in nature (e.g. law and order and security situation, image of the country Etc.). This study has been undertaken with a view to assist the employers and employees in IT industry of Pakistan in order to get better understanding of the fact that factors that contribute to an organization’s success are not limited to serious money matters, business and revenue management, export management and others only. This study aims to help the employers and employee in considering the hidden picture that can facilitate or impede in organization’s long term goals and objectives. By hidden picture we mean the soft factors here. It is worth mentioning here that Ali Haider (2005) considers software engineering as a mix of social and engineering sciences. According to him software success is partially dependent on understanding of engineering and partially on understanding of human and organizational behavior. By better understanding of soft factors an organization can increase productivity by 25 times. In his research paper ‘Quantifying Soft Factors’, Steve (2000) supports the same point of view. 

*** Wikipedia Source: Unlike critical thinking, which is a process of analysis and is associated with the ‘breaking down’ of ideas, design thinking is a creative process based around the ‘building up’ of ideas. There are no judgments in design thinking. This eliminates the fear of failure and encourages maximum input and participation. Wild ideas are welcome, since these often lead to the most creative solutions.

††† The author feels that since the IT industry is a relatively infant industry of Pakistan therefore if initial conditions within the country are made conducive then the affect later would be relatively promising.

‡‡‡ Wikipedia Source: The butterfly effect is a phrase that encapsulates the more technical notion of sensitive dependence on initial conditions in chaos theory. Small variations of the initial condition of a nonlinear dynamical system may produce large variations in the long term behavior of the system. This is sometimes presented as esoteric behavior, but can be exhibited by very simple systems: for example, a ball placed at the crest of a hill might roll into any of several valleys depending on slight differences in initial position. The phrase refers to the idea that a butterfly's wings might create tiny changes in the atmosphere that ultimately cause a tornado to appear (or prevent a tornado from appearing). The flapping wing represents a small change in the initial condition of the system, which causes a chain of events leading to large-scale phenomena. Had the butterfly not flapped its wings, the trajectory of the system might have been vastly different.

Osama (2005) and Bearing Point (2005) only talk about these issues.
The study is essentially important for Pakistan’s IT industry, as no such case has ever been taken up for IT sector earlier. The author, being a software engineer and a management professional, finds it extremely important that elements like human behavior, industrial philosophy and psychology must be given high weightage for a sector which is deeply dependent on manpower. Adding up, HR in Pakistan’s IT industry faces on job exploitation from the employers. According to some of the employers in Pakistan, it is important to ‘so called’ use employees fully. The important aspect, however, is that for fulfillment of short term objectives, the ‘Employee Usage’ may be considered a better choice but for long term success of the organizations (and for the better performance of IT sector) the discussion may be subjective and debatable. Cultural change, micro management and change management are dealt with in this study mainly at a higher level and the author thinks that these factors are most important for sustenance and improvement of IT sector of Pakistan. An important consideration while taking up this study has also been that IT (which is essentially much technical and engineering oriented) must be mixed up with social and management sciences so as to help IT industry of Pakistan by improvement in management practices.

1.5 **Intended Stakeholders**

This study can be considered useful for the following stakeholders:

- Government of Pakistan (MoIT, PSEB, EGD, policy makers and other government bodies) can use this study in order to formulate policies and guidelines related to organizational development within Pakistan so that productivity and quality issues can be addressed. These guidelines and policies can address the minimum acceptable criterion for sustainable performance in Pakistan for IT organizations in context of soft factors and OD.
- Consultants / organizations providing consultancy can use this study as a reference point in order to propose findings for improvement to IT organizations thereby helping them in improving the overall organizational infrastructure.
- Existing and potential Entrepreneurs / organizational heads / managers / executive officers / team leads and virtually anyone managing a team within any IT organization etc can also use this study for general improvement at organizational level.
- Students / researchers / faculty members working on similar area can benefit from this study.
- Foreign investors and clients can use this thesis’ findings as quality information on the subject for credible analysis.

1.6 **Study Format**

Figure 1.2 explains the study format of this thesis:

![Figure 1.2 Chapter Wise Study Format](image)

1.7 **Research Objectives**

1.7.1 **Broad Area of Discussion**

This study primarily focuses on the discussion about OD and its usefulness in acquiring knowledge about IT industry of Pakistan, analyzing this information, identifying the best practices (related to OD) and implementing these practices industry wide. In broader perspective the thesis argues about the utilization of OD for the enhancement of effectiveness, productivity and the quality of organizations. The thesis presents OD as an effective tool for the revitalization of IT industry of Pakistan. OD has many sub areas but

†††† There is virtually no input to software and IT industry other than HR.

‡‡‡‡ Quoted after discussion with 30 Software / IT Engineers in Pakistan!

§§§§ The author believes that the term exploitation can be used here.

***** The term infrastructure is not limited to hard assets only. Here it is also used in terms of organizational setup, manpower strength in terms of quality and organizational system.

††††† Anyone refers to an individual who is a functional head or administrative head of one or more employees within any IT organization.
special emphasis is put on cultural understanding, organizational understanding, employee contentment, motivation, leadership requirements for IT industry, quality management, basic project management, management of social values and conflict resolution for minimization of supervisory divergences. The study focuses and enables the reader in understanding of organizational parameters like performance improvement, strategic management using OD, people management, workplace issues, etc.

This study not only looks at the usefulness of OD as a tool for revitalization only, but also introduces and supports visionary approach of correlating the OD theory and practices with IT industry of Pakistan.

1.7.2 Significance of Study

IT industry of Pakistan is observed to have the potential of maximizing its profit and productivity w.r.t other industries within Pakistan. This industry requires HR as a basic input for development of software and IT enabled services. Unlike many industries, the inputs are very limited, whereas the outputs are very high. Although IT industry of Pakistan is competitive, but still it appears as tier 2 IT economies on the world forum. This study essentially talks about controlling and managing the input (HR) for optimum productivity using OD as a framework. So far no similar studies have been conducted in or for Pakistan’s IT industry. In view of this the author has reason to that this study will serve the purpose of an eye opener for the policy makers, government officials, executives and employees of IT industry who are in supervisory positions.

Baseline objectives of this research could be as follows:

- To provide the industry with solution for maximizing productivity and quality using OD as a tool.
- To present findings that confirms that OD can be used as tool for analysis of industry and for its revitalization.
- To ensure people management in IT sector of Pakistan using OD as a framework.
- To ensure that supervisory figures in IT sector of Pakistan understand the industrial dynamics using OD.
- Others...

1.8 Research Methodology

This research basically deals with the concepts of ‘Industrial and Organization Psychology’††††††. Sub consciously the author works like an I/O psychologist and like every I/O psychologist works with the psychological theory, research methods and intervention strategies to workplace issue. In other words, researcher exhibits ‘Human Relations Movement’†††††. Important to note is that this research as defined by Guion (1965) deals with the study of scientific study between man and workplace and focuses on the ‘Human Factors’. Human behavior is the center of focus within IT organizations of Pakistan and in simple words the entire study can be termed as an exploratory and analytical study that highlights the industrial problems and strategies and the organizational theories that guide them.

This research performs in-depth examination of context, studies cross-cultural and socio-cultural affects and also places importance on long-term achievements. The author of the research has been affiliated with the IT industry of Pakistan since the last 10 years as a student, academician, engineer, consultant, manager and a senior executive. It is due to the involvement of the author with the industry that he uses the concept of ‘Anthropology’‡‡‡‡‡‡ for conducting this study or more precisely ‘Socio-Cultural Anthropology’††††††.

‘Social Influences’§§§§, ‘Social Behaviors’§§§§§ and ‘Social Networks’ are carefully studied in this research, making sure that bridges are built and gaps are filled between the business practices, the requirements and social issues so that management can perform effectively and efficiently and right

‡‡‡‡‡‡ Wikipedia Source: 3/O psychologists are interested in making organizations more productive while ensuring workers are able to lead physically and psychologically healthy lives. Relevant topics include personnel psychology, motivation and leadership, employee selection, training and development, organization development and guided change, organizational behavior, and work and family issues. I/O psychologists who work for an organization are most likely to work in the HR (human resources) department. However, many I/O psychologists pursue careers as independent consultants or applied academic researchers. I/O psychology is one of the many domains that should be assessed when conducting psychological research when answering applied questions.


§§§§§§ Wikipedia Source: Anthropology (from Greek: ἄνθρωπος, anthrōpos, “human being”; and λόγος, logos, “speech” lit. to talk about human beings) is the study of humanity.

†††††† Wikipedia Source: Socio-cultural anthropology is the investigation, often through long-term, intensive field studies (including participant-observation methods), of the culture and social organization of a particular people: language, economic and political organization, law and conflict resolution, patterns of consumption and exchange, kinship and family structure, gender relations, childrearing and socialization, religion, mythology, symbolism, etc. U.S. universities more often use the term cultural anthropology; British universities have tended to call the corresponding field social anthropology, and for much of the 20th century emphasized the analysis of social organization more than cultural symbolism.) In some European countries, socio-cultural anthropology is known as ethnology (a term also used in English-speaking countries to denote the comparative aspect of socio-cultural anthropology) Subfields and related fields include psychological anthropology, folklore, anthropology of religion, ethnic studies, cultural studies, anthropology of media and cyber space, and study of the diffusion of social practices and cultural forms.

§§§§§§ Source: Infoactivitie (http://www.infoactivitie.com/)
decisions can be made. Although the research stems from concepts of 'Applied Anthropology' but more precisely it uses the concept of 'Ethnography' as the author performs most of the findings and performs analysis by being part of the culture himself. 'Online or Virtual Ethnography' is also used for performing this research due to limited access to various resources outside the author’s home station. Results, findings and analysis obtained by the researcher are double checked in order to minimize skewness. In other words this has been purposely done in order to minimize the ‘Observer-Expectancy Effect’. Both quantitative and qualitative researches methods are used in this research. Quantitative researches are conducted for analysis of surveys, employees and organizational research and other data gathering tools. At this time it is hard to explain, but most likely statistical methods like ‘Correlation’ & ‘Regression Analysis’ may also be used later for data analysis. Qualitative research may be conducted in form of interviews, participation in meetings, ‘Appreciative Inquiries’ and ‘Focus Groups’ mainly. So far it is difficult to predict the nature of exact method applied against the research questions. Since this research essentially deals with people therefore it also uses the concept of ‘Ergonomics’. The study also encourages application of collective intelligence and proposes findings in form of changes. It discourages “Hawthrone Effect".

The ‘Chapter One’ of this research lays the background and understanding of the research problem and the research itself. Subsequent to ‘Chapter One’, ‘Chapter Two’ presents the literature reviewed. ‘Chapter Three’ and onwards each research question would be picked and detailed analysis would be conducted so as to obtain answers. It is likely that literature review, research questions and research process itself may undergo several iterations while researching. This research may be termed empirical, descriptive, developmental, exploratory, comparative and historical. Each chapter that answers a research question specifies the data collection method, sources of data, data analysis method, specifies its objectives, arguments, constraints & limitations, purpose, background, question(s) it addresses, important notes and findings (but not limited to) along with detailed working.

1.9 Research Process

Figure 1.3 explains the overview of research process:

***** Wikipedia Source: Applied anthropology refers to the application of method and theory in anthropology to the analysis and solution of practical problems. Applied anthropologists often work for nonacademic clients such as governments, development agencies, nongovernmental organizations (NGOs), tribal and ethnic associations, interest groups, social service and educational agencies, and businesses. Ethnography and participant observation are the applied anthropologist's primary research tools. They also use textual analysis, survey research and other empirical methods to inform policy or to market products. An applied anthropologist is often likely to be employed in a non-academic setting.

§§§§§§§ Ergonomics (or human factors) is the application of scientific information concerning humans to the design of objects, systems and environment for human use (definition adopted by the International Ergonomics Association in 2007). Ergonomics is commonly thought of as how companies design tasks and work areas to maximize the efficiency and quality of their employees’ work. However, ergonomics comes into everything which involves people. Work systems, sports and leisure, health and safety should all embody ergonomics principles if well designed. It is the applied science of equipment design intended to maximize productivity by reducing operator fatigue and discomfort. The field is also called biotechnology, human engineering, and human factors engineering. Ergonomic research is primarily performed by ergonomists who study human capabilities in relationship to their work demands. Information derived from ergonomists contributes to the design and evaluation of tasks, jobs, products, environments and systems in order to make them compatible with the needs, abilities and limitations of people (IEA, 2000).


Wikipedia Source: Hawthrone effect describes a temporary change to behavior or performance in response to a change in the environmental conditions. This change is typically an improvement. Others have broadened this definition to mean that people's behavior and performance change following any new or increased attention. The Hawthorne studies have had a dramatic effect on management in organizations and how people react to different situations.
1.10 List of Important Core Concepts Carefully Reviewed and Used in Research (But Not Limited To)

- 16PF
- 360-Degree Feedback
- Action Research
- Adult Development
- Anthropology
- Anti-Leadership
- Applied Anthropology
- Appreciative Inquiry
- Attribution Theory
- Big Five Personality Traits
- Business Operations
- Butterfly Effect
- Causality
- Change Management
- Chaos Theory
- Chaos Theory in Organizational Development
- Coaching
- Collaboration
- Collaborative Method
- Collective Decision-Making
- Collective Intelligence
- Competency Model
- Complexity Theory And Organization
- Conflict Resolution
- Corporate Culture
- Design Thinking
- Egalitarianism
- Emotional Intelligence
- Emotional Labor
- Employee Research
- Engineering Psychology
- Enterprise Content Management
- Ergonomics
- Ethnography
- Executive Development
- Experimenter Effect
- Focus Group
- General Theory of Collaboration
- Groupthink
- Group (Sociology)
- Group Behavior
- Group Dynamics
- Group Emotion
- Group Polarization
- Group Process
- Hawthorne Effect
- Holism
- Human Factors
- Human Relations Movement
- Ideal Leadership
- Incentive Program
- Individual Development Planning
- Industrial And Organizational Psychology
- Institutional Memory
- Islamic Leadership
- Knowledge Management
- Knowledge Management For Development
- Leadership
- Leadershipmetrics
- Leadership Character Model
- Leadership Development
- Learning Styles
- Management by Objectives
- Management Development
- Managing Change
- Managerial Development
- Mentoring
- Meta-Knowledge
- New Institutionalism
- Novelty Effect
- Occupational Therapy
- Office Politics
- Organizational Climate
- Organizational Communication
- Organizational Culture
- Organizational Development
- Organizational Dissent
- Organizational Ecology
- Organizational Engineering
- Organizational Learning
- Organizational Performance
- Organizational Studies
- Organization Design
- Participatory Organization
- Peer Pressure
- Knowledge Management System
- Knowledge Transfer
- Management
- Meta-Knowledge
- New Institutionalism
- Novelty Effect
- Occupational Therapy
- Office Politics
- Organizational Climate
- Organizational Communication
- Organizational Culture
- Organizational Development
- Organizational Dissent
- Organizational Ecology
- Organizational Engineering
- Organizational Learning
- Organizational Performance
- Organizational Studies
- Organization Design
- Participatory Organization
- Peer Pressure
1.11 The Statement of Research Problem

1.11.1 Research Problem One

In order to identify our research questions that would help us understand how OD would influence productivity and quality of IT sector of Pakistan, it is important that we initially focus on acquiring information about what are the industry’s management issues. Therefore our first research problem can be as follows:

What are the concerns, issues & problems of IT sector of Pakistan in perspective of management?

The above question is also important in view of the fact that no such data gathering and summarized or detailed analysis has been conducted in any research so far that identifies the issues of management in IT sector of Pakistan. In order to address this question it is important to address the following questions:

1. In view of ‘Executives’ (employed in IT organizations within the country) what are the IT industry’s management issues, problems and concerns?
2. In view of “Senior Management Staff” (employed in IT organizations within the country) what are the IT industry’s management issues, problems and concerns?
3. In view of ‘Middle Management Staff’ (employed in IT organizations within the country) what are the IT industry’s management issues, problems and concerns?
4. In view of ‘Line Management Staff’ (employed in IT organizations within the country) what are the IT industry’s management issues, problems and concerns?
5. In view of ‘Support Staff [Finance, Administration and Commercial Etc]’ (employed in IT organizations within the country) what are the IT industry’s management issues, problems and concerns?
6. In view of ‘Human Resource Management Staff’ (employed in IT organizations within the country) what are the IT industry’s management issues, problems and concerns?
7. In view of ‘Technical Staff [Engineers, Network and Database Administrators, Developers, Programmers Etc]’ (employed in IT organizations within the country) what are the IT industry’s management issues, problems and concerns?
8. In view of ‘Selective Industry Consultants’ (senior IT / Management consultants from or outside Pakistan) what are the IT industry’s management issues, problems and concerns?
9. In view of ‘Senior and Renowned Members of Academia [Local or Foreign]’ what are the IT industry’s management issues, problems and concerns?
10. In view of ‘Senior Members from PASHA, FSEB, MoIT or PCB’ what are the IT industry’s management issues, problems and concerns?

††† From this point onwards the term “management” would not be used in perspective of business development, revenue generation, product management and marketing. We would strictly restrict the understanding and usage of this term to soft factors within management as described by Haider Ali (2005).

1.11.2 Research Problem Two

Once the research problem 1 is answered our next important concern would be to identify the problems, issues and concerns of highest precedence, hence our research problem 2 could be as follows:

What are the high priority concerns, issues & problems in IT sector of Pakistan in perspective of management?

1.11.3 Research Problem Three

Answer to research problem 1 and 2 would enable us in acquiring information about the management issues, problems and concerns of IT industry of Pakistan. The identified high priority issues, problems and concerns would later be addressed in this study but before this it is imperative that we understand and identify the issues, concerns and problems under the light of literature reviewed and philosophical background. So our research problem 3 can be stated as follows:

What are the high priority concerns, issues & problems related to management that can be identified on the basis of available literature and in philosophy; that hinder the productivity and quality of IT sector of Pakistan?
1.11.4 Research Problem Four
It is important that we address the high priority problems, issues and concerns of the industry in order to provide a feasible explanation for the Pakistani IT industry. In order to do so we need to particularly recognize the issues, problems and concerns of industry that are not addressed by answer to research problem 3 therefore our research problem 4 can be stated as follows:
What are the management concerns, issues & problems that the industry faces but are not addressed by available literature?
It is important that if answer to research problem 4 is not null then each issue, problem or concern must be later addressed in this study. Research problems / questions related to these issues, problems and concerns would be identified subsequently in ‘Chapter 3’ of this study.

1.11.5 Research Problem Five
Once we are clear about the issues, problems and concerns of the industry, then it is important for us to study the cultural highlights of an IT organizations and thereby IT sector of Pakistan. Our research problem 5 can therefore be as follows:
What are the general, most common cultural highlights of IT organizations in Pakistan?
In order to answer the question above it is important that following questions are addressed:
1. How an average technical employee (developer, programmer, database or network admin Etc) spends his / her time when in office?
2. How an average non-technical employee (support staff) spends his / her time when in office?
3. How the organizational heads /senior management and executives spend their time?

The Paradigm:
4. What is the generalized, most common and collectively understood vision and mission?
5. What are the most common core organizational values?

Power Structure:
6. Who makes the decision and how decisions are made generally?
7. Generally decisions are made systematically or on adhoc basis?
8. Decisions are made collectively or individually?
9. What are most practiced habits?
10. How success is generally celebrated?
11. What normally happens in case of extreme failure?

New Institutionalism:
12. Are there strict default rules?
13. How are rules / habits / policies / processes institutionalized?

Stories and Myths:
14. Generally; what is most valued within the organizations?
15. Generally; what is not valued within the organizations?
16. Generally; what are the most famous stories about?
17. What are the general myths?

Organizational Structure:
18. What sort of organizational hierarchies are followed?
19. Are roles and responsibilities defined within organizations?

Basic Operations Management:
20. How is work monitored / evaluated?
21. Planning is done or not?

Basic Change Management:
22. How staff responds to changes?

Basic Quality Management:
23. How people manage quality?
24. How people respond to quality issues?
25. How people respond to employees in quality department?
26. How well the risks are managed?
27. What do the quality management department head (if any) feels about organizations quality?

Basic HRM:
28. Do we have separate HRM department?
29. What do people feel about HR practices?

Other Dimensions:
30. Do employees feel that management trusts them?
31. Organizations feel financially stable?
32. Do employees feel that there are a lot of chances for innovating at organizations?
33. Employees feel that there are a lot of chances for improvements at organizations?
34. How are conflicts managed?
35. What is people’s perception about stability within organizations?
36. Do organizations have long term or short term vision?
37. How it feedback welcomed?
38. How people feel about professionalism within organizations?
39. What is more practiced: individualism or collectivism?
40. What is general certainty level within the organization?
41. Employees feel satisfied or not?
42. Are there separate department for Administration, Finance, Commercial, Marketing etc?
43. Management is helpful to employees or not?
44. Trainings are conducted for employees or not?
45. What are the team dynamics?
46. Is there any gender disparity?
47. How organizational commitments are handled?
48. Is there any favoritism?
49. Is there any information hiding?
50. How is time management done generally?
51. How are deadlines set?
52. Is there any politics within organizations?
53. Job allotted is well explained or not?
54. How organizations learn?
55. The organizational environment is conducive or not?
56. How productivity is generally measured / monitored?

1.11.6 Research Problem Six

Given the understanding of culture and tribulations faced in IT sector of Pakistan, our next important goal would be to identify the concepts and qualitative methodologies using which, we would be able to help policy and strategymakers in IT organization to understand and comprehend their organizations and thereby improve them. The questions therefore that need to be answered are as follows:

How organizations can be better understood and thereby improved

In order to answer this question above it is important that following questions need to be addressed:

Parameters:
1. Which key parameters must be analyzed for organizational understanding and why?
2. How the identified parameters can be improved organization wide for optimum organizational understanding?
3. How and which possible improvements can be made in organizations by better organizational understanding through the analysis and understanding of these parameters?

Philosophical Methodologies:
4. Which major 'Philosophical Methodologies' can help us in organizational understanding and why?
5. How can we use these methodologies in real life for organizational understanding?
6. How and which possible improvements can be made in organizations by better organizational understanding through the analysis and understanding that is obtained as a result of deploying these methodologies?

Philosophical Theories:
7. Which 'Philosophical Theories' can mainly help us in organizational understanding, why and how?

Group Dynamics:
8. What are the dynamics of various groups within IT organizations?

General:
9. How cultural, business and international practices help us understand organizations? What are strengths and weaknesses of various practices?
10. How should organizations be understood? What must be done in future?
11. What are the organizational understanding sources within the organizations?
12. How knowledge from various theories and philosophies can be used for organizational understanding and what is the current situation of use of theories / literature for organizational understanding in IT industry of Pakistan?

1.11.7 Research Problem Seven

Answers to research problems one, two, three and four would facilitate us in perceiving what are the industry’s problems, issues and concerns thoroughly. Research problem five and six would help us understand the generic culture and customs of IT industry of Pakistan and also allow us in comprehending the method of understanding IT organizations within Pakistan respectively. This information would pave path from problems to analysis or ‘Rectified Analysis’. In other words, analysis and answers from question one to six would help our intended stakeholders in the realizing IT sector problems and culture and at the same time would allow the stakeholders to understand individual

Exclusively for Pakistan’s IT Sector.

Few of the parameters like for instance Organizational Communication, Organizational Climate and Organizational Culture are already known to us through our literature review.

Few of the philosophical methodologies like for instance 360 Feedback, Organizational Engineering, Organizational Design, Performance Studies, Scientific Management, Design Thinking, Employee Research, Action Research and Institutional Memory are already known to us through our literature review.

Few of the philosophical theories like for instance Organizational Ecology, Organizational Learning, Knowledge Management, Leon Festinger’s (1954) Social Comparison Theory and Social Behavior are already known to us through our literature review.

Dynamics like group emotions, processes, thinking, behavior & sociology.

It can be termed that for this cultural analysis, socialization concept is used mainly. Wikipedia defines “socialization” as a concept that is used by sociologists, social psychologists and educationalists to refer to the process of learning one’s culture and how to live within it.
IT organization. The usefulness of question one to six can not be underestimated as one can only improve IT organizations by realizing the fact that how operations are to be performed in any culture, which issues are to be addressed and how in the a given culture and cultural problems, one can understand the organization better. It is important to realize that most of the organizational analysis (or understanding) is currently performed on adhoc basis and in absence of cultural understanding. This kind of analysis, in author’s opinion, can be short lived only and cannot produce substantially trustworthy findings.

Research questions one to six help understand environment (using a form of ‘Social Network Analysis’), its problem and help in organizational understanding but does not tell us much about people who are the most important constituent of IT organizations. People management is the most important part of the management of IT organizations. Talking about people, the most important problem that arises is, understanding of workforce requirement. We can also say that if our intended audience was to perform occupational therapy then the most important question concerning people can be as follows:

How concept of ‘Employee Satisfaction’ can be used to revitalize workforce in IT organizations of Pakistan?

In order to answer this question above it is important that following questions need to be addressed:

1. What is the general level of satisfaction of employees in Pakistan’s IT industry?
2. What is the general belief of managers, executives, leaders, consultants, educationist and policy makers about the roles of ‘Employee Satisfaction’ for the organizational / industrial improvement of IT sector?
3. How ‘Employee Satisfaction’ helps in organization development?
4. At which organizational level employees feel more satisfied and dissatisfied?
5. How ‘Employee Satisfaction’ impacts quality and productivity within an organization?
6. Which other organizational factors are affected by ‘Employee Satisfaction’?
7. How ‘Employee Satisfaction’ impacts employee morale, values and work ethics?
8. Which factors within the organizations make employee feel satisfied? Or What satisfies employees in IT sector of Pakistan?
9. Which factors external to an organization hinder ‘Employee Satisfaction’? Or What dissatisfies employees in IT sector of Pakistan?
10. What is the relationship of job satisfaction with ‘Employee Satisfaction’?
11. What is the relationship of job commitment with ‘Employee Satisfaction’?
12. What is the relationship of supervisors’ behavior with ‘Employee Satisfaction’?
13. What is the relationship of ‘Compensation And Benefits’ with ‘Employee Satisfaction’?
14. What is the relationship of definition of roles & responsibilities with ‘Employee Satisfaction’?
15. What is the relationship of employee’s interest, organizational objectives with ‘Employee Satisfaction’?
16. What is the relationship of office hours with ‘Employee Satisfaction’?
17. What is the relationship of organizations’ competitive advantage with ‘Employee Satisfaction’?
18. What is the relationship of team work with ‘Employee Satisfaction’?
19. What is the relationship of organizations’ environment with ‘Employee Satisfaction’?
20. What is the relationship of employees’ personal development with ‘Employee Satisfaction’?
21. What needs to be done at organizational, governmental (industrial), individual, managerial and social level in order to improve ‘Employee Satisfaction’?
22. How the factors (ones that affect ‘Employee Satisfaction’) trigger satisfaction or dissatisfaction?
23. What trigger the factors that cause dissatisfaction?

1.11.8 Research Problem Eight

For high productivity organizations it is important that we not only simply limit our concern to mere satisfaction of employees, rather, we must extend our vision towards understanding of motivation, its impact and implications on IT employees in Pakistan. Satisfaction is something that lets the employee feel fulfilled, contended and agreed. Motivation however serves more like a stimulus; it is more of a drive enthusiasm and a source of inspiration. This understanding of difference between satisfaction and motivation and management of motivation itself, would help our intended stakeholders in managing people effectively and efficiently. Quantifying, understanding, improving employee motivation helps enhance ‘Organizational Performance’.

Our eighth research question can be stated as follows:

How ‘Motivation’ can be used to revitalize workforce in IT organizations of Pakistan?

In order to answer this question above it is important that following questions need to be addressed:

1. What is the general level of motivation of employees in Pakistan’s IT industry?

********** PSEB!

†††††††††† No literature has been obtained that performs the cultural analysis of IT Sector of Pakistan and analyses the IT organizations’ problems at management level. Informal discussion with policy makers for 3 major organizations in Pakistan suggest that analysis performed never caters the externalities to an organization.

2. What is the general belief of managers, executives, leaders, consultants, educationist and policy makers about the roles of motivation for the organizational / industrial improvement of IT sector?
3. How motivation impacts employee moral, values and work ethics?
4. How motivation helps in organization development?
5. For which factors motivation serves as a stimulus?
6. Which factors within and outside the organizations make employee feel motivated? Or What motivates employees in IT sector of Pakistan?
7. Which factors (inter and intra organization) hinder employee motivation? Or What de-motivates employees in IT sector of Pakistan?
8. How the identified factors trigger motivation or de-motivation?
9. What trigger the factors that cause de-motivation?
10. What are other serious discussion areas / issues that need to be carefully understood?
11. What needs to be done at organizational, governmental (industrial), individual, managerial and social level in order to improve employee motivation?

1.11.9 Research Problem Nine

A case study appeared in September-October 2007 `PSEB Bulletin` conducted by ‘Information Week’ by the name “CEOs value excellence over profit, The Conference Board's study reveals". This case stated quoted that:

"This year's overall top challenge shows that CEOs from around the world are realizing that strong execution is a critical factor in driving profits and revenues. Jonathan Spector, president and CEO of The Conference Board, said in a prepared statement. "These executives are also becoming increasingly aware of the crucial role that people play in growing their companies." CEOs in Asia said finding qualified managerial talent is their most pressing concern, with 38.6% percent naming it."

Employee satisfaction, motivation, cultural understanding, organizational understanding and understanding of issues, problems and concerns do not help in problem resolution. For effective problem solving we need the right leadership within IT sector of Pakistan. Many of the case studies carried out by PSEB suggest that the supervisory figures within Pakistan’s IT organizations are not trained and capable enough to understand the industrial requirements of the IT industry of Pakistan. Our ninth research question can be stated as follows:

What are the dynamics of ideal leadership for the IT organizations of Pakistan?

In order to answer this question above it is important that following questions need to be addressed:

1. What do we mean by ‘Leader’ in IT organizations of Pakistan?
2. Who can be termed as a leader?
3. Who is not a leader?
4. What is the most commonly shared vision among existing leaders and what sort of vision is required?
5. What are the issues related to leadership?
6. What kind of leadership is required?
7. What makes effective leadership?
8. What are the attributes or dynamics or scope of existing leadership?
9. What are the deficiencies in existing dynamics / scope or attributes?
10. How the leaders must be identified?
11. What personality traits or qualities are required for leaders in IT industry?
12. How leaders must interact with different groups within organizations?
13. Which leadership style is required?
14. What is the role and responsibility of a leader?
15. How leaders & managers must be developed?
16. How executive development should be done?
17. What is the role of ‘Collective Intelligence’ in leadership in IT organizations of Pakistan?
18. What OD parameters should leaders focus at?
19. Does IT industry suffer from ‘Anti-Leadership’?
20. What is the role of ‘Mentorship’?
21. In general where can we place IT organizations of Pakistan in the 'Managerial Grid Model'?
22. How leaders should try to make decisions?
23. How leaders should be organized?

Collective intelligence is a form of intelligence that emerges from the collaboration and competition of many individuals. Collective intelligence appears in a wide variety of forms of consensus decision making in bacteria, animals, humans, and computers. The study of collective intelligence may properly be considered a subfield of sociology, of business, of computer science, and of mass behavior — a field that studies collective behavior from the level of quarks to the level of bacterial, plant, animal, and human societies. The above definition has emerged from the writings of Peter Russell (1983), Tom Atlee (1993), Pierre Lévy (1994), Howard Bloom (1995), Francis Heylighen (1995), Douglas Engelbart, Cliff Joslyn, Ron Dembo, Gottfried Mayer-Kress (2003) and other theorists. Collective intelligence is referred to as Symbiotic intelligence by Norman L. Johnson.
24. How leaders should manage the OD parameters discussed in this study for their organizations?
25. What are the dynamics of empowerment in Pakistan’s IT industry?
26. Do we have ‘Ideal Leadership’ in Pakistan’s IT industry?
27. Is there any mentoring within the organizations?
28. Leaders in Pakistan possess proper skills or not?

1.11.10 Research Problem Ten
People (human resource) are the most important input of IT production. As largely known, IT sector anywhere across the world is mainly dependant on human resources and thereby on HRM. This makes the following question extremely important for our study.

Our tenth research question can be stated as follows:

What are the dynamics of HRM for the IT organizations of Pakistan?

In order to answer this question above it is important that following questions need to be addressed:
1. Which HRM sub functions are performed and not performed in Pakistan’s IT industry formally?
2. What are the major HRM deficiencies in Pakistan’s IT industry? This question specially needs to be answered for concepts like wage and reward employee relations, succession planning, job analysis, job satisfaction, professional development, performance appraisal, occupational health, work feelings, workplace spirituality, workforce planning and workplace democracy.
3. What are the general problems & issues related to HRM faced by HRM managers, supervisory figures, technical and non technical employees?
4. What are the most common existing practices related to HRM and what are the problems with these?
5. What needs to be done at organizational and governmental level in order to improve Industry’s productivity by controlling HRM?

1.11.11 Research Problem Eleven
People’s knowledge enhancement is extremely important for IT development. IT development is more of an intellectual job as compared to any other engineering and technical disciplines. It requires more of innovation, thinking, R & D and problem resolution. This requires extensive job trainings for these employees to consistently stay in touch with the rapidly changing technological pace. In addition to this, it is extremely important that supervisory figures must acquire technical and managerial knowledge. Our next question can therefore be stated as follows:

Our eleventh research question can be stated as follows:

How ‘Training and Development’ would help revitalize IT organizations in Pakistan?

In order to answer this question above it is important that following questions need to be addressed:
1. What issues and deficiencies related to ‘Training & Development’?
2. What improvements can be made?
3. What are the most common existing practices related to ‘Training and Development’ and what are the problems with these practices?
4. What needs to be done at organizational and governmental level in order to improve Industry’s productivity?
5. What kind of trainings need to be imparted in IT organizations within Pakistan?

1.11.12 Research Problem Twelve
Till research question eleven we have been talking about issues that are able to address people. Discussion with the employees in IT industry of Pakistan reveals that many of the employees face tremendously serious problems in carrying out their work properly due to inefficiency of support functions. It is therefore that we understand the basic requirements of operations in IT sector.

Our twelfth research question can be stated as follows:

What are issues and problems related to operations management, how these problems can be eliminated and how improvements can be made in operation management so as to improve the productivity of IT organizations in Pakistan?

1.11.13 Research Problem Thirteen
IT organizations’ productivity largely depends on the project management or more precisely ‘Software Project Management’§§§§§§§§§§§. Most of the IT organizations in Pakistan are project based. Some organizations are also product based but not largely. In either case software project management is an important management aspect that needs focused concentration. In IT organizations, ‘Project Planning’ and ‘Project Monitoring and Control’******** are the two important aspects of software project management. Although this research study does not focus on the technical issues††††††††††† but since software project management comes under the scope of operations management in context of OD and IT sector therefore limited discussion would be done here. In regard to this, following question can be raised:

§§§§§§§§§§§ Software project management normally considers the system issue as well.
************ CMMI Version 1.2, SEI, CMU.
††††††††††† By technical issues we mean core issue related to software project management or software development.
Our thirteenth research question can therefore be stated as follows:

**What are the significant project management soft concerns for IT sector of Pakistan?**

In order to answer this question it is important that following questions need to be addressed:

1. What are issues and deficiencies related to ‘Project Management’ (concerning behavior, management and culture)?
2. What are the highlights of current project management practices in Pakistan?
3. What are the significant reasons of project failure?
4. What improvements should be made in context of project management?
5. What kind of human behavior and personality is suitable for project management positions in IT industry of Pakistan?
6. How time management can be improved?

### Research Problem Fourteen

In continuation of our discussion regarding revitalization of IT sector using OD as a instrument it is important that due consideration is paid to process improvement and therefore quality management. CMMI, PCMM and TQM concepts give us ample rather considerable information for implementing quality organization wide (at organizational, people and project level). CMMI standard can be used for quality uplift of process and product improvement only. For people improvement PCMM framework can be used. TQM, as known to us all, can be used organization wide. Despite all the detailed information presented in CMMI framework, PCMM framework and the extensive TQM literature that is available to us, what creates problem is to understand that how various quality standards or methods can be implemented efficiently and effectively across organizations in Pakistan. In other words, problem is not what to do for quality uplift, rather how to do.

The discussion regarding what impedes quality management in IT organizations can not be concluded so easily but major issues can surely be analyzed that help us identify the reasons why quality management is still a problem and a matter of last concern for policy makers within organizations. Along with the analysis of these issues, we also need to get insight as to how we need to resolve these issues.

Our fourteenth research question can therefore be stated as follows:

**Why IT organizations fail to implement quality?**

In order to answer this question it is important that following questions need to be addressed:

1. What are issues, problems, concerns and deficiencies related to ‘Quality Management’ (concerning behavior, management and culture) in view of lead quality managers in IT organizations of Pakistan? It is important to note that this question will not be focusing on ‘what to do’. Rather address to this question will be limited to discussion of what fails quality implementation and what the problems are.
2. How quality suffers due to identified issues?
3. How can we change the organizational culture so as to welcome change through quality enhancement?
4. How various identified issues must be addressed?
5. Which issues are to be addressed at organizational and government level and how?

### Research Problem Fifteen

OD requires attitudinal change and willingness to welcome change. Since, human beings and especially South Asian are change resistant therefore conflicts are most likely to arise within organizations. These conflicts normally arise at the management level. In order to minimize the affect of changes and to incorporate a pro change culture, it is important that we closely understand the issues related to supervisory divergence between management.

Our fifteenth research question can therefore be stated as follows:

**What are the significant causes of supervisory divergence between management standpoint and what are its affects?**

In order to answer this question it is important that following questions need to be addressed:

1. What are the basic significant divergent factors that are responsible for operational bottleneck, productivity & quality decline, low satisfaction and poor employee motivation and improper management?
2. How the identified factors can be managed and minimized so as to reduce the negative effects?

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Wikipedia Source: In OD, performance improvement is the concept of organizational change in which the managers and governing body of an organization put into place and manage a program which measures the current level of performance of the organization and then generates ideas for modifying organizational behavior and infrastructure which are put into place in order to achieve a better level of output. The primary goals of organizational improvement are to improve organizational effectiveness and organizational efficiency in order to improve the ability of the organization to deliver its goods and/or services and prosper in the marketplaces in which the organization competes.

The author of this research is a certified ATM from CMU, SEI against the CMMI standard. The author was involved in CMMI Level 2 implementation program in a leading IT organization in Islamabad. It is thought by the author and other different quality consultants in Pakistan that “how to implement quality organization wide under light of a given standard is a problem”. In other words we all know what to do but how to do is a problem. There are several foreign IT companies doing business in Pakistan. Many of these companies contribute a lot to IT revenue. This research question is particularly important for these companies. It is important that they understand the dynamics of management in Pakistan and realize and understand the difference in management style between foreign and local management requirements.
1.11.16 Research Problem Sixteen

Our next important concern is to see that our intended stakeholders particularly the supervisory figures within IT organizations understand the impact of social values on work. Our sixteenth research question can therefore be stated as follows:

*What are the social parameters that affect our work and how they must be managed?*

In order to answer this question it is important that following questions need to be addressed:

1. What are the generally changing social trends in Pakistan?
2. Which social values decline productivity in IT sector?
3. How the issues of managing social values need to be addressed?

1.11.17 Research Problem Seventeen

After having addressed the entire question till research question sixteen, the final question that may arise is that, what are the set of best practices in relations to identified issues. Our seventeenth (last) research question can therefore be stated as follows:

*What are the industry’s best practices in context of OD and what needs to be done for general organization’s improvement in context of OD?*

1.11.18 Research Problem Summary

Figure 1.4 explains the summarized research problem summary:

![Figure 1.4 Revival: The Research Problem Way](image_url)

1.12 Main Research Hypothesis

The main research hypothesis of this study is that…..

*“Although IT sector of Pakistan performs relatively well as compared to other industrial sectors within Pakistan, but its productivity can be enhanced tremendously (like other Tier 1 and 2 IT economies) by leaps and bounds by using OD as a tool for its revitalization.”*

It is proposed that data, findings, knowledge, analysis and understanding obtained as a result of investigation of this case would lead to the support the given hypothesis.

There are several foreign IT companies doing business in Pakistan. Many of these companies contribute a lot to IT revenue. This research question is particularly important for these companies. It is important that these companies understand the social values of employees in Pakistan’s IT industry and realize their basic social responsibility.
1.13 **Scope of Work (Research Scope)**

IT sector can be divided into 3 main categories as outlined in Section 1.1.1.1 of this study. Among all the sub sectors of IT industry the one that is a major focal point of this research is software development. By this declaration, we certainly do not mean that we would overlook the other 2 sub sectors, rather in simple words emphasis of the study would be mainly on software development.

It is important to note that this study would not analyze the research questions for countries other than Pakistan. The comparison that has been made with various countries particularly 'India' is restricted to comparison of the IT economy. No comparisons would be made with any country while answering or proposing findings against our research questions. In some cases, however, we may qualitatively support our findings and answers to our research questions by referencing best practices in other countries (particularly South Asia).

Although the IT industry of Pakistan is extended over all Pakistan but data collection would be restricted to IT organizations in The Province of Punjab. Majority of the IT organizations that would be consulted would be from Islamabad. This is because Islamabad is supposedly, considered to be the IT hub of Pakistan.9

1.14 **Data Collection**

Each chapter (answering at least one research question) would stipulate its own data collection methodology. In general structured & non structured interviews of groups and individuals (for IT Staff, Government Officials, Academicians, Etc), objective and subjective surveys of IT professionals (Technical Staff, Support Staff and Executive Staff, Etc), ethnography data gathering using observation), action research, employee research concepts would be used for collecting data.

1.15 **Sources of the Data**

Each chapter would highlight sources of its data, just like data collection. General sources of data include (but not limited to) government agencies & ministries, universities & IT organizations. In addition to this publications, journals, conference papers, newspapers, magazines, presentations from various resources, publications from corporate and government bodies, case studies, encyclopedias, dictionaries, videos, audios, books and documentaries (but not limited to) have an will also been used.

1.16 **Data Analysis (Procedure and Method)**

As clearly defined in the research method, already, analysis could be done quantitatively and qualitatively. In case of quantitative analysis pareto charts, scatter diagrams, graphical analysis, correlation, t-test, regression analysis may be used (but not limited to). Qualitative analysis can be subjective depending on the research question type. Various intellectual, philosophical and theoretical concepts (but not limited to) may be used in order to perform data analysis qualitatively.

Similar to data collection and sources of data, data analysis method would be indicated against each chapter. General steps of data collection would however be: Collect and consolidate the data, perform quantitative / qualitative analysis, propose findings and finally verify and validate findings.

1.17 **Limitations of Study**

There are no serious limitations concerning this research. The only point of concern is the availability of the desired literature. Literature concerning the soft side of the IT industry of Pakistan is rarely present. In addition to this each chapter to follow later would highlight its own limitations.

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**Wikipedia Source:**

**Techniques of Ethnography:**

1. Direct, first-hand observation of daily behavior. This can include participant observation.
2. Conversation with different levels of formality. This can involve small talk to long interviews.
3. The genealogical method. This is a set of procedures by which ethnographers discover and record connections of kinship, descent and marriage using diagrams and symbols.
4. Detailed work with key consultants about particular areas of community life.
5. In-depth interviewing.
6. Discovery of local beliefs and perceptions.
7. Problem-oriented research.
8. Longitudinal research. This is continuous long-term study of an area or site.
9. Team research.
10. Case studies

Not all of these techniques are used by ethnographers, but interviews and participant observation are the most widely used.
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1.19 Endnotes


CHAPTER TWO:
LITERATURE REVIEW
CHAPTER TWO: LITERATURE REVIEW

2.1 Preface

This chapter of this research thesis illustrates literature reviewed before the analysis of the individual research questions outlined in ‘Chapter One’. Since each research question itself presents explanation and exploration of an individual sub area concerning ‘Organization Development’ and its association with IT sector of Pakistan, therefore each research question (or in other words each chapter within this thesis) presents separate literature review. Here in this chapter, focus is limited to the literature available to the author prior to the analysis of research questions and on the literature concerning philosophical framework. This chapter starts with the introduction, giving us an idea about the central theme of review and the organizational pattern. The main body presents the details of the literature available in thematic form. Finally this chapter presents conclusions telling us where the discussion will proceed and what have we drawn for the literature?

2.2 Introduction

The literature concerning ‘Organization Development’ and IT industry practices is scarce. The intensity of this problem is much more, if we try to hunt for similar literature concerning Pakistan’s IT industry. Rarely, the author was able to locate literature that presented discussion about management practices(*) in IT sector in Pakistan or even in South Asia. Part of literature that was obtained, covers management practices in relation to IT but hardly any focus was put on the soft issues(†) that interest the author for this research thesis. Mostly, such literature presented business execution methodologies concerning revenue generation and core marketing and sales related discussions(**). The discussion about industrial psychology, human behavior, socialization and organizational work dynamics (and related areas) all in relation to IT could not be found in any form.

Out of the available literature the grouping can be done as follows:

a) Specific literature was found, thoroughly introducing the IT industry of Pakistan. Sources of this literature were government bodies§, local organizations, various studies by free lance research bodies and researches for the GOP and other national / international, critique / informational articles. Information obtained, was (but not limited to) in the form of reports, newspapers, online articles, magazines, general articles, books, case studies, research papers, presentations and web pages Etc. Some material was also obtained from some international and multinational; profit and non profit organizations.

b) The second category of literature that was obtained; specifically focused on ‘Organization Development’ as a revitalization tool. Such material was mostly obtained (but not limited to) in form of books (mostly), online articles, general articles (mostly), journals, periodicals, research papers, encyclopedias and web pages Etc. Some parts of this literature also include topics indirectly linking to OD or in other words it can be easily assumed that some management articles were also reviewed under this category. Ample literature was found under this category.

c) The third category of literature focused on IT or ICT industry in South Asia. Sources of this data include web sites, online articles, reports, magazines, newspapers Etc (but not limited to). Most of the obtained data was from several non profit international bodies like for instance UNPAN.

d) The fourth category (the rarest) of literature reviewed focused on IT industry and its practices and management / ‘OD (in limited form)’. Very less of this material solely focused on Pakistan’s IT industry. Similarly, not much of discussion could be observed for South Asia (discussion specific to Pakistan was even relatively scarce as compared to South Asia). Information under this category was obtained in the form of reports, newspapers, online articles, magazines, general articles, case studies, research papers, presentations and web pages Etc. Literature was obtained from local and foreign; international, multinational, government, semi government and private; profit and non profit organizations.

2.3 IT Sector of Islamic Republic of Pakistan

Most of the literature reviewed in order to gain better visibility and understanding about IT sector of Pakistan, gives a very progressing and an extremely healthy picture of the overall sector. The GOP has published ample material ensuring that all national and international stakeholders must be able to realize

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* Means that body is organized by topic or issue or category of literature!
† Hardly any literature talks about OD and IT industry of Pakistan together.
‡ Aberdeen Group presents several of such reports as well!*32,78
§ For instance PSEB, PTA, MOSP, MoIT Etc!
** For instance Bearing Point, Gartner Etc!
the upward progression of the IT industry of Pakistan.¹² As said earlier in ‘Chapter One’, a clearly visible growth of the entire sector can be seen through the available data. Data, statistics, reports, figures, presentations, and web information from PSEB (2007), PTA (2007), MoIT (2007), BOI (2007), PASHA (2007), MOPD (2007), PCB (2007), MOSP (2007), Hussain (2006)³ Latif (2007)⁴ and EGD (2007) all suggest progression, positive development and expansion opportunities for the industry. Despite the healthy picture the ‘Bearing Point’ case study named ‘Strategy for Increasing Exports of BPO’ conducted for PSEB in 2005 suggest that Pakistan’s IT industry should be 1/5⁵ of the Indian IT industry which is currently not the case. None of the material published by the government bodies help to understand the reason(s) of this difference. All the literature made available by GOP present chronological comparison of IT industry of Pakistan. No publications have been offered by GOP⁶ comparing the national IT industry with international IT industries particularly South Asian IT industries. Moreover, the situation of availability of relevant literature becomes even worse as because no studies / publications have been found by government or semi government bodies that focus on the best practices in terms of soft factors. Some publications like that of Osama (2005) and Gartner (2007) outlines the best practices of IT industry but most of these practices are limited to revenue generation and business expansion perspective.

BOI’s (2007) website presents an excellent report namely ‘Why Invest In Pakistan? Investment Opportunities: IT and Telecom’². This report not only presents an excellent status of the IT sector of Pakistan, rather it also focuses on Pakistan as an outsourcing destination. The only drawback that is found in this report is that it focuses on the infrastructure details of IT and does not discuss the issues / problems and concerns of IT industry employees and employers (both in relation to management and technical aspects). A good number of government publication particularly from MoIT (2007), Federal Cabinet (2000)³ EGD (2007) and Ehsan (2007) focus on the importance of IT Sector of Pakistan as tool for ‘Good and Transparent Governance’ and ‘Government Infrastructure Backbone’. These reports also present objectives, mission, vision and (to some extent) the long term IT strategy of Pakistan. Exceptionally helpful data pertaining to the IT industry of Pakistan is also available at PSEB (2007) website. Few of the major aspects covered by PSEB include (but not limited to): HR (including compensation surveys of IT industry of Pakistan, supply, demand, skills, development, programs to strengthen HR for IT sector and trainings), IT strategy (including studies, research reports, export targets and industry surveys) and high level analysis of business and commercial environment. Section 1.1.1 and Section 1.1.3 of ‘Chapter One’ describe details of the IT sector of Pakistan. Most of the data in these two sections is extracted from the reports / publications / web sites of the government bodies.

2.4 Organization Development (Philosophy and Organization Revitalization Capabilities)

"OD includes the whole universe of fuzzy people issues that increasingly determine the success or failure of efforts to implement otherwise flawless technical solutions."⁸³

The concept of OD dates back to mid 1950, when Kurt Lewin first used the concepts of action research and group dynamics. Richard Beckhard⁷ defines OD as:

"A planned effort, organization-wide, managed from the top, to increase organization effectiveness and health, through planned interventions in the organization's 'processes', using behavioral science knowledge."⁷

Cummings and Worley (2001) define OD as:

"OD is a system wide application of behavioral science knowledge to the planned development, improvement, and reinforcement of the strategies, structure and processes that lead to organizational effectiveness."⁸⁴

Some of the senior supervisory figures in various IT organizations in Pakistan confuse day to day management⁴⁴ (general management) with OD⁴⁵. In actual sense the basic difference between OD and general management is that OD works with planned effort and interventions as said by Beckhard. According to Warner Burke⁶ OD’s working is separated from general management, as according to him OD is just not anything done to better the organization. Unlike general management, OD deals with beliefs, attitudes, values, structure of organization⁶⁵, change management, complex strategies, system improvement and self analysis. Most importantly OD can be used as a diagnostic tool to understand or

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¹² IT industry shows an extremely healthy picture despite the fact that the hiccups faced by national economy in the last ten years have also affected the industry directly or indirectly.

³² At least in author’s knowledge there are only 2 case studies i.e. by Osama and Gartner that partially helps compare the industries.

³³ The most agreed and common definition of OD.

⁴⁴ OD concerns investment in ‘management development. Management Development’ is best described as the process from which managers learn and improve their skills not only to benefit themselves but also their employing organizations.

⁴⁵ Warren Bennis beliefs that beliefs, attitudes, values, and structure of organizations can be used to adapt to new technologies, markets, and challenges.
redirect organizational missions, goals, values, management style and most importantly organizational culture\textsuperscript{13}. OD concerns many important management concepts (Section 1.10 identifies the list of these concepts) and helps to identify their usage in premeditated, conscience and systematic manner. In context of OD, these management concepts can be categorized into two sets. Firstly, they can be used in identification of organizational loop holes. Management tools belonging to this category are mostly diagnostic in nature. Secondly, they can be used for organizational planning and stratification. OD uses core concepts of organizational ecology\textsuperscript{18}, organization learning\textsuperscript{16,17} and organizational studies\textsuperscript{19,20} (but not limited to) mainly as a diagnostic tools and uses concepts of organizational engineering\textsuperscript{21} and organizational design\textsuperscript{21} to change (for betterment) the organizational climate\textsuperscript{8}, culture\textsuperscript{9,11,12}, communications\textsuperscript{10} and other managerial parameters thereby directly affecting the organizational performance\textsuperscript{14,15}. According to Richard L. Daft (2001)\textsuperscript{80}, core concepts\textsuperscript{80} of organizational design, organizational structure, inter organization relationships, concepts of IT, knowledge management, organizational culture, innovation, change, decision making, conflict resolution, organizational behavior are major tools that can be used for organizational improvement / revitalization and can therefore be applied readily.\textsuperscript{****}

According to Richard (2001) OD can also be defined as:

“...A behavioral science field devoted to improving performance through trust, open confrontation of problems, employee empowerment and participation, the design of meaningful work, cooperation between groups, and the full use of human potential.”\textsuperscript{80}

Talking about revitalization and OD together, it is important to mention here that OD has also been identified as an organization renewal and organization revitalization tool by Gouillart and Kelly (2006)\textsuperscript{81}. According to Gouillart and Kelly renewal and revitalization deal with people and environment respectively. According to them OD organizes the organization for learning, so that they can adapt continually to changing environments. In addition to this they also believe that OD fosters a sense of community among individuals\textsuperscript{81}. According to Renuka Vembu (2007), no organization can grow without facilitating people management and thereby OD. In one of her article, ‘Organization Development through People Initiatives’ Vembu states:

“Organization development means that the organization is developing into a much bigger and better entity, with an increased set of clients and an improved business model. The presence of such an ambience reflects a reasonably satisfied force comprising the company's internal customers i.e. employees working with the organization. A happy and motivated workforce would imply that the company is fostering the growth of individuals associated with them by implementing people processes and employee focused initiatives, regularly and religiously. These can range from fundamentals like talent acquisition and retention, process training, quality checks and assessments, aligning individual needs to organizational goals, to the much stressed upon communication, soft skills, leadership, mentoring and succession planning, performance appraisal, to the more rigorous and tough tasks involving change management, conflict resolution, SWOT analysis, employee satisfaction surveys, Etc.”\textsuperscript{86}

From the various sources of literature, it can be very well established that OD can purely be used for organizational improvement / revitalization. Much of the literature reviewed also presents the various methodologies, theories and concepts concerning OD. These concepts have not been discussed here. The discussion in this section is limited to the core OD concept, its usage, application and importance.

2.5 IT / ICT (South Asia & Beyond)

Focus of this research thesis is not in understanding the industrial analysis conducted by various researchers (scholastic / educational / industrial) for different industries in South Asia and beyond, rather much of emphasis during literature review has been put on a) the comparison studies, assessing different IT / ICT industries across the globe specially South Asia and b) survey of management practices of flourishing and stable IT / ICT based economies\textsuperscript{13}. Section 1.1.2 of this research thesis presents partial but critical picture of IT industry in South Asia. Continuing further, it is worth mentioning that some pieces of the literature reviewed presented a very reasonable and level headed picture of some of the world’s leading IT economies. It is important to realize the fact that much of the emphasis of the researcher of this thesis has not been in obtaining

\textsuperscript{13} www.rapidbi.com/created/organizational_development_od.html [Accessed 12 February 12, 2008].
\textsuperscript{14} Stephen P. Robbins identifies similar concept in his book ‘Organization Theory Structure, Design & Applications’.
\textsuperscript{15}**** S.P. Sign (2004) uses similar concepts in his book ‘Corporate Strategy’ as identified by Richard L. Daft and considers these concepts as important corporate strategic management tools.
\textsuperscript{16} Talking about individuals, one of the outcomes of OD is to achieve an effective organization. Achieving effective organizations is naturally not possible without effective people. Stephen R Convey has identified various habits of effective people and many of the identified habits directly relate to concepts directly or indirectly related to OD.
\textsuperscript{17} Particularly in relation to OD
Information concerning western economies. This has been deliberately done in order to limit the focus of debate to successful eastern economies that have relatively similar culture to that of Pakistan’s. Talking about eastern economies, specific focus has been on literature concerning South Asia and particularly countries that are in neighborhood of Pakistan, predominantly India. Most important discoveries in this regard have been of NASCOM (2001 to 2004).\textsuperscript{22,23,24,25} NASCOM Strategic Reviews from 2001 to 2004 present fundamental information concerning dynamics of Indian IT industry. Several other researchers for instance Heeks (1996, 1998, 2003)\textsuperscript{26,27,28}, ‘Bajpai, Nirupam & Shastri’ (1998)\textsuperscript{29}, Arora (1997, 1999, 2000, 2001)\textsuperscript{30,31,32,33,34}, ‘Chakrabarty, Chandana, and Dilip Dutta’\textsuperscript{35}, Coward (2003)\textsuperscript{36}, ‘Rishi’\textsuperscript{37}, D’Costa (1998)\textsuperscript{38}, ‘Dutta, Dilip, Sekhar’ (2004)\textsuperscript{39}, present extremely helpful information that helps us understand the Indian IT industries, trends, issues, development and strategic policy infrastructure. Focus of different researchers has been on different aspects of the Indian IT industry. Heeks (1996, 1998, 2003) for instance pays more attention to uneven profile of the Indian economy\textsuperscript{26} and particularly focuses on the Indian software industry and its performance under the light of state policy and liberalization\textsuperscript{27}. ‘Bajpai, Nirupam & Shastri’ (1998) and Rishi\textsuperscript{39} talk about development of the Indian software industry\textsuperscript{38}. Similar to this, studies conducted by Arora (1997, 1999, 2000, 2001), focus on the development, structure and prospects for the Indian IT industry\textsuperscript{30,31,32,33,34}. Partial work by Arora and ‘Dutta, Dilip, Sekhar’ (2004) also focuses on quality\textsuperscript{32,33} concerns in Indian IT industry.

Looking at other countries, ‘Nicholson and Sundeep’ (2003), ‘Barr, Avron, and Shirely’ (2002), Crane (2002), Chidamber (2003), Gengler (2003), Tjia (2003) and Rapp (1996) have performed studies (similar to Arora) that focus on development, analysis and prospects concerning Iran’s\textsuperscript{36}, Sri Lanka’s\textsuperscript{37,38}, Korea’s\textsuperscript{38,39}, Ireland’s\textsuperscript{40}, Vietnam’s\textsuperscript{41}, Ukraine’s\textsuperscript{42}, Bangladesh’s\textsuperscript{43} and Japan’s\textsuperscript{44} software / IT industry respectively.

2.6 IT & OD (Pakistan & Beyond)

Literature concerning OD and IT can be separated into two main fractions. The first part can be considered as relatively; adequately available. This part of literature mostly argues about OD / management issues in IT as a discipline. Much of the literature reviewed in this regard comes from international publications. The second part of the literature is particularly concerning OD / Management in IT in Pakistan and as expected comes for national sources. It is unfortunate, but the reality is that not much literature is available that particularly concerns OD / Management in IT in Pakistan. The sub sections of this section help us understand various concepts under both the categories.

2.6.1 Specific Viewpoints (IT and OD / Management)

2.6.1.1 Heeks

Most of the work by Heeks focuses on the national policies, strategies and laws for ICT / IT improvements\textsuperscript{26,27,28,55,56,57,60,61,63,64,65}. In relation to this thesis, however, there are two main concepts that can be summarized from researches by Heeks and therefore can be considered valuable. The first concept is naturally the pre understood fact that IT / ICT industry all across the globe needs focus in areas of productivity enhancement in order to boost a much efficient economy. The second important concept by Heeks appears in one of his briefing in which he gave a viewpoint of PUSH-PULL, or in other words SUPPLY-DEMAND method\textsuperscript{56}. The whole idea outlines the concept that pushing environment, resources and mechanism helps pulling users. In his briefing, the three elements that Heeks considers important for pulling users i.e. environment, resource and mechanism take into consideration only the macro level economic factors. The author of this study believes that the three elements identified by Heeks, are naturally also part of the focus of OD and therefore can be considered equally important for organizational improvement, sustenance and productivity enhancement\textsuperscript{57}. Heeks discussion also involves focus on skills enhancement of IT workers and also focuses on empowerment as one of the deliverables of social outsourcing of IT work\textsuperscript{55,64}.

2.6.1.2 Arora

Arora has done extensive work, in particularly understanding the Indian software and IT industry. Although discussions from Arora do not focus on any area concerning management and OD directly, but in his paper named ‘The Indian Software Services Industry’ with V.S. Arunachalam, Jai Asundi, and Ronald Fernandes\textsuperscript{33}, ‘Human Resource Management’ is one of factors that need to be supplied for the success of Indian IT industry. Several of the CEO’s statements quoted by him give us information

\textsuperscript{****} As discussed earlier, most of the studies found did not focus on soft practices; much of the work concerned the national and strategic level discussion.

\textsuperscript{†††††} If considered at micro or at inter organization level!
concerning the fact that skill development in management areas is extremely essential for better industrial output. In this paper distinct discussion has been made regarding the issues of quality of life of the employees in IT sector, their career paths and benefits concerning employees. This paper also focuses on the employee turnover issue in relation to human resource management in Indian IT industry.

2.6.1.3 Haider

Haider (2004) is probably the only author who talks about the amalgamation of IT, soft factors and social sciences in one go. As earlier described in Section 1.4, Haider (2004) thinks that software success is partially dependent on understanding of engineering and partially on understanding of human and organizational behavior.46 By better understanding of soft factors an organization can increase productivity by 25 times.46 In his research paper ‘Quantifying Soft Factors’, Steve (2000) suggests the same point of view.47

2.6.1.4 PCMM

Before discussion on PCMM some of the following quotations have been purposely added in this literature review. All the following quotations have been taken from PCMM Version 2.0 standard;

“The most important ingredient on this successful project was having smart people...Very little else matters in my opinion...The most important thing you do for a project is selecting the staff...Really the success of the software development organization is very, very much associated with its ability to recruit good people. The only rule I have in management is to ensure that I have good people—real good people—and that I grow good people, and that I provide an environment where good people can produce.”

Two software vice presidents quoted in [Curtis88]

“The central question in how to improve the software art centers, as it always has, on people.”

[Brooks87]

“Personnel attributes and human resource activities provide by far the largest source of opportunity for improving software development productivity.”

[Boehm81]

PCMM is particularly the most important literature available currently that particularly, dedicatedly and completely focuses on people management in software organizations. Not only this, PCMM also focuses on the OD indirectly by focusing on organization growth, organization competence and continuous improvement. It is important to familiarize the reader of this thesis here with the following essential explanation regarding PCMM from Version 2.0 of PCMM standard from SEI-CMU.

“In order to improve their performance, organizations must focus on three interrelated components—people, process, and technology. With the help of the Capability Maturity ModelISM for Software (CMMSM) [Paulk95], many software organizations have made cost-effective, lasting improvements in their software processes and practices [Herbsleb94]. Yet many of these organizations have discovered that their continued improvement requires significant changes in the way they manage, develop, and use their people for developing and maintaining software and information systems—changes that are not fully accounted for in the CMM. To date, improvement programs for software organizations have often emphasized process or technology, not people. To provide guidance to organizations that want to improve the way they address these people-related issues, the SEI has developed the People Capability Maturity ModelISM (P-CMMSM). The P-CMM is a maturity framework, patterned after the structure of the CMM, that focuses on continuously improving the management and development of the human assets of a software or information systems organization. The P-CMM provides guidance on how to continuously improve the ability of software organizations to attract, develop, motivate, organize, and retain the talent needed to steadily improve their software development capability. The strategic objectives of the P-CMM are to

- improve the capability of software organizations by increasing the capability of their workforce
- ensure that software development capability is an attribute of the organization rather than of a few individuals
- align the motivation of individuals with that of the organization
- retain human assets (i.e., people with critical knowledge and skills) within the organization

The P-CMM describes an evolutionary improvement path from ad hoc, inconsistently performed practices, to a mature, disciplined, and continuously improving development of the knowledge, skills, and motivation of the workforce. The P-CMM helps software organizations

- characterize the maturity of their workforce practices
- guide a program of continuous workforce development
- set priorities for immediate actions
- integrate workforce development with process improvement
- establish a culture of software engineering excellence

The P-CMM is designed to guide software organizations in selecting immediate improvement actions based on the current maturity of their workforce practices. The benefit of the P-CMM is in narrowing the scope of improvement activities to those practices that provide the next foundational layer for an organization’s
continued workforce development. These practices have been chosen from industrial experience as those
that have significant impact on individual, team, unit, and organizational performance. The P-CMM
includes practices in such areas as

- work environment
- communication
- staffing
- managing performance
- training
- compensation
- competency development
- career development
- team-building
- culture development

Figure 2.0 explains the structure of PCMM:

![Figure 2.0 PCMM-Structure and Maturity Levels](source)

Figure 2.1 gives an insight on the key process areas assigned to each PCMM maturity level:

![Figure 2.1 PCMM-Maturity Level Wise Process Areas](source)

2.6.1.5 Mishra

Mishra (2005) primarily talks about the role of people management in the global IT industry. According to him low team morale is an obstacle to successful project management. His research paper
focuses on the alignment of management issues with technical issues. Particular attention is paid to awareness and stratification of issues arising due to lack of understanding of role of motivation, leadership, team management and organization dynamics in an IT organization. Mishra has extensive technical and managerial experience related to IT in several countries like Germany, UK, US, India and Thailand.

2.6.1.6 McConnell
McConnell (1996)\textsuperscript{49} in his online research article by the name ‘Classical Mistakes Enumerated’ talks about 3 dozen classical mistakes that he thinks are encountered by most of the software projects. In this article McConnell categorizes the classical mistakes into four main sub categories. These categories are related to people, process, product and technology. Product and technology related mistakes that are outlined by the author typically concern the engineering aspects. The process related mistakes on the other hand outlines the mistakes that are related to process specific to software engineering.\textsuperscript{50,51} For this research thesis the most important category is that of people. This category talks about the classical mistakes that are made in software projects due to people mismanagement. Some of the mistakes in this category directly talk about plain management issues like for instance motivation, weak personnel, uncontrolled problem employees, work environment, wishful thinking and others. It is important to note here that based on the experience of author of this thesis and comments from various IT management experts in Pakistan, most of the people and process related mistakes outlined by McConnell prevail in most of the software projects in Pakistan.

2.6.1.7 Carmel
Carmel (2003)\textsuperscript{44} pays specific attention to management practices in an IT based environment. According to him concentrated focus is required on labor management relationships. He presents a model named ‘Oval Model’ that depicts the national software exports success factors. One of the factors identified in this model is ‘Human Capital’. According to Carmel, ‘Human Capital’ factor needs management skills development. Carmel (2003)\textsuperscript{44} also talks about the ‘quality of life’ and ‘wages’ as part of the ‘Oval Model’. According to him quality of life is extremely essential in order to lower down the turnover rate in IT organizations. In his work paper named: ‘Taxonomy of New Software Exporting Nations’\textsuperscript{43}, Carmel (2003) also points out that ‘maturity’ is one of the main parameters differentiating Tier 1 software exporting nations from Tier 2 or Tier 3. According to him most of the Tier 1 economies posses strong hold on software management, quality management and marketing capabilities.

2.6.1.8 Others
The concept of IT and OD is very rarely discussed together for Pakistan but some of the international publications can be found complementing the core concept of this thesis as follows: Srinivasan (2005)\textsuperscript{68}, Neimat (2005)\textsuperscript{69} and Mehta (2005)\textsuperscript{70}, all present people and soft issue management as an imperative parameter for success of software companies\textsuperscript{71,72} and success of project and knowledge management areas within these companies and therefore support work by Haider and Mishra. McClure (2001)\textsuperscript{83} finds effective leadership and management as a core issue for IT employee retention. According to McClure training, hiring and professional development can be used to readily resolve the IT human capital problems. Concepts presented by McClure are also largely discussed by DeMers (2002)\textsuperscript{84}.

2.6.2 Specific Viewpoints (IT, OD / Management & Pakistan)
As per the report named ‘Red Tape Hampering IT Promotion’ written against the National Conference on ‘Prospects of IT Industry in Pakistan’, Pakistan’s IT industry needs effective top management with the right mix of vision and managerial competence. This calls for acquiring necessary knowledge regarding issues concerning OD and management in IT industry of Pakistan and the resolution of the identified issues. Unfortunately the case is opposite; as most of the literature reviewed does not discuss management issues in IT industry of Pakistan. Syed Zahoor Hassan (2000)\textsuperscript{54,75} is probably the only scientist in Pakistan who discusses evolution of human resource management, organizational processes and systems in order to present evolution of representative software companies in Pakistan.\textsuperscript{71} Other than this, two of the most important publications from Osama and Gartner discuss management as an issue in general in IT industry of Pakistan; however, they do not discuss the detailed management issues and the resolution. Studies by Osama and Gartner validate the need to answer the hypothesis as identified in

\textsuperscript{49,50} With an exception of few!
\textsuperscript{44,45} Refer to Annex 43 and 44.
\textsuperscript{71} He is one of the reports against a national conference on ‘Prospects of IT industry in Pakistan’ in Islamabad on October 9th, 2004, it was discussed that Pakistan’s IT industry needs effective top management with the right mix of vision and managerial competence.\textsuperscript{55}
Chapter One' of this research. Some of the details of Osama’s and Gartner’s viewpoint concerning this thesis are presented below:

2.6.2.1 **Osama**

Refer to Section 1.2. 58, 59, 78

2.6.2.2 **Gartner**

Gartner (2007) presents an extremely essential and significant report by the name ‘Driving Forward the Pakistani Software and IT Related Service Industry’. This report has three main parts that are of highest significance for this research thesis. a) It analyzes the offshoring trends in software and IT enabled services. b) It examines and analyzes the Pakistani software and IT industry keeping in view its relative competitors. c) It identifies the best practices for the Pakistan’s IT industry and also presents an implementation plan for improvement and advancement of the IT sector. This report discusses several issues at macro and micro level. Gartner presents extremely essential findings concerning workforce issues that strictly help us understand the importance and the requirement of proper management in IT industry. As per page 12 of this research report:

“There are many dimensions to the workforce issues facing buyers of services that are delivered through global delivery models (GDMs). These issues relate to the supply and the demand side of this dynamic. For some time now, and particularly in India, high levels of attrition have caused disruptions to the quality and consistency of the work delivered. Workers moving to increase their salary, gain more experience, improve their work conditions, and further their career have led to high turnover of staff. In addition to service quality, this has had an effect on costs as providers increase salaries to attract or retain the right skills – and are forced through the recruitment and training cycle more often that they would like. Significant growth of offshore "pure play" providers and the GDMs of traditional providers have added to this challenge. This growth, in some areas, has led to staff being moved too quickly into supervisory or management positions – further adding to quality concerns.”


This study; conducted by Gartner, emphasis a great deal on the potential business venues for IT industries in Asia Pacific, therefore it convinces the reader for the dire need of better efficiency and high productivity in this sector. The study outlines several of the parameters concerning IT business and also discusses the current state of the Pakistan’s IT industry w.r.t other Asian IT economies.‡‡‡‡‡‡ Gartner discusses the SWOT analysis of Indian (Annex 46), Chinese (Annex 47), Malaysian (Annex 48), Philippines (Annex 49), Vietnamese (Annex 50) & Pakistani IT industry.

A major achievement by Gartner has been, that it presents the SWOT analysis of the Pakistan’s IT industry. Table 2.0 presents this SWOT analysis:

**[Table 2.0] SWOT Analysis: Pakistan’s IT Industry by Gartner (2007)**

<table>
<thead>
<tr>
<th>STRENGTHS</th>
<th>ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOCUS</strong></td>
<td></td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Rapidly-increasing availability of broadband</td>
</tr>
<tr>
<td></td>
<td>Rapid reduction in broadband costs</td>
</tr>
<tr>
<td></td>
<td>Recent progress in provision of technology parks</td>
</tr>
<tr>
<td></td>
<td>Recent progress in providing Internet redundancy</td>
</tr>
<tr>
<td>Political/legal</td>
<td>Continuous rollout of supporting legislation</td>
</tr>
</tbody>
</table>

### Favorable terms and conditions to attract foreign technology companies
- Favorable terms and conditions to attract Foreign Direct Investment
- Foreign investors allowed 100% ownership of local enterprises
- Pakistan Software Export Board (PSEB) established as unifying body for government and trade support

### Enterprise
- Successful local ITES trailblazers
- Relatively fast to establish and close an enterprise
- Good availability of capital
- Rapidly growing ITES sector
- Rapidly growing economy
- Success of Pakistani enterprises in niche areas
- Presence of high-profile international companies
- Favorable tax conditions for ITES companies for next 10 years
- Rapid growth in number of enterprises achieving international certification such as CMMI

### Weaknesses

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### Manpower and HR
- Extensive low-cost labor pool
- Over 6 million English speakers nationally
- Large diaspora with high levels of skills and experience
- Strong resources of related ITES-supporting professionals such as lawyers and accountants
- English as spoken by Pakistanis deemed more acceptable to native English speakers than that of Indians and Chinese speakers

### Opportunities

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### Manpower and HR
- Inadequate numbers of high-quality graduates
- Graduates generally weak in ‘soft skills’
- Lack of good middle management, especially in project management and marketing
- Generally low quality of university faculty
- Labor force statistics limited and unreliable
- Graduates require significant additional training by their ITES employers

### Threats

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- Favorable tax conditions for ITES companies for next 10 years
- Rapid growth in number of enterprises achieving international certification such as CMMI

### Manpower and HR
- Inadequate numbers of high-quality graduates
- Graduates generally weak in ‘soft skills’
- Lack of good middle management, especially in project management and marketing
- Generally low quality of university faculty
- Labor force statistics limited and unreliable
- Graduates require significant additional training by their ITES employers

### Opportunities

**Favorable terms and conditions to attract Foreign Direct Investment**
- Favorable terms and conditions to attract Foreign Direct Investment
- Foreign investors allowed 100% ownership of local enterprises
- Pakistan Software Export Board (PSEB) established as unifying body for government and trade support

### Enterprise
- Successful local ITES trailblazers
- Relatively fast to establish and close an enterprise
- Good availability of capital
- Rapidly growing ITES sector
- Rapidly growing economy
- Success of Pakistani enterprises in niche areas
- Presence of high-profile international companies
- Favorable tax conditions for ITES companies for next 10 years
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### Manpower and HR
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- Generally low quality of university faculty
- Labor force statistics limited and unreliable
- Graduates require significant additional training by their ITES employers

### Threats

**Favorable terms and conditions to attract Foreign Direct Investment**
- Favorable terms and conditions to attract Foreign Direct Investment
- Foreign investors allowed 100% ownership of local enterprises
- Pakistan Software Export Board (PSEB) established as unifying body for government and trade support

### Enterprise
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- Relatively fast to establish and close an enterprise
- Good availability of capital
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- Rapidly growing economy
- Success of Pakistani enterprises in niche areas
- Presence of high-profile international companies
- Favorable tax conditions for ITES companies for next 10 years
- Rapid growth in number of enterprises achieving international certification such as CMMI

### Manpower and HR
- Inadequate numbers of high-quality graduates
- Graduates generally weak in ‘soft skills’
- Lack of good middle management, especially in project management and marketing
- Generally low quality of university faculty
- Labor force statistics limited and unreliable
- Graduates require significant additional training by their ITES employers
The entire SWOT analysis of Pakistan’s IT industry is equally important but for this research thesis, most vital information appears in the weakness section in Table 2.0. Out of all the weak points identified in SWOT analysis for Pakistan’s IT industry, the most imperative point that Gartner identifies is ‘Lack of Good Middle Management, Especially In Project Management And Marketing’ under the head of ‘Manpower And HR’. Interestingly this issue appears as strength in the SWOT analysis for Chinese, Indian and Malaysian IT industries therefore further broadly supporting the hypothesis of this thesis.

It is also worth mentioning that like Haider (2004), Gartner pays specific attention to soft skills issues in IT industry of Pakistan. As per page 63 of this report:

“There is a general acceptance of the lack of soft skills, by which we mean team working, taking individual responsibility, project awareness and management, becoming a self-starter, have good customer interaction, and having good presentational skills, both written and verbal. Such skills are hard to impart but will be essential to Pakistani enterprises both domestically, but particularly when in export mode. It is unlikely that the issue can be fully addressed at third level, requiring also different approached at secondary and even primary levels. In this respect the structural weaknesses associated with teacher training in the country will need to be addressed.”

Gartner provides counter measure to certain soft issues particularly related to cultural disparity; like for instance ‘Difference in Dealing with Supervisor’, respect, self respect and communication style. In this report special attention is also paid to project governance issues. Some of the industrial issues concerning ‘Transition Challenges’, ‘Knowledge Transfer’, ‘Change Management’ and ‘Managing Remote Resources’ are also presented and the best practices against these issues are also identified. Several of success factors are identified as a result of analysis by Gartner, focusing deeply on soft issues. Figure 2.3 and Figure 2.4 helps in clarification of Gartner’s point of view concerning soft issues:

---

§§§§§§ Information appears with ‘**’ in Table 2.0.
******* Refer to Annex 47.
††††††† Refer to Annex 46.
‡‡‡‡‡‡‡ Refer to Annex 48.
§§§§§§§ Many of these issues are also answered by the research questions identified in ‘Chapter One’.
2.7 Conclusions

Much of the literature reviewed in this thesis can be categorized according to the distribution identified in Section 2.2. It is important to comprehend that we have abundant data telling us the success story of IT sector of Pakistan (w.r.t other industrial sector of Pakistan) and other Asian IT based economies (in particular). Also, sufficient data exists that explicate concepts of OD and its requirement for enhancement of ‘Organization Building’ and ‘Productivity and Quality Enhancement’. It is important to note however; that literature concerning IT and OD is extremely rare and even rarer for IT, OD and Pakistan.

The above literature review helps in presenting the picture of IT industry of Pakistan and IT / ICT industry of South Asia and beyond. This review also explains the core concepts of OD, particularly focusing on the requirement of OD for the betterment of any organization. It explains view points of various researchers / research bodies about OD and its relation to IT and also presents this discussion particularly for Pakistan. It has been observed that many researchers / research bodies believe and agree with the concept of requirement of OD (or related disciplines) for revitalization of IT organizations in Pakistan and across globe. Although many researchers agree with OD’s requirement for revitalizing IT industry, yet no methodologies, case studies or best practices were found in any literature that explained the usage of OD for revitalizing IT sector.

2.8 Research Focus

This research thesis does not only focus on identification of key OD areas / concepts that need consideration of IT organizations for their revitalization but also presents detailed methodologies and discussion about using these areas for upgrading / revitalizing IT industry of Pakistan. It can also be said here that this thesis uses OD methodologies for IT industry diagnostics and presents the deficient areas analysis. The analysis of the deficient area presented in this thesis is also done using OD concepts. At the end of analysis of each of each sub area that is found deficient, findings / best practices are presented in order to rectify these diagnosed deficient areas. Most of the best practices and findings presented also concern OD philosophy and framework. In order to justify the correctness of the methodologies proposed as finding / best practices, the author of this thesis has actually implemented these methodologies in one of the IT based organization in Pakistan named ‘ZTE Pakistan Pvt Ltd’.


2.9 Bibliography


### 2.10 Endnotes


[75] People Capability Maturity Model® (P-CMM®) Version 2.0 (CMU/SEI-2001-MM-001 [online], Available From: http://www.sei.cmu.edu/publications/documents/01.reports/01mm001.html.


CHAPTER THREE:
ISSUES, CONCERNS & PROBLEMS OF IT INDUSTRY OF PAKISTAN
(THE REALITY AND THE PHILOSPHY)
3 CHAPTER THREE: ISSUES, CONCERNS & PROBLEMS OF IT INDUSTRY OF PAKISTAN (THE REALITY AND THE PHILOSOPHY)

3.1 Chapter Introduction

3.1.1 Executive Summary

This chapter of this research thesis identifies the issues, problems and concerns of the IT industry of Pakistan in context of management / OD. The chapter also presents necessary analysis that helps in clarification, understanding and analysis of the identified issues, concerns and problems of the IT industry of Pakistan. Special attention is paid to issues, concerns and problems that are of highest significance (priority) and must be resolved immediately. Issues identification and their clarification are mainly done through survey, literature available and ethnography*

3.1.2 Background

The entire idea of this research thesis is to address issues in Pakistan’s IT industry. According to the author; issues, concerns or problems may be an outcome of negligence in the practices concerning OD. According to the author’s viewpoint the identified issues must be carefully explored, studied and analyzed using OD as a diagnostic and analytical tool. Correspondingly, best practices must be identified for the management of the identified issues. This must be done specifically keeping in view the culture of IT industry of Pakistan so that the identified issues can be managed effectively and efficiently and their affect is minimized.

3.1.3 Objectives

The main objective of this chapter is to obtain answer to the first four research questions identified in ‘Chapter One’.

3.1.4 Purpose

Unless clarification of issues, problems and concerns of IT industry of Pakistan is not obtained, it is not possible to present revitalization methods / best practices for IT industry of Pakistan. It is therefore important; that proper understanding of important issues, problems and concern is developed.

3.1.5 Significance

It is important to highlight the fact here that historically no similar exploratory and explanatory research has been conducted for IT industry of Pakistan formally, that helped in understanding, clarification and analysis of issues, problems and concerns of the IT industry†.

3.1.6 Limitations & Constraints

Several issues are identified in this chapter after survey, literature review and through the usage of ethnographical principles. Although all the identified issues, problems and concerns of IT industry of Pakistan have been given due consideration but specific focus is laid on the issues with high frequency (high priority). In addition to this vital few issues have also been studied in detail in this chapter in order to develop their thorough understanding. It is also imperative to note that this chapter specifically focuses on soft issues.

3.1.7 Scope

This chapter not only identifies issues, problems and concerns of IT industry of Pakistan using ethnography, survey and literature review, but also helps in understanding the prioritized issues, problems and concern. At this point it is essential to explain the arrangement of this chapter. Section 3.1 of this chapter presents detailed introduction of this chapter. Section 3.2 presents the literature review. It is important to specify here that the literature review in this chapter has been done only to obtain the information regarding issues, problems and concerns of IT industry of Pakistan.

Further to this (as obviously clear) Section 3.3 explains the overall research methodology used in this chapter. Moving ahead Section 3.4 presents important data, its sources, its collection methodology and necessary findings (statistics concerning data). It is important to specify here that Section 3.4 only helps in clarification of data obtained as a result of survey that was conducted, in order to collect information concerning the issues, problems and concerns of IT industry of Pakistan. Section 3.4, however, does not help in obtaining information about data collection as a result of ethnographical principles and the literature reviewed.

6/17/2010

* Concept of ‘Attrition Theory’ and ‘Appreciative Inquiry’ have been used widely!
† Particularly soft issues!
At the end of this chapter, Section 3.5 presents the overall analysis of issues, concerns and problems. This analysis not only covers the analysis of the issues obtained from the survey but also covers the explanation and understanding of the issues that have been identified as a result of available literature and ethnography. After Section 3.5, Section 3.6 finally presents the conclusions to this chapter.

3.2 Literature Review

While writing this part of the thesis, explicit focus was laid on compilation, recognition and classification of issues from the available literature. It is unfortunate, but no literature was found that specifically identified and examined issues, concerns or problems for IT industry of Pakistan. In some cases however, some pieces of literature pointed out ‘Management’ as a general problem existing in Pakistan’s IT industry. No details have been discussed however.

Talking about countries, other than Pakistan, many researchers / research bodies discuss problems, issues and concerns for IT industries in various countries across the world (many of these have been discussed in ‘Chapter Two’). Most of the times, discussion about these issues, concerns and problems is limited to discussion of hard issues. Extremely limited literature has been obtained that specifically focused on discussion of soft issues for IT industries across the globe. In this regard ERIC (Education Resources Information Center) presents top ten IT issues in three articles published in 2004, 2006 and 2007. All the three articles obtained from ERIC focus on issues like leadership, strategy, administration, trainings, organization culture, governance, support etc.

In addition to ERIC, Zakir (2007) presents some of the most important human resource management related issues in one of the most prestigious IT organization within Pakistan. Most of the issues identified by Zakir (2007) are similar to the issues addressed in Table 3.12. Also issues identified by Zakir (2007) are validated as genuine issues by author himself based on research done through ethnography.

3.3 Research Methodology

Figure 3.0 presents the research methodology:

\[Figure 3.0\] Research Methodology

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‡ From this point onwards, the term ‘Issue(s)’ will be used to cover the term ‘Problem(s)’ and ‘Concern(s)’.
3.4 Data Collection

3.4.1 Sources of the Data
Three sources were used for data collection as follows:

A) Literature
B) Ethnography
C) Survey: Conducted for IT employees in various IT organizations in Pakistan. Employee category includes executives, senior management staff members, middle management staff members, line management staff members, support staff members (finance, administration, commercial etc), human resource management staff members, industry consultants, academic member, senior government officials, senior engineers, mid career engineers and fresh engineers.

3.4.2 Collection Methodology
The data collection of the issues and their details and understanding has been developed through three main resources i.e. survey, ethnography & literature review. Literature review and ethnography resulted in identification of issues collectively. As stated above major source of data collection has been the survey that was conducted for IT employees of Pakistan including executives, senior management staff members, middle management staff members, line management staff members, support staff members (finance, administration, commercial etc), human resource management staff members, industry consultants, academic member, senior government officials, senior engineers, mid career engineers and fresh engineers. The survey was distributed to employees belonging to various categories (like for instance engineers, executives etc) randomly. Initially the author had anticipated the employee’s category by discussing the work/job performed by employee in his/her current organization, by carefully reviewing the employees’ experience and education. This anticipated category was forecasted for all employees. Later the employees were asked to self evaluate the category that they believe that would best fall in. The survey conducted for issue collection also contained important information (like for instance education and experience details of employees) that was purposely collected from each employee in order to gain visibility into the data statistics.

3.4.3 Data Collection Tool Reference
Refer to Annex 51.

3.4.4 Data Statistics
3.4.4.1 Finding One: Expected Vs Actual Survey Response
3.4.4.1.1 Data
Table 3.0 explains the actual response of surveys against all identified employee categories ** Vs the expected response:

<table>
<thead>
<tr>
<th>Category</th>
<th>How Many Have Filled</th>
<th>Expected Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Senior Management Staff</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Middle Management Staff</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Line Management Staff</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Support Staff (Finance, Admin, Commercial etc)</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Human Resource Management Staff</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Industry Consultant</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Academic Member</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Senior Government Officials</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Senior Engineer</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Mid Career Engineer</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Fresh Engineer</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Issues Reported by 48 Employees</strong></td>
<td>48</td>
<td>85</td>
</tr>
</tbody>
</table>

3.4.4.1.2 Illustration
Figure 3.1 presents data in Table 3.0:

6/17/2010

---

** Data statistics like for instance demographics, gender distribution, education and experience etc!

** Identified from the research questions in ‘Chapter One’!
3.4.4.1.3 Discussion
It is clear from Figure 3.1 that expected response is higher than the actual response. Other than this it can also be observed that expected response of mid positions like for instance mid career engineers and middle management were set purposely higher in order to preserve the effect of bell shape. From the actual response it can also be inferred that data is similarly obtained in bell shape. It is also important to highlight here that the fact that actual response has been low as compared to expected response has no affect on the research. The expected response was set deliberately higher in order to collect data with ease.

3.4.4.2 Finding Two: Employee Surveyed w.r.t Category (Author’s and Employee’s Perception)

3.4.4.2.1 Data
Table 3.1 explains how the thesis categorized each individual surveyed Vs how the employee surveyed perceives his category:

<table>
<thead>
<tr>
<th>Category</th>
<th>How Many Have Filled In Actual?</th>
<th>How Author Sees the Employee Surveyed Distribution w.r.t Their Category</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Senior Management Staff</td>
<td>8</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Middle Management Staff</td>
<td>5</td>
<td>6</td>
<td>-1</td>
</tr>
<tr>
<td>Line Management Staff</td>
<td>1</td>
<td>3</td>
<td>-2</td>
</tr>
<tr>
<td>Support Staff (Finance, Administration, Commercial Etc)</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Human Resource Management Staff</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Industry Consultant</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

[Table 3.1] Categories of Employee Surveyed w.r.t Category (Author’s and Employee’s Perception)
### 3.4.4.2.2 Illustration

Figure 3.2 presents data in Table 3.1:

### 3.4.4.2.3 Discussion

As discussed in Section 3.4.2, the author had categorized the employees from whom the surveys were received. This categorization was done based on each employee’s historic and current experience, education and job responsibilities. It was also important that similar understanding was obtained from the employee. The main reason of performing this analysis was that later in this chapter, issue collection and categorization has been done w.r.t various categories of employees. This is a must in order to gain complete understanding of an issue and to identify how a particular issue type appears and affects the organization at different organizational levels and in view of different management perspectives. In order to do so employee categorization was required. While conducting the research it was found that some of the IT employees were unaware of their exact category. This could have proven to be fatal for our later analysis. It was therefore important that very less variance was there between author’s perception about an employee’s category and the employee’s opinion himself. Figure 3.2 helps clarify that variance between employees’ and author’s perception is reasonably low.

### 3.4.4.3 Finding Three: Data (Employee)

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†† Like for instance Engineers, Fresh Engineers Etc.
**Category Gender Wise**

3.4.4.3.1 **Data**

Table 3.2 explains the gender distribution against each employee category:

<table>
<thead>
<tr>
<th>Employee Category</th>
<th>Total Surveyed</th>
<th>No of Females?</th>
<th>No of Males?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Senior Management Staff</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Middle Management Staff</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Line Management Staff</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Support Staff (Finance, Administration, Commercial Etc)</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Human Resource Management Staff</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Industry Consultants</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Academic Member</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>9</td>
<td>9</td>
</tr>
</tbody>
</table>

**3.4.4.3.2 Illustration**

Figure 3.3 presents data in Table 3.2:

**3.4.4.3.3 Discussion**

Figure 3.3 is self-explanatory. The only important observation is that the presence of females in the senior management is relatively low.

3.4.4.4 **Finding Four:**

3.4.4.4.1 **Data**

Table 3.3 explains the data demographics:
### Table 3.3 Data Demographics (Age)

<table>
<thead>
<tr>
<th>Category</th>
<th>Average Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>32</td>
</tr>
<tr>
<td>Senior Management Staff</td>
<td>33</td>
</tr>
<tr>
<td>Middle Management Staff</td>
<td>25.5</td>
</tr>
<tr>
<td>Line Management Staff</td>
<td>28.3</td>
</tr>
<tr>
<td>Support Staff (Finance, Administration, Commercial Etc)</td>
<td>31</td>
</tr>
<tr>
<td>Human Resource Management Staff</td>
<td>30.5</td>
</tr>
<tr>
<td>Industry Consultants</td>
<td>45</td>
</tr>
<tr>
<td>Senior Government Official</td>
<td>31</td>
</tr>
<tr>
<td>Senior Engineer</td>
<td>26.8</td>
</tr>
<tr>
<td>Mid Career Engineer</td>
<td>25.7</td>
</tr>
<tr>
<td>Fresh Engineer</td>
<td>24.2</td>
</tr>
<tr>
<td>Sum:</td>
<td>N/A</td>
</tr>
<tr>
<td>Average:</td>
<td>31.50</td>
</tr>
<tr>
<td>Max:</td>
<td>45.00</td>
</tr>
<tr>
<td>Min:</td>
<td>24.20</td>
</tr>
</tbody>
</table>

### 3.4.4.4.2 Illustration

Figure 3.4 presents data in Table 3.3:

![Average Age of Employee Surveyed (Category Wise)](image)

### 3.4.4.4.3 Discussion
Figure 3.4 is self explanatory. Generally an increase in average age can be observed with an increase in positions within organizations.

3.4.4.5 Finding Five: Data (Education: Highest and Lowest Levels)

3.4.4.5.1 Data

Table 3.4 explains the education level of various employees’ categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>Highest Educational Level</th>
<th>Lowest Educational Level</th>
<th>Category</th>
<th>Highest Educational Level</th>
<th>Lowest Educational Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>Masters (18 years)</td>
<td>Masters (18 years)</td>
<td>Industry Consultants</td>
<td>Masters (18 years)</td>
<td>Masters (18 years)</td>
</tr>
<tr>
<td>Middle Management Staff</td>
<td>Masters (18 years)</td>
<td>Masters (16 years)</td>
<td>Senior Government Official</td>
<td>Masters (16 years)</td>
<td>Masters (18 years)</td>
</tr>
<tr>
<td>Line Management Staff</td>
<td>Masters (18 years)</td>
<td>Bachelors (14 years)</td>
<td>Senior Engineer</td>
<td>Masters (18 years)</td>
<td>Masters (16 years)</td>
</tr>
<tr>
<td>Support Staff (Finance, Administration, Commercial Etc)</td>
<td>Bachelors (14 years)</td>
<td>Masters (16 years)</td>
<td>Mid Career Engineer</td>
<td>Masters (18 years)</td>
<td>Masters (16 years)</td>
</tr>
<tr>
<td>Human Resource Management Staff</td>
<td>Masters (16 years)</td>
<td>Masters (16 years)</td>
<td>Fresh Engineer</td>
<td>Bachelors (16 years)</td>
<td>Bachelors (16 years)</td>
</tr>
</tbody>
</table>

3.4.4.5.2 Discussion

Table 3.4 helps us identify extremely valuable findings. From the Table it can be observed that in many cases the lowest education is 16 years Masters Degree‡‡ which is insufficient for industrial working. Similarly support staff’s education has also been found as relatively inadequate.

3.4.4.6 Finding Six: Data (Education Relevance: Discipline Wise)

3.4.4.6.1 Data

Table 3.5 explains the education relevance w.r.t discipline of each employee category:

<table>
<thead>
<tr>
<th>Category</th>
<th>% age People having a Software Engineering Degree</th>
<th>% age People having a Management / Business Administration Degree</th>
<th>% age People having a Computer Science Degree</th>
<th>% age People having a Computer Engineering Degree</th>
<th>% age People having other Engineering Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Senior Management Staff</td>
<td>33.33</td>
<td>66.66</td>
<td>66.66</td>
<td>16.66</td>
<td>0</td>
</tr>
<tr>
<td>Middle Management Staff</td>
<td>83.33</td>
<td>33.33</td>
<td>33.33</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Line Management Staff</td>
<td>33.33</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Support Staff (Finance, Administration, Commercial Etc)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Human Resource Management Staff</td>
<td>0</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Industry Consultants</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Academic Member</td>
<td>100</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Senior Government Official</td>
<td>0</td>
<td>100</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Senior Engineer</td>
<td>70</td>
<td>90</td>
<td>84.61</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mid Career Engineer</td>
<td>38.46</td>
<td>7.69</td>
<td>84.61</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Fresh Engineer</td>
<td>0</td>
<td>0</td>
<td>50</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>46.54</td>
<td>37.31</td>
<td>68.72</td>
<td>6.39</td>
<td>8.33</td>
</tr>
</tbody>
</table>

3.4.4.6.2 Illustration

6/17/2010

‡‡16 Years Masters Degree means that it is very much possible that total IT based education of an employee may be 2 years after college. The IT based education can be considered 4 years only if the employee had taken up a 2 year Bachelors Program in IT or related field. This however is extremely rare due to relative absence of 2 year IT related Bachelors Programs in Pakistan.
Figure 3.5 presents data in Table 3.5:

### 3.4.4.6.3 Discussion

Figure 3.5 helps us in identifying various loop holes in educational background of various employee categories. Following are few of the most important findings / loop holes:

a) Most of the executives do not have any necessary educational background related to management or business administration or other related disciplines.

b) Senior management staff members have relatively less of software engineering academic background. One of the reasons behind this could be that earlier Pakistan’s higher education had no or relatively deprived focus on software engineering discipline. More focus was on computer science discipline. It is important to realize here that software engineering is much different a discipline from computer sciences.

c) Similar to executive’s category, line management staff members have no background of management or related discipline and in addition to this relatively less employees have been found in this category who possess software engineering academic background.

d) Highly inadequate academic background can be observed for support staff.

e) Government officials do not posses any computer science or related academic background.

f) Mid career engineers are also found deficient in software engineering discipline.

g) Table 3.5 explains that on an average less employee have software engineering background and the situation is even worse for management related disciplines.

6/17/2010

§§ Software Engineering has been offered as a degree by many universities in Pakistan later in the last one decade.
3.4.4.7 Finding Seven: Data (Employee Experience Relevance w.r.t Employee Category)

3.4.4.7.1 Data

Table 3.6 explains the experience relevance w.r.t employee category:

<table>
<thead>
<tr>
<th>Category</th>
<th>Average Total Experience (Years)</th>
<th>Average IT Based Experience (Years)</th>
<th>Average Management Experience (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive</td>
<td>6</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Senior Management Staff</td>
<td>14.8</td>
<td>12.5</td>
<td>9</td>
</tr>
<tr>
<td>Middle Management Staff</td>
<td>7</td>
<td>7</td>
<td>3.6</td>
</tr>
<tr>
<td>Line Management Staff</td>
<td>5.3</td>
<td>5.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Support Staff (Finance, Administration, Commercial Etc)</td>
<td>8</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Human Resource Management Staff</td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Industry Consultants</td>
<td>20</td>
<td>20</td>
<td>14</td>
</tr>
<tr>
<td>Academic Member</td>
<td>18</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Senior Government Official</td>
<td>7</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Senior Engineer</td>
<td>4.5</td>
<td>4.3</td>
<td>1</td>
</tr>
<tr>
<td>Mid Career Engineer</td>
<td>3</td>
<td>3</td>
<td>0.5</td>
</tr>
<tr>
<td>Fresh Engineer</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Average:</strong></td>
<td><strong>8.55</strong></td>
<td><strong>7.28</strong></td>
<td><strong>4.02</strong></td>
</tr>
<tr>
<td><strong>Max:</strong></td>
<td><strong>20.00</strong></td>
<td><strong>20.00</strong></td>
<td><strong>14.00</strong></td>
</tr>
<tr>
<td><strong>Min:</strong></td>
<td><strong>1.00</strong></td>
<td><strong>0.00</strong></td>
<td><strong>0.50</strong></td>
</tr>
</tbody>
</table>

3.4.4.7.2 Illustration

Figure 3.6 presents data in Table 3.6:
3.4.4.7.3 **Discussion**

Figure 3.6 is self-explanatory. One important finding that can be observed from the Figure 3.6 is that management related experience is inadequate for all employee categories.

3.5 **Analysis**

3.5.1 **Finding One: Issue Frequency**

3.5.1.1 **Data**

Table 3.7 explains the frequency of issues w.r.t various categories:
## [Table 3.7] Issue Frequency

<table>
<thead>
<tr>
<th>Issues Category</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainings</td>
<td>23</td>
</tr>
<tr>
<td>Top Management Change</td>
<td>1</td>
</tr>
<tr>
<td>Time Management</td>
<td>10</td>
</tr>
<tr>
<td>Technology</td>
<td>3</td>
</tr>
<tr>
<td>Support Staff Career Development</td>
<td>1</td>
</tr>
<tr>
<td>Skill Management</td>
<td>19</td>
</tr>
<tr>
<td>Resource Management</td>
<td>8</td>
</tr>
<tr>
<td>Quality Management</td>
<td>40</td>
</tr>
<tr>
<td>Psychological Issues</td>
<td>10</td>
</tr>
<tr>
<td>Project Management</td>
<td>1</td>
</tr>
<tr>
<td>Professionalism</td>
<td>3</td>
</tr>
<tr>
<td>Producivity Management</td>
<td>9</td>
</tr>
<tr>
<td>Problem Solving &amp; Decision making</td>
<td>4</td>
</tr>
<tr>
<td>Political Framework</td>
<td>8</td>
</tr>
<tr>
<td>Planning</td>
<td>1</td>
</tr>
<tr>
<td>People Management</td>
<td>6</td>
</tr>
<tr>
<td>Outsourcing</td>
<td>1</td>
</tr>
<tr>
<td>Others...</td>
<td>10</td>
</tr>
<tr>
<td>Organizational Understanding</td>
<td>1</td>
</tr>
<tr>
<td>Organizational Strategy, Mission &amp; Vision</td>
<td>4</td>
</tr>
<tr>
<td>Organizational Learning</td>
<td>6</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td>6</td>
</tr>
<tr>
<td>Government Polices</td>
<td>2</td>
</tr>
<tr>
<td>Organizational Environment</td>
<td>6</td>
</tr>
<tr>
<td>Globalization</td>
<td>1</td>
</tr>
<tr>
<td>Organizational Design (Teaming)</td>
<td>9</td>
</tr>
<tr>
<td>Gender Disparity</td>
<td>2</td>
</tr>
<tr>
<td>Organizational Culture</td>
<td>45</td>
</tr>
<tr>
<td>Empowerment</td>
<td>2</td>
</tr>
</tbody>
</table>

3.5.1.2 Illustration

Figure 3.7 presents data in Table 3.7:
3.5.1.3 Discussion
Figure 3.7 explains the arrangement of various issues w.r.t their frequency. It is important to see that issues related to organizational culture & understanding, quality management, leadership, training & development and motivation are of highest priority. It can also be observed from the Figure 3.7 that some of the issues are actually
cause of others. Like for instance change management indirectly comes under the head of organizational culture. Later Section 3.5.3 would help us highlight the further grouping of the identified issue types.

### 3.5.2 Finding Two: Frequency of Issue w.r.t Category w.r.t Employee Category Type

#### 3.5.2.1 Data

Table 3.8 explains the no of issues identified against various issue categories by various employee categories:

<table>
<thead>
<tr>
<th>Employee Category</th>
<th>Issues Category</th>
<th>Executive</th>
<th>Senior Management Staff</th>
<th>Middle Management Staff</th>
<th>Line Management Staff</th>
<th>Support Staff (Finance, Administration, Commercial Etc)</th>
<th>HRM Staff</th>
<th>Industry Consultants</th>
<th>Academic Member</th>
<th>Senior Government Officials</th>
<th>Senior Engineer</th>
<th>Mid Career Engineer</th>
<th>Fresh Engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trainings</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Top Management Change</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>5</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Time Management</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Technology</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Support Staff Career Development</td>
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<td>Support Department Support</td>
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<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill Management</td>
<td>2</td>
<td>3</td>
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<tr>
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<td>Resource Management</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td>3</td>
<td>2</td>
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</tr>
<tr>
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<td>Quality Management</td>
<td>1</td>
<td>3</td>
<td>5</td>
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<td></td>
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<td>Psychological Issues</td>
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<td></td>
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<td></td>
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<td></td>
<td>Professionalism</td>
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<td>6</td>
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</tr>
<tr>
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<td>Problem Solving &amp; Decision making</td>
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<td>Others...</td>
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<tr>
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<td>3</td>
<td>2</td>
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<tr>
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<td>Organizational Strategy, Mission &amp; Vision</td>
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<tr>
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<tr>
<td></td>
<td>Organizational Environment</td>
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<tr>
<td></td>
<td>Organizational Design (Teaming)</td>
<td></td>
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<td>3</td>
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</tr>
<tr>
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<td>Organizational Culture</td>
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<td></td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Organization Monitoring &amp; Control</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motivation</td>
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<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Middle Management</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Legal Framework</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 3.5.2.2 Illustration

Figure 3.8 presents data in Table 3.8:
3.5.2.3 Discussion

Figure 3.8 explains the following few important core findings:

- Lack of training affects engineers and management equally.
- The worst victims of change in top management are the support staff members.
- Engineers face the maximum problems due to poor time management.
- Engineers face tremendous problems due to poor skill management within organizations.
- Management and engineers are directly affected due to poor quality culture within organizations.
- Mostly it is the engineers who face psychological problems within organizations.
- Productivity is seen as a major problem by the management.
• Most engineers believe that they are not aware of the organizations’ mission and vision.
• For all the employee type, culture of an organization, motivation and leadership pose the worst problems.
• Most engineers believe that they do not have a career path within their organizations.
• Nearly all the employees type believe that IT organizations in Pakistan are resistant to change.

3.5.3 Identification of Industrial ‘Issues / Problems & Concern’ Categories from Literature Reviewed and Ethnography

Table 3.9 enlists the issues categories that have been sorted out after detailed literature review and ethnography:

<table>
<thead>
<tr>
<th>Table 3.9</th>
<th>Issues Categories Identified From Literature and Ethnography</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Culture</td>
<td>Training &amp; Development</td>
</tr>
<tr>
<td>Organizational Understanding</td>
<td>Operations Management</td>
</tr>
<tr>
<td>Employee Satisfaction</td>
<td>Project Management</td>
</tr>
<tr>
<td>Motivation</td>
<td>Quality Management</td>
</tr>
<tr>
<td>Leadership</td>
<td>Supervisory Divergence</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td>Social Parameters Study</td>
</tr>
</tbody>
</table>

3.5.4 Issues Identification (Consolidated Discussion Based on Findings of Survey, Literature and Ethnography)

It is clearly understood from the objectives of this chapter, that issue identification, clarification and understanding are the most important goals that need to be fulfilled in this chapter. Prior to understanding of issues, it is important that we develop a mutual understanding about the core IT industry issues based on literature, ethnography and the survey. It is important to mention here that the survey conducted for issue collection has given us a wide range of issues belonging to various categories (as discussed earlier). Based on the frequency of issues appearing in each category, we can judge that which category needs to be addressed first or in other words which category is of highest priority. Despite the fact that we can clearly figure out the important issue categories from previous survey data, it is important that we try to find out the ‘root categories’. An example would clarify here. Consider the category of ‘Employee Growth’ that was identified earlier with frequency equal to 15. This meant that there were 15 issues collected from the survey that belonged to this category. It is important here to realize the fact the ‘Employee Growth’ category itself is category that further belongs to one of other category appearing within the survey category. In this case ‘Employee Growth’ further belongs to the category of ‘Human Resource Management’. Using this methodology, all the categories were grouped and associated with the ‘root categories’ in order to actually determine the actual frequency of issues appearing against each ‘root category’. Another important point to note is that ‘root categories’ came out to be similar as issues categories identified from literature and ethnography. While allotting the issue categories of the survey to various ‘root categories’ it was also observed that some of the survey categories associated with 2 or more ‘root categories’, thereby directly increasing the frequency of each root category. While analyzing the issue categories obtained from the survey it was also decided that categories that are not related to soft issues directly or indirectly would not be addressed in this thesis and therefore would not be associated with any of the root categories. Particular reasons were also obtained for the issue categories that were discarded despite the fact that they concerned soft issues.

Table 3.10 clarifies the above analysis:
<table>
<thead>
<tr>
<th>Issue Categories Identified From Survey</th>
<th>Frequency of Issues Appearing In This Category (Priority)</th>
<th>Short Explanation For Selective Issues</th>
<th>Will the Issue Be Addressed in This Thesis (Yes Directly / Yes Indirectly or NO)?</th>
<th>Root Category 1</th>
<th>Root Category 2</th>
<th>Root Category 3</th>
<th>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</th>
<th>If the Issue is a Soft Issue, Then Give reason of Not Addressing The Issue In This Thesis.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Culture</td>
<td>45</td>
<td>Self explanatory.</td>
<td>Yes; Directly</td>
<td>Organizational</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality Management</td>
<td>40</td>
<td>Self explanatory.</td>
<td>Yes; Directly</td>
<td>Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leadership</td>
<td>30</td>
<td>Self explanatory.</td>
<td>Yes; Directly</td>
<td>Leadership</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trainings</td>
<td>23</td>
<td>Self explanatory.</td>
<td>Yes; Directly</td>
<td>Training &amp;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation</td>
<td>22</td>
<td>Self explanatory.</td>
<td>Yes; Directly</td>
<td>Motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skill Management</td>
<td>19</td>
<td>Issues in this category mostly concern skill development. Indirectly this issue comes under the category of human resource management.</td>
<td>Yes; Indirectly</td>
<td>Human</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee Compensation and Benefits</td>
<td>17</td>
<td>Indirectly this issue comes under the category of human resource management.</td>
<td>Yes; Indirectly</td>
<td>Human</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Management</td>
<td>17</td>
<td>Organizational change management is indirectly part of organizational culture.</td>
<td>Yes; Indirectly</td>
<td>Organizational</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee Growth</td>
<td>15</td>
<td>Indirectly this issue comes under the category of human resource management.</td>
<td>Yes; Indirectly</td>
<td>Human</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Improvement</td>
<td>12</td>
<td>Indirectly this issue comes under the quality management.</td>
<td>Yes; Indirectly</td>
<td>Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time Management</td>
<td>10</td>
<td>This issue belongs to culture of organization and also concerns operations and project management because essentially if operations and project management address time management then virtually organization would experience positive growth.</td>
<td>Yes; Indirectly</td>
<td>Organizational</td>
<td>Operations</td>
<td>Project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological Issues</td>
<td>10</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly</td>
<td>Organizational</td>
<td>Culture</td>
<td>Management</td>
<td>Project Management</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>10</td>
<td>Not required!</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Communication</td>
<td>10</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly</td>
<td>Organizational</td>
<td>Culture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>10</td>
<td>Self explanatory. Administration</td>
<td>Yes; Indirectly</td>
<td>Operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue Categories Identified From Survey</td>
<td>Frequency of Issues Appearing In This Category (Priority)</td>
<td>Short Explanation For Selective Issues</td>
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<td>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</td>
<td>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----------------------------------------------------------</td>
<td>--------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Productivity Management</td>
<td>9</td>
<td>Issues in this category affect culture of organizations, operation and project management.</td>
<td>Yes; Indirectly</td>
<td>Management</td>
<td>Operations Management</td>
<td>Project Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Design (Teaming)</td>
<td>9</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly</td>
<td>Organizational Culture</td>
<td>Project Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource Management</td>
<td>8</td>
<td>Resource management refers to organization wide management of human and other resources.</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political Framework</td>
<td>8</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal Framework</td>
<td>8</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People Management</td>
<td>6</td>
<td>Issue under this category relate to employee motivation, employee satisfaction and human resource management.</td>
<td>Yes; Indirectly</td>
<td>Motivation</td>
<td>Employee Satisfaction</td>
<td>Human Resource Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Learning</td>
<td>6</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly</td>
<td>Organizational Culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Environment</td>
<td>6</td>
<td>Issues in this category relate to internal and external work environment.</td>
<td>Yes; Indirectly</td>
<td>Operations Management</td>
<td>Social Parameters Study</td>
<td>Organizational Culture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee Satisfaction</td>
<td>6</td>
<td>Self explanatory.</td>
<td>Yes; Directly</td>
<td>Employee Satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employer Behavior</td>
<td>5</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly</td>
<td>Leadership</td>
<td>Supervisory Divergence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem Solving &amp; Decision making</td>
<td>4</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly</td>
<td>Organizational Culture</td>
<td>Leadership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Strategy, Mission &amp; Vision</td>
<td>4</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly</td>
<td>Organizational Culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human Resource Management</td>
<td>4</td>
<td>Self explanatory.</td>
<td>Yes; Directly</td>
<td>Human Resource Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government Policies</td>
<td>4</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finances</td>
<td>4</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Issue Categories Identified From Survey</td>
<td>Frequency of Issues Appearing In This Category (Priority)</td>
<td>Short Explanation For Selective Issues</td>
<td>Will the Issue Be Addressed In This Thesis (Yes Directly / Yes Indirectly or NO)?</td>
<td>To Which Category (Identified From Literature and Ethnography) This Issue Can Be Further Associated With?</td>
<td>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</td>
<td>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----------------------------------------------------------</td>
<td>----------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology</td>
<td>3</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>Root Category 1</td>
<td>No</td>
<td>To Which Category (Identified From Literature and Ethnography) This Issue Can Be Further Associated With?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support Department Support</td>
<td>3</td>
<td>Issues in this category explain how poor support of the support departments within organization affects performance.</td>
<td>Yes, Indirectly Operations Management</td>
<td>Root Category 2</td>
<td>No</td>
<td>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professionalism</td>
<td>3</td>
<td>Self explanatory.</td>
<td>Yes, Indirectly Organization Culture</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Education</td>
<td>3</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>Root Category 1</td>
<td>No</td>
<td>To Which Category (Identified From Literature and Ethnography) This Issue Can Be Further Associated With?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Ethics</td>
<td>2</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly Motivation Employee Satisfaction</td>
<td>Root Category 2</td>
<td>No</td>
<td>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization Policy Framework</td>
<td>2</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly Organization Culture</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organization Monitoring &amp; Control</td>
<td>2</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly Organization Culture</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender Disparity</td>
<td>2</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly Organization Culture</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feedback</td>
<td>2</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly Organization Culture</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empowerment</td>
<td>2</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly Leadership Organization Culture</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Top Management Change</td>
<td>1</td>
<td>The issues in this category explain problems that appear due to change in top management within organizations.</td>
<td>Yes, Indirectly Organization Culture</td>
<td>Root Category 1</td>
<td>No</td>
<td>To Which Category (Identified From Literature and Ethnography) This Issue Can Be Further Associated With?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Support Staff Career Development</td>
<td>1</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly Human Resource Management</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Management</td>
<td>1</td>
<td>Self explanatory.</td>
<td>Yes; Directly Project Management</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning</td>
<td>1</td>
<td>Self explanatory.</td>
<td>Yes; Indirectly Organization Culture</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outsourcing</td>
<td>1</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational Understanding</td>
<td>1</td>
<td>Self explanatory.</td>
<td>Yes; Directly Organizational Understanding</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle Management</td>
<td>1</td>
<td>Some of the issues directly and categorically addressing the</td>
<td>No</td>
<td>Root Category 3</td>
<td>No</td>
<td>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To Which Category (Identified From Literature and Ethnography) This Issue Can Be Further Associated With?

<table>
<thead>
<tr>
<th>Issue Categories Identified From Survey</th>
<th>Frequency of Issues Appearing In This Category (Priority)</th>
<th>Short Explanation For Selective Issues</th>
<th>Will the Issue Be Addressed in This Thesis (Yes Directly / Yes Indirectly or NO)?</th>
<th>To Which Category (Identified From Literature and Ethnography) This Issue Can Be Further Associated With?</th>
<th>If the Issue Does Not Belong To Any Category From Literature Then Is It A Soft Issue?</th>
<th>If the Issue is a Soft Issue, Then Give reason Of Not Addressing The Issue In This Thesis.</th>
</tr>
</thead>
<tbody>
<tr>
<td>middle management were included in this category.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Globalization</td>
<td>1</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>Root Category 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Documentation</td>
<td>1</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>Quality Management</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cost Management</td>
<td>1</td>
<td>This issue is not a soft factor so will not be explained and will not be analyzed in this thesis later.</td>
<td>No</td>
<td>Project Management</td>
<td>Operations Management</td>
<td>No</td>
</tr>
<tr>
<td>Commitment</td>
<td>1</td>
<td>Self explanatory. Yes; Indirectly Organizational Culture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.11 presents root issue category frequency. The following root categories are final identified issues areas and will be addressed by this thesis:

<table>
<thead>
<tr>
<th>[Table 3.11] Root Issue Categories Frequency / Strength (Priority)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Root Categories From Literature Review, Ethnography &amp; Survey</td>
</tr>
<tr>
<td>Issue Category Strength (This number is calculated by associating each survey issue category to the categories identified from literature and ethnography. Later the sum of each survey category was added to category obtained from literature and ethnography (root category).)</td>
</tr>
<tr>
<td>Organizational Culture</td>
</tr>
<tr>
<td>Human Resource Management</td>
</tr>
<tr>
<td>Quality Management</td>
</tr>
<tr>
<td>Leadership</td>
</tr>
<tr>
<td>Operations Management</td>
</tr>
<tr>
<td>Project Management</td>
</tr>
<tr>
<td>Motivation</td>
</tr>
<tr>
<td>Training &amp; Development</td>
</tr>
<tr>
<td>Employee Satisfaction</td>
</tr>
<tr>
<td>Social Parameter Study</td>
</tr>
<tr>
<td>Supervisory Divergence</td>
</tr>
<tr>
<td>Organizational Understanding</td>
</tr>
</tbody>
</table>

Figure 3.9 presents data in Table 3.11:
3.5.5 Understanding Issues (Root Issue Categories) Identified After Analysis

Table 3.12 presents short explanation of selective root issue category as under:

<table>
<thead>
<tr>
<th>Root Issue Categories / Issues</th>
<th>Short Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Culture</td>
<td>Issues in this category concern middle management efficiency and ineffectiveness, organization wide planning, change in management, change management,</td>
</tr>
<tr>
<td></td>
<td>loopholes in feedback {organization wide}, gender disparity, organization monitoring &amp; control, professionalism, organization mission, vision and strategy,</td>
</tr>
<tr>
<td></td>
<td>problem solving &amp; decision making, teaming, learning, productivity, organization wide commitment, time management, empowerment and other basic cultural parameters.</td>
</tr>
<tr>
<td>Human Resource Management</td>
<td>Issues belonging to this category relate mainly to employee compensation and benefit, skill management, employee career development and human resource department support.</td>
</tr>
<tr>
<td>Quality Management</td>
<td>Issues in this category cover process, product and organization wide quality issues.</td>
</tr>
<tr>
<td>Leadership</td>
<td>Issues in this category cover nearly all aspects of leadership with particular focus on mentoring, employer behavior, decision making and problem solving and empowerment.</td>
</tr>
<tr>
<td>Operations Management</td>
<td>Issues in this category mainly related to administration within organizations, work environment and support of operation oriented departments.</td>
</tr>
<tr>
<td>Project Management</td>
<td>Issues in this category mainly concern resource management, planning, time management, productivity and organization wide commitment.</td>
</tr>
<tr>
<td>Motivation</td>
<td>Self explanatory.</td>
</tr>
<tr>
<td>Training &amp; Development</td>
<td>Self explanatory.</td>
</tr>
<tr>
<td>Employee Satisfaction</td>
<td>Issues in this category mainly concern the social environment in which the organizations exist.</td>
</tr>
<tr>
<td>Social Parameter Study</td>
<td>Issues in this category mainly concern the problems that arise due to difference of opinion and strategy between various management levels.</td>
</tr>
<tr>
<td>Supervisory Divergence</td>
<td>Issues in this category concern basic understanding of organizations.</td>
</tr>
</tbody>
</table>

3.6 Conclusions

This chapter presents issues, concerns and problems of IT industry of Pakistan. The chapter strictly focuses on identification and understanding of the issues of Pakistan’s IT industry. Several issues were obtained from literature, survey and ethnography. Similar issues were grouped together to identify issue categories. Various issue categories were studied and analyzed once again in order to develop understanding for root causes (root issue category). It is important to mention here that most of the root issue categories will be studied later in subsequent chapters***.

6/17/2010

*** It is important to mention here that PCMM addresses issues similar to root issue categories identified in this ‘Chapter Four’.
3.7 Bibliography


Whitney and Trosten-Bloom., (2003), The Power of Appreciative Inquiry defines AI as "the study and exploration of what gives life to human systems, at their best!".

Dicks, Bella; Bruce Mason and Amanda Coffey et al. (2005), written at London, Qualitative Research and Hypermedia: Ethnography for the Digital Age, Sage Publications, ISBN 0761960988.


3.8 Endnotes


CHAPTER FOUR: ORGANIZATIONAL CULTURE OF IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS OF CURRENT AND DESIRED PRACTICES)
CHAPTER FOUR: ORGANIZATIONAL CULTURE OF IT INDUSTRY OF PAKISTAN (EXPLORATION & EXPLANATION OF CURRENT AN DESIRED PRACTICES)

4.1 Chapter Introduction

4.1.1 Executive Summary

This chapter of this research thesis presents major highlights of the organizational culture of IT sector of Pakistan. The chapter not only explores* but also presents detailed explanation of the main highlights by performing necessary qualitative analysis. In addition to exploration and explanation of culture within IT sector of Pakistan, the chapter also explains all the important issues† arising due to the cultural disparities. As a result of detailed analysis performed, the chapter finally identifies important remedies for cultural revitalization as recommendations.

4.1.2 Background

Before we actually try to comprehend the culture within IT organizations of Pakistan, it is significant that we have a straightforward and uncomplicated understanding of what organizational culture is and how is it important. Charles (2001) defines organizational culture as:

"Organizational culture, or corporate culture, comprises the attitudes, experiences, beliefs and values of an organization. It has been defined as "the specific collection of values and norms that are shared by people and groups in an organization and that control the way they interact with each other and with stakeholders outside the organization. Organizational values are beliefs and ideas about what kinds of goals members of an organization should pursue and ideas about the appropriate kinds or standards of behavior organizational members should use to achieve these goals. From organizational values develop organizational norms, guidelines or expectations that prescribe appropriate kinds of behavior by employees in particular situations and control the behavior of organizational members towards one another."

Corporate culture understanding is a multifaceted job due to variability and the diversity of parameters involved such as norms, values, customs, civilization, ethics etc. Several of the researchers have presented various concepts relating cultural understanding. Various studies conducted by various researchers have been carefully interpreted and understood before proceeding with the research in this chapter. This has been done in order to understand that how ‘Culture’ in IT organizations should be studied for understanding of loopholes and for understanding of the fact that how general improvements should be done. Researchers have worked on ‘Organization Culture Analysis’ and have presented diverse ideas for both cultural understanding, and improvement. It cannot be assumed that one idea is acceptable over another. Each philosophy has its own strengths and flaws. In order to carry out an effective research, the superlative ideas from various researchers have been combined together in order to comprehend the organizational culture of Pakistan’s IT industry in an effective manner. Insight into the ideas of various researchers helped in understanding which cultural parameters should be studied as a top priority in order to study the existing culture and which parameters should be addressed for cultural improvement. Summary of many of these ideas is presented in Section 4.2.

Discussion in this chapter also covers analysis of some of the areas‡ that were identified under the root category§ of ‘Organizational Culture’.

4.1.3 Objectives

The main objective of this chapter is to obtain answer(s) to the fifth research question identified in ‘Chapter One’.

4.1.4 Purpose

This chapter enables the reader or stakeholders of this thesis in understanding the cultural dimensions of IT sector of Pakistan. While conducting detailed analysis of the issues identified and clarified in ‘Chapter Three’, it was observed that maximum number of issues related to disparities in basic organizational culture. This certainly prioritizes cultural understanding of IT organizations in Pakistan.

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* Exploration w.r.t organizational culture covering discussion like what is done, what is not done, what are the loopholes, what must be done and / or what must not be done.
† As identified in ‘Chapter Three’!
§ ‘Chapter Three’ identifies the root categories!
Issues like leadership, motivation, employee satisfaction should be focused and addressed, only when organizational setup or culture is clear to all relevant stakeholders of this thesis.

4.1.5 Significance
It is important to highlight the fact here that historically no similar exploratory and explanatory research has been conducted for IT industry of Pakistan that formally helped in understanding, clarification, explanation and analysis of culture of IT industry of Pakistan. Till date there is no understanding of what the cultural values within IT organizations in Pakistan, what is done, what is not done, what are the loopholes, what must be done and what must not be done.

4.1.6 Limitations & Constraints
Understanding the existing and the desired organizational cultural parameters requires a lot of qualitative analysis. Since arguments in this chapter are mainly qualitative in nature therefore ethnography was mainly used as a research tool. This directly affected the maturity time of this chapter. Understanding of an organizational culture and then identifying the loopholes in the existing practices is a complicated task. In addition to exploration of the culture, it is even more difficult to predict the best practice for improvement in organizational culture. It can also be said that it is difficult to prove that recommendations as outlined in this chapter are ‘Things To Do’ for the cultural improvement and that these recommendations would always be fruitful for all the IT organizations in Pakistan††. This can also be stated in simple terms by simply stating that there cannot be one single culture‡‡ or cultural improvement technique for all IT organizations in Pakistan. Once we agree that organizations have different culture then the question that comes in mind is that how the author plans to present the entire subject in this chapter. Another important concern that may occur is that what would be the ultimate utility of this chapter for the stakeholder if the culture varies from organization to organization.

In order to really cater the problem stated above the author plans to cover only the highlights of IT industry of Pakistan that can be termed as commonly shared cultural practices and values. The author well understands that individual organizations develop culture with time, environment, change, people, circumstances, infrastructure and other variable, qualitative parameter. Here, in this chapter the author does not plan to present an ideal solution§§ for all IT organizations within Pakistan, rather focus is limited to discussion about basic*** organizational culture. This chapter would present the ‘Base Culture’ ‡‡‡ existing in various IT organizations. The existing ‘Base Culture’ would be analyzed, interpreted and critically reviewed in order to identify the loop holes. Once the loopholes are identified then recommendations would be given so as to ensure that IT organizations in Pakistan practice bare minimum practices identified as recommendations in order to synchronize their ‘Base Culture’ with an ‘Ideal Culture’ ‡‡‡. The author of this thesis believes that ideal and base culture understanding, development and stratification is extremely essential for revitalization of IT economy in Pakistan keeping in view the national perspective. According to the authors viewpoint each organization can continue developing specific cultural norms and values explicit to that organization according to their customized needs, requirements, policies Etc but recommendations §§§ identified in this chapter must be used for stratification and improvement *** of ‘Base Culture’. Figure 4.0 explains:

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** As identified in ‘Chapter Three’
†† At the individual organizational level these may not always be fruitful but as far as ‘base cultural values’ and norms are concerned then the recommendation identified in this chapter can be termed as largely applicable.
‡‡ Wikipedia Source: Writers from Critical management studies have tended to express skepticism about the functionalist and unitarist views of culture put forward by mainstream management thinkers. Whilst not necessarily denying that organizations are cultural phenomena, they would stress the ways in which cultural assumptions can stifle dissent and reproduce management propaganda and ideology. After all, it would be naive to believe that a single culture exists in all organizations, or that cultural engineering will reflect the interests of all stakeholders within an organization.
*** In context of cultural management!
‡‡‡ Refer to Figure 4.0 in order to clarify the author’s perception about ‘basic organizational culture’.
**** Similar to the term ‘basic organizational culture’!
††† ‘Ideal culture’ refers to intersection of all the good / positive / healthy cultural practices in ‘base cultures’ of various IT organizations. It can be expected that this culture is relatively free of cultural loopholes.
§§ Identifying the ‘ideal culture’!
§§§ Wikipedia Source: In Organizational development, performance improvement is the concept of organizational change in which the managers and governing body of an organization put into place and manage a program which measures the current level of performance of the organization and then generates ideas for modifying organizational behavior and infrastructure which are put into place in order to achieve a better level of output. The primary goals of organizational improvement are to improve organizational effectiveness and organizational efficiency in order to improve the ability of the organization to deliver its goods and/or services and prosper in the marketplaces in which the organization competes. A third area of improvement which is sometimes targeted for improvement is organizational efficacy which involves the process of setting organizational goals and objectives.
Performance improvement at the operational or individual employee level usually involves processes such as statistical quality control. At the organizational level, performance improvement usually involves softer forms of measurement such as customer satisfaction surveys which are used to obtain qualitative information about performance from the viewpoint of customers.
4.1.7 Scope
Section 4.1.6 largely clarifies the idea presented in this chapter. In addition to this it also clarifies the extent of coverage of the subject matter (i.e. organizational culture) in this chapter. Section 4.1 of this chapter presents the introduction. Subsequent to Section 4.1, Section 4.2 and 4.3 present the literature review and the research methodology respectively. The literature that is reviewed in Section 4.2 relates to the conceptual understanding of ‘Organizational Culture’ philosophies. It also covers the literature reviewed for identifying cultural loopholes in IT industry of Pakistan, the current and desired practices and the recommendation. Section 4.4 specifies the data collection methodology, sources of the data and tools used for data collection. Section 4.5 presents the main body of this chapter. It starts with the explanation and analysis of the issues presented in ‘Chapter Three’ against the domain of organizational culture. Sub Section 4.5.2 presents consolidated findings related to culture within IT organizations of Pakistan w.r.t survey / interview and ethnography. Overall, Section 4.5 presents the detailed analysis / discussion by presenting the existing cultural (what is done, or what is not done Etc) highlights of IT organizations of Pakistan, the loopholes in various practices and the desired practices (what must be done or what is not to be done Etc) within IT organizations all in context of cultural management.

4.2 Literature Review
This part of this chapter introduces the literature reviewed concerning ‘Organizational Culture’. Specific explanation of OC has been introduced in the Section 4.1.2. In addition to this Section 4.1.2 also explains that many of the theories and philosophies that help us gain understanding of various facets of OC have been used for the analysis of culture within IT sector of Pakistan. This section therefore, presents the summary of philosophies and ideas from various theorists / philosophers / specialists / researchers under the light of which study in this chapter is conducted.

As per Wikipedia source:

“Strong culture is said to exist where staff respond to stimulus because of their alignment to organizational values. Conversely, there is weak culture where there is little alignment with organizational values and control must be exercised through extensive procedures and bureaucracy. Where culture is strong—people do things because they believe it is the right thing to do.”

Cultures can be weak or strong depending mainly on organization’s institutionalism capabilities. Organizations that are unable to institutionalize their norms, values, processes, procedures and / or their working methodology have weak culture and therefore are more prone to changes, instability, lower efficiency, chaotic and unpredictable behavior / responses. It is particularly important to highlight here that mostly IT organizations demand innovative behavior that need individuals who can challenge the status quo. This requires a highly well established and controlled, yet an extremely progressive culture for better innovation.

Cultures within organizations have been classified by many researchers using various methods. It is important that we get familiar with the various classification methods by various researchers in order to make sure that we classify / study the culture of IT industry of Pakistan appropriately. Understanding of these classifications is also important in order to identify the loopholes and best practices.

Talking about the classification methods, Hofstede (1980) believes that national and regional preferences affects the organization’s behavior. According to him culture has five dimensions. These dimensions includes the societies’ power preferences, preference to avoid uncertainty, preference of a society to practice collectivism or individualism, preference of male and female values in a society and last but not the least the society’s focus on long and short term goals. Unlike Hofstede, Deal and Kennedy (1982) believe that how things are done within any organization defines the culture of an organization. In other words the organizational common practices help us define the organizational culture. According to Deal and Kennedy, organizational culture classification mainly relies on two factors i.e. feedback and risk. Charles Handy (1985) presents a relatively different view point. According to him organizational culture is mainly dependant on the organizational hierarchy / structure. In his book by the name of ‘Understanding Organizations’, he presents various organizational culture as power, role, task and person based culture. Although the above three mentioned theorists present ideas that undoubtedly appear to be acceptable to our mind, one of the theorists by the name of Edgar Schein presents an extremely easy method of understanding culture. In his book by the name ‘Organizational Culture and Leadership’, Schein (1985 to 2005) presents his idea of understanding organizations’ culture. Wikipedia Encyclopedia summarizes the idea proposed by Schein as follows:

“AAccording to Schein, culture is the most difficult organizational attribute to change, outlasting organizational products, services, founders and leadership and all other physical attributes of the organization. His organizational model illuminates culture from the standpoint of the observer, described by three cognitive levels of organizational culture."

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At the first and most cursory level of Schein's model is organizational attributes that can be seen, felt and heard by the uninitiated observer. Included are the facilities, offices, furnishings, visible awards and recognition, the way that its members dress, and how each person visibly interacts with each other and with organizational outsiders.

The next level deals with the professed culture of an organization's members. At this level, company slogans, mission statements and other operational creeds are often expressed, and local and personal values are widely expressed within the organization. Organizational behavior at this level usually can be studied by interviewing the organization’s membership and using questionnaires to gather attitudes about organizational membership.

At the third and deepest level, the organization's tacit assumptions are found. These are the elements of culture that are unseen and not cognitively identified in everyday interactions between organizational members. Additionally, these are the elements of culture which are often taboo to discuss inside the organization. Many of these 'unspoken rules' exist without the conscious knowledge of the membership.

Those with sufficient experience to understand this deepest level of organizational culture usually become acclimatized to its attributes over time, thus reinforcing the invisibility of their existence.

Surveys and casual interviews with organizational members cannot draw out these attributes—rather much more in-depth means is required to first identify then understand organizational culture at this level. Notably, culture at this level is the underlying and driving element often missed by organizational behaviorists.

The role of leadership in determining organizational culture seems obvious and most important to us when we think of the parameters that have the highest influence on culture. Arthur F Carmazzi, a psychologist, believes that since organizational culture heavily relies on people and their commitment therefore it is the corporate leadership that actually determines the corporate culture. According to him, people’s level of involvement in their job is dependent on the kind of leadership within an organization. An e.g. is that of people who see their work as their purpose of existence (self actualization). According to Carmazzi, such workers, in actual commit to their jobs the way they commit to their personal life and therefore perform the best, however presence of such workers within an organization is heavily dependent on the leadership within the organization itself. Carmazzi has presented various categories of organizations’ culture based on the factor of employees’ commitment with their job that is dependent on leadership. Categories proposed by Carmazzi include the blame culture, multi directional culture, live and let live culture, brand congruent culture and leadership enriched culture.

Talking about the factors that influence culture, G. Johnson (1988) believes that elements like mission, vision, work place, environment, control within organization, organization’s structure, decision making mechanisms, rituals, routines, stories and myths also help us in describing and explaining the organizational culture. In addition to the elements identified by Johnson (1988), Wikipedia also identifies factors that influence organizations’ culture. These factors are innovation and risk taking, aggressiveness, outcome orientation, team orientation, people orientation, attention to detail, stability, competitiveness, diversity(of members) and age of organization. In addition to the several of the parameters stated earlier Cummings & Worley (2005) believe that in order to understand that how organizations react to cultural changes, it is also important to study the basic change management process within the organization. In other words it is important that organizations react to changes properly for the right cultural changes.

The above literature presents a much detailed understanding of what must be observed / studied in order to understand the organization’s culture. The literature reviewed also partially identifies few of the culture types by various theorists. It is important to note here that some of the theorists like for instance Parker and Smircich, believe that culture cannot be specifically categorized. In other words all organizations shape their own culture and can be termed as an individual case. Smircich in particular compares the organization’s culture to a plant’s root that helps describe organization.

In the light of the above discussion, understanding of culture of Pakistan’s IT industry in this chapter is done by carefully understanding / observing / analyzing the various parameters. This chapter identifies the loopholes and best practices in various studied parameters governing organizational culture and then proposes recommendations for cultural improvement.

4.3 Research Methodology

Figure 4.1 presents the research methodology:
4.4 Data Collection
4.4.1 Sources of the Data
Three sources were used for data collection as follows:
A) Literature
B) Ethnography
C) Survey / Interview: Conducted for IT employees in various IT organizations in Pakistan.

4.4.2 Collection Method
The data collection was done through three main resources as stated in Section 4.4.1. Data collection methodology for the first two sources would not be explained here due to the simplicity of discussion. For the survey / interview, data collection was mainly done using a predefined questionnaire that was formulated after carefully consulting the literature and the fifth research question ‘*****’. This questionnaire was later circulated to various employees in IT industry randomly. Each employee was explained the questionnaire thoroughly. Thirteen interviews were conducted for the data collection from various employees. Only those employees were interviewed who were sure that they understood the culture and the general management style within their organization. In addition to this it was made sure that relatively senior employees were interviewed who had extensive working experience in IT. It was also ensured that each employee interviewed must have more than two years experience in his / her current organization. This was purposely done in order to make sure that each employee well understood the culture of their respective organizations.

‘Online and Virtual Ethnography’ was also used for data collection and analysis. It is important to mention here that due to the contextual nature of the subject being studied in this thesis, the researcher had to deeply immerse in the subject by being part of the IT industry itself.

***** That relates to organizational culture!
4.4.3 Data Collection Tool Reference
Refer to Annex 52.

4.5 Analysis

4.5.1 Analysis of Issues Identified in Chapter Three (Related To Organizational Culture)

Several concerns have been identified in the last chapter that can be categorized, directly or indirectly, under the head of cultural disparities. This section delineate the summary of the issues that were recognized earlier in order to facilitate stakeholders in gaining understanding of the existing problem areas (related to cultural mismanagement) within various IT organizations.

To start with; many of the organizations in Pakistan have people working from various cultures. As an example many of the organizations have foreigners working from China, England, United States of America and other countries. This is predominantly factual for IT / software departments within the various multinational currently pursuing business in Pakistan. Before we carry out further discussion it is important to highlight here that organizational units (related to IT / software) in different multinational organizations in Pakistan are also part of our debate here. General dialogue and analysis reveals that there exists a cultural gap in organizations having human resources of different nationalities. This is also similar for the organizations that are some how or the other; part of an outsourcing business process. In most of the cases people have been found reporting the fact that cultural dissimilarities are in reality not the root cause. In view of many, the problem is, that most of the people of various nationalities working in Pakistan are not trained for the local culture; thereby hampering the basic working within organizations. Cross cultural organizations also largely experience empowerment issues, particularly in cases where the organizations are lead by people from different cultures. On discussion with the local employees belonging to multinational organizations or organizations involved in outsourcing; it was found that local employees feel that their management consider them incompetent of making intelligent technical or managerial decisions.

Extending the discussion further, one of the tribulations identified by employees in IT business is the undesired organizational hierarchies and the ‘Yes Sir’ attitude preferred by most of the leaders in IT organizations. Employees of some organizations have also reported presence of an unfriendly culture within organizations, thereby boosting a closed work environment. Gossiping against peer mates is a natural human characteristic that has been practiced in nearly all the cultures since a long time. Gossiping / backbiting as we know are few of the ways of general leg pulling and give boost to unhealthy competition between employees within organizations. Although, unhealthy competition must be dispirited by the management but still some of the employees in Pakistan have been found reporting management inclinon towards particular employee (preferential treatment) as a source of unhealthy competition. Some of the employees even think that management is directly accountable for this unhealthy competition since they are themselves part of the back biting / gossiping circles within organizations. Adding up to this general grouping within organizations based on religion, gender, cast, race, region, province Etc are also important source of unhealthy competition. In some cases employees believe that sometimes managers, leaders, supervisors Etc are important ingredient of these groups. To the worst in some cases managers, leaders and supervisors actually form these small informal groups within organizations. It has also been observed that in some cases recruitment and staffing within organizations is done merely on basis of individual linkages and group preferences. This triggers nepotism within the organizations.

Professional ethics and supervisor’s behavior have been identified as another serious cultural issue by many of the employee surveyed. Most of the workers surveyed; do not understand and could not explain the term ethics in detail, but general perception is that, ‘staff members in organizations in Pakistan do not work professionally’. Employees believe that professionalism comes from adherence to organizational norms and policies. Similarly nearly all employees surveyed also believe that adherence to cultural norms and values is equally important. Many people believe that adherence to only those organizational norms, values and policies is important that are mutually agreed by organization’s leaders operating from within or outside Pakistan.

Some employees also report that unfriendliness in organizations is caused due to the unfriendly supervisory figures. Prophet Muhammad (P.B.U.H) has emphasized time and again to gossip about any person in his / her absence. Several pieces of Islamic literature can be found quoting several Ahadiths (Sayings of Prophet Muhammad (P.B.U.H)) that highlight backbiting as a horrific habit.

Employees report that these groups are actually reason of discrimination within employees. Can also be considered validated from the author’s experience!
employees and are therefore institutionalized within organizations. Coming to behavioral issues, employees (particularly in government organizations) experience this issue more severely. No employee could explain a precise reason of bad behavior of supervisors but general perception is that supervisors think that they are in control of employees’ careers. An attention-grabbing fact is that supervisor’s bad behavior is reported by employees belonging to virtually all organizational levels. Continuing our debate further; collectivism is reported by many employees as a missing tradition. Individualistic attitude by supervisors, coworkers and even subordinates has been reported as one of the core cultural problem. Many employees particularly belonging to public sector IT organizations report that normally feedback from them is generally not accepted or for that matter not even heard. According to many staff members, individualistic attitudes at all organizational level also results in misconceptions about strategy, goals, vision, mission and objectives; thereby resulting in chaos. Further to this it creates loopholes within organizations due to information blockage. In other words many people believe that information hiding is a one of the consequence of individualistic attitudes. Talking about collectivism; many people feel that deficiency of collective attitude at senior management level is a possible consequence of mistrust of senior management on the functional staff. Another consequence of individualistic attitude experienced by IT employees is improper problem solving and decision making. Mostly; employee feel that decisions are made abruptly and individually and commitment against the decisions is not obtained from the functional staff. In most of the cases the supervisors also do not involve employees in managerial problem solving. Among the many problems recognized by the employees, ‘unclear roles and responsibilities’ within organization at employee (individual) and departmental level and absence of job descriptions and poor team management are a major hurdle in smooth operations. One of the major outcomes of absence of roles and responsibilities is that right people are not positioned at the right jobs. In addition to this all three issues i.e. absence of roles and responsibilities, poor team management and job descriptions unavailability; are sources of conflicts between various departments and employees. Conflicts between employees and departments later give rise to many other consequences that in turn influence the organizational culture. Many of the employees also reported that there is no policy (formal or informal) for conflict management within organizations. In majority of the IT organizations; policies, standard operating procedures, processes and organizational rules etc are not defined. In some cases, some organizations have these necessary documents which are mostly considered useless by majority of the employees. According to employees the policy, procedure or process formulation is not done through appreciative inquiry, group thinking or in other words ‘Collectively’. This problem results in formulation of an impractical and forced policy, process and procedure that are not in lined with the organizations best interests. Some of the issues that were identified had less criticality then as compared to the others. Among these issues interference of management in personal life of an employee, work recognition, poor information dispersal, unsuitable organizational environment for innovation and management personalizing employees’ issues are the top issues that are sources of deprived organization culture. A major concern of most of the employees has also been employee career and growth within the organizations. Most of the employees feel that as employees are not provided with growth options and as general employee growth is based on favoritism by management, therefore this gives rise to an extremely adverse competition and low employee moral. Another important key reason of pitiable culture within organizations can be general exploitation of the employees by their supervisors. Most of the employees believe that most of the employers regularly practice harassment and exploitation. They believe that employers, managers or supervisor take advantage of the poor economic conditions of country and the low chances of job availability to a layman. Among the many negative cultural trait, employees report that organizations are also extremely change resistant and any change whether good or bad takes a lot of time to in implementation. Where resistant to change management is a problem, there are employees who have reported that changes in the top management very often result in so much confusion within the organizations that it creates confusion and chaos for the employees. A more severe issue is that of time management. Late sittings after office timings, coming late to office, management’s unjustified appreciation of the employee working late hours, unrealistic deadlines
and zero compensation and benefit policy for extra work performed are all reasons of extremely inexcusable culture. Time management particularly results in employees’ insufficient psychological satisfaction from job, thereby directly affecting the overall culture. Time management can also be seen as one of the consequence that organizations face due to poor planning. Most of employees, in nearly all the organizations, agree with the fact that their management or supervisory figures are not familiar with what planning is. In addition to this many of supervisors who perform planning do not make sure that concerned employees and all necessary stakeholders commit to the plan. This leaves grey areas for all those who consider that the plans formulated by their supervisors are inaccurate.

Most of the employees within IT organizations consider ‘Organization Communication’ as the missing item from the management’s to do list. They believe that poor inter and intra organizational communication results in an extremely low productivity. Most senior management staff believes that most of the organizations do not measure their employees’ productivity and thereby are unable to judge what the organizational weaknesses are. Unless productivity is not measured, improvements can never be made at individual or organizational level. Generally, senior management members believe that employees’ productivity is extremely low and overall technical staff members are lazy. Figure 4.2 explains the issues using a fish bone diagram as follows:
[Figure 4.2] Organization’s Cultural Issues as Identified from Chapter Three (A Fish Not Worth Eating)
Finding Loopholes and Best Practices in the Base Culture (Cultural Highlights Explanation: Consolidated Findings from Survey / Interview In the light of Ethnographical Perspective)

This section of this chapter helps us in understanding the perception of various employees surveyed / interviewed. As a consequence of investigation of the interviews of all employees; understanding is obtained against the various sub questions of research problem number five identified in ‘Chapter One’. The analysis of each research question (sub question) will not be limited to explanation and exploration of the idea of general employees surveyed; rather focus will also be laid on the identification of the best and the worst practices (loopholes). Overall analysis of the sub research questions is also done using the ethnographical observations. The identified best practices and the loopholes would later be used for suggesting recommendations. The comprehensive analysis of each problem (sub question of main research question) is as under:

1. **How an average technical employee (developer, programmer, database or network admin Etc) spends his / her time when in office?**

   **Analysis:** Time exhausted by an average technical employee in IT industry is directly dependent on the workload (as in usual case). It is important to note however; that mostly IT organizations are project oriented, therefore we can presume that time spent by technical employee is directly dependent on the project life cycle stage as well. Generally, in most of the scenarios the workload within all organizations can be considered high due to the fact that most of the employees feel that they are always burdened and work load allocated to them is more than their capacity. Some practices are usually always experienced like for instance prayer timings, tea and lunch breaks. In some cases some technical staff members often use tea and lunch breaks for chit chatting (in some cases office politics is the routine discussion focus) with one another, whereas in most of the cases as the workload is high therefore most of the employees have working lunch and tea breaks. Sometimes employees often do not get time to utilize their breaks due to their personal work(s), like for instance work related to banks and home affairs. Online chatting is also an important part of the daily routine. In some cases employees have been found reporting that sometimes within their organizations people keep chatting regardless of their workload and in some cases they chat occasionally or as per need.

   The major loopholes that can be found in case of this question are unnecessary online chatting and chit chats related to office politics. Further to this extra workload on employees makes it hard for them to have tea and lunch breaks. This can also be source of poor work planning. In some cases the employee personal support (offered by the organization) like support related to banks Etc is extremely meager.

   The best practices in case of some organizations are that employees are offered indoor activities during breaks like network based games (in some cases supervisors also take part), gymnasiums and other sports facilities within office like for instance table tennis. In such cases it has been found that workforce get less time to interact with one other for issue such as office politics. In addition to this some employee feel better motivated during office hours to finish off their work and utilize their breaks fully for their own self interests like sports, entertainment through television, movies Etc. Other than this, some offices provide extremely excellent employee personal issue support, thereby directly enabling employee to work in the office dedicatedly. An extremely healthy practice found in one of the organization is that before employees are assigned work it is made sure that work allotted to them, the deadline and the deliverables of the work are fully committed by the employees. Adding up to this one of the organization practices task based management strategy instead of time based management. They offer completely flexible time to employee and are only concerned about their work response and deadlines.

2. **How an average non-technical employee (support staff) spends his / her time when in office?**

   **Analysis:** In case of non technical employees the loopholes and the best practices are more over the same as that in the case of technical staff members. Similarly most of the discussion is similar to the debate as earlier carried out for the technical staff. The only exception of the fact is that non technical employees spent more time in dealing with employees and the functional staff heads. General perception by overall organization is that workload of the administration and other support departments and the staff within these departments is lower as compared to technical staff members. This however is mostly not approved by the non technical staff members who believe that workload of non technical staff members is usually consistent all over the year and that support staff members are never given the relaxed time within the office as compared to technical staff that experiences high workload during project life cycle stage as well. Generally, in most of the scenarios the workload within all organizations can be considered high due to the fact that most of the employees feel that they are always burdened and work load allocated to them is more than their capacity. Some practices are usually always experienced like for instance prayer timings, tea and lunch breaks. In some cases some technical staff members often use tea and lunch breaks for chit chatting (in some cases office politics is the routine discussion focus) with one another, whereas in most of the cases as the workload is high therefore most of the employees have working lunch and tea breaks. Sometimes employees often do not get time to utilize their breaks due to their personal work(s), like for instance work related to banks and home affairs. Online chatting is also an important part of the daily routine. In some cases employees have been found reporting that sometimes within their organizations people keep chatting regardless of their workload and in some cases they chat occasionally or as per need.

   The major loopholes that can be found in case of this question are unnecessary online chatting and chit chats related to office politics. Further to this extra workload on employees makes it hard for them to have tea and lunch breaks. This can also be source of poor work planning. In some cases the employee personal support (offered by the organization) like support related to banks Etc is extremely meager.

   The best practices in case of some organizations are that employees are offered indoor activities during breaks like network based games (in some cases supervisors also take part), gymnasiums and other sports facilities within office like for instance table tennis. In such cases it has been found that workforce get less time to interact with one other for issue such as office politics. In addition to this some employee feel better motivated during office hours to finish off their work and utilize their breaks fully for their own self interests like sports, entertainment through television, movies Etc. Other than this, some offices provide extremely excellent employee personal issue support, thereby directly enabling employee to work in the office dedicatedly. An extremely healthy practice found in one of the organization is that before employees are assigned work it is made sure that work allotted to them, the deadline and the deliverables of the work are fully committed by the employees. Adding up to this one of the organization practices task based management strategy instead of time based management. They offer completely flexible time to employee and are only concerned about their work response and deadlines.

§§§§§§§ Means sub research questions of research problem number five identified in ‘Chapter One’. From now onwards in this chapter, the term research question would by default mean sub research questions of research problem number five identified in ‘Chapter One’, unless otherwise specified.

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project execution (in case of product based organizations product development can be considered as a project) and then have trouble-free time later.

One of the problems (loophole) identified in one of the organization is that employees have inadequate access to the support staff and in another organization specific time was allotted by the support staff / non technical staff member to the overall organization’s staff in order to facilitate (best practice) proper communication with them.

3. How the organizational heads / senior management and executives spend their time?
   Analysis: In most of the cases senior management and executives have been found taking part in activities related to planning, presentations, demonstrations, meetings with clients / customers, meeting with stakeholders and business development stakeholders. In most of the cases it has been found that usually the day of all senior management staff members and the executives starts and ends very late. A major loophole found in cases of all the organization is that senior management and / or executives hardly take any time out for discussions with the employees and for general mentoring. General assumption by most of the technical and non technical staff members is that employee feels most well recognized if the senior management / executives recognize the employee personally and officially. Some of the interviews conducted also helped in identification of the fact that employees believe that in most cases the senior management staff members and / or executives are completely unaware of the employees’ soft issues and neither any of them understand these soft issues.
   In case of executives and senior staff management staff members no major best practices are found with an exception of one company in which the senior management staff members regularly meet with the organization’s quality management team.

4. What is the generalized, most common and collectively understood vision and mission?
   Analysis: In most of the cases the mission and vision does not exist. Employees within the companies have general understanding of what their company does. In some of the cases the employees are not even familiar with the overall product line of the company. Hardly any employee surveyed / interviewed had any sense of organization’s strategy, mission, vision and goals.
   Best practices could not be identified in this scenario because according to the employees in the IT organizations there is no concept of a formal vision, mission or strategy Etc. In short there are no practices what so ever and this is the main loophole.

5. What are the most common core organizational values?
   Analysis: In most of the cases value is given to ‘Financial Benefits to the Organization’. Other than the financial benefits, team work, late sitting, hard work, employee’s perseverance, employee’s respect, learning & development of an individual are most valued fundamentals. In some of the organizations special significance is given to employees’ intellect and the innovative attitudes. Special value is also given to employee’s who turn out to have good relationships with the customers.
   One of the biggest flaws seen in the analysis of valued practices within organizations is that no special value is given to smart working. Most of the employers and the supervisory figures seriously value late sittings. Other than this special value is also given to employees who are currently (at any time) at important positions (in other words the positions where work is most critical for organization’s success).
   The best practice in terms of values is that some organizations value the intellect and innovative attitude of the employees. Many of the organization also believe in respecting and getting respected.

6. Who makes the decision and how decisions are made generally?
   Analysis: In most of the cases the decisions are made through collective effort. In most of the organizations the organization’s head is the last authority of making the final decision. When asked about the details of decision making process, most of the employees think of decision making in terms of decisions related to work, products, projects, business and revenue Etc. None of the employees, even sub consciously think that decision making in a collective way is important for areas concerning the organization’s soft issues as well. Many of the employees are not sure about the importance of decision making in terms of resolution of soft issues.
   The major loophole in regard to decision making is that in some cases decisions are made individually. In some cases the internal decision concerning soft issues are made under the light of customer’s preferences, thereby not completely catering the organizations best interests.
   One of the ideal practices that have been observed for one of the company is that they have an informal but institutionalized decision making process and decision are made collectively.

7. Generally decisions are made systematically or on adhoc basis?
   Analysis: In most of the organizations decisions are made systematically. This is true for nearly all the organizations with an exception of few.
8. Decisions are made collectively or individually?
Analysis: Refer to analysis as in question six.

9. What are most practiced habits?
Analysis: Approaching and leaving late from office is the most common habit practiced in most of the organizations. This in itself is a major loophole. No major best practices were identified against commonly known practices.

10. How success is generally celebrated?
Analysis: Success is normally celebrated in three main ways in IT organizations surveyed. The first method is when organizations either throw a dinner or a lunch party for its employees. The second method of celebrating is that achievements and accomplishments are shared with employees usually in a meeting. The third method is that in some cases the best way of sharing the success is announcement of bonuses (financial benefits) and annual dinners for the employees (best practice). It is though pitiable, but in some organizations success is not shared with the employees at all. In most of these organizations success is enjoyed by the owners of the organization(s) (loophole).

11. What normally happens in case of extreme failure?
Analysis: Common practices in case of extreme failure are layoffs of responsible team members (in some cases layoffs are done for cost cutting), unnecessary cost cutting, panic, heavy workload on weekends, late working hours in order to fix the error, blaming each other (particularly management blames the employees), dissolution of team, line manager being completely held responsible for failure and increasing pressure on technical staff. It is important to note that most of the consequences stated above are more commonly practiced (loopholes) in case of private organizations. In case of public organizations, the severity of consequences is relatively less.

It is very natural that failures need to be analyzed and fixed. In most of the failure cases organizations make quick decision (most decisions are similar to ones as identified earlier), which in itself is a major loophole. In one of the organizations the root cause analysis of failure is always done and all relevant stakeholders are encouraged to speak and discuss the reasons of failure without any negative impact on the stakeholders. Once common understanding about the failure is developed by all necessary stakeholders then decisions are made collectively (it does not matter what the decision is). This kind of failure analysis is the best practice observed among all the organization’s surveyed.

12. Are there strict default rules?
Analysis: The most strict default rule is that working / organizational environment must be professional. No loopholes and best practices could be identified against this question.

13. How are rules / habits / policies / processes institutionalized?
Analysis: In most of the cases institutionalization of rules, policies, processes and habits is done through information dispersion / communication and also using top down management. Normally the rules, policies, processes and habits that need institutionalization are always documented within the organizations.

The major problems identified against this question are that in some cases rules, policies and processes institutionalization is not given any due weight age. This strictly leaves a room in truly implementing a correct policy, process or a rule. Some employees surveyed, also report that management only pays attention to institutionalization of those processes, rules and policies that are important for the organization. They believe that in case of these organizations institutionalization of rules, processes and policies that are specifically meant for the betterment of employees is completely ignored by the management.

In very few cases an extremely good practice is to implement a given rule, process or a policy with the help of quality management teams within the organizations. In one of the organizations institutionalization of processes, rules and policies is actually monitored with the help of quantitative measurements and indicators. In this case a set methodology exists for a policy, process or a rule formulation and implementation organization wide.

14. Generally: what is most valued within the organizations?
Analysis: Answers of this question is similar to the answer of question number five.

15. Generally: what is not valued within the organizations?
Analysis: Generally learning opportunities for employees, employee’s satisfaction, trainings, life of an ordinary employee, lethargy, correct but negative feedback from employees and wastage of time are the items that are highly disvalued. Out of all the stated items that are considered of less value the only things that are rightly disvalued is the wastage of time and lethargy. All other items are severe loopholes
in the culture. The most important observation can be obtained by one of the organization in which the management does not disvalue any of the said items except lethargy and wastage of time.

16. Generally; what are the most famous stories about?
Analysis: Most of the employees surveyed feel that the most common stories that exist within IT organization are related to company’s instability, negative viewpoints of management about some employee, management’s strategy towards employees improvement and success of people who work in close coordination with the management. In addition to this in case of change in management, main stories discussed relate to changes that employees would experience within the organization. In most of the case people also believe that stories and rumors are mainly spread by the unsatisfied organization’s employees.

Stories strictly rely on predictions made by various employees for or against the organization. The most imperative point to remember is that stories (correct or incorrect) are result of closed system. In most of the cases stories spread when management is not communicating well with the employees (loophole). Bad stories result in dissatisfaction and negative apprehension of employees about the organization. Good stories can also have negative impact on employees’ performance if the employees have been over optimistic about various things around by listening to a nice story. In some cases some organizations have so much open management system that there are no stories in actual due to high level of certainty (best practice).

17. What are the general myths?
Analysis: The most common myth is about the bonuses, salary raises and the general monetary benefits. Again in most of the cases such myths exist, as employees are not aware about the compensation and benefits due to absence of organization’s policy (loophole).

In some cases there are not as many myths as in other organization. One of the main reasons is well established, clear and institutionalized compensation and benefit policy for employees, which is well integrated with the performance management policy / system.

18. What sort of organizational hierarchies are followed?
Analysis: Generally most of the organizations follow a completely project based organizational structure. Very few of the organizations follow a matrix based structure and extremely few follow the functional structure. In this research one specific structure cannot be termed as best suited for the entire industry but general loopholes and best practices can be obtained, however.

Talking about the loophole very few employees were truly and completely clear about the structure of their organizations. In case of organization’s that have matrix based structure, employees have been found reporting resource conflict as an issue. Another missing item is that mostly organizations structure is made for the project / product / technical teams and the other departments like for instance finance, administration Etc are not integrated with the technical structure of an organization, thereby leaving a lot of loopholes.

One of the only best practices that were found in one of the organization was that their quality department reported directly to the senior management. This helped the quality assurance section become stronger in terms of their presence within the organization.

19. Are roles and responsibilities defined within organizations?
Analysis: Roles and responsibilities are defined in most of the cases but not formally (loophole). Only in very few of the organizations roles and responsibility are clearly defined and documented (best practices).

20. How is work monitored?
Analysis: In most of the cases, work is monitored through reporting and review meetings (daily or weekly). In some cases monitoring softwares are used for example UR or Task Tracker (best practice). The best part is that many of such organizations make ensure that task tracker softwares are also used (qualitatively and quantitatively) for tracking the work of both technical and non technical staff members. It is also important to highlight the fact here that in a couple of organizations work is monitored through observation only (loophole).

Some of the organizations (very few) use project / product management tools and extremely few use the integrated project management tools (best practice). This results in issue managements of various projects / programs Etc within the organization.

21. Planning is done or not?
Analysis: In most of the cases plans are not made accurately against some international standard like ISO or CMMI Etc (in other words planning is not done sufficiently). In cases where planning is done,
extremely few cases exists where work performed is actually monitored against the planned work. Some organizations surveyed even lack the skills, necessary environment and structure required for planning.

22. How staff responds to changes?

Analysis: Public sector organizations tend to respond more positively to change. Specific reason(s) for this behavior could not be found. Private sector organizations however do have a tendency whereby employees show some resistance to change (loophole). Some of the staff members often feel that changes are accepted quickly if they are made with consensus of the employees within the organizations. In some cases changes are implemented slowly and in such cases normally the change appears to become organization’s culture over time (given that fact that there are no major oppositions). Quick changes however, do experience major set backs at times but it is mainly dependant on the fact that who is making the change. Normally if the change is brought by the senior supervisory figures or the organizations top management then it takes less time to get implemented. In some cases changes are recommended by departments such as human resource or quality management departments. In such cases implementing change organization wide is a difficult task. An important observation of one of the interviewed employee is that changes are normally not discussed and proper understanding of relevant stakeholders is not developed. According to this employee sometimes changes are beneficial for stakeholders but they do not necessarily feel that change is desirable due to their less involvement in deciding what the change is all about.

Best practices in this regard are that change is relatively welcomed but despite this fact the implementation process and the change suggestion process has certain deficiencies in terms of involvement of the stakeholders.

23. How people manage quality?

Analysis: A critical, yet an extremely ignored issue in Pakistan’s IT industry is ‘Quality’. Most surprisingly nearly all the employees interviewed specifically talk about ‘Quality Control’ or in other words ‘Software Testing’ or simply ‘Product Testing’. It is important to note that most of the employees (even the employees belonging to quality departments) are not familiar with the concept of total quality management. In nearly all the organizations, hardly people are familiar with process and people related quality issues. In true sense many of the employees interviewed are not even familiar with the concept of the difference between ‘Quality Control’ and ‘Quality Assurance’.

In this thesis one of the research question and particularly one chapter specifically focuses on ‘Quality’. In this question focus is limited to very basic understanding of how actually quality is managed in broad spectrum within IT organization of Pakistan. Summing up the discussion the only explanation and the explored characteristic of Pakistan’s IT industry is that in most of the organizations there are dedicated departments that perform software testing. With an exception of one organization all organizations’ quality departments do not cover total quality management concepts (loophole). In case of only one organization, quality management is done at organizational, project, employee, process and product level (best practice).

Detailed discussion regarding how quality management was done was not explored in this question due to author’s specific interest in obtaining answer to the fact that how quality management was done in broader spectrum.

24. How people respond to quality issues?

Analysis: Mixed behaviors were observed against this question. Some employees have reported that in most of the cases people respond well to quality department. This however is a slightly confusing statement as because based on our observation in the last question quality management departments do not cover full quality scope. It can therefore be asked that how employees in various organizations would behave in presence of an ideal quality management department that takes care of all the necessary dimensions of quality.

Many of the employees surveyed and results of ethnography explain that mostly employees feel the work (quality management related work) is an overhead. Many of the employees tend to believe that quality management is a redundant task. Employees also believe that quality management staff members simply interfere in the basic assignments of various employees. To some extent management within various IT organizations also subconsciously agrees with these view points. Attitude similar to these, result in resistive and unserious attitude of employee towards quality management departments thereby letting employees ignore quality issues (loopholes). In addition to the loophole identified, in most of the cases quality management staff members do not involve overall organization’s staff (relevant stakeholders) in process engineering and improvement (loophole), thereby resulting in formulation of processes that do not rightly suit the stakeholders needs.
One of the organizations has also reported that employees that are involved in projects (or product or technical work) directly are rewarded much better as compared to staff members who work on quality. This results in disinterest of quality management staff in their work (loophole).

In case of only one of the organizations, management is so much strongly committed with quality that ripple affect can be observed in employees attitude who seriously take consideration of the quality management issues (best practice). Further to this, this organization has a very well defined process engineering and improvement policy thereby involving all the necessary stakeholders.

25. How people respond to employees in quality department?
Analysis: None of the employees interviewed actually used the term ‘Good’ (or related words) for explaining behavior of different staff members towards the quality management team. In some cases some people have reported that response towards quality management team is fair and ok. Some employees believe that quality management people always come up with extra work for them. According to some, quality management team is ignored as project or product teams consider that quality management teams know less as compared to them. People generally respond to quality management team as a low profile team, responsible for all failure and not responsible for any success. They generally consider that quality management teams have less workload as compared to technical teams within organizations. In general less value and importance is given to quality management staff members. In view of few people interviewed, quality management teams do not enjoy healthy relationships with the rest of the teams within the organizations (loopholes). No best practices were found in this case.

26. How well the risks are managed?
Analysis: In most of the cases risks are not managed. Mostly risk management process starts informally when the risks prevail as an issue (loophole). In very few cases, particularly in case of CMMI Level Three or above organization, limited focus is laid on risk management (best practice).

27. What do the quality management department head (if any) feels about organizations quality?
Analysis: A basic critical problem seen / observed is that in some organization normally the development team / department head is the in charge of quality management (loophole). This is an extremely wrong method of quality management as because it is important the quality management is lead by individuals who are not part of the project / products deliverables directly. In other words people who produce / work on something must not judge / manage / assure the quality of that thing themselves (loophole).

In cases where there is dedicated quality management lead, most of the department / team heads feel that there is a lot of improvement requirement for quality uplift with all organizations (loophole). It has been observed that many of the quality team / department leads are not objectively clear about the status of quality within their organizations (loophole).

28. Do we have separate HRM department?
Analysis: Mostly, IT organizations surveyed have dedicated HRM department (best practice). Only in case of very few (particularly one of the public organization) there is no separate HRM department (loophole).

In case of most of the organizations, HRM function is not completely executed by the respective departments. In some cases some of these so called human resource departments just take care of salary postage, whereas in case of others some only take care of recruitment. Very few organizations have HRM departments that take care of all the necessary human resource related functions within an organization (loophole).

29. What do people feel about HR practices?
Analysis: Generally they do not feel satisfied with the working, policies and practices (loophole).

30. Do employees feel that management trusts them?
Analysis: In most of the cases employees agree with the fact that their management trusts them (best practice). The only exception appears in cases where management is from a different nationality. Similarly in public organizations the element of trust is relatively limited (loop hole). In case of one organization, the foreign manager practices an open door policy for his staff in order to have open communication with them (best practice).

31. Organizations feel financially stable?
Analysis: Nearly all the employees feel that the organizations in which they work are financially stable.

32. Employees feel that there are a lot of chances for innovating at organizations?
Analysis: Generally employees agree that there are fair chances of innovation in IT industry of Pakistan (best practice). In very few cases employee have been found reporting lack of innovative environment (loophole). This is particularly true for public sector organizations.

33. Employees feel that there are a lot of chances for improvements at organizations?
Analysis: Nearly 100% of the employee surveyed and the ethnographical research output reveals that in nearly all the organizations there is massive room for improvement. No specific best or worst practice can be found here.

34. How are conflicts managed?
Analysis: In most of the organizations, conflicts are ignored therefore resulting in further problems. Another important practice in some organizations is that they follow ‘The Yes Boss’ policy. Conflicts are simply resolved by decisions made from the supervisors. In very few cases, management takes care of the real conflict resolution. Mostly in many organizations, managers give higher weight age to senior members’ opinion. Most of these methods can be termed as loopholes in the organizational practices.

A single practice observed is that of one single organization that has an institutionalized conflict management process.

35. What is people’s perception about stability within organizations?
Analysis: With an exception of public sector organizations, private sector organizations’ employees feel that organizations offer partial stability. They believe that stability is very much dependant on the economical and political situation of the country, the business available to an organization, organization’s long term objectives, financial situation of the organization and finally the culture. The negative part of the discussion is that with an exception of few, employees are unaware of the various parameters that determine stability within the organization. This results in chaos and misconceptions about the stability within organization(s) (loophole).

In order to avoid misconceptions about stability within an organization, one of the organizations regularly shares its long and short term goals with its employees. Further to this company’s monetary success is openly discussed with the employee. The management of this organization also arranges ‘Open House’ with its employee in order to achieve common understanding regarding various parameters determining organizations’ and thereby the employee stability (best practice).

36. Organizations have long term or short term vision?
Analysis: Most of the employees are not clear about the vision of their organizations. Those who think they are clear are not familiar with the formal organization’s vision (loophole).

37. How is feedback welcomed?
Analysis: Mostly feedback is welcomed in nearly all the organizations (best practice), with an exception of few that consider feedback as criticism (loophole). In case of one of the studied organization feedback is document in form of online forums (best practice).

38. How people feel about professionalism within organizations?
Analysis: Most of the employees are not sure about what ‘Professionalism’ is (loophole)? Some relate professionalism with coming office on time, other think that fulfillment of commitment means that one is professional. One of the organizations surveyed identifies parameters that it thinks are important in order to term an employee as a professional (best practice).

39. What is more practiced; individualism or collectivism?
Analysis: Refer to analysis as in question six.

40. What is general certainty level within the organization?
Analysis: Refer to analysis as in question thirty one and thirty five.

41. Employees feel satisfied or not?
Analysis: Mixed trends have been observed while analyzing this question. Mainly this question would be addressed later in one of the subsequent chapter, mainly dedicated for analysis of employee satisfaction.

42. Are there separate department for Admin, Finance, Commercial, Marketing Etc?
Analysis: In most of the cases organizations have separate departments or teams for the said function (best practices). Only few organizations do not have separate departments for these functions.

43. Management is helpful to employees or not?
Analysis: With an exception of public sector organizations (loophole), generally private organizations staff members believe that management is helpful to them (best practice).

44. Trainings are conducted for employees or not?
Analysis: In private sector organizations trainings are partially conducted. Out of the overall conducted training employees consider that nearly half are useful and effective. In public sector organizations
hardly any training is conducted. The ones that are conducted are offered to employees on personal preferences, nepotism and high positions. Overall there is an extreme deficiency of the right trainings. In both the public and private sector organizations, training management process is not (loophole) well defined (with an exception of best practices by few of the CMMI Level Three (and higher level) organizations).

45. What are the team dynamics?
Analysis: In most of the cases, generally the teams are aware of their identities, but this is not the usual case. In many cases there are deficiencies where the teams do not understand the roles and the responsibility within teams, sometimes teams are confused about why they are together?, what are they doing or going to do?, how they are going to do? And finally how they are doing? In one of an ideal organization’s case before teams are formulated, special team charter is made by the main supervisor of the team. In some cases charter such as these are made / discussed in form of presentation or meetings, whereas in some cases charters are formally documented and shared.

46. Is there any gender disparity?
Analysis: It is extremely unfortunate but gender disparity is there in case of IT industry of Pakistan. The main reason of gender disparity is in relation to late office hours. It is vital to note that in most of the cases females are unable to work after office hours. In most of the IT organizations, late sittings and after office hour working is extremely valued. As a result of this false requirement of the industry many females are unable to achieve the management’s requirements in terms of late sitting and therefore mostly females are not given equal growth opportunities. In addition to the stated problem, many of the females are not given preferences for on site working and working at clients end because most the females in IT sector do not prefer doing a job on which there is a lot of dealing / work outside the office.

The above two problems are serious loopholes and can be easily avoided. In one of the organization late sittings are not valued therefore all the employees are given equal growth opportunities. Similarly the organization well defines the job responsibilities so that all females are well aware of the job at the time of selection and recruitment (best practice).

47. How organizational commitments are handled?
Analysis: In most of the cases there is no concept of obtaining ‘Commitments’ (loophole). In case of only CMMI Level Two and above organizations, a commitment to work plans is formally made by relevant stakeholders before actual work performance (best practice). In some of the organizations (that are or above CMMI Level Two), commitments are only obtained to fulfill the requirement of CMMI framework (loophole).

It is also important to note here that in case of those organizations that formally make sure of getting commitments to plans, rarely the commitments are monitored as the work progresses (loophole).

48. Is there any favoritism?
Analysis: The answer to this question is simply yes (loophole).

49. Is there any information hiding?
Analysis: Partially yes (loophole). In some of the cases information hiding is minimized by the use of online discussion forums (best practice).

50. How is time management done generally?
Analysis: In most of the cases plans are not used for monitoring. In most of the organization, with an exception of few that are CMMI Level Two and above, monitoring is done formally (loophole). Out of those organizations that perform some sort of monitoring, only few exist that extend the monitoring function to its support departments.

51. How are deadlines set?
Analysis: In most of the cases deadlines are set without employees’ and related stakeholders’ commitment. Only few of the CMMI Level Two and above organizations formally set deadlines through discussion and consultation with employees and through proper commitments.

52. Is there any politics within organizations?
Analysis: Generally yes.

53. Job allotted is well explained or not?
Analysis: Generally in most of the cases job is extremely well explained (best practice). Some cases where jobs are not explained properly are where the management and subordinates are from different cultural backgrounds (loophole).

54. How organizations learn?
Analysis: Mainly through experience in most of the cases. In few cases the organization’s best practices and lesson learned are well documented and shared with employees (best practice).

55. The organizational environment is conducive or not?
Analysis: Partially conducive. In some organizations the environment is extremely favorable, whereas in others it is not (loophole). Administration of the organization is mainly held responsible for poor work environment.

56. How productivity is generally measured / monitored?
Analysis: Generally productivity is not measured (loophole), with an exception of few CMMI Level Two and higher organizations (best practice).

At the end of analysis of all the sub research questions, it is also important to mention that many of the employees interviewed reported experiencing harassment and interference in private lives from their employers. Although this issue was not addressed by any of the sub research question but still it is being analyzed here. Harassment and interference is experienced by many employees in nearly all the organizations (loophole). Hardly any organization was observed that used some significant means of avoiding these problems.

It is also important to highlight that some of the cultural issues identified in Section 4.5 that are related to discussion area such as employee satisfaction, motivation, human resource management, project management, quality management, employee growth, leadership, training & development Etc would be discussed / analyzed in subsequent chapters.

4.6 Recommendations for a Relatively Ideal Culture

Based on the discussion in Section 4.5 and particularly in Section 4.5.2.1 ideal practices have been identified in order to fill the loopholes / gaps in the base culture. Each recommendation contributes to formulation of an ideal culture. The author of the thesis has personally used the following recommendations in ZTE Pakistan Pvt Ltd and experienced massive improvement in general organizational culture.

Recommendations are as follows:

- **Special activities must be arranged within the office (like sports, movies, television Etc) during the office break timings particularly.**
- **Administration and other support departments must study the general (personal) and the common requirements of all the employees and thereby must try to facilitate the identified personal common issues of employees that are the worst time consumers. E.g. is the issue related to banks!**
- **Task based management******** must be done instead of time based management. This also requires relaxation in office timings.**
- **All work plans must be discussed with employees and work allotment must be done with commitment†††††††† from all the necessary stakeholders. It is also important that all commitments are well monitored over the passage of time.**
- **Non technical staff members must have open discussion sessions with the technical staff members in order to discuss their issues, problems and concerns with them. This would not only give boost to better communication but would also allow the support staff members to perform according to the requirements of the general staff members. Closed doors attitude of support or non technical staff must be strictly avoided. In addition to this it is important that management must try to decrease the detachment between non technical and technical staff. Management must try to bring culture into the organization, where every single person understands that the role of support / non technical staff is equally important for the company’s success.**
- **Senior staff members must regularly reach their employees on daily basis. They must discuss official and personal issue with the employee. They must encourage an open culture.‡‡‡‡‡‡‡‡**
- **Senior management staff members and the executives must understand that what are the soft factors and that how these factors can affect and improve their organization’s productivity, quality and overall functionality.**
- **Executives and senior staff members must monitor the key performance indicators for all teams / functional units within their organization. This must be done quantitatively and with the help of**

******** Management style in which the supervisor is only concerned with the results and on time completion of task! In this kind of management supervisor is not concerned with how much time the employee actually puts in his / her job.

†††††††† CMMI Version 1.2 Level two key process area of ‘project planning’ supports the concept of taking commitment from staff. PCMM also focus on commitments.

‡‡‡‡‡‡‡‡ In an address by President Marketing Division 1 [South Asia] ZTE China to ZTE Pakistan’s senior staff members, focus was laid on reaching / communicating with employees on daily basis.
quality management team. It can also be said that the use of 'Measurement and Analysis' area of CMMI (Level Two) must not be limited to project (product development) performance monitoring rather similar quantitative monitoring should be done for the management of the overall organization. Measurement and analysis area of CMMI (Level Two) must be used for organizations productivity measurement and monitoring.

- Each organization must have a formal and mutually agreed organizational strategy, mission and vision. Not only this but it is also important that each organization clearly and categorically defines (communicates) the relationship of its long and short term organizational goals and objectives with organizational mission and vision. All such documents must be made available all the time to all the employees within various organizations.

- All organizations must try to locate its core values and must try to enhance its ability to institutionalize the values. An all rounded change in perception should be developed where valued practices list must not include items like late sittings etc.

- Organizations must have a formal decision making policy. All decisions must be made collectively and generally a process should be followed for problem solving and decision making. In other words decisions must be made systematically.

- In case of success there must always be an employee share in monetary terms. It is a great idea if each employee is in advance (before actually achieving the success) well familiar about the method of calculation of monetary benefits. In addition to this, a common party / feast in form of dinners for example (particularly involving the family of the staff members) must be held in order to make sure that employees feel part of the success.

- Root cause analysis must be done for analysis of failure. Rectification steps must be commonly agreed by all relevant stakeholders.

- Management should analyze the default rules within their organization, study them and make sure that default rules are translated to policies. Default rules can be a source of chaos for employees within the organizations.

- Each organization must have a policy, rule and a process formulation and implementation methodology. It is always better to give the task of implementing and monitoring a policy, rule or a process to organization’s quality management teams. These teams must have close coordination with process engineering group within the organization.

- It is important that the importance of value of trainings, life of an employee, employee’s learning and feedback from employees (no matter right or wrong or in favor or against the organization’s values) must be understood by all supervisory figures. This culture must be penetrated into company’s core management viewpoints through trainings of supervisory figures within the organizations.

- Open management system and open communication system results in less stories within the organization as element of uncertainly is relieved.

- Senior management of all organizations must take serious consideration of nepotism. Strict policy against nepotism exist in all organizations.

- A strong compensation and benefit policy must exist within the system that is closely in lined with a very well established performance management policy.

- All organizations must have a clear, well defined and well communicated organizational structure. It is important that all the organizations must ensure that in case they use matrix based organizational structure then they must have a proper conflict management policy as said earlier. It is also important that quality management department should preferably report directly to the organization’s top head.

- Clear, documented, distinct and mutually agreed definition of roles and responsibility must exist in an organization that is accessible to all and well communicated.

CMMI Version 1.2 supports the idea of process institutionalization!

A process engineering group is meant to study, analyze, improve and formulate (engineer) policies, processes, rules, procedures and habits for an organization. Members of these process groups are employees from within the organization who clearly understand the various aspects and requirements of an organization.

Wikipedia Source: March and Olsen (1975) attempt to link up individual and organizational learning. In their model, individual beliefs lead to individual action, this in turn may lead to an organizational action and a response from the environment which may induce improved individual beliefs and the cycle then repeats over and over. Learning occurs as better beliefs produce better actions.

Quality Management Departments in NetSol Pakistan Pvt Ltd and ZTE Pakistan Pvt Ltd agree with this unanimously.

CMMI Version 1.2 and PCMM Version 2.0 emphasize similarly!
• Definition of job responsibility is also important in order to avoid the gender disparity issues. Many of the females must be able to understand the job responsibility before their actual placement at a particular job.29

• For project (or product development) and general monitoring of work it is highly important that organizations should use some sort of project management (it is better if integrated project management tool is use), issue and task management, tracking and monitoring tool. Monitoring must be quantitative and not only qualitative. Monitoring of task, work and necessary outcome / deliverables should also be done by the quality management team both for the technical teams and non technical teams.

• It is extremely important that plans are made properly by both the technical and non technical team leads that minimally, pass the criteria of some international standard. It is also important that planning must be done using some planning software like for instance MS Project. Plans should not be made without just any reason. In fact plans must be used as a baseline for monitoring the work performance. It is also preferable if integrated planning is done using some tools like for instance Project Server 2003 Etc.

• Change management must be done through a set procedure, preferably involving all the stakeholders. Follow-up on the consequence of change implementation is equally important. All the relevant stakeholders must support an open feedback system that allows recursive change management. Management must try to change attitude whereby they feel that every change implemented by them is almost always correct.********** 28

• Quality management within IT organizations must not be limited to product quality and / or software testing. In true sense total quality management must be done within organizations. Specific focus is required for people and process quality. Quality departments must ensure that they clearly understand differences between quality engineering, quality monitoring and control, quality implementation, process improvement, product quality, people quality and process quality. Most of the CMMI Version 1.2 key processes areas agree with the different dimensions of quality identified in this point.

• Management’s commitment is extremely important towards quality management within IT organizations.27 This is the only method using which employees within IT organizations can be made aware of the fact that how much quality management is important for the survival of an organization. Along with management’s commitment it is also equivalently important that quality management (dedicated sub department is extremely necessary that directly reports under the top management) departments within various organizations should ensure the involvement of all relevant stakeholders in process engineering. It is important that before the process, a standard, a standard operating procedure, a policy or a procedure is launched then it must be mutually agreed by all relevant stakeholders.********** This is extremely important if the quality management department wishes to buy in employees. In addition to process engineering, process improvement must be done in a similar fashion with open ended feedback system and with an attitude that always welcomes change. Management must also consider the importance of quality management department in overall project************ execution (and / or product development) and must therefore provide equal benefits and compensation to quality management staff like project / product related staff.

• Management must ensure that importance and significance of quality management team is accepted across the entire organization. It is also important at the same time that quality management teams within organizations ensure complete involvement in the technical aspects of their work. Here; by technical aspects, it does not only mean that quality management teams must be a specialists of the technical aspects concerning quality, but also it is important that quality management teams obtain complete understanding of the organization’s products / projects (driving business).

• A well defined, workable and a realistic issue and risk management process must exist in an organization that must be institutionalized by the management themselves. It is important that both the issue and risk management process must involve organizational, people and process related risks and issues along with products and project related issues and risks. The issue and the risk management process must ensure that quantitative management is also done along with qualitative management.§§§§§§§

********** CMMI Version 1.2 validates this requirement!
†††††††††† Formal concept of SEPG: Software Engineering Process Group is very much similar!
‡‡‡‡‡‡‡‡‡‡ For some organizations the word 'project' cannot be used as they are completely product oriented.
§§§§§§§§§§ Emphasized by CMMI Version 1.2, maturity level three!
• Monitoring of quality must not be done in subjective manner only. There must be quantitative measurement for judging the level of quality within an organization (as for instance stated in CMMI Version 1.2 Level 2, Measurement & Analysis Key Process Area).
• All quality management teams / departments must have a dedicated leader.
• Dedicated human resource departments are extremely necessary that execute all the human resource management functions.
• It is extremely important that management should carefully understand the role of human resource management in order to ensure proper human resource management. Management must lend a relatively free hand to the human resource department. The human resource department, at the same time, must ensure that all the stakeholders mutually agree to any human resource related policies, processes etc (before they are formally launched / implemented). Management must also recruit the right people to manage the human resource function for their organization. In case of deficiency of knowledge in human resource department, proper training must be imparted to the human resource management staff in order to ensure their correct and productive working.26
• In case of cross cultural organizations, where the management is particularly from a different country / culture, specific focus should be given to bridging cross cultural gaps. This can be done through informal discussion between management and staff, occasional celebrations and open door management.
• Organizations must provide extremely conducive environment to its employees for innovating. It is important to realize that technical innovation is the not the only requirement here. Innovation can also be done in various organizational related parameters like for instance processes, procedures etc.25***********
• Since most of the research reveals that there is a lot of improvement opportunity in mostly all the IT organizations in Pakistan, therefore it is extremely wise for the management to perform action research and appreciative inquiry within their respective organization. The results of this action research and appreciative inquiry should be submitted to an analysis team (preferably from quality management). This team must later study all the proposed improvements and track / manage them to closure with the help of management and relevant stakeholders.17,18,†††††††††††
• It is an extremely good idea that management arranges open discussion sessions with its employees. This allows the employees to gain vision in the organization’s current and long term standing. Such session can help the employees to understanding the true picture of their organization’s stability.24
• Feedback must be welcomed and documented. Senior management within an organization must ensure that all level of staff welcome feedback from other staff members.‡‡‡‡‡‡‡‡‡‡‡
• It is always a good idea to document and share the personality traits that the organization feels are important for better professional attitude of an individual within a specific organization. It is preferable if this work is done by human resource department.§§§§§§§§§§§
• There must be separate admin, finance, marketing and commercial / legal teams within every organization.
• Management’s view must be changed in public sector organization and they must offer an open door policy to their employees in order to support employees by all means.23
• Training management process must be carefully formulated, documented, shared and institutionalized by all organizations (specific information on how to formulate this process can be obtained from CMMI Version 1.2 Framework, Level Three). Preferably human resource management or quality management department should be held responsible for the training management within every organization (off course with support of supporting department like for instance administration). It is also important that all organizations must perform training need assessment and carefully study the skill and knowledge requirement. Skills and knowledge required must later be acquired through effective trainings. Selection of employees for training must not be done on personal preferences or position of an organization, rather purely organization’s best interests and merit must be given highest preferences.************

************* PCMM Version 2.0 identifies similar practices for improvement in work environment and innovation.
††††††††††† At ZTE Pakistan Pvt Ltd (A CMMI Level 2 Organization), Measurement and analysis is done by the quality management team. This enables the management to gain quick feedback and answers to their desired information needs.
‡‡‡‡‡‡‡‡‡‡‡ CMMI Version 1.2 and PCMM Version 2.0 both put extreme emphasis on organization wide feedback.
§§§§§§§§§§§ PCMM Version 2.0 identifies similar practice in level three key process indicator by the name ‘Knowledge and Skill Analysis’.
************* CMII Version 1.2 level 3 and PCMM Version 2.0 identify Organizational Training as an important key process area for ‘Defined’ and ‘Repeatable’ maturity levels respectively.
• All organizations must ensure that after office timings working hours must not be valued. Among many issues valuing late sittings gives rise to gender disparity.22
• Online discussion forums and public bulletins help reduce the element of information hiding.22
• Strict policy must exist that strongly discourage office politics. Further to this management must never try to be part of the political circles within organization.23
• In case of cross cultural organizations, foreign management must perform an internal survey that would help them gain vision about how well their direct subordinates understand the job allocated to them. If the survey results are relatively negative then managers must try to allocate jobs to employees with more visibility, clarity and with extreme care. It is also better in such cases to involve team members from the organizations that are better familiar with the both the cultures and in particular understand the languages of the subordinates and their supervisors.20
• It is always a good idea to register lesson learned by organization and the best practices that have proved to be beneficial to an organization in preferably an online forum that is accessible to all the staff. It is also important that the quality management and the support departments that are involved in organization’s policy and process formulation must seriously take account of the identified lesson learned and the best practices in order to enhance, improve or rectify the organizations policies, procedures and processes Etc.19
• Survey, participatory management, appreciative inquiry and action research must be used by the management in order to obtain understanding of how employees feel about the physical work environment. Actions should be taken accordingly against the identified issues and must be monitored till closure.17,18
• Each organization must ensure that proper team charters14,15,16 are made defining the roles and responsibilities within teams, the reason and objectives of the teams, how teams would work, how their performance would be monitored Etc. It is highly recommended that such charters are documented and well shared across the organization.
• Specific rules / policies must be made by the management of every organizations (strategy is required even at a national level) that strictly discourage employee harassment†††††††††††† and interference by the employer (stalking)‡‡‡‡‡‡‡‡‡‡‡‡ in employee’s personal life.11,12,13
• ‘Succession Planning’§§§§§§§§§§§§ must be done formally within organizations.

Detailed Recommendations related to employee satisfaction, motivation, human resource management, project management, quality management, employee growth, leadership, training & development Etc would be made in subsequent chapters. In this chapter we only limit our discussion to cultural issues.

4.7 Conclusions
This chapter initially presents how and which parameters of the cultural dimensions should be studied for the analysis purpose. Once the rights parameters are identified, focus is laid on understanding and analysis of the issues (concerning culture) identified in ‘Chapter Three’. The identified parameters are then studied using ethnography and survey / interviews as research tools. Each parameter is explored in order to identify the loop holes and the best practices. Once this is done, set of recommendations is obtained. The recommendations proposed directly help in resolution of the issues explained in Section 4.5.1. Figure 4.3 explains which issues (identified in Figure 4.2) are addressed using a fish bone diagram as follows:

†††††††††††† In 1984, the Canadian Human Rights Act prohibited sexual harassment in workplaces under federal jurisdiction.
‡‡‡‡‡‡‡‡‡‡‡‡ Wikipedia Source: Stalking: The unauthorized following and surveillance of an individual, to the extent that the person's privacy is unacceptably intruded upon, and the victim fears for their safety.
§§§§§§§§§§§§ Wikipedia Source: In organizational development, succession planning is the process of identifying and preparing suitable employees through mentoring, training and job rotation, to replace key players — such as the chief executive officer (CEO) — within an organization as their terms expire.
[Figure 4.3] Addressing Organization’s Cultural Issues as Identified from Chapter Three
4.8 Bibliography


4.9 Endnotes


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CHAPTER FIVE: DEVELOPING BETTER UNDERSTANDING OF IT ORGANIZATIONS IN PAKISTAN (APPLYING THEORETICAL, PHILOSOPHICAL, PRACTICAL, INTERNATIONAL & CULTURAL REQUIREMENTS & METHODS)
CHAPTER FIVE: DEVELOPING BETTER UNDERSTANDING OF IT ORGANIZATIONS IN PAKISTAN (APPLYING THEORETICAL, PHILOSOPHICAL, PRACTICAL, INTERNATIONAL & CULTURAL REQUIREMENTS & METHODS)

5.1 Chapter Introduction

5.1.1 Executive Summary

Given the reality that IT organizations in Pakistan suffer from the dilemma of inappropriate management skills, one of the basic problems that can be immediately identified is that management in IT organization of Pakistan tremendously fails to understand organization as a whole. Many of the managers’ have tendency of focusing on the technical aspects only, like for instance project implementation, technology Etc. Others who have relatively better approach towards management actually limit their concern to basic administration and / or basic business development.

This chapter argues that for a relatively successful management it is important that management must carefully understand organization as a whole (including people, processes, products, projects, operations, HR, financial aspects and others…..). The chapter introduces and analyzes various methods and techniques that can be used by the management for understanding their respective organizations.

In other words from the discussion above we can simply say that this chapter outlines what the managers should try to understand for better organizational understanding. In addition to this; managers must also be able to understand that how they should try to understand. For ‘what to understand’ and ‘how to understand’ the chapter focuses on international and national requirements and methods respectively that are outlined by various theorists, philosophers, local and international professionals Etc. All the necessary requirements and methods (identified from various resources) discussed in this chapter have been evaluated critically. It is made sure that the reader of this chapter not only understands what various resources have to offer, rather the reader must also be able to understand how the identified requirements and methods (from various resources) can be used / applied in Pakistan’s IT industry.

Critical review of all the theories, philosophies, industrial practices, cultural practices and international practices also help the reader in understanding the respective resources’ strengths’ and weaknesses’.

5.1.2 Background

Charles Handy in his book ‘Understanding Organizations’ writes:

“I am reminded of a student on a management development program. He had made a half-a-million pound by his own efforts by the time he was 35. ‘Why are you coming here as a student?’ I asked him. ‘With your success record you should join the faculty.’ ‘Not so,’ he replied, ‘I have come to find out why I was so successful.’ He understood that if he could not explain his success he could not repeat it.

So it is with the interpretive devices of organization theory. Organizations have existed for thousands of years. Many have succeeded. Many have failed. The aim of organization theory is to explain the difference. To conceptualize and understand what works well so that it can be repeated. To generalize from the particular and to perceive the common thread in the tangled skein of individual incidents”

As specified

Like Charles Handy’s book on organizational understanding, in which he strictly focuses on the key concepts like culture, motivation, leadership, power and role playing Etc; this chapter puts into words what successful managers / theories / philosophies / organizations practice intuitively.

The chapter discusses some of the conceptual, practical, cultural, national and international frameworks that the author and interviewees (people who were interviewed for this chapter) found most useful for interpreting IT organizational phenomenon in Pakistan.

The chapter is eclectic in nature. It tries to review all the ideas related to organizational understanding but focuses on coherent set of concepts. Most of the discussion in this chapter is interpretative in nature and does not present precise traditional definition of various concepts.

5.1.2.1 What Does the Term ‘Theory’, ‘Philosophy’, ‘Culture’, ‘International’ and ‘Practical’ Refer To?

The term “Theory” here; precisely refers to concepts, hypothesis, conjecture, speculation, supposition

* Senior supervisory figures! The term ‘Managers’ from now on; in this chapter, would refer to middle and senior management within IT organizations of Pakistan mostly!
† Results identified from ethnography and general discussion with managers!
‡ Means theories, philosophies, industrial practices, cultural practices and international practices!
and / or assumption that have been largely and globally accepted as a credible literature resource. The concept of ‘Philosophy’ used in this chapter is very much similar to the concept of ‘Theory’. The only difference lies in the fact that philosophy largely refers to a viewpoint, a thought, idea and / or thinking. Both theory and philosophy here in this chapter refer to theories and philosophies (related to OD or in general), that subsist for the explanation of a particular method / technique / system / scheme / procedure (sequential, random and / or behavioral). Each theory and philosophy used in this chapter also pinpoints some bare minimum requirements for their execution. It is also important to specify here that it is not necessary that theories and philosophies used in this chapter are precisely for the IT organizations. The author, however, makes sure that application of each theory in the IT industry is well explained.

The term ‘International’, ‘Culture’ and ‘Practical’ in this chapter refers to best practices for understanding organizations. By ‘International’ we would mainly be referring to the international best practices for understanding IT organizations. Similarly by ‘Culture’ we would be referring to those best practices for understanding organizations (in IT organizations of Pakistan) that are not business oriented, rather source of these best practices is the culture mainly. Finally the term ‘Practical’ refers to the local best business practices (in IT organizations of Pakistan) that exist for the understanding of an organization. It is important to specify here that for a practice to qualify as a best practice (be it from any category), it is extremely important that a particular practice must be found repeated in various local / international IT organizations. In addition to this it is also important that for a practice (meant for understanding organization) at least two or more proof of its benefits (direct or indirect) must be available with the author of this thesis.

5.1.2.2 Why ‘Theory’, ‘Philosophy’, ‘Culture’, ‘International’ and ‘Practical’ Perspectives?

Ideally speaking, theory and philosophies represent academia, previous researches and credible / accepted source of information. Theories and philosophies are normally written after extensive research process and are normally tested and used beneficially.

‘Culture’, naturally helps us understand customs of a particular civilization. Normally culture is evolved over time under particular environmental, social, political, sociological, economical circumstances. A nice example can be used here in order to specify why we use cultural analysis if we want to understand IT organizations. Let us consider a simple case of Pakistan’s corporate environment where workers usually like to build special and personal relationship with their supervisors. This example does not mean that this cultural practice does not exist in other parts of the world, but important is that since it is part of the corporate culture in Pakistan therefore if managers / supervisor use this cultural practice successfully for better understanding of their respective organization then it is extremely beneficial for us.

Where we have culture we have successful local business practices (‘Practical Perspective’) (source of these practices may or may not be the culture) that are used in various IT organizations for organizational understanding. It is important to specify the fact here that it is important to realize what has been successful and what did not work or what worked how for organizational understanding. Similar to local business practice it is also important for us to realize what various international IT organizations do and practice for understanding their organizations better (‘International Perspective’).

5.1.2.3 What Does the Term ‘Requirement’ & ‘Methods’ Refer To?

The term ‘Requirement’ or ‘Requirements’ refer to the prerequisites, obligations, constraints and / or conditions required by a particular theory / philosophy or a best practice (international, local practice or local cultural practice).

The term ‘Method’ or ‘Methods’ refer to the manner, technique, procedure, system and / or process that is used by a particular theory / philosophy or a best practice (international, local practice or local cultural practice).

5.1.2.4 Why ‘Requirements’ & ‘Methods’ Only?

In authors viewpoint we basically need to know what is required by a particular theory / philosophy or a best practice (international, local business practice or local cultural practice) and how organizational understanding is to be build up according to a particular theory / philosophy or a best practice (international, local practice or local cultural practice). These two types of information are extremely important for understanding ‘whats’ and ‘hows’.

5.1.3 Objectives

The main objective of this chapter is to obtain answer(s) to the sixth research question; identified in ‘Chapter One’.
5.1.4 Purpose
This chapter enables the readers or stakeholders (managers {middle and senior}) in acquiring necessary knowledge and developing necessary skills for understanding organizations in IT industry of Pakistan. The chapter helps the reader in identifying what must be observed / focused / understood for establishing understanding of IT organizations. Moreover the reader is also able to understand (at a rudimentary level) and learn various methods that can be used to learn as to how organizations should be understood. The chapter also helps in understanding of how various widely accepted / agreed, national / international theories, philosophies and best business and cultural practices can be applied for understanding of IT organizations in Pakistan. Critical review of national / international theories, philosophies and best business & cultural practices help reader in clarification of necessary concepts; important for effective organizational understanding.

It is believed by the author that poor and deprived organizational understanding is a root cause problem for effective management and thereby for effective problem solving and decision making. The author believes that IT organizations require ‘Knowledge Management’§,2,3,4 which in turn requires effective ‘Organizational Learning’5,6, which in turn is dependant on understanding of an organization. In simplest words, this chapter works like organizational learning tool for the reader.**

5.1.5 Significance
It is important to emphasize the fact here that historically no similar exploratory, explanatory and analytical research has been conducted for the IT industry of Pakistan that formally helped in understanding, clarification, explanation and analysis of ‘Organizational Understanding’ for IT industry of Pakistan. Till date there is no understanding of which factors or what must be focused at for understanding organizations and how various globally accepted methods should be used / applied for obtaining necessary visibility into various organizational aspects.

The research in this chapter reveals Organizational Understanding as an integral factor for organizations in Pakistan for obtaining competitive advantages. Effective and correct organizational understanding eliminates chances of incorrect problem solving and decision making. As specified earlier effective and correct organizational understanding improves chances of organizational improvement in terms of its workforce, environment, work in general, chances of innovation, productivity, quality and performance in general. Based on this discussion it is intended that findings of research in this chapter can be used to bring improvements in the work being done in the IT industry. This may serve as a valuable contribution in uplifting the IT economy of Pakistan.

5.1.6 Limitations & Constraints
The most important limitation that exists in this chapter is that we are restricting to only well known theories, philosophies, best practices (practical, cultural and international). It is also important to note here that analysis of theories and philosophies has been done purely by the use of ethnography. The analysis of best practices, however, also involves feedback from other necessary relevant stakeholders. Recommendations outlined in this chapter are extracts of goodness of each theory, philosophy and / or best practices. It cannot be said that recommendations outlined in this chapter are the only available solution. The author however makes sure that the proposed recommendations appear as tested techniques on IT industry and that all recommendations have maximum benefit for the organization and minimal side effects.

5.1.7 Scope
Section 5.1 of this chapter presents the introduction. Subsequent to Section 5.1, Section 5.2 and 5.3 present the literature review and the research methodology respectively. Section 5.4 specifies the data collection methodology, sources of the data and tools used for data collection. Section 5.5 presents the main body of this chapter. It starts with Sub Section 5.1.1 that explores, explains and investigates; requirements and methods as in view of various well known theories and philosophies. Each theory and philosophy is analyzed using a short synopsis, its strength and weaknesses, requirements that the theory imposes for organizational understanding, the method(s) that the theory proposes for organizational understanding and how the given theory can be applied in Pakistan’s IT industry. It is also important to specify here that theories and philosophies presented in Sub Section 5.1.1 have been categorized and grouped in to two main categories. The first category concerns those theories / philosophies that

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§ Organizations that work with ‘Knowledge Management’ often use ‘Knowledge Management Programs’ that are typically tied to organizational objectives and are intended to achieve specific outcomes, such as shared intelligence, improved performance, competitive advantage, or higher levels of innovation. CMMI also encourages similar concept.

** Wikipedia Source: Organizational learning is an area of knowledge within organizational theory that studies models and theories about the way an organization learns and adapts.
specifically fall within the literature concerning OD. The second category concerns theories / philosophies that although concern organizational understanding but generally they do not fall in the OD theoretical framework.

Subsequent to Sub Section 5.5.1, Sub Section 5.5.2 presents the necessary requirements and methods for understanding IT organizations in view of well accepted practical & cultural practices. This sub section explores, evaluates and analyzes existing practices in two dimensions mainly, i.e. practical and cultural dimension. The practical dimension focuses on those practices (best practices within IT industry of Pakistan) that are currently used for organizational understanding. These practices are not specific to one organization and qualify as a best practice due to its repeatability in various organizations and success as observed by the author. Each practical best practice is analyzed, explained and each practice’s strengths and weaknesses are carefully captured. The explanation of each practice also includes identification of the requirements (focal points) it specifies for organizational understanding and the organizational understanding method(s) it uses. Much of the discussion / analysis concerning cultural dimension is similar to practical dimension. The only difference between the two dimensions is that cultural dimension speaks of everything that is done / practiced on cultural grounds by the organizations that try to understand themselves. In other words practices that fall in this category are essentially the cultural and not necessarily the business practices. Like practical practices, cultural practices are identified on the basis of the fact that they are repeated across IT organizations in Pakistan as observed by the author. Like each practical best practice, cultural best practice is also analyzed, explained (in case of simplicity of a practice the explanation is restricted to diagrammatic representation only) and each practice’s strengths and weaknesses are also carefully captured.

Unlike Sub Section 5.5.1 and 5.5.2, Sub Section 5.5.3 presents best practices in relation to organizational understanding at international level. Each practice is analyzed, explored explained and each practice’s method(s) and requirements for organizational understanding are also identified. Based on discussion in Section 5.5, Section 5.6 and 5.7 outline important recommendations and conclusions respectively. Each recommendation presented (in form of guideline or in form of framework) in Section 5.6 has been carefully identified from the analysis of strengths and weakness for various theories / philosophies (general and OD specific), national practical and cultural practices and international practices. The essence, spirit, value and strength of all the theories / philosophies (general and OD specific), national practical and cultural practices and international practices help us in determining the right recommendations customized, tailored, generalized for Pakistan’s IT industry.

5.2 Literature Review
Refer to Sub Section 5.5.1.

5.3 Research Methodology
Figure 5.0 presents the research methodology:
5.4 Data Collection

5.4.1 Sources of the Data

Three sources were used for data collection as follows:

A) Literature
B) Ethnography
C) Interviews

5.4.2 Collection Method

The data collection was done through three main resources as stated in Section 5.4.1. Data collection methodology for the first two sources would not be explained here due to the simplicity of discussion. For the interviews, data collection was mainly done using long discussions with the relevant stakeholders (in our case senior managers mostly). 10 interviews were conducted for the data collection from various senior IT employees. Employees interviewed worked in different IT organizations†† of Islamabad. It was also ensured that each employee interviewed must have at least more than three year working experience as a manager in his / her current organization. This was purposely done in order to make sure that each employee well understood their respective organizations. All the 10 organizations were carefully observed by the author and highlights were captured.

Random sampling method was done for choosing the interviewee. ‘Online and Virtual Ethnography’ was also used for data collection. It is important to mention here that due to the contextual nature of the subject being studied in this thesis, the researcher had to deeply immerse in the subject by being part of the IT industry itself.

5.4.3 Data Collection Tool Reference

None, just plain long interviews sessions and observations.

5.5 Analysis

5.5.1 Necessary Requirements and Methods for Understanding IT Organizations In View of Various Well Accepted Theories and Philosophies (Exploration, Evaluation, Analysis & Application)

5.5.1.1 Theory / Philosophy: Appreciative Inquiry

5.5.1.1.1 Synopsis

Developed by David Cooperrider of Case Western Reserve University‡‡, the concept of ‘Appreciative Inquiry’ is a concept much similar to the concept of ‘Brainstorming’. ‘Appreciative Inquiry’ is an OD technique / philosophy that ensure that individuals participate in organizational development process by focusing and being part of the organizations renewal process and by focusing on the changes the new programs focus on. In addition to this, this OD technique also focuses on maximum employee involvement in the OD program by making sure that employees and organization both focus on improved performance and performance criterion. ‘Appreciate Inquiry’ uses organization’s employees and enhances collaboration and encourages change organization wide.§§

5.5.1.1.2 Strengths / Weaknesses

Globally; concept of ‘Appreciative Inquiry’ has been used in health care systems, social profit organizations, educational institutions, communities, local governments, and religious institutions. There are hardly any traces of usage of this technique in IT industry.

5.5.1.1.3 What Does The Theory Require?

‘Appreciate Inquiry’ normally requires building up of social relationships between the managers and sub-ordinates, it therefore requires managers who can socialize better.

5.5.1.1.4 Methods Proposed

‘Appreciate Inquiry’ uses variety of approaches such as ‘Mass-Mobilized Interviews’ and a large, diverse gathering called an ‘Appreciative Inquiry Summit’.‡‡ General aim is to bring and involve very large, diverse groups of people together to study and build upon the best in an organization. Traditionally the technique uses four processes i.e.9,10,§§

1. DISCOVER: The identification of organizational processes that work well.

†† IT organizations running any category of IT related business.
‡‡ Ludema, Whitney, Mohr and Griffin (2003)
§§ Also exists similarly on Wikipedia Source!
2. **DREAM:** The envisioning of processes that would work well in the future.
3. **DESIGN:** Planning and prioritizing processes that would work well.
4. **DESTINY** (or **DELIVER**): The implementation (execution) of the proposed design.

5.5.1.1.5 **Application in IT Industry and Particularly IT Industry of Pakistan**

Formally there have been no signs of usage of this technique by any IT organization of Pakistan. Informally however, management in some organizations does hold some large diverse gatherings in order to understand organization in general.

5.5.1.1.2 **Theory / Philosophy: 360 Degree Feedback**

### 5.5.1.1.2.1 Synopsis

In plain and simple words; ‘360 Degree Feedback’\(^{11,12,13}\) theory emphasis on welcoming feedback from anywhere and everywhere within the organization. The US armed forces first used this mechanism / theory to support development of staff in the 1940s. By 1990s, the theory was in use by many OD specialists.

#### 5.5.1.1.2.2 Strengths / Weaknesses

Essentially, the theory’s strengths are enormous. Particular strengths lie in development of an ideal leadership through better understanding of the organization. In addition to this, several resources report that 360 Feedback’s usages within an organization reduces employee turnover and improves employee satisfaction. Few of the benefits obtained from Wikipedia Resource are as follows:

- It enables leaders to:
  - Take advantage of under-utilized personnel strengths to increase productivity
  - Avoid the trap of counting on skills that may be weak in the organization
  - Apply human assets data to the valuation of the organization
  - Make succession planning more accurate
  - Design more efficient coaching and training initiatives
  - Support the organization in marketing the skills of its members

General benefits include:

- Individuals get a broader perspective of how they are perceived by others than previously possible.
- Increased awareness of and relevance of competencies.
- Increased awareness by senior management that they too have development needs.
- More reliable feedback to senior managers about their performance.
- Gaining acceptance of the principle of multiple stakeholders as a measure of performance.
- Encouraging more open feedback — new insights.
- Reinforcing the desired competencies of the business.
- Provided a clearer picture to senior management of individual’s real worth (although there tended to be some ‘halo’ effect syndromes).
- Clarified to employees critical performance aspects.
- Opens up feedback and gives people a more rounded view of performance than they had previously.
- Identifying key development areas for the individual, a department and the organization as a whole.
- Identifying strengths that can be used to the best advantage of the business.
- A rounded view of the individual’s/ team’s/ organization’s performance and what the strengths and weaknesses are.
- Raised the self-awareness of people managers of how they personally impact upon others — positively and negatively.
- Supporting a climate of continuous improvement.
- Starting to improve the climate/ morale, as measured through the survey.
- Focused agenda for development. Forced line managers to discuss development issues.
- Perception of feedback as more valid and objective, leading to acceptance of results and actions required.

#### 5.5.1.1.2.3 What Does The Theory Require?

The theory requires formulation of well planned and well implemented feedback system / mechanism.

#### 5.5.1.1.2.4 Methods Proposed

None, specific!

5.5.1.1.2.5 **Application in IT Industry and Particularly IT Industry of Pakistan**

Observations show that some of the IT organizations practice feedback mechanism. In all the cases the feedback mechanism is limited. Means not in all cases; feedback is allowed from everywhere and from anywhere within an organizations. Some organizations have a better method of feedback mechanisms as their management uses the concept of online forums for employee-management interaction. Some organizations also use the concept of drop box for allowing feedback to management from the
employees (anonymous or reciprocal).
In some cases however, the use of feedback system is nearly absent. In such organizations employee’s involvement for general organizational improvement is not given the due weight age.

5.5.1.1.3 Theory / Philosophy: Action Research

5.5.1.1.3.1 Synopsis
As somewhat obvious from the name, ‘Action Research’, in context of OD, is a process of conducting specific research for a problem / issue that needs resolution and progressive problem solving within the organization. Normally action researches aim to address such issues / problems within an organization, resolution of which can help improve organizational strategically, practically and environmentally. The term was first used by Kurt Lewin, then a professor at MIT, in his 1946 paper “Action Research and Minority Problems”. According to Reason & Bradbury (2001):

“Action research is an iterative inquiry process that balances problem solving actions implemented in a collaborative context with data-driven collaborative analysis or research to understand underlying causes enabling future predictions about personal and organizational change.”

5.5.1.1.3.2 Strengths / Weaknesses
Most of the times, ‘Action Research’ requires involvement of a researcher (internal or external to an organization), who thoroughly understands what the theoretical framework of ‘Action Research’ is all about. Generally, obtaining understanding from ‘Action Research’ can be a time taking process due to high contextual nature of the theory / philosophy.

5.5.1.1.3.3 What Does The Theory Require?
As discussed earlier the theory requires highly contextual thought process from the researchers, time and availability of necessary qualitative, quantitative and contextual input information.

5.5.1.1.3.4 Methods Proposed
A number of methods exist as sub theories of ‘Action Research’. Figure 5.1 presents a summary of these various sub theories using knowledge from Wikipedia Encyclopedia as follows:

5.5.1.1.3.5 Application in IT Industry and Particularly IT Industry of Pakistan
In Pakistan’s IT industry; very few organizations having reasonably heavy focus on quality and strategy make use of ‘Action Research’. In addition to, normally the organization that use this theory / philosophy / method for organizational understanding are the ones that have reasonably and relatively extremely stable financial situation. Most of the IT organizations that make use of this methodology are not themselves aware of the actual theoretical framework behind the research that they conduct. In other words very few organizations perform researches for organizational understanding and those that perform do not formally work under the ‘Action Research’ theoretical framework. Finally it is also important to state here that organizations that make use of researches for problem solving and decision making hardly hire external researchers.

5.5.1.1.4 Theory / Philosophy: Collaboration / Collaborative Method / Mass Collaboration

5.5.1.1.4.1 Synopsis
‘Collaboration’ is a process that is structured and recursive in nature. Ideally in ‘Collaboration’ two or more people work together. Since the process is group based process therefore it requires sharing of necessary knowledge and learning. Unlike many organizational understanding processes, ‘Collaboration’ does not require leadership. The use of collaboration theory can be found in trade,
modern art, academia, game theory, military etc. 24-26 ‘Collaboration’ between individual / groups can happen due to chance, acuity, interest and leaders.

5.5.1.4.2 Strengths / Weaknesses
The major problem that can be observed in ‘Collaboration’ is the rise of conflict, variance in system and design thought process of the collaboration partner.

5.5.1.4.3 What Does The Theory Require?
Participation of multiple stakeholders and common understanding of problems, issues and organization is the first and foremost requirement. It is important that participants of collaboration understand the process of consensus, team building, performance analysis and interpersonal communication. In view of Spense (2006) 27, collaboration requires five C’s of communication, explicit and clear ideas, slow process, critical analysis, learning from one another and openness. Katzenbach and Smith (2003) 28 think that collaboration requires small groups, complementary skills with the group, common purpose, special performance goals, shared working goals and mutual accountability.

5.5.1.4.4 Methods Proposed
No specific method exists for ‘Collaboration’ for business perspective; however it is important to note the several collaboration teams have been found doing a lot of brainstorming. In addition to this many collaboration partners have been found using various quantitative and qualitative research techniques.

5.5.1.4.5 Application in IT Industry and Particularly IT Industry of Pakistan
Self collaboration concept *** is often found to be in practice in IT industry of Pakistan at individual employee level for the resolution of their personal / career issues. In case of senior managers mostly, it has been found that managers hardly collaborate with their subordinates / co workers or any other appropriate individual(s) / group(s) (internal or external to an organization). Observations suggest that in most of the cases managers / entrepreneurs / organizations’ owners would like to have the problem understood all by on their own. This behavior may be due to the reason that in most cases individuals in Pakistan would like to show others their success as a sole problem solver. Recently with the advent of high speed internet, web based software, open source projects and cheap computing and new way of thinking of management worldwide has also introduced the concept of ‘Mass Collaboration’. Although relatively not used in Pakistan but it is expected that with the betterment of internet (DSL in Pakistan), very soon, doing business outside the organization / company would be cheaper then doing business inside the organization. In other words concept of ‘Mass Collaboration’ ††† would certainly reshape the working style in Pakistan, like the rest of the world. 30

5.5.1.5 Theory / Philosophy: Employee Research

5.5.1.5.1 Synopsis
This is the most simplest and straightforward theory. According to Wikipedia Resource: “In organizational development (OD), employee research involves the use of surveys, focus groups and other data-gathering methods to find out the attitudes, opinions and feelings of members of an organization.” ‡‡‡

5.5.1.5.2 Strengths / Weaknesses
No general weaknesses can be found in case of this theory. If planned and executed properly ‘Employee Research’ build extremely clear understanding of the researchers / managers / entrepreneurs / organizations owners.

5.5.1.5.3 What Does The Theory Require?
There are no specific requirements of this theory, however it is to some extent, extremely mandatory that all the employee researches must be carefully planned and studied prior to execution. It must be made sure that each employee research has a cause and result outcomes must be able to give insight to the researcher against an issue / problem etc.

5.5.1.5.4 Methods Proposed
Generally both standard quantitative and qualitative research methods can be used!

*** For example if one department or an organization or an individual faces any problem / issue then he / she collaborates with other people / departments / organizations experiencing same environment (irrespective of the fact if they are experiencing similar problem or not).
††† Wikipedia Source: Mass collaboration is a form of collective action that occurs when large numbers of people work independently on a single project, often modular in its nature. Such projects typically take place on the internet using social software and computer-supported collaboration tools such as wiki technologies, which provide a potentially infinite hypertextual substrate within which the collaboration may be situated. A key aspect which distinguishes mass collaboration from other forms of large-scale collaboration, is that the collaborative process is mediated by the content being created - as opposed to being mediated by direct social interaction as in other forms of collaboration.
5.5.1.1.5.5 Application in IT Industry and Particularly IT Industry of Pakistan

‘Employee Research’ is partially used by some of the organizations in IT industry of Pakistan. Normally it has been observed that this technique is used by those IT organizations that have well developed OD or HR departments. Normally such organizations have better revenue as compared to the organizations in the rest of industry. Out of the organizations that use ‘Employee Research’, extremely few exists that truly understand the qualitative aspect of practice of this theory. It is also important to specify here that out of many of such organizations that practice this theory, very few (so far one has been observed) have been found that actually make use of this theory at large scale.

5.5.1.1.6 Theory / Philosophy: Human Relations Movement

5.5.1.1.6.1 Synopsis

In actual this theory stems from the Hawthorne studies. The ‘Human Relation Movement’ is the theory that focuses on the studying the behavior of people at workplace.

5.5.1.1.6.2 Strengths / Weaknesses

The basic weakness is that rarely managers understand the social and behavioral aspect of work. This limits the use of this theory.

5.5.1.1.6.3 What Does The Theory Require?

As discussed earlier the theory requires the managers to develop their social skills. In addition to this the theory requires strong collaboration and cooperation between the managers and the workers.

5.5.1.1.6.4 Methods Proposed

In case of this theory there is no specific method meant for understanding organization. The theory normally requires a higher level psychological framework of studies like for instance Maslow’s ‘Hierarchy of Need Theory’ or McGregor’s ‘Theory X and Y’. In general it is important that managers who plan to use this theory for practical purposes must clearly understand the theoretical framework of this theory and then solve employees problems (under the light of the theoretical framework subconsciously).

5.5.1.1.6.5 Application in IT Industry and Particularly IT Industry of Pakistan

Not even a single observation suggests the current use of this theory in the IT industry of Pakistan.

5.5.1.1.7 Theory / Philosophy: Knowledge Management

5.5.1.1.7.1 Synopsis

‘Knowledge Management’ is an enormous discipline. It is difficult to summarize the entire discipline in just one single synopsis. It is due to this reason that for general understanding of this theoretical framework extremely easy explanation is being given by the author here.

As obvious by the name, ‘Knowledge Management’ ideally refers to management of knowledge / information within an organization. It is important to manage knowledge / information within the organization because several a times; information / knowledge is reused. Similarly, generally information / knowledge is a source of organization’s awareness about itself. Generally information / knowledge are also a source of organization’s learning. In IT organizations particularly, many times knowledge / information needs to be maintained. This information / knowledge usually relates to (but not limited to) projects, products, planning, monitoring & control, HR, admin, IT, and other various organization’s functions. Despite the fact if the organization is IT based or not, ‘Knowledge Management’ can be used for identifying information / knowledge that needs to be managed within organization. By management we refer to (but not limited to), capture, storage, retrieval, utility, information / knowledge statistics, representation Etc.

In most of the cases ‘Knowledge Management’ function is executed by the HR or IT departments within the organizations. This, however, is certainly not always necessary. In some organization this function is executed by dedicated knowledge management or comprehensive management departments. In some project based organization, knowledge management function is also carried out by project management office / department. In case of IT organizations with higher CMMI rating particularly, knowledge management function is often planned, engineered and monitored by the quality management departments.

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§§§ Studies, which examined the effects of social relations, motivation and employee satisfaction on factory productivity!

**** The concept is similar to the concept of ‘Meta-knowledge’. According to Wikipedia Source: Meta-knowledge or meta-knowledge is knowledge about knowledge. More precisely speaking, metaknowledge is systemic problem and domain-independent knowledge which performs or enables operations on another more or less specific domain-dependent knowledge in different domains/areas of human activities. Meta-knowledge is a fundamental conceptual instrument in such research and scientific domains as, knowledge engineering, knowledge management, and others dealing with study and operations on knowledge, seen as an unified object/entities, abstracted from local conceptualizations and terminologies.

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The ‘Knowledge Management’ programs within an organization are closely related to organization’s learning initiatives. ‘Knowledge Management’ function usually (and must) supports the leadership / management within an organization. Organizations that use ‘Knowledge Management’ as a management tool need to ensure and define responsibilities and roles in relation to knowledge management. In addition to this, organizations that work on ‘Knowledge Management’ also need to specify the technologies that are used for ‘Knowledge Management’.

5.5.1.1.7.2 Strengths / Weaknesses
Essentially ‘Knowledge Management’ requires detailed study of the discipline and preferably a dedicated team within and organization that truly understands the knowledge management requirements for an organization. Similarly; the team must be able to clearly and categorically identify knowledge and engineer knowledge management process organization wide.

Use of ‘Knowledge Management’ gives enormous clarity to organization’s management and leadership. Presence of knowledge management capabilities within an organization enables good problem solving and decision making. In addition to this knowledge management also helps improve quality and productivity organization wide. Knowledge management is also extremely essential for organization’s growth, development and business capability and general business development.

5.5.1.1.7.3 What Does The Theory Require?
To start with ‘Knowledge Management’ requires dedicated and qualified workforce / team capable of planning, monitoring, managing and engineering the knowledge management function. In addition to this it requires that the team that manages the knowledge management function in the organization must be able to relate the function with the business and organization’s knowledge needs. It is important that people performing this function must themselves clearly understand what is required by the organization for its better understanding and for general improvement.

Other than the right team / people, ‘Knowledge Management’ function also requires the right technologies and most importantly the management commitments and sponsorship.

5.5.1.1.7.4 Methods Proposed
Several method / sub theories exist for ‘Knowledge Management’. In viewpoint of the author however how to manage knowledge within an organization can best be answered by the right team that manages knowledge management within an organization.

5.5.1.1.7.5 Application in IT Industry and Particularly IT Industry of Pakistan
Very rarely, organizations are found using knowledge management function for the use of entire organization. In some of the cases, organizations limit the use of ‘Knowledge Management’ to the project repositories only whereas in others filing, document management specific to project / business is considered as the only knowledge management requirement for the organization. Some organization that have CMMI level 2 or higher rating make use of ‘Configuration Management’, ‘Measurement And Analysis’, ‘Product And Process Quality Assurance’ and other related higher level ‘Key Process Areas’ that forces them to maintain knowledge to some extent. Out of many of such organizations that partially practice knowledge management, few exist that totally use the above mentioned genuinely. Many others perform the related practices for fulfilling the CMMI SCAMPI audit requirements.

In some organizations knowledge about knowledge i.e. ‘Meta-Knowledge’ is not maintained, thereby hampering the use of necessary information available in an organization.

5.5.1.1.8 Theory / Philosophy: Performance Improvement
5.5.1.1.8.1 Synopsis
Essentially speaking ‘Performance Improvement’ can generally be considered part of the quality management discipline. Although this thesis deals with IT organizations specifically but the concept of ‘Performance Improvement’ can be applied to any industry. In terms of IT industry however this concept generally relates to improvement in products, processes, organization, people and projects. This part of the thesis does not explain what performance improvement is about. The author considers the concept of ‘Performance Improvement’ self explanatory. Important question here is; that what constitutes performance improvement in IT industry.

In relation to our requirement stated above it is important to state here that in modern engineering practices CMMI$^{31}$ is considered to be the best model for process, product and project improvement. As described earlier in the initial few chapters, CMMI does not talk about people improvement. For this area; PCMM is widely accepted as a most reliable people / organization performance improvement standard. Performance improvement can be done quantitatively, qualitatively and through research.
Important question that the reader might think of is that “How ‘Performance Improvement’ concept relates to organizational understanding?”. The answer is pretty much simple. ‘Performance Improvement’ is a methodology. It can also be termed as a function that is carried out by specific part of organization such quality management department. It is a discipline and requires long term understanding of the organization and the organizational needs for achieving higher quality standards and better productivity. Since ‘Performance Improvement’ is a method / a discipline / a technique for improving organization therefore it requires some inputs and gives some outputs. In most of the cases for ‘Performance Improvement’ to work, it requires data (quantitative / qualitative) for understanding the organizational weaknesses. This way different sub techniques, standards and processes within the discipline enables the organizational / quality engineers to improve the organization. In most of the cases, some of the sub areas of this discipline result in plain outputs. By outputs we refer to essential data concerning organization. In most of the cases output of such processes results in input to other sub processes that are solely meant for improving the organization.

CMMI and PCMM standards are based on the concept of ‘Key Process Areas’ or KPAs. We can also say that each KPAs is a sub area of the ‘Performance Improvement’ discipline. It is important to highlight here that some of the KPAs are directly meant for performance improvement whereas others indirectly support the performance improvement. As said earlier output of one key process area can serve as an input to other key process area.

Based on the discussion conducted so far, the author wishes to explain here that ‘Performance Improvement’ is a methodology that requires understanding of the organization and at the same time also helps in organizational understanding.

5.5.1.1.8.2 Strengths / Weaknesses

In view of author, ‘Performance Improvement’ methodology / theory / discipline has no in built weakness. In most of the cases weaknesses relate to understanding of what actually ‘Performance Improvement’ means within an organization. In many of the cases work related to ‘Performance Improvement’ is not taken seriously by the overall organization. ‘Performance Improvement’ also has weaknesses related to people issues.

‘Chapter Eleven’ talks about the weakness concerning performance management discipline in detail. Discussion concerning this section is extremely contextual and requires in depth analysis. In order to avoid repetition within the thesis discussion is limited to ‘Chapter Eleven’ only.

5.5.1.1.8.3 What Does The Theory Require?

Following are the most important higher level (details cannot be explained here since our focus in this chapter is not ‘Performance Improvement’ discipline) requirements of this theory:

- ‘Performance Improvement’ requires preferably a dedicated team / individual(s) within the organization that can understand the discipline and theoretical framework concerning this methodology / discipline / theory. The team / individual(s) must have a depth and breadth based vision and at the same time must be able to improve and engineer organizations. The team / individual(s) must also be able to manage improvement process for people, projects, products, processes and organization as a whole.
- The theory requires that necessary stakeholders clearly understand the organization, the organizational improvement needs and the organizations’ long term goals, objectives, mission and vision.
- The theory requires commitment for all the individuals with the organization and also demands sponsorship from the management.
- The theory requires implementation of necessary actions required for organizational improvement. Mostly these actions are obtained from analysis, research and organizational understanding. The theory also requires monitoring, rectification and improvement in these actions to closure.
- The theory requires organization’s long term focus on quality and productivity.
- Others…

5.5.1.1.8.4 Methods Proposed

Several methods exists for performance improvement like for example ISO, CMMI, PCMM. Each of these standards have sub processes / KPAs / methods for improvement. A good example is that of KPAs such a ‘Product and Process Quality Assurance’ (PPQA), ‘Measurement & Analysis’ (MA) Etc within CMMI.

It is worth noting that several sub disciplines such a ‘Statistical Quality Control’, ‘Productivity Management’ Etc can also be used for process improvement. All of the stated standards / discipline help...
in understanding organization better.

### Application in IT Industry and Particularly IT Industry of Pakistan

Pakistan’s IT industry is strictly focusing on improvement. PSEB has specifically focused on CMMI as a quality improvement standard for the whole industry. CMMI has therefore helped many organizations gain visibility and obtain understanding of their processes, products and projects. Although this seems very encouraging but in view of author following problems still result in lower performance improvement curve (only higher level problems are explained here, ‘Chapter Eleven’ discusses issues in detail):

- Performance improvement as seen by Pakistan’s IT industry, its management and quality management stakeholders and PSEB (GOP) is limited to CMMI. In other words focus is strictly being laid on product and process quality management only.
- Many of the people / practitioners within the industry do not understand the organizational / people perspective of quality management and process improvement.
- Organizations fail to improve due to the reason that mostly they focus on various quality standards in order to acquire certifications only.
- Performance improvement programs within the organizations lack long term vision, management and stakeholders commitment and general acceptance of ‘Performance Improvement’ as an important discipline.
- Limited understanding of role of people and organizational parameters result in limited organization understanding.
- Others…

### Theory / Philosophy: Organizational Learning

#### Synopsis

For a forward looking organization, it is extremely important that the organization itself clearly understands and repeats all the practices that have been successfully used in the past. Organizational understanding in itself is a process / practice. In order to repeat the best practices for organizational understanding it is essential that organizations clearly know how they learned in the past. ‘Organizational Learning’ is part of organization development theory that helps us understand how the organizations learn and adapt.

#### Strengths / Weaknesses

‘Organizational Learning’ is a huge discipline and has extremely large theoretical framework. It is important to highlight here that for any organization to understand how they learn (this naturally makes the future organizational understanding process more easy) managers / specialists within the organizations clearly need to understand the overall theoretical framework of this theory.

Focus on ‘Organization Learning’ reduces overheads in organizational understanding. Definite realization of how an organization learns helps in minimizing the time / energy required for executing the organizational understanding process. In plain and simple words with focus on ‘Organization Learning’, organizations can learn how they understand themselves.

#### What Does The Theory Require?

As discussed earlier in order to make use of theory it is important that practitioners within the organization clearly understand the theoretical framework.

#### Methods Proposed


#### Application in IT Industry and Particularly IT Industry of Pakistan

No observations could be obtained against the practical usage of this theory in the IT industry.

### Theory / Philosophy: Organizational Engineering

#### Synopsis

Concept of this theory has originally been formulated by Gary Salton of Professional Communications, Inc. In simplest words ‘Organization Engineering’ is a process (particularly a research process; because it involves study and analysis of current condition), that aims to improve organization in general by engineering / reengineering or by implementing new ways of working. The term ‘Engineering’ refers to the fact that practitioners who work on ‘Organization Engineering’; in actual engineer the organization
by looking into the deficiencies / problems and issues and by recommending solutions to these problems / issues / deficiencies. It is important to highlight here that engineering output here may be related to quality, strategy, productivity, general management, financial management, HR Etc.

According to Wikipedia Resource:

“While traditional organizational development is based on psychology and sociology theories, organizational engineering aims to take a formula based approach in which people can be plugged into an organizational environment equation and the outcome is predicted. Thus engineering organizational development. Like organizational development the focus is to increase efficiency, effectiveness, communication and coordination in groups of all kinds.”

Similarly Wikipedia Encyclopedia also tells us that:

“The range of Organizational Engineering (OE) is from the individual level (puberty and older) to culture (shared values, beliefs and behaviors). It provides a means to understand, measure, predict and guide human behavior both individually and in groups. The end objective of the discipline is to produce visible, positive results of significant consequence and magnitude within a time frame that is useful to the entity being addressed.”

Based on the discussion above the important question that may arise in our mind is that how ‘Organizational Engineering’ process help us built better understanding of organization. The answer is pretty much simple. Since ‘Organizational Engineering’ is in itself an organizational transformation process therefore it requires detailed analysis of the organization before recommending / engineering any change / improvement. Detailed analysis of an organization requires understanding of the organization as a whole. It can be said that ‘Organization Engineering’ and ‘Organization Understanding’ concepts are related to one another. This is obvious as because ‘Organizational Understanding’ is required for performing analysis and for engineering the organization. Similarly organizational engineering process helps in development of organizational understanding.

5.5.1.1.10.2 Strengths / Weaknesses

A dedicated team of practitioners, specialists or quality management experts is required for executing the ‘Organizational Engineering’ process within the organization. The given team must comprise of members who well understand the organizational theory and related aspects.

5.5.1.1.10.3 What Does The Theory Require?

The theory requires detailed analysis of the problems and issues. In some cases ‘Organizational Engineering’ may also require a lot of quantitative and qualitative research.

5.5.1.1.10.4 Methods Proposed

Many methods exist for engineering organizations. Generally all methods follow a standard life cycle such as plan, research, analyze, implement change, monitor change Etc.

5.5.1.1.10.5 Application in IT Industry and Particularly IT Industry of Pakistan

Discussion is similar to the discussion conducted in Sub Section 5.5.1.1.8.5. It is important however that the discussion must be understood in context of ‘Organization Engineering’.

5.5.1.1.11 Theory / Philosophy: Organizational Performance

5.5.1.1.11.1 Synopsis

This theory can be considered as a sub area of ‘Organizational Engineering’ and ‘Performance Improvement’. ‘Organizational Performance’ discipline relates to measuring the output of an organization with respect to its input. Data, analysis and the results obtained as a result of ‘Organizational Performance’ process are widely used for understanding organization.

5.5.1.1.11.2 Strengths / Weaknesses

‘Organizational Performance’ is essentially one of the means of understanding organizations. The biggest problem is that ‘Organizational Performance’ requires skilled manpower that well understands the organizational theory and related aspects. In addition to this the most important problems that are faced by the practitioners of this theory is that they have to clearly understand what they have to measure?, how any given measure helps them understand and measure organizational performance? And how the measurement is to be done?

5.5.1.1.11.3 What Does The Theory Require?

As discussed earlier ‘Organizational Performance’ requires skilled manpower that well understands the organizational theory and related aspects.

5.5.1.1.11.4 Methods Proposed

Many methods are proposed for measuring organizational performance. An extremely famous method of ‘Measurement & Analysis’ is outlined as a KPA by CMMI level 2 framework in context of product / project measurement. The author believes that methods stated in this KPA can also be generalized for organizational performance measurement.

5.5.1.11.5 Application in IT Industry and Particularly IT Industry of Pakistan

Many organizations in Pakistan make use of CMMI’s ‘Measurement & Analysis’ KPA. Many of these organizations just perform this KPA in order to fulfill the CMMI SCAMPI audit requirements. Some of the organizations that really make use of this KPA actually fail to relate the strategic and practical requirements from the measurements with the actual measures. This results in measurement of those aspects of the organization that are not necessary. Also a lot of time, resource and energy are used in measuring the wrong requirement.

Although many of the organizations make use of CMMI’s ‘Measurement & Analysis’ KPA, but their focus is limited to measuring project and product performance only. Only two organizations were observed to have CMMI’s ‘Measurement & Analysis’ KPA in place for organization related measurement and performance monitoring.

Other than this some organization also work with disciplines like ‘Six Sigma’ and ‘ISO’. The usage of these discipline in these organizations has also been found limited.

5.5.1.1.12 Theory / Philosophy: Organizational Communication

5.5.1.1.12.1 Synopsis

Another huge discipline! ‘Organizational Communication’ relates to theoretical framework that helps us understand the various dimensions of communication within an organization. Communication within an organization can be verbal, nonverbal, direct, indirect, formal, informal, upward, downward, one-way, two-way, horizontal or may have some special networks (Like for instance circle, wheel, chain, gossip etc). In some cases some exercises / processes within organization need strict control of communication for e.g. induction, meetings, interviews etc.

‘Organizational Communication’ has various conceptual elements associated with it like for instance Kinesic Behavior (Body movements, gestures, facial expressions etc), Proxemics (Influence of proximity and space on communication), Paralanguage (Vocal aspects of communication), Object Language (Like cosmetics, clothes etc), Noise, Feedback, Encoding, Decoding, Sender, Receiver, Perception, Stereotyping, Halo effect (Generalizing an impression based on one or few characteristics), Projection (Thinking that other share the same view), Perceptual Defense (Blocking information that seems threatening), Self Serving Bias (Feeling the I am the reason of success and the other person / party is the reason of failure), Cultural Context and Attribution Theory etc.

‘Organizational Communication’ is one of the principal sources of understanding the organization in general but if and only if the right style of communication is established within the organization, in lined with the organizational needs.

5.5.1.1.12.2 Strengths / Weaknesses

Normally understanding of organization from communication within the organization is a difficult task as because the information is flowing in multiple directions and through multiple channels. It is therefore difficult to find the right understanding of organization from the communication mesh within an organization. Since communication is generally highly contextual therefore understanding is even more difficult.

Another important issue is that understanding of organization that is obtained from communication cannot be easily generalized. Understanding of organization may face the influence of the conceptual elements stated in the previous section.

A positive part of organizational understanding through communication within the organization is that it serves as largest pool of available resource and in actual communication within the organization can have inputs from everywhere within the organization.

5.5.1.1.12.3 What Does The Theory Require?

Most importantly communication needs to be controlled, managed and improved within an organization. Once this is done then only it can be assumed that the information / understanding obtained from the communication within organization is somewhat reliable.

5.5.1.1.12.4 Methods Proposed

There are a lot of methods of obtaining organizational understanding from this theory and varies from case to case.

5.5.1.1.12.5 Application in IT Industry and Particularly IT Industry of Pakistan
So far very few organizations actually make use of the communication for understanding organization(s) formally. Very few organizations try to enhance and improve their communication practices.

5.5.1.1.13 Theory / Philosophy: Group Process

5.5.1.1.13.1 Synopsis

‘Group Process’ is a term used in OD and is meant for understanding the behavior of people in a group. In other words we can also say that this philosophy can be used to judge the group behavior and establish better understanding regarding the functioning of the group.

5.5.1.1.13.2 Strengths / Weaknesses

Normally ‘Group Process’ requires an individual with an expertise within the group who can generally monitor, improve and assist group for its better performance.

5.5.1.1.13.3 What Does The Theory Require?

In addition to the statement given in Sub Section 5.5.1.1.13.2 it is also important to note that individual who acts as a group expert must be able to understand the behavioral aspects of the functioning of the group. ‘Group Process’ also requires understanding of communication, coordination, communication, social focus and conflict management in particular.

5.5.1.1.13.4 Methods Proposed

‘Group Process’ normally uses general diagnosis technique and solely relies on the capability of the group expert.

5.5.1.1.13.5 Application in IT Industry and Particularly IT Industry of Pakistan

Observations suggest that this theory is not used directly or indirectly in IT industry of Pakistan.

5.5.1.1.14 Theory / Philosophy: Social Network

5.5.1.1.14.1 Synopsis

Following are few important extractions from Wikipedia resource that are necessary for understanding the synopsis of this theory:

“Social network analysis views social relationships in terms of nodes and ties. Nodes are the individual actors within the networks, and ties are the relationships between the actors. There can be many kinds of ties between the nodes. Research in a number of academic fields has shown that social networks operate on many levels, from families up to the level of nations, and play a critical role in determining the way problems are solved, organizations are run, and the degree to which individuals succeed in achieving their goals.”

“Social networks have also been used to examine how organizations interact with each other, characterizing the many informal connections that link executives together, as well as associations and connections between individual employees at different organizations. For example, power within organizations often comes more from the degree to which an individual within a network is at the center of many relationships than actual job title. Social networks also play a key role in hiring, in business success, and in job performance. Networks provide ways for companies to gather information, deter competition, and collude in setting prices or policies.”

In view of author ‘Social Network’ theory can be used for understanding the various facets of an organization. According to this theory, organization comprise of individuals that are part of various social networks within and outside the organization, it is therefore important that each individual / node must be carefully examined and its relationship with other nodes must also be understood. Relation of nodes with ties help us understand how individuals and thereby groups would function. Understanding social networks helps in understanding how behavior of individuals and thereby groups / organizations is influenced by external and internal ties.

5.5.1.1.14.2 Strengths / Weaknesses

The theory is highly contextual in nature and requires deep understanding of human and group behavior and qualitative analysis.

5.5.1.1.14.3 What Does The Theory Require?

As described in Sub Section 5.5.1.1.14.2.

5.5.1.1.14.4 Methods Proposed

The theory requires analysis / study of the following for all nodes and ties:

Table 5.0 clarifies:

### Structural Hole Static holes that can be strategically filled by connecting one or more links to link together other points. Linked to ideas of social capital: if you link

**Equivalence**

**Structural Cohesion** The minimum number of members who, if removed from a group, would disconnect the group.

**Reach** The degree any member of a network can reach other members of the network.

**Radiality** Degree an individual’s network reaches out into the network and provides novel information and influence.

**Path Length** The distances between pairs of nodes in the network. Average path-length is the average of these distances between all pairs of nodes.

**Density** Individual-level density is the degree a respondent's ties know one another/ proportion of ties among an individual's nominees. Network or global-level density is the proportion of ties in a network relative to the total number possible (sparse versus dense networks).

**Cohesion** Refers to the extent to which actors have a common set of linkages to other actors in the system. The actors don’t need to have any ties to each other to be structurally equivalent.

**Equivalence**

**Closeness** The degree an individual is near all other individuals in a network (directly or indirectly). It reflects the ability to access information through the 'grapevine' of network members. Thus, closeness is the inverse of the sum of the shortest distances between each individual and every other person in the network.

**Centrality Degree** The count of the number of ties to other actors in the network.

**Flow Betweenness** The degree that a node contributes to sum of maximum flow between all pairs of nodes (not that node).

**Eigenvector** Eigenvector centrality is a measure of the importance of a node in a network. It assigns relative scores to all nodes in the network based on the principle that connections to nodes having a high score contribute more to the score of the node in question.

**Centralization** The difference between the n of links for each node divided by maximum possible sum of differences. A centralized network will have much of its links dispersed around one or a few nodes, while a decentralized network is one in which there is little variation between the n of links each node possesses.

**Clustering Coefficient** The clustering coefficient is a measure of the likelihood that two associates of a node are associates themselves. A higher clustering coefficient indicates a greater 'cliquishness'.

**Betweenness** Degree an individual lies between other individuals in the network; the extent to which a node is directly connected only to those other nodes that are not directly connected to each other; an intermediary; liaisons; bridges. Therefore, it's the number of people who a person is connected to indirectly through their direct links.

**Closeness** The degree an individual is near all other individuals in a network (directly or indirectly). It reflects the ability to access information through the ‘grapevine’ of network members. Thus, closeness is the inverse of the sum of the shortest distances between each individual and every other person in the network.

**Centrality Degree** The count of the number of ties to other actors in the network.

**Flow Betweenness** The degree that a node contributes to sum of maximum flow between all pairs of nodes (not that node).

**Eigenvector** Eigenvector centrality is a measure of the importance of a node in a network. It assigns relative scores to all nodes in the network based on the principle that connections to nodes having a high score contribute more to the score of the node in question.

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### Table 5.1 Explains:

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<th>Measure</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>Cohesion</td>
<td></td>
<td>Refers to the extent to which actors have a common set of linkages to other actors in the system. The actors don’t need to have any ties to each other to be structurally equivalent.</td>
</tr>
<tr>
<td>Density</td>
<td></td>
<td>Individual-level density is the degree a respondent's ties know one another/ proportion of ties among an individual's nominees. Network or global-level density is the proportion of ties in a network relative to the total number possible (sparse versus dense networks).</td>
</tr>
<tr>
<td>Path Length</td>
<td></td>
<td>The distances between pairs of nodes in the network. Average path-length is the average of these distances between all pairs of nodes.</td>
</tr>
<tr>
<td>Radiality</td>
<td></td>
<td>Degree an individual’s network reaches out into the network and provides novel information and influence.</td>
</tr>
<tr>
<td>Reach</td>
<td></td>
<td>The degree any member of a network can reach other members of the network.</td>
</tr>
<tr>
<td>Structural Cohesion</td>
<td></td>
<td>The minimum number of members who, if removed from a group, would disconnect the group.</td>
</tr>
<tr>
<td>Structural Equivalence</td>
<td></td>
<td>Refers to the extent to which actors have a common set of linkages to other actors in the system. The actors don’t need to have any ties to each other to be structurally equivalent.</td>
</tr>
<tr>
<td>Structural Hole</td>
<td></td>
<td>Static holes that can be strategically filled by connecting one or more links to link together other points. Linked to ideas of social capital: if you link to two people who are not linked you can control their communication.</td>
</tr>
</tbody>
</table>


### 5.5.1.1.45 Application in IT Industry and Particularly IT Industry of Pakistan

Observations suggest that this theory is not used directly or indirectly in IT industry of Pakistan.

### 5.5.1.1.15 Theory / Philosophy: Organizational Culture / Climate

Chapter Four presents detailed analysis against this theory.

### 5.5.1.1.16 Others...

Other than the theories / philosophies stated above there are two more theories that the author feels are important. These theories are theory of ‘Systems Thinking’ and ‘System Intelligence’. Although the author feels that the use of these two theories is important for higher level understanding of the organizational complexities, but in essence these two theories are extremely difficult to understand and implement in organizations practically for the managers. The author of this thesis further believes that these two theories can best be applied by a theory expert. Since the author supports the idea that organization must limit their focus to understanding organization on their own therefore use of this theory becomes impossible for the organization without the presence of an expert. Further to this the author thinks that these two theories can be used by researchers, consultants and / or academicians to study and understand organizations better. In short; the author thinks that the theory is extremely complex and highly contextual due to which it can be of less use for the busy IT managers / owners / entrepreneurs.

### 5.5.1.2 The General Management, Economical, HRM, Psychological and Sociological Perspective (Theories / Philosophies Indirectly But Largely Related to OD Discipline) (Summarized Views Only)

Table 5.1 Explains:
<table>
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<tr>
<th>Theory / Philosophy</th>
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<th>Current Application in IT Industry of Pakistan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5.5.1.2.1 Applied Anthropology</strong></td>
<td>[Table 5.1] Usage of Various Theories / Philosophies for Organizational Understanding</td>
<td>Use of this theory requires an expert and / or detailed understanding of the theory / philosophy itself. As said earlier, expert understanding is required for the practical use of this theory.</td>
<td>As said earlier, understanding of the theory / philosophy is required for the practical use of this theory.</td>
<td>Brain storming, causation, observations, interview, discussion and other qualitative methods can be used to understand problems of an individual.</td>
<td>As per the observation of the author, this theory is mainly not in use.</td>
</tr>
<tr>
<td><strong>5.5.1.2.2 Attribution Theory</strong></td>
<td>Organization comprise of individuals. No individual is perfect and many a times within an organization, we have to face problems / issues related to an individual. It is important that each individual’s problem is carefully interpreted, analyzed and solved. This is important for the collective smooth functioning of the organization. ‘Attribution Theory’ (A social psychology theory developed by Fritz Heider, Harold Kelley, Edward E. Jones, and Lee Ross) explains how individuals (in our case managers and employees) make judgment / attributions about their or others behavior(s). The theory is important as it allows us to develop better understanding of an individual(s) behavior. Understanding of individuals and their problems helps managers / decision makers in developing better understanding of the organization as a whole.</td>
<td>Use of this theory requires understating of the theory / philosophy itself. This theory requires understanding of the important theoretical frameworks. For the general analysis the theory is easily usable. For the forecasting purpose the theory requires understanding of some important theoretical frameworks. Under the light of the theory the only requirement is that for each cause possible consequences should be interpreted and vice versa. For the general analysis as such no requirements exists. For the future forecasting however, the organizational experts / analyst have to understand and apply some important theoretical concepts part of the theory.</td>
<td>As said earlier, understanding of the theory / philosophy is required for the practical use of this theory.</td>
<td>Cause and effect diagrams, regression analysis, time series methods, econometric models, leading indicator method are the main methods that are used.</td>
<td>Partial usage of cause and effect diagram usage is observed in various organizations.</td>
</tr>
<tr>
<td><strong>5.5.1.2.3 Causality</strong></td>
<td>Although the theory has a very strong and large framework, but here in this chapter we only restrict to the application of the theory in business only. ‘Causality’ requires understanding of causes and their subsequent consequences. The theory can both be used for analysis of a past situation and for prediction of a future event / problem / trend Etc. The concept of this theory is even found in various religions across the globe. The theory helps built understanding of the organization by understanding the problems / issues in context of their cause and consequences.</td>
<td>According to Wikipedia Resource: “Herbert Simon, in the ‘Sciences of the Artificial’ (MIT Press, 1969) has defined &quot;design&quot; as the transformation of existing conditions into preferred ones” (p. 55). Design thinking is, then, always linked to an improved future. Unlike critical thinking, which is a process of analysis and is associated with the ‘breaking down’ of ideas, design thinking is a creative process based around the ‘building up’ of ideas. There are no judgments in design thinking. This eliminates the fear of failure and encourages maximum input and participation. Wild ideas are welcome, since these often lead to the most creative solutions.” According to Scott Wallic (Undated), ‘Design Thinking’ is collaborative, abductive, experimental, personal, integrative and interpretive in nature.</td>
<td>This theory requires understanding of the context and qualitative aspects of the problems. The direct goal of this theory is to resolve the organizations’ problem. It is during the course of design process that stakeholders are able to understand / learn about organization. Requires creativity, brain storming, collaboration, problem solving and qualitative skills.</td>
<td>Brain storming, collaboration, problem solving I method is mainly. General method is Define → Research → Evaluate → Prototype → Choose → Implement → Learn.</td>
<td>As per the observation of the author, this theory is mainly not in use.</td>
</tr>
<tr>
<td><strong>5.5.1.2.4 Design Thinking</strong></td>
<td>According to Wikipedia Resource: “Herbert Simon, in the ‘Sciences of the Artificial’ (MIT Press, 1969) has defined “design” as the transformation of existing conditions into preferred ones” (p. 55). Design thinking is, then, always linked to an improved future. Unlike critical thinking, which is a process of analysis and is associated with the ‘breaking down’ of ideas, design thinking is a creative process based around the ‘building up’ of ideas. There are no judgments in design thinking. This eliminates the fear of failure and encourages maximum input and participation. Wild ideas are welcome, since these often lead to the most creative solutions.” According to Scott Wallic (Undated), ‘Design Thinking’ is collaborative, abductive, experimental, personal, integrative and interpretive in nature.</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
### 5.5.1.2.5 Brain Storming

<table>
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<th>Methods?</th>
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</tr>
</thead>
<tbody>
<tr>
<td>‘Design Thinking’ process works in the following manner: Define → Research → Ideate → Prototype → Choose → Implement → Learn. Essentially speaking, ‘Design Thinking’ is basically used for organizational improvement and for the resolution of problems and issues within an organization. Although the focus of this process is on improvement but indirectly it helps in increasing the understanding of organization and its problems through research and learning mainly.</td>
<td>The process is time taking and may experience conflicts. An expert / leader is required to conduct brain storming sessions. Controlling the process can become a problem.</td>
<td>No special requirement exists but in general objectivity is supported. It is preferable if sessions for brainstorming are planned, organized and managed controlled.</td>
<td>Cause and effect diagram, SWOT, PEST and other statistical and non statistical methods can be used.</td>
<td>Partial usage of this theory is observed in various organizations. In most of the cases the use of this theory is limited to understanding and solving technical problems only.</td>
<td></td>
</tr>
</tbody>
</table>

### 5.5.1.2.6 Ethnography / Online or Virtual Ethnography

| The work ‘Ethnography’ comes from the word ‘Ethno’ which means people and ‘Graphein’ which means writing. In simple words, ‘Ethnography’ is a research tool that presents description of human social phenomena / human behavior. The description may be quantitative or qualitative in nature and the research behind the writing / research is essentially field based. ‘Ethnography’ basically relates to cultural anthropology and is considered of highest significance by many anthropologists. In ‘Ethnography’ the ethnographer becomes part of the context / culture that he / she wishes to study and thereby writes the description against the point of study by stepping back unconsciously and by looking at the overall picture. The study and / or the writing that is the output of this type of research is highly analytical, contextual and demands extreme understanding of the subject being studied. Purely, ‘Ethnography’ has been used for colonial office reporting, for travel writing, in the field of psychology, sociology, economics and in cultural studies. Lately ‘Ethnography’ has been used for the business related studies as well. In this scenario, ethnographers study employees, managers, various groups within the organization. The author of this thesis believes that IT field requires high focus on human resource. Since humans are complex creatures and so is the organization therefore it is important that context based study of the organization is conducted. For this, the author believes that ‘Ethnography’ is the most important research method that can be used for the study / understanding of IT tech organizational practices, organizational culture, management style, social analysis and finally and most importantly behavioral analysis. As already told ‘Ethnography’ requires the use of field work. This however is not the same for ‘Online or Virtual Ethnography’ that focuses on linkages between the researcher and the research group via online forums like chat, emails, online groups Etc. The author believes; that in future the concept of ‘Online & Virtual Ethnography’ would dominate the concept of ‘Ethnography’. Also sufficient time is required for the research / study and for building up understanding using ‘Ethnography’. Highly skilled researcher / organizational expert is required to conduct study using ‘Ethnography’. It is important the researcher must carefully understand the subject and understand organization keeping in view the various methods and governing laws of ‘Ethnography’. Also sufficient time is required for the research / study and for building up understanding using ‘Ethnography’. Several methods are used like for instance direct first hand observation, conversation, genealogical method, involvement, interviewing, discovery, longitudinal research, case studies, chase and team study. | Usually the analysis and the research time are extremely long. It is difficult for a person who is not familiar with the discipline to conduct research based on ‘Ethnography’. In many of the cases authors of ethnographic research fail to explain the research subject. In some cases the researchers often conduct biased researches. Other than the above stated point, this kind of research has more significance from an academic point of view, since the research time is long and therefore organization fail to wait for longer time for developing their understanding about a particular subject matter. ‘Ethnography’ requires researchers to have high value ethics and most importantly the researcher has to be extremely careful in order to avoid biased researchers. In some cases if the researchers are not biased, yet the researchers are influenced by the researchers’ own personality. | | | As per the observation of the author, this theory is mainly not in use. |
Strengths / Weaknesses of the Current Application in IT

Theory / Philosophy

In Relation to Methods?

Organizational Understanding

Industry of Pakistan

Similar to Sub Section 5.5.1.13.7

Similar to Sub Section 5.5.1.13.1!

Similar to Sub Section 5.5.1.13.3!

Similar to Sub Section 5.5.1.13.4!

Similar to Sub Section 5.5.1.13.5!

The major strength of this theory is that it is less time taking and inexpensive and produces results (understanding) quickly. Further to this if the discussion conducted is online then it further results in low logistic cost.

Despite the above important benefits, a major problem concerning this theory is that it requires extremely well planned discussion and controlling by the controller in order to make the discussion effective and efficient. Further to this it is important that the controller of the group gives due weight age to all the opinions / group members’ view points and must not be biased himself / herself. Another major difficulty in using this theory is that it requires that controller prepares preliminary set of questions that he / she feels are important for acquiring necessary understanding against the point of discussion.

A final and major hurdle can be the selection of members for the focus groups from within the organization. Essentially those members must be included who posses knowledge about the discussion agenda and who have strong communication skills. Other than these two important points random selection of employees must be done for the choice of members.

Focus Group

The concept of ‘Enterprise Content Management’ (Abbreviated as ECM) is similar to the concept of ‘Configuration Management’ and ‘Knowledge Management’ (discussed earlier). The ‘Enterprise Content Management’ is essentially part of the IT (quality management) discipline that takes care of enterprise documentation management. Major functions within ECM include capture, storage, security, revision control, retrieval, distribution, preservation and destruction of documents and content. ECM in most of the cases requires a ‘Configuration Control Board’. This board comprises of members from various organization’s functions. Most of the members are from project or products related functions. Members of the Configuration Control Board together make the decision in relation to organizations’ content management.

In most of the cases organization hire a person, a special expert preferably belonging to a quality management discipline and capable of managing configuration organization wide. In some small scale organization this function is given to a team member performing some other function

ECM requires expertise and thorough understanding of the concept of quality and configuration management. The function is complex as it requires a change in attitude organization wide in relation to how people / employees perform their work. Commitment is required from all organization’s members and proper sponsorship is required from the organizational head for proper functioning of ECM organization wide.

Besides some hardware and software, a dedicated team memberson(s) is required for performing activities related to ECM.

In most of the cases organization hire a person, a special expert preferably belonging to a quality management discipline and capable of managing configuration organization wide. CMMI level 2 KPA outlines detail methods of performing ECM.

Very rarely, organizations are found using ECM function for the use of entire organization. In some of the cases, organizations limit the use of ECM to the project repositories only whereas in others filing / document management specific to project / business is considered as the only ECM requirement for the organization. Some organization that have CMMI level 2 or higher rating make use of
within the organization. This however is certainly not a preferable method of running configuration management within an organization. ECM or ‘Configuration Management’ (CM) deals with the management of organization documents / content related to projects, products, pre-sales, operations and other functions like for instance admin, logistics, HR etc. The most important role of CM is to look for the contents that need to be within the configuration management repository. This requires identification of documents at the organizational, project and product level. A major work in this regard is also to identify the documents / content that are used for the management of quality and CM itself. This process is known as configuration identification. In configuration identification details of file naming, versioning, reviewing, author, base lining, archiving etc are finalized. The second important function of CM is to manage and maintain a configuration management system that is used for holding organization’s contents. A good example of configuration management system could be email server, configuration server (VSS), backup server, disaster recovery server, archiving server, project server, coding server, testing server, online forums and other software / hardware used for the management of contents within the organization. The configuration management system function requires regular update, up gradation, cleaning, general maintenance, maintenance of security and access privilege and transition of contents from one end of configuration management system to another. Other functions of CM include backing up, archiving, base lining (finalization of data once it is complete and agreed as complete by relevant stakeholders), change management for contents, disaster and recovery management, code and testing management (in case of software development), product release management, training and audit (for CM specific activities) and management of higher level activities in relation to CM. The important thing that the reader of this thesis must ask is that how ECM or CM is important for organizational understanding. The answer is simple yet complicated. CM essentially helps eliminate rework and lowers down the loss of productivity. CM manages documentation and contents organization wide, thus making the configuration repository as the largest pool of organization’s information resource. This is one method with the help of which CM supports organizational understanding indirectly. As discussed earlier; CM also requires performing one function i.e. audit in relation to CM itself. From audit we mean audit of all the sub functions / activities of CM and audit of the documents and contents that are managed by CM. This calls for an enormous way of finding out discrepancies at the organizational level. Further other than audits statistics maintained for CM help in further clarification of trends concerning facets of organization. As per the observation of the author, this theory is mainly not in use. | 5.5.1.2.10 Ergonomics / Human Factors Use of this theory requires understanding of the theory / philosophy itself. Trained experts are required who can practically use this theory and extract organization information using the concepts. |
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<td>Strengths / Weaknesses of the Current Application in IT Theory / Philosophy</td>
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</tbody>
</table>

5.5.1.2.11 Group Emotions

The theory is extremely contextual and no specific methodology exists for identification of emotions of a group.

Thorough understanding of the theory is required and extremely qualitative and contextual analysis need to be performed.

No specific methods exist for the use of this theory.

As per the observation of the author, this theory is mainly not in use.

5.5.1.2.12 Institutional Memory

The concept requires understanding of what to preserve in the memory and what not to preserve. It is also important that management must directly understand the data requirements that need to be archived, summarized and preserved quantitatively or qualitatively.

The concept requires understanding of ECM and preferably CM and moreover understanding of quantitative statistical techniques is also essential.

There are several methods of maintaining the 'Institutional Memory'.

Some of the CMMI level 2 and above organization implement various level 2 key process areas that help these organizations in building, maintaining and using their "Institutional Memory". Out of many such organizations extremely few implement the concept for real improvement. Many of the organizations just formulate "Institutional Memory" an use it to fulfill the SCAMPI audit requirements.

5.5.1.2.13 Performance Appraisal

In some cases management and stakeholders who perform the appraisal or part of the appraisal process within the organization are not clear about the process of appraisal itself.

Biased appraisals, favoritism, management (that is unaware of soft issues) can result in failure of the entire process and its subsequent activities. Strong and transparent appraisal system helps always helps organizations grow.

Transparent performance appraisal and management system is extremely essential for making use of this method.

Several methods exists, but recommendation of the author of this thesis is that organization must perform bottom up and top bottom appraisal (at least) using the literature and also using the organization’s requirements.

Largely the process / methodology is followed in all the IT organizations with an exception of few organization that do not have HR departments at all. It is important to highlight that in view of author very few organizations actually perform the performance appraisal process as it is required. In most of the cases this method is restricted to a single individual (in most cases owner of the organization)
<table>
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<td>Although not a pure theory but in actual, training is a methodology that is an excellent source of organizational understanding. Trainings works on organizational understanding in two ways. Firstly there can be trainings within the organization that can help people / employees gain visibility into various facets of organizations. Secondly training assessment and small surveys during the trainings help the trainer / training in charge / training manager / training department in understanding the feedback from the trainees.</td>
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<tr>
<td>There are generally no weaknesses with an exception of the fact that in some organizations, training function is treated as a redundant, useless and unimportant activity. In most of the cases trainings have extremely healthy affect of general and organizational understanding.</td>
<td>There are generally no weaknesses with an exception of the fact that in some organizations, training function is treated as a redundant, useless and unimportant activity. In most of the cases trainings have extremely healthy affect of general and organizational understanding.</td>
<td>There are generally no weaknesses with an exception of the fact that in some organizations, training function is treated as a redundant, useless and unimportant activity. In most of the cases trainings have extremely healthy affect of general and organizational understanding.</td>
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<td>There are generally no weaknesses with an exception of the fact that in some organizations, training function is treated as a redundant, useless and unimportant activity. In most of the cases trainings have extremely healthy affect of general and organizational understanding.</td>
</tr>
<tr>
<td>Proper training method must be followed. All trainings must be administered, monitored, planned, assessed, managed, organized and controlled.</td>
<td>Proper training method must be followed. All trainings must be administered, monitored, planned, assessed, managed, organized and controlled.</td>
<td>Proper training method must be followed. All trainings must be administered, monitored, planned, assessed, managed, organized and controlled.</td>
<td>Proper training method must be followed. All trainings must be administered, monitored, planned, assessed, managed, organized and controlled.</td>
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<td>Proper training method must be followed. All trainings must be administered, monitored, planned, assessed, managed, organized and controlled.</td>
</tr>
<tr>
<td>There are several methods for trainings but generally CMMI level 3 presents an ideal method of training.</td>
<td>There are several methods for trainings but generally CMMI level 3 presents an ideal method of training.</td>
<td>There are several methods for trainings but generally CMMI level 3 presents an ideal method of training.</td>
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<td>There are several methods for trainings but generally CMMI level 3 presents an ideal method of training.</td>
</tr>
</tbody>
</table>

...
5.5.1.2.16  Others...

The discussion above in Sub Section 5.5.1.2.15 relates to theories, methodologies or philosophies that present method(s) of organizational understanding. The discussion below however, includes those management concepts that do not necessarily present any specific method for organizational understanding but somehow their introductory understanding is essential for obtaining greater awareness about how organizations should be understood.

To start our discussion we discuss ‘Situational Awareness’ first that according to Adam (1993) can be defined as:

“knowing what is going on so you can figure out what to do”  

According to Fracker (1991):

"the combining of new information with existing knowledge in working memory and the development of a composite picture of the situation along with projections of future status and subsequent decisions as to appropriate courses of action to take”


"Situation awareness is the perception of elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future."  

‘Situational Awareness’ is in simple words the decision making ability of an individual that focuses on answering questions such as ‘What is happening?’ ‘Why is it happening?’ ‘What happens next?’ and ‘What can I do about it?’ in specific situations. Situational awareness is important for situational understanding and sense making, which is important for decision making. Ability of situation awareness among leaders helps them understand, comprehend, perceive and project in a specific situation. Situation awareness is a trait that is essential for understanding of random situations.

‘Scientific Management’ is another important concept that relates to understanding of individual at work so that productivity could be made better. ‘Scientific Management’ helps in definition of organizational roles and responsibilities, in defining the skill set for work, in planning work, in eliminating barriers to productivity and in balancing of outputs (incentives) to inputs (work). The concept of ‘Scientific Management’ can be used to study and understand the work and the work environment requirements.

Since organizations are all about dealing with people therefore it is also important that managers / decision makers understand the concepts of ‘Social Behavior’ and ‘Social Skills’ in order to enhance their organizational understanding capabilities. It is extremely important for managers that they must not be socially inept. Managers must also encourage the concept of ‘Collective Intelligence’ for enhancing organizational understanding capabilities. Particular attention must also be paid to learning. Organizations’ sponsors must ensure that employees, managers and other staff members within the organization make use of the right learning style. Managers must also make sure that they understand how organizations survive in a particular environment; for this ‘Complexity Theory’ concept can be used.

††††† George Pór, defined the collective intelligence phenomenon as:
"the capacity of human communities to evolve towards higher order complexity and harmony, through such innovation mechanisms as differentiation and integration, competition and collaboration."
Where the ‘Complexity Theory’ helps us understand how the organizations adapt to their environment, ‘Organizational Ecology’ concept help us understand the rise and fall of organization and in general organizational growth.

At the end of Section 5.5.1, it is important to specify that a particular new field i.e. ‘Emotional Intelligence’ is emerging as a new turf. Till date academicians, researchers and various research bodies are not completely sure about the dynamics of this theory and no precise definition of this theory exists till now. Despite all these limitations it is sure that ‘Emotional Intelligence’ will significantly impact the theoretical and practical method of organizational understanding.

5.5.2 Necessary Requirements and Methods for Understanding IT Organizations In View of Well-Accepted Practical & Cultural Practices (Exploration, Evaluation & Analysis of Existing Practices)

5.5.2.1 The Practical Dimension

5.5.2.1.1 Analysis & Explanation

Here in this section, focus would be on the business practices that are generally followed in various organizations that help the organizations obtain general organizational understanding. It is important to highlight to reader at this time that practices that generally help organizations gain better understanding are not necessarily followed within all the organization observed. In some cases organizations gather data for organizational understanding from a particular resource largely whereas in other cases only a few organizations have been found using some other business practice. Table 5.2 Explains:

<table>
<thead>
<tr>
<th>Organizational Understanding Source</th>
<th>Explanation &amp; Analysis of The Current Practices</th>
<th>Strength / Weakness of Practices Performed in IT Industry of Pakistan and General Improvement Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HR</strong></td>
<td>Generally in many of the organization there is no dedicated HR department. We can include these organizations in the first category for our discussion. In many of the organizations falling in the first category, some employee or staff member who is usually involved in logistics/administration is given the duty of managing so called HR function. Contrary to this; organizations falling in the second category are those organizations that have dedicated HR departments but these HR departments in these organizations do not usually understand and practice the complete HRM sub function. The third category, which is extremely rare, comprises of those organizations that have extremely good and well established HR departments. In these organizations not only the HR practices are widely used and understood but also the staff members within these organizations understand how HR function is related to organizational psychology. In nearly all the cases; management makes use of the information concerning HR from concerning individual / department. The important question here is that how much information / understanding is obtained from HR department? Answer to this question totally depends on the depth and the breadth of services related to HR function followed in a particular organization. In other words the categories that we defined previously, in actual determine how much understanding concerning HR function can be obtained from HR departments. Talking about the first category, information / understanding obtained in this case is mainly related to reporting such as employee attendance, employee salary etc. Organizations falling to second category are able to produce much wider range of information concerning HRM. Information / understanding obtained by the management in case of second category of organizations concerns outputs from various HRM sub functions. In case of the third category of organizations, not only the data concerning various HRM functions is made available to the management, rather in case of these departments (within third category of organizations) improvement are also suggested to the management. This proactive and forward looking practice is followed in these organizations because HR departments in these organizations not only perform regular functions of HRM, rather as a forward step they also perform qualitative and quantitative researches for organizational and HR improvement. In other words these organizations not only perform routine HRM functions, but also ensure their role as an organizational improvement body by analyzing and researching various facets of organizations (HRM in particular). In case of all the three categories of organizations stated above, work / business practices institutionalization plays a critical role in regular dissipation of necessary organizational information / understanding. In nearly all the organizations there is no proper definition of what kind of reporting / understanding must be provided by the HR to the management. In many cases in all the three categories management partially shows interest in obtaining organizational understanding from HR. In cases where management is interested; many fail to understand the information / knowledge / data that is provided by HR. In addition to this many managers who understand data / information / knowledge from HR are unable to relate their understanding with the organizational improvement.</td>
<td></td>
</tr>
<tr>
<td><strong>Finance &amp; Accounting Data</strong></td>
<td>Much of the discussion is similar to the discussion in Sub Section 5.5.2.1.1 but in context of finance and accounting function instead of HRM function. The major difference from the previous discussion is that in case of finance and accounting functions the management is largely proactive (as per observation) in obtaining necessary information, building their understanding and using it for organizational improvement. Other than this another major problem is that both management and the staff in the finance and accounting department are not clear</td>
<td></td>
</tr>
</tbody>
</table>

**Discussion similar to this cell.**

TABLE 5.2 Various Resources & Respective Business Practices (Practical) Used Currently for Organizational Understanding by IT Industry of Pakistan

Based on our analysis, it is clear that the information / understanding being obtained from HR varies from organization to organization mainly due to the following factors:

A) HR departments are not well established.
B) HRM sub functions are not completely carried out by HR departments.
C) HR departments within the organizations do not possess the right skills for HRM.
D) Finance and accounting functions are unable to ensure and build management’s understanding of the organization on regular basis.
E) Finance and accounting functions are unable to ensure and build management’s understanding of the organization on regular basis.
F) HR practices are not institutionalized and therefore HRM departments are unable to ensure and build management’s understanding of the organization on regular basis.
G) There is no understanding of how and what from HR can help management understand organizations better.
H) Make sure that manager realize the importance of obtaining understanding of organization using HRM departments.
I) Managers must be able to understand the information from HR and must able to practically make use of the supplied information for organizational improvement.

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5.5.2.1.3 Administration

Much of the discussion is similar to the discussion in Sub Section 5.5.2.1.1.1 but in context of administration function instead of HR.

Most of the organizations in IT industry of Pakistan are project based, relatively fewer are product based. When discussing the project and product management as a resource for organizational understanding we need to categorize the organizations in Pakistan as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Strength of Project / Product Management</th>
<th>Usage of Project / Project Management for Organizational Understanding</th>
<th>Capability of Linking Organizational Understanding with Organizational Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extremely Low</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>Low</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>Medium</td>
<td>None</td>
<td>Partial</td>
</tr>
<tr>
<td>4</td>
<td>Medium</td>
<td>Partial</td>
<td>None</td>
</tr>
<tr>
<td>5</td>
<td>Medium</td>
<td>Partial</td>
<td>Partial</td>
</tr>
<tr>
<td>6 (CMMI certified)</td>
<td>High</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>7 (CMMI certified)</td>
<td>High</td>
<td>Partial</td>
<td>None</td>
</tr>
<tr>
<td>8 (CMMI certified)</td>
<td>High</td>
<td>Medium</td>
<td>Partial</td>
</tr>
<tr>
<td>9 (CMMI certified)</td>
<td>High</td>
<td>High</td>
<td>Partial</td>
</tr>
<tr>
<td>10 (CMMI certified)</td>
<td>Extremely High</td>
<td>Partial</td>
<td>None</td>
</tr>
<tr>
<td>11 (CMMI certified)</td>
<td>Extremely High</td>
<td>Medium</td>
<td>Partial</td>
</tr>
<tr>
<td>12 (CMMI certified)</td>
<td>Extremely High</td>
<td>High</td>
<td>Partial</td>
</tr>
</tbody>
</table>

[Table 5.2 INTERNAL Table A] Categories of IT Organization of Pakistan W.R.T Their Usage of General Project / Product Management Practices For Organizational Understanding & Improvement

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength of Project / Product Management</td>
<td>Extremely Low</td>
<td>Practices are random and adhoc and nearly absent</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Practices exist but not defined, repeated and mature</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Practices exist and repeated but not defined</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Practices exist and are repeated, defined and certified</td>
</tr>
<tr>
<td></td>
<td>Extremely High</td>
<td>Practices exist and are repeated, defined, certified and matured / institutionalized</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Usage of Project / Project Management for Organizational Understanding</th>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Not used at all</td>
<td></td>
</tr>
<tr>
<td>Partial</td>
<td>Used, read but not fully understood / analyzed</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>Used, read and understood</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Capability of Linking Organizational Understanding Obtained Through Project / product Management with Organizational Improvement</th>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>No linkage created due to poor understanding of organizational discipline and deprived management knowledge</td>
<td></td>
</tr>
<tr>
<td>Partial</td>
<td>Partial linkage is created where the project / product management information / knowledge / data is used for understanding problems / issues and concerns and for their immediate resolution</td>
<td></td>
</tr>
<tr>
<td>Full</td>
<td>Linkage is created where the project / product management information / knowledge / data is used for understanding problems / issues and concerns and necessary data is interpreted, analyzed and recommendation are made and implemented accordingly, Long term improvement strategy is formulated, implemented and used for organizational improvement</td>
<td></td>
</tr>
</tbody>
</table>

Figure 5.2 explains general distribution of organizations as per categories of Internal Table A as follows:

[Figure 5.2] General Distribution of Organizations W.R.T Categories of Internal Table A
Other than the discussion above it is important to mention that some of the organizations use historical data for project / product planning, monitoring & control. While planning / monitoring & controlling a project / product, organizations understand various aspects of organization like for instance data for project / product planning, monitoring & control. While planning / monitoring & controlling a project / product like for instance MS Project, whereas other use Task Tracker / UR Tracker for understanding, visibility, clarification and general management of micro level tasks. Practices related to implementation of tools, historical data usage for planning / monitoring & control and project / product planning / monitoring & control standard implementation is extremely rare.

Quality Management function within organizations provides the maximum information / knowledge of organizational understanding. This case is true for Pakistan’s IT industry as well. There are however some problems associated with organizational understanding through quality management that can be understood by the analysis as follows:

When discussing the quality management as a resource for organizational understanding we need to categorize the organizations in Pakistan just like we did when we were discussing project / product management in relation to organizational understanding:

<table>
<thead>
<tr>
<th>Category</th>
<th>Strength of Quality Management</th>
<th>Usage of Quality Management for Organizational Understanding</th>
<th>Capability of Linking Organizational Understanding with Organizational Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extremely Low</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>Low</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>Medium</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>Medium</td>
<td>Partial</td>
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</tr>
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<td>5</td>
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<tr>
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</tr>
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<td>Partial</td>
</tr>
</tbody>
</table>

Figure 5.3 naturally shows us that concept of quality management; organizational understanding and improvement are not collectively and completely understood by the organizations. Organizations must clearly clarify as to what kind of information is necessary for organizational understanding from the quality management functions and how the available information must be used for organizational improvement. In order to fully make use of data / information / understanding from the quality management function it is extremely important that quality managers / staff members must be very well trained within the organization. In addition to this, proper sponsorship is required form the organization's management.

5.5.2.1.15 Quality Management

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength of Quality Management</td>
<td>Extremely Low</td>
<td>Practices are random and ad hoc and nearly absent</td>
</tr>
<tr>
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<tr>
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<td>Extremely High</td>
<td>Practices exist and are repeated, defined, certified and institutionalized</td>
</tr>
<tr>
<td>Usage of Quality Management for Organizational Understanding</td>
<td>None</td>
<td>Not used at all</td>
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<td></td>
<td>High</td>
<td>Used, read, understood / analyzed</td>
</tr>
<tr>
<td>Capability of Linking Organizational Understanding Obtained Through Quality Management with Organizational Improvement</td>
<td>None</td>
<td>No linkage created due to poor understanding of organizational perspective, organizational improvement discipline and deprived management knowledge</td>
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<td></td>
<td>Partial</td>
<td>Partial linkage is created where the quality management information / knowledge / data is used for understanding problems / issues and concerns and for their immediate resolution</td>
</tr>
</tbody>
</table>

In order to fully make use of data / information / understanding from the quality management function it is extremely important that quality managers / staff members must be very well training within the organization. In addition to this, proper sponsorship is required from the organization’s management.

5.5.2.1.1.5 Quality Management

Table 5.2 INTERNAL Table D Key to Internal Table C

<table>
<thead>
<tr>
<th>Category</th>
<th>Strength of Quality Management</th>
<th>Usage of Quality Management for Organizational Understanding</th>
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<td>Partial</td>
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</tbody>
</table>

Figure 5.3 naturally shows us that concept of quality management; organizational understanding and improvement are not collectively and completely understood by the organizations. Organizations must clearly clarify as to what kind of information is necessary for organizational understanding from the quality management functions and how the available information must be used for organizational improvement. In order to fully make use of data / information / understanding from the quality management function it is extremely important that quality managers / staff members must be very well trained within the organization. In addition to this, proper sponsorship is required from the organization’s management.

5.5.2.1.15 Quality Management

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<th>Meaning</th>
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<td>Practices exist and repeated but not defined</td>
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<td></td>
<td>High</td>
<td>Practices exist are repeated, defined and certified</td>
</tr>
<tr>
<td></td>
<td>Extremely High</td>
<td>Practices exist and are repeated, defined, certified and institutionalized</td>
</tr>
<tr>
<td>Usage of Quality Management for Organizational Understanding</td>
<td>None</td>
<td>Not used at all</td>
</tr>
<tr>
<td></td>
<td>Partial</td>
<td>Used, read but not fully understood / analyzed</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
<td>Used, read and understand</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>Used, read, understood / analyzed</td>
</tr>
<tr>
<td>Capability of Linking Organizational Understanding Obtained Through Quality Management with Organizational Improvement</td>
<td>None</td>
<td>No linkage created due to poor understanding of organizational perspective, organizational improvement discipline and deprived management knowledge</td>
</tr>
<tr>
<td></td>
<td>Partial</td>
<td>Partial linkage is created where the quality management information / knowledge / data is used for understanding problems / issues and concerns and for their immediate resolution</td>
</tr>
</tbody>
</table>
**Organizational Understanding Source**

**Explanation & Analysis of The Current Practices**

<table>
<thead>
<tr>
<th>Strength / Weakness of Practices Performed in IT Industry of Pakistan and General Improvement Strategy</th>
</tr>
</thead>
</table>

**Full** Linkage is created where quality management information / knowledge / data is used for understanding problems / issues and necessary data is interpreted, analyzed and recommendation are made and implemented accordingly. Long term improvement strategy is formulated, implemented and used for organizational improvement.

---

Figure 5.3 explains general distribution of organizations as per categories of Internal Table C as follows:

**[Figure 5.3] General Distribution of Organizations W.R.T Categories of Internal Table C**

Along with the discussion above it is important to highlight some important quality practices that are source of organizational understanding and their analysis as follows:

**[Table 5.2 INTERNAL Table E] Specific Quality Management Practices For Organizational Understanding (Analysis, Shortcoming, Strengths and Level of Usage)**

<table>
<thead>
<tr>
<th>Practice Used For Organizational Understanding</th>
<th>Level of Usage of Practice in IT Industry of Pakistan</th>
<th>Major Strengths</th>
<th>Major Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement &amp; Analysis (CMMI Level 2)</td>
<td>Only CMMI Level 2 Organizations use fully and others striving for the CMMI level 2 use this partially.</td>
<td>Provides extremely well clarified and useful information against the information needs of individuals within the organizations.</td>
<td>In some cases due to the lack of understanding of CMMI and in particular quality management discipline, many necessary stakeholders are unable to understand practices related to CMMI. Other than this; some people do not make use of this practice fully. Since the CMMI framework limits discussion to project / product / process therefore seldom the practices are used at organizational level.</td>
</tr>
<tr>
<td>Product and Process Quality Assurance (CMMI Level 2)</td>
<td>Acts like an internal audit. Excellent method of improving overall working and gaining understanding.</td>
<td>Much of the weaknesses are same as that of 'Measurement &amp; Analysis Area'. Other than this a major problem is that people within the organization, generally avoid audits and therefore do not support it.</td>
<td></td>
</tr>
<tr>
<td>Verification &amp; Validation (CMMI Level 3)</td>
<td>Only CMMI Level 3 Organizations use fully and others striving for the CMMI level 3 use this partially.</td>
<td>These acts like a product quality check within the organization. The CMMI practices help in identification of product related problems and issues and helps rectify them.</td>
<td>Much of the weaknesses are same as that of 'Product and Process Quality Assurance'.</td>
</tr>
<tr>
<td>Organizational Understanding Source</td>
<td>Explanation &amp; Analysis of The Current Practices</td>
<td>Strength / Weakness of Practices Performed in IT Industry of Pakistan and General Improvement Strategy</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Risk Management (CMMI Level 3)</td>
<td>Helps in clarification of risks that organizations can face.</td>
<td>Much of the weaknesses are same as that of ‘Measurement &amp; Analysis Area’. In some cases people do not fully perform risk evaluation, analysts and therefore do not try to handle them.</td>
<td></td>
</tr>
<tr>
<td>Process Engineering (General)</td>
<td>Practices related to ‘Process Engineering’ essentially highly relate to organizational understanding as process engineering can only be done within the organization if the organizational processes, requirements, method of working and general culture is extremely well understood by the process engineers. It can be said that organizational understanding is one of the most important byproduct of ‘Process Engineering’.</td>
<td>In many of the cases stakeholders who work on ‘Process Engineering’ are themselves not clear about the quality management discipline. In many of the cases quality management departments limit the ‘Process Engineering’ to process engineering for the product / project related processes only. Organizations are ignored by many of the process engineers. Many a times process engineers are not given the necessary support required by their sponsors / rest of the organization’s staff members who consider ‘Process Engineering’ as a redundant activity.</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance (General)</td>
<td>Similar to ‘Product and Process Quality Assurance’?</td>
<td>Similar to ‘Product and Process Quality Assurance’?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Similar to ‘Product and Process Quality Assurance’?</td>
<td>In addition to this many of the quality specialists within the industry are not sure about the actual difference between quality assurance, quality control, quality engineering, quality support, quality implementation, quality management, Total Quality Management &amp; quality monitoring.</td>
<td></td>
</tr>
<tr>
<td>Configuration Management (CMMI Level 2)</td>
<td>See Sub Section 5.5.1.7 and Sub Section 5.5.1.2.9.</td>
<td>See Sub Section 5.5.1.7 and Sub Section 5.5.1.2.9.</td>
<td></td>
</tr>
<tr>
<td>Policy Formulation (General)</td>
<td>The practice requires extreme understanding of organization, its problems / issues / processes Etc....</td>
<td>In many of the cases stakeholders who work on ‘Policy Formulation’ are themselves not clear about the organizational dynamics.</td>
<td></td>
</tr>
<tr>
<td>Project Planning, Monitoring &amp; Only CMMI Level 2 Organizations</td>
<td>Refer to Sub Section 5.5.2.1.1.4.</td>
<td>Refer to Sub Section 5.5.2.1.1.4.</td>
<td></td>
</tr>
<tr>
<td>Organizational Understanding</td>
<td>Explanation &amp; Analysis of The Current Practices</td>
<td>Strength / Weaknesses of Practices Performed in IT Industry of Pakistan and General Improvement Strategy</td>
<td></td>
</tr>
<tr>
<td>-----------------------------</td>
<td>------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Control (CMMI Level 2)</td>
<td>use fully and others striving for the CMMI level 2 use this partially.</td>
<td>Help in understanding the customer’s requirements from the project / product. In some cases staff members who carry out this function are not well trained enough to carry out this task. This results in poor understanding of the customer requirements, rework and loss of productivity. In such cases product / project understanding is extremely poor.</td>
<td></td>
</tr>
<tr>
<td>Requirements Management (CMMI Level 2)</td>
<td>/</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decision Analysis &amp; Resolution (CMMI Level 3)</td>
<td>Only CMMI Level 3 Organizations use fully and others striving for the CMMI level 3 use this partially.</td>
<td>Extremely important, this practices related to this CMMI process, help in better analysis and understanding of organizational problems / issues and help resolve them as per a standardized process. Lack of interest of some stakeholders, lack of information / knowledge, conflict and self benefits are few of the hindrances in smooth execution of this process.</td>
<td></td>
</tr>
<tr>
<td>Causal Analysis &amp; Resolution (CMMI Level 5)</td>
<td>Only CMMI Level 5 Organizations use fully and others striving for the CMMI level 5 use this partially.</td>
<td>A proactive method of avoiding problems in future. This CMMI process helps the stakeholders within the organization identify cause to specific problems and helps eliminate them for future stability. Lack of interest of some stakeholders, lack of information / knowledge, conflict and self benefits are few of the hindrances in smooth execution of this process.</td>
<td></td>
</tr>
<tr>
<td>Statistical Quality Control (General)</td>
<td>Only CMMI Level 4 Organizations use fully and others striving for the CMMI level 4 use this partially. Very few organizations that are not CMMI certified use this for general small purpose.</td>
<td>Provides quantitative understanding of organization and related aspects. People are generally not aware of ‘Statistical Quality Control’.</td>
<td></td>
</tr>
</tbody>
</table>

5.5.2.1.1.6 Strategic Management

In many of the organizations, managers at the strategic level make use of organizational understanding for decision making and problem solving. In few of the organizations it has been observed that organizations make use of ‘Comprehensive Management Department’ or in some cases they are called ‘Information System Department’ in order to strategies for the organization. The said support departments act as management’s facilitators of their information needs. In extremely few organizations management is observed to conduct surveys / studies for decision making.

In most of the cases management working on organizational strategy makes use of finance, accounting or business development function for making decisions. Concept of ‘Comprehensive Management Department’ or in some cases ‘Information System Department’ is extremely helpful for improved organizational understanding and thereby improved strategic management.

5.5.2.1.1.7 Business Development

In most cases the observation is that potential business related information is made available to management for the business development. This helps management gain insight into the organizations capabilities and future potential business and its pre requisite requirement from the organization. It is important to note that not all the organizations use information / understanding from business development function for the organizational improvement.

Data / information / understanding obtained from business development must not be considered important for the new business only. Such information also helps organization know the internal capabilities required from the organization for future ventures.

5.5.2.1.1.8 Meetings

Largely conducted within nearly all organizations.

Important problem is that in many of the organizations meeting are not planned and monitored / controlled and information / understanding /
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Organizational Understanding

5.5.2.1.1.9 Reviews

Much of the discussion is similar to Sub Section 5.5.2.1.1.8.

5.5.2.1.1.10 Interoffice Communication

No general practices were found. Only a few organizations make use of formal online / offline forums and processes that capture necessary information that can later be used for organization understanding.

5.5.2.1.1.11 Training

Some organizations assess the training and the training needs for their organization.

5.5.2.1.1.12 Bulletin Boards

Some organizations make use of bulletin boards for capturing information, views and ideas from their employees.

5.5.2.1.1.13 Online Forums

Some organizations make use of various online forums for operation mainly for capturing information, views, requirements and ideas from their employees.

5.5.2.1.1.14 Feedback Collection

Very few organizations collect regular feedback from all relevant stakeholders.

5.5.2.1.1.15 Chatting

Some organizations make use of various chatting forums for operation mainly for capturing information, views, requirements and ideas from their employees.

5.5.2.1.1.16 Issue Analysis

Some organizations make use of issue analysis forums for issue analysis, evaluation and resolution.

5.5.2.1.1.17 Customers

Very few organizations collect regular feedback from their customers.

5.5.2.1.1.18 Lesson Learned

Some organizations make use of lesson learned forums for collective information against the organizational mishaps in the past.

5.5.2.1.2 Most Important Weaknesses

Figure 5.4 explains:

[Figure 5.4] Major Weaknesses in Pakistan’s IT Industry for Understanding Organizations (In View of Business Practices)

5.5.2.2 The Cultural Dimension

5.5.2.2.1 Current Cultural Methods / Sources of Organizational Understanding

Figure 5.5 explains:
5.5.3 Necessary Requirements and Methods for Understanding IT Organizations In View of Well Accepted International Practices (Exploration, Evaluation & Analysis of Existing Practices)

5.5.3.1 Analysis & Explanation
Although extremely difficult to assimilate, but the important fact is that none of the literature could be found in hard or soft form that indicated specific best practices of any international organization concerning ‘Organizational Understanding’. In most of the cases discussions were similar to the discussion conducted in Sub Section 5.5.1 and Sub Section 5.5.2. The author believes (based on available literature) that most of the international organizations only specifically identify the theory / philosophy that they use for organizational understanding.

5.5.3.2 General Requirements / Methods
In most of the cases organizations that try to understand themselves make use of some theoretical
framework. Literature studied can be grouped into two categories. The first category of literature is mostly by academicians / researchers. In case of this category hardly any discussion exists that is specific to any organization. Most of the discussion is generalized and therefore can be termed more or less like a theory / philosophy. Literature in this category has already been explored, discussed and analyzed in previous sections of this chapter. The second category of literature, which in actual the author was interested in for analysis in this section, relates to best practices / methods and requirements that various practitioners / managers / organizational experts and other members of the international IT industry have discussed for organizational understanding. Unfortunately in case of this second category, literature is extremely less. In addition, the literature that is available does not much discuss of what different international organizations have been doing for organizational understanding, rather it discusses some new theoretical framework or general thoughts of various authors that how organizations should be understood. In short, there is vast discussion concerning theory / philosophy of organizational understanding but no specific international best practices could be found.

5.5.3.3 Strengths / Weaknesses
Much of the strengths and weaknesses identified from the literature reviewed for analysis of international practices are similar to the strengths and weaknesses discussed in Sub Section 5.5.1 and Sub Section 5.5.2.

5.6 Recommendations
Figure 5.7 and 5.8 presents the framework that has been formulated after analysis:

![Framework for Building Better Understanding of IT Organizations in Pakistan](image-url)
Develop performance improvement strategies. Use the outcome of the performance improvement function to understand organization better. Implement changes proposed in the strategies.
Use the theoretical framework of ‘Group Emotion’ in understanding how group emotions influence individual emotions and vice versa. Train the necessary workforce against this and make sure that relevant stakeholders must be able to understand what group attitudes and their presence mean for group using the ‘emotion’ theory.

Recruitment feels the need for Ethnography and must collaborate with academia where students perform Ethnography for the organization free of cost. Management must make the output of the research case.

Improve knowledge management...
Cont…

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Pg:130


[Figure 5.8] Sources of Organizational Understanding within IT Organizations
5.7 Conclusions
The author of this thesis believes that for any manager or necessary stakeholders who plan(s) to understand organization(s) effectively, it is important that deep and thorough understanding of the theoretical framework concerning organizational understanding must be developed. It is important to understand theories / philosophies (concerning OD or management) and comprehend how these various theories / philosophies can be used within an organization.

The author; in this chapter presents exploratory and analytical analysis of theories, philosophies, frameworks (concerning organizational understanding in perspective of OD and management), international practices for organizational understanding and local cultural & business practices for organizational understanding. The entire analysis helps the reader understand the various requirements and methods used for organizational understanding. The analysis explains the application of theories, philosophies and the best practices. Based on the discussion in the chapter, the author also presents a framework (a set of recommendations) for improving organizational understanding for IT industry of Pakistan. This framework is formulated after exploration and analysis of theories, philosophies, international and local practices. It is made sure by the author that the strengths are mostly captured through the overall analysis and weaknesses (particularly in regard to application of any particular theory, philosophy, international and local practice) are eliminated / minimized. The entire discussion specifically caters application in Pakistan’s IT industry.
5.8 Bibliography


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Jan Dul and Bernard Weerdmeester, Published And Updated Since 1960's, *Ergonomics for Beginners* - A Classic Introduction on Ergonomics.


5.9 Endnotes


CHAPTER SIX: EMPLOYEE SATISFACTION AND IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS)
6 CHAPTER SIX: EMPLOYEE SATISFACTION AND IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS)

6.1 Chapter Introduction

6.1.1 Preface

Before proceeding with this chapter it is important to mention the names of two of author’s students i.e. Ms. Hina Sohrab Kiani and Ms. Omama Khurshid who worked partially with the author on this chapter’s data collection and analysis. On account of this help the author is extremely thankful to them and his supervisor i.e. Dr. Ali Sajid. Together the team extracted a research paper out of this chapter that was presented in the 11th QMOD conference organized at Lunds University, Campus Helsingborg, Sweden from 20th August 2008 to 22nd August 2008 (http://www.ch.lu.se/qmod).

6.1.2 Executive Summary

This chapter of this research thesis presents analysis of ‘Employee Satisfaction’ for IT sector of Pakistan. The chapter not only explores but also presents detailed explanation and analysis of the subject area for the IT industry of Pakistan by using necessary qualitative and quantitative research methods. The chapter also explains all the important issues arising due to underprivileged employee satisfaction. As a result of detailed analysis performed, the chapter finally identifies important recommendations for improving employee satisfaction.

Employees, being an integral asset of the organizations, impact organizations in accomplishment of their objectives. The impact of employee satisfaction in IT industry of Pakistan is relatively less known but plays significant role. This chapter analyzes the major causes of employee satisfaction / dissatisfaction and the impact of employee satisfaction on various organizational parameters (for instance quality, productivity Etc). This paper attempts to argue about the underline fact that management within IT organizations of Pakistan should focus on factors affecting the employee satisfaction and therefore try to manage workforce and organizational parameters accordingly.

6.1.3 Background

It is very much predominantly clear to us that employee satisfaction has a deep impact on parameters concerning organization like for instance productivity, quality, performance Etc. Understanding how employee satisfaction really and actually impacts a industry is a multifaceted job due to variability and the diversity of parameters involved such as norms, values, customs, civilization, ethics, styles, requirement, behavior, environment, scope, psychology, religion Etc. Several of the researchers, philosophers, theorists, industrial figures, scientists have presented various concepts that explain how employee satisfaction affects organizations’ success, revenue, effectiveness, efficiency, quality and other parameters. Various studies conducted by various researchers have been carefully interpreted and understood before proceeding with the research in this chapter. This has been done in order to understand that how employee satisfaction in IT organizations should be studied. Researchers that have worked on employee satisfaction have presented diverse ideas for organizational improvement. It cannot be assumed that one idea is acceptable over another. Each philosophy has its own strengths and flaws. In order to carry out an effective research, the superlative ideas from various researchers have been combined together in order to comprehend the dynamics of employee satisfaction in Pakistan’s IT industry in an effective manner. Insight into the ideas of various researchers help in understanding which satisfaction parameters should be studied as a top priority in order to study the existing employee satisfaction and which parameters should be addressed for improvement in employee satisfaction. Summary of many of these ideas is presented in Section 6.2.

Discussion in this chapter also covers analysis of some of the areas that were identified under the root category of ‘Employee Satisfaction’.

6.1.4 Objectives

The main objective of this chapter is to obtain answer(s) to the seventh research question identified in ‘Chapter One’.

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* This point onwards the term ‘Employee Satisfaction’ would by default refer to satisfaction of employees in IT organizations of Pakistan.
† As identified in ‘Chapter Three’!
‡ Areas mean categories, like for instance ‘People Management’ and ‘Organizational Ethics’! All the issues identified against these categories in ‘Chapter Three’ were later put in root category of ‘Employee Satisfaction’.
§ ‘Chapter Three’ identifies the root categories!
6.1.5 **Purpose**
This chapter enables the reader or stakeholders of this thesis in understanding the various aspects of employee satisfaction for IT industry of Pakistan. While conducting detailed analysis of the issues identified and clarified in ‘Chapter Three’, it was observed that many issues were related to employee satisfaction. This prioritizes ‘Employee Satisfaction’ as an important subject matter / area to be considered and studied in order to propose improvements under the light of OD theoretical framework, so as to revitalize the IT organizations.

6.1.6 **Significance**
It is important to emphasize the fact here that historically no similar exploratory and explanatory research has been conducted for the IT industry of Pakistan that formally helped in understanding, clarification, explanation and analysis of ‘Employee Satisfaction’ for IT industry of Pakistan. Till date there is no understanding of how employee satisfaction impacts IT organizations. The research in this chapter reveals employee satisfaction as an integral factor for organizations in Pakistan for obtaining competitive advantages. Employee satisfaction is an attribute pertinent to the workforce, which proves to be a valuable asset for the development of any sector. It is intended that findings of research in this chapter can be used to bring improvements in the work being done in the IT industry. This may serve as a valuable contribution in uplifting the IT economy of Pakistan.

6.1.7 **Limitations & Constraints**
Limitations and constraints identified in Section 4.1.6 also stand partially applicable for this chapter but in context of ‘Employee Satisfaction’. In addition to limitations and constraints identified in Section 4.1.6, it is also important to specify here that most of the discussion in this chapter has been restricted to the factors that were already identified in previous researches and literature. Finally data collection of this chapter was done from IT organizations in Islamabad.

6.1.8 **Scope**
Section 6.1 of this chapter presents the introduction. Subsequent to Section 6.1, Section 6.2 and 6.3 present the literature review and the research methodology respectively. The literature that is reviewed in Section 6.2 relates to the conceptual understanding of the philosophies concerning employee satisfaction. Section 6.4 specifies the data collection methodology, sources of the data and tools used for data collection. This section also presents important data statistics. Section 6.5 presents the main body of this chapter. It starts with the explanation and analysis of the issues concerning employee satisfaction presented in ‘Chapter Three’. Sub Section 6.5.2 presents consolidated findings related to employee satisfaction within IT organizations of Pakistan w.r.t survey / interview and ethnography. Sub Section 6.5.3 discusses HOWS and WHYS against findings in Sub Section 6.5.2. After the analysis and discussion of all the findings, necessary recommendations are given in Section 6.6. The research in this chapter mainly examines and presents views of various employees in IT industry of Pakistan concerning their satisfaction level. It also examines and presents the results of ethnography in relation to employee satisfaction.

6.2 **Literature Review**
This part of this chapter introduces the literature reviewed concerning ‘Employee Satisfaction’. Section 6.1.3 explains that many of the theories and philosophies that help us gain understanding of various facets of employee satisfaction have been used for the analyzing employee satisfaction within IT sector of Pakistan. This section, presents the summary of philosophies and ideas from various theorists / philosophers / specialists / researchers under the light of which, study in this chapter is conducted. Theory and concept concerning employee satisfaction are enormously defined and described by various theorists. Major concern of the author of this thesis has been in scrutinizing what to study or not study for understanding the theoretical framework of ‘Employee Satisfaction’. It is important to realize here that no particular literature could be obtained from any source that particularly focused on employee satisfaction in IT industry of Pakistan.

Literature review reveals that employee satisfaction has been a major concern for several researchers like for instance Hoppock (1935)\(^\text{10}\), Roethlisberger & Dickson (1939)\(^\text{11}\), Morse (1953)\(^\text{12}\), Herzberg (1966)\(^\text{13}\), Locke (1969)\(^\text{14}\), Falcione (1974)\(^\text{15}\), Falcione, McCroskey, & Daly (1977)\(^\text{13}\) and Richmond & McCroskey (1979)\(^\text{17}\). Many of researchers have performed various analyses in which they have tried to locate relationship of employee satisfaction with various other parameters. Based on the collective findings from the literature studied following factors (independent variables) have been analyzed in this thesis in relation to satisfaction of employees (dependent variable): individual quality of work, commitment level\(^\text{6}\), pay\(^\text{1,2}\), career growth\(^\text{9,6}\), work environment\(^1\), supervisor’s attitude\(^\text{3,5}\), empowerment\(^1\).
feedback, performance evaluation, well defined job responsibility, interest level with the job, process quality, organizational quality, employee moral and work ethics, availability of resources, communication level, trainings, absenteeism, turnover, organization standard, quality of work output by the organization, customer satisfaction, relation with co-workers and productivity of the organization.

Employee satisfaction has close relationship with organization’s productivity. According to Richmond, Mccroskey and Davis (1982):

“While much of the research to date has been concerned with the relationship between employee satisfaction and productivity, the findings have been mixed, with some indicating a positive relationship (Dunnette, Campbell, & Justus, 1967, Locke, 1960, 1976; King, 1970) and some failing to find such a relationship (Brayfield & Corckett, 1955; Vroom, 1964). At best, the research may permit us to conclude that employee satisfaction may increase productivity or job performance under some circumstances in some types of organizations.”

Among many other finding in their research Richmond, Mccroskey and Davis closely study the relationship of employee satisfaction with communication, innovation, and superior-subordinate relationship. Like Richmond, Mccroskey and Davis the importance of employee satisfaction has also been observed by Aamodat (Undated) who considers employee satisfaction as being beneficial to the organization rather than happiness of employees own sake. Woods (1993) suggests what organizations should follow to satisfy their employees. He argues that staffs in an organization are clientele in disguise. According to him, the relationship between a company and its employees closely resembles the relationship companies have with their customers. This is a sort of expectations and their fulfillment relationship.

According to Wikipedia Resource:

“Locke (1976) presents Range of Affect Theory in which he argues that satisfaction is determined by a discrepancy between what one wants in a job and what one has in a job. Further, the theory states that how much one values a given facet of work (e.g. the degree of autonomy in a position) moderates how satisfied or dissatisfied one becomes when expectations are / aren’t met. When a person values a particular facet of a job, his satisfaction is more greatly impacted both positively and negatively, compared to one who doesn’t value that facet.”

Despite many of the theories have been studied the most important is that by Maslow (1954), who published "Motivation and Personality" that introduced his theory about how people satisfy various personal needs in the context of their work. According to his theory there is a general pattern of needs and satisfaction that people follow in general. According to Maslow a person cannot pursue the next higher need in the hierarchy until her or his currently recognized need are substantially or completely satisfied. Like Maslow, Clayton Alderfer proposed the ‘ERG Theory’ that catered some of the deficiencies in Maslow’s theory. The ERG Theory like Maslow's theory, describes needs as a hierarchy. The letters ERG stand for three levels of needs: Existence, Relatedness, and Growth. Like Maslow's model, the ERG theory is hierarchical.

Herzberg (1959) formulated Theory of Motivators and Hygiene Factors commonly known as ‘Two Factor Theory’. This theory presents two-dimensional paradigm of factors affecting people's attitudes about work. According to this theory factors such as company policy, supervision, interpersonal relations, working conditions, and salary are hygiene factors rather than motivators. According to the theory, the absence of hygiene factors can create job dissatisfaction, but their presence does not motivate or create satisfaction.

Lounsbury, Moffitt, Gibson, Drost and Stevens (2007) present extremely important paper by the name “An investigation of personality traits in relation to job and career satisfaction of information technology professionals”. In this paper they present study that addresses the job and career satisfaction of information technology (IT) professionals. The theory hypothesizes that eight traits are significantly related to both job and career satisfaction. These eight traits are assertiveness, emotional resilience, extraversion, openness, teamwork disposition, customer service orientation, optimism, and work drive.

In their paper they quote:

“Job satisfaction of IT professionals is related to employee turnover (Bartol and Martin, 1982; Bartol, 1983), which is a persistent problem in the IT field (e.g., Jiang et al., 2001).”

Study by Pyman, Cooper, Teicher and Holland (2006) compare the effectiveness of different voice mechanisms across three criteria: perceived managerial responsiveness to employee needs, perceived job control and perceived influence over job rewards. According to their analysis it is revealed that voice was perceived as most effective when an amalgam of different forms was present. Although many theories exist, few of the most appealing researches are by Currall, Judge, Kohn and Towler (2005), who talk about the relationship of benefits, compensation and pay with employee satisfaction.
satisfaction. Another important study is by Berson and Linton (2005) who examine relationships between leadership style, quality, and employee satisfaction in R&D versus administrative environments.

6.3 Research Methodology

Figure 6.0 presents the research methodology:

6.4 Data Collection

6.4.1 Sources of the Data

Three sources were used for data collection as follows:

A) Literature
B) Ethnography
C) Surveys / Interview: Conducted for 33 IT employees randomly in 13 different IT organizations in Pakistan.

6.4.2 Collection Method

The data collection was done through three main resources as stated in Section 6.4.1. Data collection methodology for the first two sources would not be explained here due to the simplicity of discussion. For the surveys / interviews, data collection was mainly done using a pre defined questionnaire that was formulated after carefully consulting the literature and the seventh research question. This questionnaire was later circulated to various employees in IT industry randomly. Each employee was explained the questionnaire thoroughly. 33 surveys / interviews were conducted for the data collection from various employees. Although no specific segregation was done, yet mainly most the surveyed employees were technical staff members. It was also ensured that each employee interviewed must have at least more than one year experience in his / her current organization. This was purposely done in order to make sure that each employee well understood their respective organizations. Random sampling method was done for choosing the interviewee. ‘Online and Virtual Ethnography’ was also used for data collection. It is important to mention here that due to the contextual nature of the subject being studied in this thesis, the researcher had to deeply immerse in the subject by being part of the IT industry itself.

** That relates to ‘Employee Satisfaction’!
6.4.3 Data Collection Tool Reference
Refer to Annex 54.

6.4.4 Data Statistics for Surveys / Interview Part A
6.4.4.1 Finding One: Distribution of Gender, Age, Overall Experience & Experience in Current Organization
6.4.4.1.1 Illustration
Figure 6.1 presents consolidated data findings:

![Gender Distribution](image)

- Females: 18%
- Males: 82%

![Histogram: Overall Experience](image)

- Frequency
- Overall Experience
- More

![Histogram: Age Distribution](image)

- Frequency
- Age

![Histogram: Experience in Current Organization](image)

- Frequency
- Experience in Current Organization

6.5 Analysis
6.5.1 Analysis of Issues Identified in Chapter Three (Related To Employee Satisfaction)
Several concerns have been identified in the third chapter that can be categorized, directly or indirectly, under the head of employee satisfaction. This section delineates the summary of the issues that were recognized earlier in order to facilitate stakeholders in gaining understanding of the existing problem areas (related to ‘Employee Satisfaction’) within various IT organizations.

Table 3.11 identifies ‘Employee Satisfaction’ as an important area of concern for the IT industry of Pakistan. Discussion of issues related to employee satisfaction is simple and straight forward. Figure 6.2 helps us in explaining the issues using a fish bone diagram as follows:

![Figure 6.2] Employee Satisfaction Issues as Identified from Chapter Three (A Fish Not Worth Eating)
Five core issues that were identified in chapter three have been highlighted in Figure 6.2. All these issues result in employee dissatisfaction. It is important to mention here that in most of the cases employees agreed and thought that employees’ low satisfaction was result of management’s incompetence. It is important to note here that when employees who were interviewed / surveyed were consulted regarding which specific management practices cause low employee satisfaction then majority focused on issues like lack of managements’ trust on employees, lack of professional management and lack of managements’ capabilities to manage people. In addition to this many employees also believed that one of the reasons of low employee satisfaction is lack of job security and deprived managements’ vision for future business planning.

6.5.2 Explanation & Analysis of Important Findings from Survey / Interview In the Light of Ethnographical Perspective

This section of this chapter helps us in understanding the perception of various employees surveyed / interviewed (IT employees / IT staff members). As a consequence of investigation of the surveys / interviews of all employees; understanding of analysis is obtained. Overall analysis of the survey / interviews is done using the statistical methods and ethnographical observations. The identified findings would later be used for suggesting recommendations after detailed discussion. It is important to note that this section explains the findings and does not answer how or why a particular behavior / finding exist.

6.5.2.1 Finding: Employee Satisfaction in Organizations Surveyed

6.5.2.1.1 Illustration A

Figure 6.3 explains:

6.5.2.1.2 Illustration B

Figure 6.4 explains:
6.5.2.1.3 Explanation
Illustrations ‘A’ and ‘B’ suggest that employee satisfaction is skewed towards the higher end of the histogram; thereby explaining that employee at organizational and individual level, feel generally satisfied in Pakistan’s IT industry (with an exception of few).

6.5.2.2 Finding: Employee Satisfaction / Dissatisfaction at Various Organizations’ Hierarchy (Levels)

6.5.2.2.1 Illustration
Figure 6.5 explains:

![Figure 6.5] Employee Satisfaction / Dissatisfaction W.R.T Staff Level

6.5.2.2.2 Explanation
Figure 6.5 suggests that top management is largely satisfied. None of the employees at top management level are dissatisfied. At ‘Middle Career’ level, however, satisfaction level is more or less balanced. Problem can be observed at ‘Early Career’ level mainly. From the illustration it is evident that in most of the cases employees at ‘Early Career’ level are dissatisfied. Generally at all organizational levels, employee dissatisfaction is higher than satisfaction.

6.5.2.3 Finding: Relation of Organizations Generic Employee Satisfaction with Level of Employees Satisfied / Dissatisfied at Any Organizations’ Hierarchy (Levels)

6.5.2.3.1 Illustration A
Figure 6.6 explains:

![Figure 6.6] Organizational Employee Satisfaction Vs Satisfaction at Various Levels
6.5.2.3.2 Illustration B
Figure 6.7 explains:

![Organizational Employee Dissatisfaction Vs Satisfaction at Various Levels](image)

6.5.2.3.3 Explanation
Figure 6.6 suggest that organizations having employees satisfied at all levels have the highest organization wide satisfaction. The figure also explains that there is not even a single organization that does not have any satisfied employees at any levels.
Figure 6.7 suggests that as dissatisfaction penetrates lower level of organization, the overall satisfaction level within the organization decreases. One of the reasons behind this important fact could be that normally, staff strength is higher at lower organizational hierarchal level as compared to higher organizational hierarchal levels.

6.5.2.4 Finding: Role of Employee Satisfaction with Organizations’ Quality & Productivity
6.5.2.4.1 Illustration A & B
Figure 6.8 and 6.9 explain:

![Role of Employee Satisfaction in Determining Organizational Quality](image)

![Role of Employee Satisfaction in Determining Organizational Productivity](image)

6.5.2.4.2 Explanation
Figure 6.8 and 6.9 reveal that employee satisfaction plays a major role in determining organizations productivity and quality.

6.5.2.5 Finding: Factors (Other Than Quality And Productivity) That Are Affected By Employee Satisfaction
6.5.2.5.1 Illustration
Figure 6.10 explains:

†† Ethnographical perspective supports this important phenomenon. The author has confirmed this that this finding is valid by measuring the productivity, quality and employee satisfaction at ZTE Pakistan Pvt Ltd over a span of 2 years.
6.5.2.5.2 Explanation

Figure 6.10 suggests that organizational environment, employee professionalism, growth of an organization, communication within organization, team work within organization, employees’ private life and organizations’ culture are the factors that are seriously affected by employee dissatisfaction (in order of priority).‡‡

6.5.2.6 Finding: Role of Employee Satisfaction with Employee Moral, Values & Work Ethics

6.5.2.6.1 Illustration

Figure 6.11 explains:

6.5.2.6.2 Explanation

Figure 6.11 suggests that employee satisfaction affects employee largely and in 46% of the cases, employees react in the form of unprofessional and unethical behavior §§ if deprived from basic satisfaction. In addition to this many employees (12%) tend to show uncertain behavior with regard to moral, values and ethics when they experience dissatisfaction. Employee satisfaction shortage may also compel employees to lose focus on work (6%).***

6.5.2.7 Finding: Factors Internal & External to an Organization That Trigger Employee Satisfaction

6.5.2.7.1 Illustration A

‡‡ Ethnographical perspective supports this important finding.

§§ The most important problems that are observed during ethnography are that employees do not communicate as they should, there is a tendency of hiding work, employee normally tend to do work in isolation thereby making sure that organization’s dependency on an individual increases, in case of work transfer; employee are observed to transfer partial work only.

*** This was largely experienced during ethnography as well.
Figure 6.12 explains:

<table>
<thead>
<tr>
<th>Factors Internal to an Organization That Trigger Employee Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>7%</td>
</tr>
<tr>
<td>Salary</td>
</tr>
</tbody>
</table>

6.5.2.7.2 Explanation
Self explanatory!

6.5.2.7.3 Illustration B
Figure 6.13 explains:

<table>
<thead>
<tr>
<th>Factors External to an Organization That Trigger Employee Dissatisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>4%</td>
</tr>
<tr>
<td>Weather</td>
</tr>
</tbody>
</table>

6.5.2.7.4 Explanation
Self explanatory!

6.5.2.8 Finding: Role of Supervisors’ Attitude in Employee Satisfaction

6.5.2.8.1 Illustration
Figure 6.14 explains:

<table>
<thead>
<tr>
<th>Role of Supervisors’ Attitude in Employee Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>97%</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

6.5.2.8.2 Explanation
Figure 6.14 explains that 97% of the employee experience change in their satisfaction level with the change in their supervisors’ attitude.†††

6.5.2.9 Finding: Factors Necessary in Supervisors’ Attitude for Better Employee Satisfaction

6.5.2.9.1 Illustration
Figure 6.15 explains:

††† This was largely observed during ethnography as well.
6.5.2.9.2 Explanation
Self explanatory!

6.5.2.10 Findings Based on Correlation Analysis

6.5.2.10.1 Findings & Explanation
- Poor satisfaction in job hinders employee satisfaction within organizations and vice versa.
- To some extent; interest in job helps the employees gain satisfaction from job and thereby add to employee satisfaction organization wide.
- If proper resources are made available to employees then overall satisfaction increases within the IT organizations.
- Fair, clear, transparent & effective performance management system increases employee satisfaction level organization wide and at individual level. Further to this effective performance management system also increases job satisfaction.
- Correction in employees’ work if in case it deviates from required quality level triggers employee satisfaction level organization wide and at individual level.
- Salary mainly and largely triggers employee satisfaction level organization wide and at individual level. Moreover good financial compensation is also responsible for increased job satisfaction and interest in job. It is also observed that satisfaction from salary is also dependant on satisfaction of equivalence of salary with the industry.3
- Organizations’ image in the industry is a source of employee satisfaction.
- How organizations’ quality is perceived in the market is a source of employee satisfaction.
- Customer satisfaction triggers employee satisfaction largely.
- General and individual employee satisfaction is dependent on employee’s interest in the profession.
- Quality and productivity is largely dependant on employee satisfaction.
- Employee trainings trigger employee satisfaction to some extent.

6.5.3 Discussion
This section of this chapter uses information obtained in Section 6.5.1 and Section 6.5.2 and discusses how and why a particular behavior / finding exist in relation to employee satisfaction within Pakistan’s IT industry. The section is mainly meant to answer sub questions of the seventh research question of this thesis.
Finding of the third chapter suggest, that ‘lack of management’s trust on employees’, ‘shortage of professional management’, ‘lack of management’s ability to manage people’, ‘low job security’ and ‘deprived vision of management for future business planning’ are the key reasons of unfortunate employee satisfaction.
Analysis of the survey reveals that although there are some issues regarding the employee satisfaction but generally the satisfaction level of employees within the IT industry of Pakistan is reasonably in good

‡‡‡ Reviewed literature explains that despite all the weaknesses of this analysis, correlation can be taken as evidence for a possible causal relationship!

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shape. Although this is very encouraging, but as we dig into the subject details we find that satisfaction at higher levels within organization is extremely good whereas satisfaction level of employees at the lower end of organization does not give a very healthy picture. It is important to explain here that results of ethnography reveal similar findings. In most of the cases it has been found that employees at senior level within an organization are generally more satisfied as compared to middle or lower level staff. Major reason behind this fact could be the higher salaries and superior compensation and benefits. In addition to this, generally the more the employee is at the higher organizational hierarchy, the lesser he/she experiences strict supervision. Adding up to this, it is observed that employees at the senior level naturally earn better respect and status within the organization. This might be due to the fact that people in Pakistan’s IT industry are flawd in understanding and realizing the importance of dignity of labor. An important finding that we obtained from ethnography and survey analysis was that organizational parameters like ‘productivity’ and ‘quality’ are directly related to employee satisfaction. This important finding seems very much obvious to us as we would expect. It is evident from our general understanding that satisfaction of an employee plays a vital role in employees’ willingness to work effectively and efficiently. The lower the employees’ satisfaction, the inferior would be the efficiency of employees, thereby resulting in declined productivity. Talking about quality, it is considered as a step towards organizational improvement and thereby organizational growth. People in Pakistan’s IT industry generally perceive quality as a side/secondary job.⁵⁹⁸ With such attitude it is impossible for an employee who is not satisfied to focus on jobs that are secondary in his/her opinion. Quality in IT sector is also heavily dependant on processes, procedures and policies within an organization. As we consult Section 6.5.2.5, we come to know that employees’ dissatisfaction affects rules, polices, procedures and processes framework within an organization and in addition to this employees satisfaction has noticeable impact on organizations’ growth. Since organizational growth requires organizations’ focus on quality as well therefore our discussion becomes further understandable. Further to this deterioration and loopholes in organizations’ process & policy framework becomes another source of deprived quality.**** Analysis of the survey reveals that largely workforce within organizations tend to act unprofessionally and unethically with lower satisfaction. Some employees also lose focus on work as dissatisfaction penetrates their work life. Many of the employees show uncertain behavior when dissatisfied. The important question here is that how and why does this happen and the answer can only be given by the use of ethnography. While the author of this thesis was studying employee satisfaction in one of the IT organizations in Pakistan over a couple of months, he noticed some significant behaviors in relation to employee satisfaction and moral, value and ethics. The author observed that moral of the dissatisfied employees was usually low due to the reason that some of their personal or work related needs were not being fulfilled thereby resulting in depression and tension mostly. It was also observed that such employees were easily noticeable from the other employees who were satisfied due to their disheveled appearance. In other words in most of the cases employee dissatisfaction triggered worries for employees thereby resulting in low employee moral. During the study, it was also noticed that many of the employees who felt depressed or dissatisfied came late to office and left early. Most of such employees engaged in online and face to face discussion with other employees usually. In most of the cases the discussions were against the organization in which they worked and mostly such discussion were more than an hour long. According to author these anti organizational discussion and wastage of office hours are two main reasons of how the dissatisfied employees lose attention on work ethics. Adding up it was observed that dissatisfied employees did not communicate the necessary information for better communication. In other words employees hid the information from other team members and tried to make sure that employers were dependant on them. This attitude could be major consequences of the fact that most of the dissatisfied employee had to get the management agree to some stance of theirs and for that this they wanted a reason for a deal. Section 6.5.2.7 helps us gain visibility into which factors internal and external to an organization trigger satisfaction and dissatisfaction respectively. Due to simplicity of the factors, the detailed discussion regarding the identified factors is avoided in this section. Coming to importance of supervisors’ behavior, during the ethnography it was observed that employee satisfaction largely changes with changes in the supervisor’s attitude. Multiple teams having different team leads were studied during ethnography. It was found that in all the cases employee discussed and criticized the behavior and the negative attitude of their bosses. Further to this, it was also observed that

⁴⁴ Section 6.5.2.5 also identifies parameters other than quality and productivity that are affected by employee satisfaction.
employees related their satisfaction directly to their boss’ attitude and behavior in their discussions. As per the observations, the group of employees studied believed that relationship between employee satisfaction and supervisor’s attitude was direct and did not involve any other parameters (known or unknown). Section 6.5.2.9 reveals some of the important traits that have been identified after ethnography and analysis of the survey. These traits must exist in supervisors so that they should be able to enhance their team’s satisfaction.

Some other organizational dynamics also need to be discussed in relation to employee satisfaction. Section 6.5.2.10 presents finding against many of the factors that we will now be discussed.

To start with job satisfaction increases employee satisfaction. Among many studied parameters that helped us in understanding why this relationship existed, the most important was that job satisfaction relates directly to interest of an individual in doing a particular task / work. Therefore it is actually the interest in job that largely triggers employee satisfaction.

An extremely surprising finding obtained through ethnography and survey was that employee’s commitment does not change generally no matter how satisfied or dissatisfied the employees feel. It is important to understand that by commitment, we largely mean the fulfillment of tasks and responsibilities that are given to employees. Important here is to understand why this happens. The answer is that in most of the cases employees feel and make sure that they should try to complete the work allocated to them no matter how satisfied or dissatisfied they are. In perception of the author, employees in IT sector of Pakistan are generally hard working. One may feel that discussion in this paragraph opposes our understanding of dissatisfied employees’ response to his / her morals / values and ethics that was established earlier. This confusion is certainly explainable. Values, work ethics and employees’ moral do not actually relate to fulfillment of tasks / work in an organization no matter how dissatisfied an employee is. In other words (checked using ethnography) a dissatisfied employee may misuse office hours, have lengthy useless anti organizational discussion, hide work / information and hinder organizational communication but this does not mean that he / she would not fulfill his / her tasks (no matter how poorly and how late the task is completed). Ethnography reveals that reason of this behavior could be Islamic values and to some extent fear of being fired.

Moving on, relation of salary, compensation and benefits with employee satisfaction have been discussed earlier in Section 6.5.2.10 and do not need any further clarification due to simplicity of discussion. Research reveals that parameters like definition of roles and responsibilities within an organization, late office hours, trainings for employee growth and personal development do not largely relate to employee satisfaction within organization, however, to some extent, they have a positive influence on employee satisfaction. An important finding obtained is concerning the relationship of clarity of organization’s objectives and team work with employee satisfaction. According to the analysis in this chapter, it is revealed that clarification of organizational objectives and team work has no relationship with satisfaction of employees.

Ending the discussion survey and ethnography results reveal that organizations’ working environment and organizations’ image in the industry highly relate to employee satisfaction. It is observed during ethnography that environment parameters like dedicated cabins / work place, availability of necessary logistics and resources, proper temperature; seating and high quality work stations are all; the most important parameters that determine employee satisfaction by improving the working environment. Regarding the organizations’ image, since Pakistan general public consider working in well reputed organizations as a symbol of distinction and as a symbol of class therefore, to many of the employees this is a matter of great concern and a source of great satisfaction.

Some of the findings (in Section 6.5.2.10) have not been discussed in detail in this section due to simplicity. Closing the discussion, dialogue with managers, executives, leaders, consultants, educationist and policy makers reveal that they well understand the importance of employee satisfaction but in true sense very few people / supervisors / management personnel actually know how employee should be satisfied and what are the parameters to target for improving employee satisfaction are.

### 6.6 Recommendations

Based on the discussion in Section 6.5 practices / ideas / recommendations have been identified in order to eliminate / lower dissatisfaction within organizations. The author of the thesis has personally used the recommended framework in ZTE Pakistan Pvt Ltd and experienced massive improvement in employee satisfaction.

Figure 6.16 explains the framework for organization’s management:

†††† Factors identified from literature review!
[Figure 6.16] Framework for Achieving Employee Satisfaction in IT Industry of Pakistan
It is also important to highlight here that this section also presents recommendation / guidelines that must be put into practice by GOP. Figure 6.17 explains the steps that GOP should take for employee satisfaction:

![Figure 6.17] Steps Required To Be Taken By GOP for Achieving Employee Satisfaction in IT Industry of Pakistan

### 6.7 Conclusions

This chapter initially presents how and which parameters concerning employee satisfaction should be studied for the analysis purpose. Once the rights parameters are identified, focus is laid on understanding and analysis of the issues (concerning employee satisfaction) identified in ‘Chapter Three’. The identified parameters are then studied using ethnography and survey / interviews as research tools. Each parameter is explored and analyzed using qualitative and quantitative methods. Once this is done, set of recommendations is obtained. Recommendations proposed are in form of a framework. Section 6.6 presents this framework. Figure 6.18a and Figure 6.18b explains which issues (identified in Figure 6.2 and Figure 4.3 {some issues were left unaddressed in the fourth chapter}) are addressed using a fish bone diagram as follows:

![Figure 6.18a] Addressing Employee Satisfaction Issues as Identified from Chapter Three
[Figure 6.18b] Addressing Organization’s Culture Issues as Identified from Chapter Three
6.8 Bibliography


Muhammad Wasim Bhatti, Ali Ahsan and Ali Sajid., (2008), Required Level of Motivation to Revitalize the Workforce in software Industry of Pakistan, proceeding of 7th WSEAS Int, Conf. on Software Engineering, Parallel and Distributed Systems (SEPADS ’08), University of Cambridge, UK.


Tutor, F. D., (1986), The Relationship between Perceived Need Deficiencies and Factors Influencing Teacher Participation in the Tennessee Career Ladder; Doctoral dissertation, Memphis State University, Memphis, TN.


6.9 Endnotes


[3] Steven C. Currall, Timothy A. Judge, Laura Kohn and Annette J. Towler., (2005), Pay Satisfaction and Organizational Outcomes, Jones School of Management and Departments of Psychology and Statistics, Rice University, Institute of Psychology Illinois Institute of Technology, Warrington College of Business University of Florida and Department of Psychology Rice University.


CHAPTER SEVEN: MOTIVATION AND IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION, ANALYSIS & IMPROVEMENT METHODOLOGY)
CHAPTER SEVEN: MOTIVATION AND IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION, ANALYSIS & IMPROVEMENT METHODOLOGY)

7.1 Chapter Introduction

7.1.1 Preface

Before proceeding with this chapter it is important to mention the name of one of author’s students i.e. Mr. Muhammad Wasim Bhatti who worked partially with the author on this chapter’s data collection and analysis. On account of this help the author is extremely thankful to him and his supervisor i.e. Dr. Ali Sajid. Together the team extracted a research paper out of this chapter that was presented in the 7th WSEAS International Conference on Software Engineering, Parallel and Distributed Systems (SEPADS ’08) held in University of Cambridge, Cambridge, UK from February 20th to February 22nd, 2008. After acceptance at SEPADS ’08 the paper was extended further and presented for inclusion in WSEAS journals. The extended version of the research paper was therefore selected for inclusion in journal i.e. “WSEAS Transactions on Computers”.

7.1.2 Executive Summary

This chapter of this research thesis presents analysis of ‘Motivation’ for IT sector of Pakistan. The chapter not only explores but also presents detailed explanation and analysis of the subject area for the IT industry of Pakistan by using necessary qualitative and quantitative research methods. The chapter also explains all the important issues arising due to employee de-motivation. As a result of detailed analysis performed, the chapter finally identifies important recommendations for improving motivation. In addition to exploration and analysis of motivation for IT industry of Pakistan, the chapter also presents a framework. Introductory details of this framework are as under.

Employee motivation is one of the key drivers of success in today’s competitive environment. Relevant literature generally explains that motivated employees can perform their tasks much better than demotivated workers. It is due to this reason that there is always a requirement of a comprehensive framework that should be able to provide complete guidelines with the help of which supervisors should be able to identify core factors that motivate employees. Keeping in line the requirement stated earlier, this chapter presents a self formulated Framework i.e. ‘Imperative Motivational Factors Framework’ (IMFF). This proposed framework familiarizes necessary stakeholders with the core motivational factors’ identification process. The framework takes into account very generic factors identified from various motivational theories, society and industry. Once the generic factors are identified then the framework formulates specific factors for a group of employees and / or for individual employee.

7.1.3 Background

It is very much predominantly clear to us that motivation has a deep impact on parameters concerning organization like for instance productivity, quality, performance Etc. Understanding how motivation really and actually impacts an industry is a multifaceted job due to variability and the diversity of parameters involved such as norms, values, customs, civilization, ethics, styles, requirement, behavior, environment, scope, psychology, religion Etc. Several of the researchers, philosophers, theorists, industrial figures, scientists have presented various concepts that explain how motivation affects organizations’ success, revenue, effectiveness, efficiency, quality and other parameters. Various studies conducted by various researchers have been carefully interpreted and understood before proceeding with the research in this chapter. This has been done in order to understand that how motivation in IT organizations should be studied. Researchers that have worked on motivation have presented diverse ideas for organizational improvement. It cannot be assumed that one idea is acceptable over another. Each philosophy has its own strengths and flaws. In order to carry out an effective research, the superlative ideas from various researchers have been combined together in order to comprehend the dynamics of motivation in Pakistan’s IT industry in an effective manner. Insight into the ideas of various researchers help in understanding which parameters should be studied as a top priority in order to study

† ISSN: 1109-2750, Issue 6, Volume7, June 2008. Also available from: http://www.wseas.us/e-library/transactions/computers/2008/26-141N.pdf!
‡ This point onwards the term ‘Motivation’ would by default refer to motivation of employees in IT organizations of Pakistan.
§ As identified in ‘Chapter Three’!
** Supervisors in IT industry of Pakistan!
†† Formulated by the researchers!
‡‡ Group of employees belonging to society & industry!
the existing motivation and which parameters should be addressed for improvement in motivation. Summary of many of these ideas is presented in Section 7.2. Discussion in this chapter also covers analysis of some of the areas§§ that were identified under the root category *** of ‘Motivation’.

7.1.4 Objectives
The main objective of this chapter is to obtain answer(s) to the eight research question; identified in ‘Chapter One’.

7.1.5 Purpose
This chapter enables the reader or stakeholders of this thesis in understanding the various aspects of employee motivation for the IT industry of Pakistan. While conducting detailed analysis of the issues identified and clarified in ‘Chapter Three’, it was observed that many issues were related to employee motivation. This prioritizes ‘Motivation’ as an important subject matter / area to be considered and studied in order to propose improvements under the light of OD theoretical framework, so as to revitalize the IT organizations.

7.1.6 Significance
It is important to emphasize the fact here that historically no similar exploratory, explanatory and analytical research has been conducted for the IT industry of Pakistan that formally helped in understanding, clarification, explanation, analysis and improvement of ‘Motivation’ for IT industry of Pakistan. Till date there is no understanding of which factors impact motivation in IT organizations. The research in this chapter reveals motivation as an integral factor for organizations in Pakistan for obtaining competitive advantages. Employee motivation is an attribute pertinent to the workforce, which proves to be a valuable asset for the development of any sector. It is intended that findings of research in this chapter can be used to bring improvements in the work being done in the IT industry. This may serve as a valuable contribution in uplifting the IT economy of Pakistan.

7.1.7 Limitations & Constraints
Limitations and constraints identified in Section 4.1.6 also stand partially applicable for this chapter but in context of ‘Motivation’. In addition to limitations and constraints identified in Section 4.1.6, it is also important to specify here that most of the discussion in this chapter has been restricted to the factors that were already identified in previous researches and literature. Finally data collection of this chapter was done from IT organizations in Islamabad.

7.1.8 Scope
Section 7.1 of this chapter presents the introduction. Subsequent to Section 7.1, Section 7.3 and 7.4 present the literature review and the research methodology respectively. The literature that is reviewed in Section 7.3 relates to the conceptual understanding of the philosophies concerning employee satisfaction. Section 7.5 specifies the data collection methodology, sources of the data and tools used for data collection. This section also presents important data statistics. Section 7.6 presents the main body of this chapter. It starts with the explanation and analysis of the issues concerning employee motivation presented in ‘Chapter Three’. Sub Section 7.6.1 to 7.6.10 presents consolidated findings / analysis / framework related to employee motivation within IT organizations of Pakistan w.r.t survey / interview and ethnography. After the analysis and discussion of all the findings, necessary recommendations are given in Section 7.7.

7.2 Chapter Specific Abbreviation and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>Factor marked as motivational factor</td>
</tr>
<tr>
<td>S</td>
<td>Factor marked as satisfier factor</td>
</tr>
<tr>
<td>MFact&lt;sub&gt;i&lt;/sub&gt;</td>
<td>Motivational factor</td>
</tr>
<tr>
<td>MFreq&lt;sub&gt;i&lt;/sub&gt;</td>
<td>Motivational factor’s frequency</td>
</tr>
<tr>
<td>Avg MV&lt;sub&gt;i&lt;/sub&gt;</td>
<td>Average motivational factor’s variance</td>
</tr>
<tr>
<td>MS&lt;sub&gt;i&lt;/sub&gt;</td>
<td>Motivational factor’s score</td>
</tr>
<tr>
<td>ML&lt;sub&gt;j&lt;/sub&gt;</td>
<td>Motivation level of employee</td>
</tr>
<tr>
<td>ME&lt;sub&gt;i&lt;/sub&gt;</td>
<td>Motivational factor’s expectancy</td>
</tr>
<tr>
<td>GM&lt;sub&gt;i&lt;/sub&gt;</td>
<td>Granted motivation</td>
</tr>
<tr>
<td>IMFF</td>
<td>Imperative Motivational Factors Framework</td>
</tr>
</tbody>
</table>

§§ Areas mean categories, like for instance ‘People Management’ and ‘Organizational Ethics’! All the areas identified against these categories in ‘Chapter Three’ were later put in root category of ‘Motivation’.

*** ‘Chapter Three’ identifies the root categories!

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Organization Development for Revitalization of Information Technology Sector of Pakistan By: Ali Ahsan (All Rights Reserved) Pg:159
This part of this chapter introduces the literature reviewed concerning ‘Employee Motivation’. Section 7.1.3 explains that many of the theories and philosophies that help us gain understanding of various facets of employee satisfaction have been used for the analyzing employee satisfaction within IT sector of Pakistan. This section, presents the summary of philosophies and ideas from various theorists / philosophers / specialists / researchers under the light of which, study in this chapter is conducted. Theory and concept concerning employee satisfaction are enormously defined and described by various theorists. Major concern of the author of this thesis has been in scrutinizing what to study or not study for understanding the theoretical framework of ‘Employee Motivation’. It is important to realize here that no particular literature could be obtained from any source that particularly focused on employee motivation in IT industry of Pakistan.

Detailed literature review of this chapter has been placed in Section 7.6.2.4.1 in order to help reader to better relate the theoretical framework (concerning motivation) with the framework proposed in this chapter (IMFF).

### 7.4 Research Methodology

Figure 7.0 presents the research methodology:
7.5 Data Collection

7.5.1 Sources of the Data
Three sources were used for data collection as follows:
   A) Literature
   B) Ethnography
   C) Surveys / Interviews

7.5.2 Collection Method
The data collection was done through three main resources as stated in Section 7.5.1. Data collection methodology for the first two sources would not be explained here due to the simplicity of discussion. For the surveys / interviews, data collection was mainly done using a pre defined questionnaire that was formulated after carefully consulting the literature and the seventh research question †††. This questionnaire was later circulated to various employees in IT industry randomly. Each employee was explained the questionnaire thoroughly. 38 surveys / interviews were conducted for the data collection from various employees. Employees surveyed worked in 31 different IT organizations‡‡‡ of 6 different cities of Pakistan. Although no specific segregation was done, yet mainly mostly the surveyed employees were technical staff members. It was also ensured that each employee interviewed must have at least more than one year experience in his / her current organization. This was purposely done in order to make sure that each employee well understood their respective organizations. Random sampling method was done for choosing the interviewee. ‘Online and Virtual Ethnography’ was also used for data collection. It is important to mention here that due to the contextual nature of the subject being studied in this thesis, the researcher had to deeply immerse in the subject by being part of the IT industry itself. For the analysis of some specific issues / dimensions of the studied subject, some specific surveys were also conducted. Section 7.6 points out the usage of these specific surveys wherever desired.

7.5.3 Data Collection Tool Reference
Refer to Annex 55.

7.6 Analysis

7.6.1 Analysis of Issues Identified in Chapter Three (Related To Employee Satisfaction)
Several concerns have been identified in the third chapter that can be categorized, directly or indirectly, under the head of employee motivation. This section delineates the summary of the issues that were recognized earlier in order to facilitate stakeholders in gaining understanding of the existing problem areas (related to ‘Employee Motivation’) within various IT organizations. Table 3.11 identifies ‘Motivation’ as an important area of concern for the IT industry of Pakistan. Discussion of issues related to employee motivation is simple and straight forward. Figure 7.2 helps us in explaining the issues using a fish bone diagram as follows:

††† That relates to ‘Employee Satisfaction’!
‡‡‡ IT organizations running any category of IT related business.
Five core issues that were identified in chapter three have been highlighted in Figure 7.1. All these issues result in employee de-motivation. It is important to mention here that in most of the cases employees agreed and thought that employees’ de-motivation was result of management’s incompetence. It is important to note here that when employees who were interviewed / surveyed were consulted regarding which specific management practices cause low employee satisfaction then majority focused on issues like lack of managements’ capability to provide secure careers to its employees, lack of professional management and lack of managements’ capabilities to manage people. In addition to this many employees also believed that one of the reasons of low employee satisfaction is lack of vision for future business planning.

It is important to note here that issues identified above are not the only issues related to motivation. In our discussion further we would reveal a framework, using which we would be able to identify the de-motivators (issues) present currently in Pakistan’s IT industry.

7.6.2 Imperative Motivational Factors Framework (IMFF)

IMFF has been designed to identify the core motivational factors of employees. This framework has the ability to identify and distinguish the factors at the level of individual and group employee. It narrows from generic factors to the most specific factors and then identifies the set of factors at group level as well as at individual level.

IMFF can be applied in any industry§§§ in order to identify those factors that can revitalize the work force of that industry.

7.6.2.1 “Factors Identification Domains” of Framework

For factors identification, IMFF uses three domains that are ‘Motivational Theories’, ‘Society’ and ‘Industry’. Figure 7.2 explains:

7.6.2.2 Working Methodology of Framework

IMFF performs filter at two levels. Initially it uses the list of ‘Motivational Factors’ from most common factors identified from literature, society and industry. As a second level filter it then finds the ‘Vital Few Factors’ responsible for employee motivation. Figure 7.3 explains:

7.6.2.3 Steps Involved in Using the Framework

IMFF can be used for individuals as well as for group of employees. The first two steps of the framework are common for individual and / or group. The third step, however, is specially meant for individuals. Subsequent steps are for groups only. Description of these steps is as follows:

§§§ Specifically IT Industry!
7.6.2.4 **Detail Descriptions of Elements of Framework**

Elements involved in IMFF have a wide range. It involves domain areas of ‘Motivational Factors Identification’ and statistical methods of short listing the motivational factors. Figure 7.4 shows the graphical representation of IMFF. The detail description of all these elements is given thereafter.

### 7.6.2.4.1 **Motivational Theories / Literature Used by IMFF**

Many theories have been proposed on motivation (in general) and employees’ motivation (in specific). These theories are classified as ‘Need Theories’, ‘Cognitive Theories’, ‘Reinforcement Theory’ and ‘Social Learning Theory’. These theories are used by IMFF in factors identification process. Each theory focuses on motivational factors of employees from different perspective. All these factors should be part of initial factors list of IMFF.

#### 7.6.2.4.1.1 **Literature Review of ‘Need Theories’**

According to need theories; our behavior is mapped with the fulfillment of our internal needs. In Need Theories, ‘Hierarchy of Needs Theory’ (proposed by Maslow) is one of the basic and the most important theory. This theory describes the ‘Five-Level Hierarchy’ of needs. These needs are ‘Physiological Needs’ (for instance food, water, and shelter Etc), ‘Safety Needs’ (for instance safe and security from certain threats Etc), ‘Belongingness Needs’ (for instance desire of affiliation with others Etc), ‘Esteem Needs’ (for instance positive self image Etc) and ‘Self Actualization Needs’ (for instance reaching full potential Etc). ‘Two-Factor Theory’ (proposed by Herzberg) distinguishes between ‘Motivators’ (for instance achievement, recognition and growth Etc) and ‘Hygiene Factors’ (for instance pay, working conditions, and benefits Etc). ‘ERG Theory’ (proposed by Alderfer) describes the ‘Three-Level Hierarchy’ of needs. These needs are ‘Existence Needs’ (for instance food, water and pay Etc), ‘Relatedness Needs’ (for instance families, and professional groups Etc) and ‘Growth Needs’ (for instance creativity and innovation Etc). ‘Acquired-Needs Theory’ (proposed by McClelland) describes that needs are acquired on the basis of life experience. This theory addresses the ‘Need for Achievement’, ‘Need for Affiliation’, And ‘Need for Power’.

#### 7.6.2.4.1.2 **Literature Review of ‘Cognitive Theories’**

Cognitive theories focus on the isolation of thinking patterns. These theories describe the forces following our decisions and behaviors in certain situations.

‘Expectancy Theory’ (proposed by Vroom) is one of the cognitive theories. It addresses the issues that we consider before performing anything. These issues are ‘Effort-Performance Expectancy’ (for instance assessment of probability of achievement of required performance level), ‘Performance-Outcome Expectancy’ (for instance assessment of probability of achievement of certain outcomes) and ‘Valence’ (for instance assessment of anticipated value of results). Some other cognitive theories also exist. For instance ‘Equity Theory’ argues about the preference of situations of balance. ‘Goal-Setting Theory’ is also one of the cognitive theories. It argues that goal setting mobilizes effort to achieve them. ‘Reinforcement Theory’, another cognitive theory argues that consequences in environment affect our behavior.

#### 7.6.2.4.1.3 **Literature Review of ‘Reinforcement Theory’**

‘Reinforcement Theory’ gives the concept of law of effect. It explains that behavior with positive
consequences repeat most of the time. According to this theory, there are four types of reinforcement. These are ‘Positive Reinforcement’ (i.e. increasing behavior that involves providing a pleasant consequence), ‘Negative Reinforcement’ (i.e. increasing behavior that involves providing noxious stimuli), ‘Extinction’ (i.e. withholding of previously available positive consequences), and ‘Punishment’ (i.e. providing negative consequences in order to decrease a behavior).

7.6.2.4.1.1 Literature Review of Social Learning Theory

‘Social Learning Theory’ describes three ways of learning; these are ‘Continuous Reciprocal Interaction of Behavior’, ‘Personal Factors’, and ‘Environmental Forces’.

7.6.2.4.2 Society

According to Wikipedia source:

“Society is a grouping of individuals which is characterized by common interests and may have distinctive culture and institutions.”

Society is also one of the domain areas of factors identification process of IMFF. Author believes that, every society has some influence on the needs and desires of individuals. Needs and desires set directions for behaviors, and behaviors leads towards those factors that can have positive or negative impact on motivation level of individuals.

It is believed that motivation of individuals can be effected by factors such as environment, economic conditions of a country, religion, culture and other social parameters. It is due to this reason that factors specific to society should be part of initial list of factors.

7.6.2.4.3 Industry

Third domain area of factors identification process of IMFF is the ‘Industry’. In order to start the IMFF with initial factors list, factors from specific industry should also be part of initial factors list. It is believed by the author that, factors related to working environment, nature of work, organizational culture and style of management of a particular industry influence the motivation level of employees. Therefore factors from these areas should also be part of initial factors list.

7.6.2.4.4 Distinguishing Motivational and Satisfaction Factors

Distinguishing the motivational factors from satisfaction factors is difficult due to their overlapping nature. One factor may be motivational factor for one person but satisfaction factor for the other person. In order to address this problem, there should be a choice in the survey for the employees that must enable them to select a factor either as motivational or satisfaction factor. The person who is supposed to fill the ‘Motivational Table’ can mark a factor either as motivational or satisfaction, depending upon his / her preferences and choice.

7.6.2.4.5 Motivational Factor’s Variance (MV_i)

Motivational factor’s variance (MV_i) is a tool to measure the fulfillment of needs and desires of employees at their work place. In survey, data should be collected in such a way that, against each factor, ‘Expected Motivation’ (ME_i) and ‘Granted Motivation’ (GM_i) should be asked. By getting values in the range of -10 to 10 against ME_i and GM_i, ‘Motivational Variance’ (MV_i) should be calculated for each factor. MV_i for individual observation should be calculated by using following formula:

\[ MV_{ij} = ME_{ij} - GM_{ij} \]  
Æ Eq 1

Where MFact_i is marked as M
\[ j \geq 1 \text{ and } j \leq N1 \]
\[ i \geq 1 \text{ and } i \leq N2 \]

‘Average Motivation Variance’ (Avg. MV_i) for all individual motivational factors should be calculated by using following formula:

\[ \text{Avg } MV_i = \frac{\sum_{j=1}^{N1} MV_{ij}}{n} \]  
Æ Eq 2

Where MFact_i represents motivational factor
\[ j \geq 1 \text{ and } j \leq N1 \]
\[ i \geq 1 \text{ and } i \leq N2 \]
\[ n \geq 1 \text{ and } n \leq N1 \]

In above formulas; N1 is the ‘Number of Individuals Who Filled the Survey’, while N2 is the ‘Number of Motivational Factors Identified From the Survey / Questionnaire’.

†††† Based on research using ethnography!
‡‡‡‡ Based on research using ethnography!
§§§§ Summarized view of the necessary literature reveals that satisfaction is act of fulfilling a desire or need or appetite.
***** Survey conducted against the list of motivational factors!
7.6.2.4.6 Motivational Factor’s %age Frequency (MFreq)

‘Motivational Factor’s %age Frequency’ (MFreq) should be measured to assess the importance of a particular motivational factor for individuals. Employees mark a factor as ‘Motivational Factor’ depending upon their needs and desires. Therefore MFreq can be calculated by using following formula:

\[
MFreq_i = \frac{(\sum_{j=1}^{n} MFact_{ij}) \times 100}{n} \rightarrow Eq \, 3
\]

Where MFacti is marked as M

\[ i \geq 1 \, \& \, i \leq N2 \]

N2 is the ‘Number of Motivational Factors Identified From the Survey / Quationnaire’.

7.6.2.4.7 Motivational Score (MSi)

‘Motivational Score’ (MSi) should be devised to have a combined list that should address both MFreqi and Avg MVi. MSi should be calculated by multiplying MFreqi with Avg MVi. The formula for the calculation of MSi is as follows:

\[
MS_i = MFreq_i \times Avg \, MV_i \rightarrow Eq \, 4
\]

Where \[ i \geq 1 \, \& \, i \leq N2 \]

N2 is the ‘Number of Motivational Factors Identified From the Survey / Quationnaire’.

7.6.2.5 The Framework Utility

- Imperative Motivational Factors Framework (IMFF) can be applied in any country and in any industry (preferably in IT industry). It provides guidelines to start with very generic factors of motivation and leads towards very specific factors. Its process of filtering guides the managers / supervisors to comprehend the core factors of motivation. This framework has been tested in Pakistan’s IT Industry. Expected results were obtained in case of Pakistan’s IT Industry. Now this framework is ready to be tested in any other industry and in any other country.
- IMFF is a useful framework to identify the ‘Motivational Factors’ of individual employees as well as group of employees.
- For factors identification process, IMFF focuses on three major domains i.e. ‘Motivational Theories’, ‘Society’ and ‘Industry’.
- After identification of ‘Motivational Factors’, IMFF starts the process of filtering and narrowing down the list of factors. Finally it gives the society and industry specific factors of motivation.

7.6.3 Evaluation of Imperative Motivational Factors Framework in Pakistan’s IT Industry (Identifying Motivators and De-Motivators)

IMFF has been evaluated in Pakistan’s IT industry against group of people. All five steps have been performed to investigate the full potential / capabilities of framework. IMFF identified very valuable results. As a result it has been proved that IMFF has the capability to identify the core motivational factors of employees in any industry. The detail of all steps performed in IT Industry of Pakistan, in order to evaluate IMFF is given as follows:

Step 1: Motivational factors were identified by literature review of motivational theories. Factors were also identified from other two domains i.e. Pakistan’s social norms and IT industry practices. As a whole, 64 factors were identified.

Step 2: In order to distinguish the ‘Motivational Factors’ from ‘Satisfaction Factors’, ‘Motivational Table’ presented a choice to all surveyed employees to select a factor either as motivational (M) or satisfaction (S) factor. The surveyed employee who had to fill the ‘Motivational Table’ could mark a factor either as motivational or satisfaction, depending upon his / her preference.

Step 3: In step 3, factors that were not being fulfilled at work place, in IT Industry of Pakistan were highlighted by calculating their variance. The variable ‘Motivational Factor Variance’ (MVi) was calculated against each factor of table, and ‘Average Motivational Variance’ (Avg MVi) was calculated against all results. The survey results were compiled and a histogram was drawn against the values of MVi to make the subgroups of calculated values. The histogram is shown in Figure 7.5 and it tells that maximum numbers of ‘Motivational Factors’ had ‘Motivational Variance’ between range of numbers 1 and 2. Less numbers of factors had variance greater than 5. It also shows that maximum ‘Motivational Needs’ were being fulfilled at employees’ workplaces.

††††† Later analysis would further highlight corresponding issues.
Through survey it was identified that, the value of ‘Average Motivational Variance’ (Avg MVi) varies from 0 to 8.77. Low value of Avg MVi indicates the fulfillment of needs related to that particular ‘Motivational Factor’ (MFact_i). High value of Avg MVi shows the high difference between ME_i and GM_i. This indicates that the fulfillment of a particular MFact_i was not accomplished. In order to improve the motivation of employees, it is necessary to address the MFact_i that had high value of Avg MVi. Table 7.1 below shows the top 20% of the factors with highest Avg MVi. 

### Table 7.1 Motivational Factors with High Avg MVi

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Motivational Factor</th>
<th>Average Motivational Variance (Avg MVi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pick and drop policy offered by office</td>
<td>8.77</td>
</tr>
<tr>
<td>2.</td>
<td>Foreign official tours</td>
<td>7.25</td>
</tr>
<tr>
<td>3.</td>
<td>Excursion trips</td>
<td>7.00</td>
</tr>
<tr>
<td>4.</td>
<td>Foreign trainings</td>
<td>6.92</td>
</tr>
<tr>
<td>5.</td>
<td>Availability of policies like health / life insurance</td>
<td>6.48</td>
</tr>
<tr>
<td>6.</td>
<td>Availability of perks (i.e. car, laptop, medical allowance Etc)</td>
<td>5.82</td>
</tr>
<tr>
<td>7.</td>
<td>Availability of external trainings</td>
<td>5.25</td>
</tr>
<tr>
<td>8.</td>
<td>Availability of lounge / rest area</td>
<td>4.8</td>
</tr>
<tr>
<td>9.</td>
<td>Hygienic food</td>
<td>4.77</td>
</tr>
<tr>
<td>10.</td>
<td>Availability of internal trainings</td>
<td>4.46</td>
</tr>
<tr>
<td>11.</td>
<td>Availability of in-door games facility</td>
<td>3.88</td>
</tr>
<tr>
<td>12.</td>
<td>Interest taking customers</td>
<td>3.57</td>
</tr>
<tr>
<td>13.</td>
<td>Good attitude of customers</td>
<td>3.33</td>
</tr>
</tbody>
</table>

Step 4: ‘Motivational Factors %Age Frequency’ was calculated against filled surveys. After calculations, a histogram was drawn to make the subgroups of calculated values. From the Figure 7.6, it can be observed that maximum factors had frequency (MFreq_i) between the range of 20 % and 30 %. This means that very few factors were marked as ‘Motivational Factors’ by maximum people. This was an important finding as it helped us in identifying the true motivators for IT professionals in Pakistan.

The value of MFreq_i varied from 5.26 % to 92.10 %. Top 20% of the factors with high MFreq_i are...
The above 13 factors mentioned in Table 7.2 have high value of MFreq. These factors can be termed as most important ‘Motivational Factors’ for employees working in IT industry of Pakistan. So in order to increase the motivation of employees there is a need to address the above mentioned factors.

**Step 5:** From the Table 7.2 (MFreq) and 7.1 (Avg MVᵢ), we came up with two different lists of factors. One list focused on factors (MFreqᵢ) that were ‘Motivational Factors’ for maximum people, while the other list focused on factors (Avg MVᵢ) that were not being fulfilled at work places. In other words one list focused on importance while the other list focused on gaps. According to IMFF framework, there is a need to devise combined list that should address both MFreqᵢ and Avg MVᵢ. It is due to this reason that ‘Motivational Score’ (MSᵢ) was calculated for each factor. After calculations of MSᵢ, its relationship was calculated with other variables such as MFreqᵢ and Avg MVᵢ. The relationship between MSᵢ and Avg MVᵢ is presented in that scatter diagram of MSᵢ and Avg MVᵢ in Figure 7.7. Correlation has value of 0.821; it shows that there is strong relationship between both the variables.

![Figure 7.7 Scatter Diagram of MSᵢ and Avg MVᵢ](image)

Figure 7.8 shows the scatter diagram between MSᵢ and MFreqᵢ. Positive correlation has value of 0.711. It shows that there is a strong relationship between both variables. This means that by changing the value of one variable the value of other variable will also be changed directly.

![Figure 7.8 Scatter Diagram of MSᵢ and MFreqᵢ](image)
The correlation of 0.821 between ‘Motivational Score’ and ‘Motivation Variance’ is higher than correlation of 0.711 between ‘Motivational Score’ and ‘Motivation Frequency’. This therefore helps us understanding the fact that dependency of score on variance is higher as compared to frequency. In other words management first needs to take care of ‘Motivational Factors’ that have high variances. After this, focus must be given to factors with high importance.

7.6.3.1 Employee Motivation Level in Pakistan’s IT Industry

In order to increase the Motivation Level (MLi) of employees there is need to address the factors which have high value of MSi. The calculated values of MSi range from 0 to 5.36. Top 20% of the factors with high value of MSi are shown in the Table 7.3. Avg MVi of selected factors is also shown.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Motivational Factor</th>
<th>Motivational Score (MSi)</th>
<th>Average Motivational Variance (Avg MVi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Availability of perks (i.e. car, laptop, medical allowance etc)</td>
<td>5.36</td>
<td>5.82</td>
</tr>
<tr>
<td>2.</td>
<td>Foreign trainings</td>
<td>4.92</td>
<td>6.92</td>
</tr>
<tr>
<td>3.</td>
<td>Availability of policies like health / life insurance</td>
<td>4.26</td>
<td>6.48</td>
</tr>
<tr>
<td>4.</td>
<td>Pick and drop policy offered by office</td>
<td>4.15</td>
<td>8.77</td>
</tr>
<tr>
<td>5.</td>
<td>Foreign official tours</td>
<td>3.81</td>
<td>7.25</td>
</tr>
<tr>
<td>6.</td>
<td>Good Salary Package</td>
<td>2.42</td>
<td>2.78</td>
</tr>
<tr>
<td>7.</td>
<td>Availability of external trainings</td>
<td>2.21</td>
<td>5.25</td>
</tr>
<tr>
<td>8.</td>
<td>Good increment policy</td>
<td>2.10</td>
<td>2.66</td>
</tr>
<tr>
<td>9.</td>
<td>Overall good appraisal system</td>
<td>2.05</td>
<td>3.12</td>
</tr>
<tr>
<td>10.</td>
<td>Good career path</td>
<td>1.89</td>
<td>2.66</td>
</tr>
<tr>
<td>11.</td>
<td>Availability of in-door games facility</td>
<td>1.73</td>
<td>3.88</td>
</tr>
<tr>
<td>12.</td>
<td>Empowerment</td>
<td>1.68</td>
<td>2.90</td>
</tr>
<tr>
<td>13.</td>
<td>Availability of internal trainings</td>
<td>1.52</td>
<td>4.46</td>
</tr>
</tbody>
</table>

Motivation Level of Employees (MLj)

Motivation Level of all employees (MLj) is calculated in order to understand the general motivation level of employees working in IT industry of Pakistan. The formula for the calculation of MLj of employees is as follows:

$$MLj = \left( \frac{\sum_{i=1}^{m} GM_{ij}}{\sum_{i=1}^{m} ME_{ij}} \right) \times 100$$

\[ \epsilon \ MFacti, \ where \ MFacti \ is \ marked \ as \ M.\]

\[ j >= 1 \ & \ j <= 38 \]

\[ i >= 1 \ & \ i <= 64 \]

\[ m = 64 = \ Number \ of \ motivational \ factors \]

The calculated Motivational Level of Employees (MLj) varies from 28.57 to 99.02. Figure 7.9 shows histogram of motivation level, it shows that maximum people have motivation level in the range of 50 % to 60 %.

Average Motivation Level (Avg ML)

Average motivational level (Avg ML) is calculated by using following formula:

$$\text{Avg ML} = \left( \frac{\sum_{j=1}^{m} MLj}{m} \right)$$

where m = 38

In our calculations the average motivation level of employees working in IT Industry of Pakistan is 60.07 %. Figure 7.10 shows that as the average motivational factor’s variance (gaps) will increase the de-motivation in employee’s behavior will increase.
In the discussion above IMFF Framework has been applied in Pakistan’s IT Industry. As a result most important factors of motivation are identified. Results from Pakistan’s IT Industry are as follows:

A) 64 factors are identified in the factors identification process of framework.
B) As a part of filtering process, factor’s list with high frequency has been formulated. It highlights those important factors which can have positive or negative affect on level of motivation of an employee. Some of these factors are; ‘Availability of perks, Good salary package, Good increment policy and High professional environment Etc’.
C) Factor’s list with high variance is identified. It focuses on factors which are not being fulfilled and cause de-motivation in employees, working in IT Industry of Pakistan. Some of these factors are; ‘Availability of perks, Foreign official tours, Excursion trips and Foreign trainings’.
D) Motivational factor’s score list is calculated. This step is also part of filtering process. It incorporates the characteristics of both variables (importance and gaps). So there is need to address the motivational factors with high value of motivational score. Some of the factor’s with high motivational score are; ‘Availability of perks, Foreign trainings, Availability of policies like health / life insurance and Pick and drop policy’.

### 7.6.4 Comparison of Imperative Motivational Factors Framework with Other Models

Motivational Theories provide high-quality literature to identify the motivational factors; but these theories focus mainly on the generic factors. Contrary to this, IMFF narrows the factors from common factors to the factors list for a specific society and a specific industry. Above all motivational theories are one of the domains for factors identification process of IMFF; therefore IMFF gives more flexibility for identifying specific ‘Motivational Factors’.

Chen Jian-an & HU Bei’s ‘Black-Box’ model distinguishes the motivators and amotivators. This model considers the process of motivation as a mystery and terms it as a Black-Box model. In this model focus is on two important dimensions of motivation i.e. employee satisfaction and job performance. IMFF on the other hand gives complete roadmap to identify the most important and very specific factors of motivation for individuals as well as for group of employees.

### 7.6.5 How Factors Identified as Motivators / De-Motivators Play Their Role

Table 7.2 presents the factors that are important for improving motivation in perspective of employees. Table 7.1 identifies the gaps. It identifies those parameters / factors that are not being fulfilled at work place. Table 7.3 enlists those parameters that should actually be addressed in order to improve the motivation. In fact factors in this table are actually important and at the same time deficient in the industry.

When we specifically focus on how actually various parameters / factors influence / play their role in motivating or de-motivating employee, then the most important consideration that we need to take care of is that we must try to understand following:

- How factors / parameters that are important motivators in view of employees play their role?
- How factors / parameters that are currently deficient in the industry play their role?
- And finally most importantly how factors those are important and at the same time deficient, play their role?

It is extremely important to understand here that answers as to how various parameters / factors play their role cannot be obtained by quantitative research. It therefore requires consultation of employees.
and IT industry staff members, examination of the context and detailed long term analysis of the subject. Factors identified in Table 7.1, 7.2, and 7.3 can be termed as motivators and at the same time de-motivators (subject to their unavailability in the work environment). Analysis below helps in clarification of various parameters / factors become source of motivation / de-motivation:

### Table 7.4a Motivational Factors with High Avg MVi (Factors That Are Deficient In the Industry)

<table>
<thead>
<tr>
<th>Factor</th>
<th>How They Motivate Employees If Available?</th>
<th>How They De-Motivate Employees If Unavailable?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pick and drop policy offered by office</td>
<td>In most of the cases employees do not have their private vehicles. If pick and drop facility is provided to employees then this saves their time, money and energy. Employees do not have to struggle for reaching their work place.</td>
<td>Employees belonging to companies / organizations where no pick and drop facility is given to employees often experience late arrival at their work place, wastage of energy in seeking transport or driving. Most of the employees also experience tension and daily fatigue. Since average income of an employee does not support the transport expenses easily therefore this also becomes a major de-motivator. Further to this employee experience de-motivation when they compare themselves with those employees in the industry who are provided transport by their employers.</td>
</tr>
<tr>
<td>Foreign official tours</td>
<td>Foreign official tours certainly serves as a delighter in view of the fact that it enables the employee to explore. Further to this foreign tours also trigger employee development.</td>
<td>In few companies / organizations employees are sent on foreign tours. In many companies chances of employees leaving for a foreign tour are rare or completely absent. In such cases employees normally have a tendency to compare themselves with employees serving in other companies who are given this opportunity. This comparison triggers de-motivation.</td>
</tr>
<tr>
<td>Excursion trips</td>
<td>This factor naturally serves as a change from the daily routine. An average employee today in the industry does not usually afford frequent trips on his / her own. Company sponsored trips are source of delight for the employee and also gives employees a chance to eliminate communication barriers between them and the management. Further to this change in the routine helps psychological revival.</td>
<td>Absence of this item forces the employee to make a comparison / organizations with employees of those few companies that are provide with such opportunities. Further to this monotony, boredom and ennui reduces the employee moral.</td>
</tr>
<tr>
<td>Foreign trainings</td>
<td>Foreign trainings are excellent source of employee growth, development, skill enhancement and employees’ personality diversification through exploration, exposure and access to foreign culture.</td>
<td>De-motivation among employees occurs mainly as they compare themselves with other employees in few organizations that provide this facility. In addition to this absence of health / life insurance poses financial, family and general risks to employees.</td>
</tr>
<tr>
<td>Availability of policies like health / life insurance</td>
<td>Limited access to health services within the country and limited income of general workers makes this item an excellent delight for many.</td>
<td>As discussed earlier, in most of the cases comparison with employees belonging to organizations that provide these perks becomes source of de-motivation.</td>
</tr>
<tr>
<td>Availability of perks (i.e. car, laptop, medical allowance etc)</td>
<td>These perks improve the standard of living of employee generally.</td>
<td></td>
</tr>
<tr>
<td>Availability of external trainings</td>
<td>Similar to foreign trainings.</td>
<td>Similar to foreign trainings.</td>
</tr>
<tr>
<td>Availability of lounge / rest area</td>
<td>Usually employees in IT organizations have hectic routines and this call for occasional breaks during work. In most of the cases employees like to rest by resting, napping or by having tea etc. Availability of rest area and lounge Improves the work environment and motivates employees.</td>
<td>As discussed in most of the cases de-motivation is due to comparison with employees belonging to organizations that provide such facility in their work environment. Employees belonging to organizations where this facility is not given often have to step out of the office. In most of the cases the weather in Pakistan is not suitable of outdoor get together. Other than this employees belonging to such organization where this facility is lacking experience slight fatigue.</td>
</tr>
<tr>
<td>Hygienic food</td>
<td>Hygienic food sponsored by the organizations not only saves employees time but also cuts shorts on employee expenses.</td>
<td>As discussed in most of the cases de-motivation is due to comparison with employees belonging to organizations that provide such facility in their work environment. In most of the cases organizations do not provide any food facility within offices and extremely few organizations provide free food facility.</td>
</tr>
<tr>
<td>Availability of internal trainings</td>
<td>Similar to foreign trainings.</td>
<td>Similar to foreign trainings.</td>
</tr>
<tr>
<td>Availability of indoor games facility</td>
<td>This factor serves as a time off tool and is healthy for employee’s relaxation.</td>
<td>As discussed in most of the cases de-motivation is due to comparison with employees belonging to organizations that provide such facility in their work environment. Absence of such free facility within the organizations results in closed and extremely serious environment.</td>
</tr>
<tr>
<td>Interest taking customers</td>
<td>Although this item is external to the organization but this surely serves as a motivating tool for employee’s work completion.</td>
<td>As discussed in most of the cases de-motivation is due to comparison with employees belonging to organizations that have computer literature and serious customers.</td>
</tr>
<tr>
<td>Good attitude of customers</td>
<td>//</td>
<td>//</td>
</tr>
</tbody>
</table>

### Table 7.4b Motivational Factors with High (Top 20%) MFreqi (Factors That Are Important In View of Employees)

<table>
<thead>
<tr>
<th>Factor</th>
<th>How They Motivate Employees If Available?</th>
<th>How They De-Motivate Employees If Unavailable?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of perks (i.e. Car, laptop, medical allowance etc)</td>
<td>Discussed earlier in Table 7.4a</td>
<td>As discussed in most of the cases de-motivation is due to comparison with employees belonging to few organizations that pay relatively high.</td>
</tr>
<tr>
<td>Good salary package</td>
<td>Self explanatory!</td>
<td>The lower the employee benefits / compensation with the increasing performance the greater are the chances of employee losing interest in his / her work.</td>
</tr>
<tr>
<td>Good increment policy</td>
<td>Individual’s performance / productivity / efficiency and effectiveness largely depend on the feedback / reward / award / increment in benefits and compensation and vice versa.</td>
<td>Employees tend to consult people from other organizations and discuss rewards / awards / increments given to them w.r.t their performance. Upon discussion difference found by employees in work</td>
</tr>
</tbody>
</table>

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Good infrastructure facilities, professional environment without bureaucracy for instance enable employees to work dedicatedly and whole heartedly on their core job.

Good attitude of boss / seniors

Self explanatory!

Foreign trainings

Discussed earlier in Table 7.4a

Good career path

Employees working in organizations that provide their employees with long term career path tend to perform better. Such employees tend to aim for the next position possibly available for them by working hard.

Availability of policies like health / life insurance

Discussed earlier in Table 7.4a

Overall good appraisal system

Strong, transparent, well managed and well implemented appraisal system identifies the hard worker and makes sure that they are paid / compensated accordingly. This helps the employees who work hard stay motivated for receiving their due share of hard work. For employees who perform averagely, appraisal is source of understanding how their work can be improved.

Job security

Self explanatory!

Good position / designation in office

Self explanatory!

Strongly jelled team

Self explanatory!

Empowerment

Self explanatory!

Availability of in-door games facility

Discussed earlier in Table 7.4a

Foreign official tours

Discussed earlier in Table 7.4a

Availability of external trainings

Discussed earlier in Table 7.4a

Good increment policy

Discussed earlier in Table 7.4b

Good Salary Package

Discussed earlier in Table 7.4b

Overall good appraisal system

Discussed earlier in Table 7.4a

Employment

Discussed earlier in Table 7.4a

Good career path

Discussed earlier in Table 7.4a

Availability of internal trainings

Discussed earlier in Table 7.4a

How They Motivate Employees If Available? How They Motivate Employees If Unavailable?

Absence of appraisal system results in unidentified hard workers. Absence of appraisal system may also encourage favoritism and inappropriate selection of the candidate who should be promoted / awarded / rewarded / compensated. Improper recognition of work and corresponding benefits lowers down employee moral and interest.

Unprofessional attitude and environment and lack of infrastructure hinders employee working within the organization, thereby hampering employee job satisfaction and reducing employee moral. Ele-saply explanatory!

Good career path

Absence of career path for employees poses question of “What Next!” on employees. This feeling lowers employee interest in job and eliminates employee feeling of working hard in order to achieve next career target.

Self explanatory!

How They De-Motivate Employees If Available? How They De-Motivate Employees If Unavailable?

Retrances to reward relationship introduces de-motivation within employees. Unprofessional attitude and environment and lack of infrastructure hinders employee working within the organization, thereby hampering employee job satisfaction and reducing employee moral.

Self explanatory!

Table 7.4c] Motivational Factors with High Value of Motivational Score (Factors That Are Important and At the Same Time Deficient)

<table>
<thead>
<tr>
<th>Availability of perks (i.e. car, laptop, medical allowance Etc)</th>
<th>Discussed earlier in Table 7.4a</th>
<th>Discussed earlier in Table 7.4a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign trainings</td>
<td>Discussed earlier in Table 7.4a</td>
<td>Discussed earlier in Table 7.4a</td>
</tr>
<tr>
<td>Availability of policies like health / life insurance</td>
<td>Discussed earlier in Table 7.4a</td>
<td>Discussed earlier in Table 7.4a</td>
</tr>
<tr>
<td>Pick and drop policy offered by office</td>
<td>Discussed earlier in Table 7.4a</td>
<td>Discussed earlier in Table 7.4a</td>
</tr>
<tr>
<td>Foreign official tours</td>
<td>Discussed earlier in Table 7.4a</td>
<td>Discussed earlier in Table 7.4a</td>
</tr>
<tr>
<td>Good Salary Package</td>
<td>Discussed earlier in Table 7.4b</td>
<td>Discussed earlier in Table 7.4b</td>
</tr>
<tr>
<td>Availability of external trainings</td>
<td>Discussed earlier in Table 7.4a</td>
<td>Discussed earlier in Table 7.4a</td>
</tr>
<tr>
<td>Good increment policy</td>
<td>Discussed earlier in Table 7.4b</td>
<td>Discussed earlier in Table 7.4b</td>
</tr>
<tr>
<td>Overall good appraisal system</td>
<td>Discussed earlier in Table 7.4a</td>
<td>Discussed earlier in Table 7.4a</td>
</tr>
<tr>
<td>Empowerment</td>
<td>Discussed earlier in Table 7.4a</td>
<td>Discussed earlier in Table 7.4a</td>
</tr>
<tr>
<td>Availability of in-door games facility</td>
<td>Discussed earlier in Table 7.4a</td>
<td>Discussed earlier in Table 7.4a</td>
</tr>
<tr>
<td>Foreign official tours</td>
<td>Discussed earlier in Table 7.4a</td>
<td>Discussed earlier in Table 7.4a</td>
</tr>
</tbody>
</table>

7.6.6 What Trigger Factors That Cause De-Motivation (A Broader Perspective)

Post 9-11 scenario Pakistan’s IT industry was one of the worst victims. People who made claims that IT in Pakistan is the next thing to rule were proven wrong due to India’s dominance over the industry. The local market in Pakistan is still not enough to generate capital well enough for nourishing the industry. The IT business in Pakistan is less R & D based therefore product based development / production is rare. Most of the organizations are project oriented. Generally, IT development in Pakistan has been transformed from technical engineering to labor work, thereby reducing room for satisfying and motivating employees. Adding to this, mass preparation of IT professionals in the sub standard institutions / university has not only affected the IT market rather has also closed gates for the professionals from superior universities of Pakistan. For an individual, the major source of de-motivation starts right from the point when a young person with formal IT related education is given the general idea that a big surprise, in form of reward, and monitory benefits exists for him / her in the industry. This, however, is a pretty wrong idea as when these new graduates fail to receive acknowledgement from the industry, they feel de-motivated and hence this hinders their intellectual thinking capacity. This in turn becomes a source of poor quality product, reduced productivity and unprofessional work environment.

Another major factor that can be termed as the major source of de-motivated employees is poor management capability within organizations. Most technical IT professional see management as a simple work. This vague image about the significance of management in these technical organizations decomposes the entire functioning of any IT organization. As a result many organizations suffer from deprived or limited business growth.

If we examine the items in Table 7.4a and 7.4b, then we would realize that major part of the factors that can cause de-motivation are consequence of ill planning, reduced organizational funds / reduced profit / reduced revenue. In addition to this many of item in these tables like for instance lack of appraisal
system, lack of empowerment and improper teaming etc are source of poor management.

7.6.7 Consequence of De-Motivation (A Broader Perspective)
Research, discussions, ethnography and exploration reveals that following are few of the major consequences the organizations face in broader perspective due to de-motivated employees:

- Reduction in quality of work
- Delayed projects / products
- Lack of trust of employees on management and vice versa
- Brain drain
- High turnover
- Reduced productivity
- Less innovation
- Unstable leadership
- Unsuitable organizational culture
- Decline in general organizational growth
- Negative financial impact
- Lack of management control
- Lack of implementation of plans
- Others........

7.6.8 Motivation A Stimulus For...... (A Broader Perspective)
Research, discussions, ethnography and exploration reveals that motivation serves as a stimulus for the following:

- Employee feeling part of an organization (ownership)
- Eliminates destructive behavior
- Improves work quality
- Improve employees’ commitment to deadlines
- Introduces interrogative and innovative behavior among employees
- Expands employee vision
- Introduces institutionalization organization wide
- Makes employee more responsible on job
- Reduces employee turnover
- Increases organizational productivity
- Eliminates mistrust among employees
- Introduces self management among employees
- Nourishes organizational culture
- Eliminate the requirement of forceful management within organization
- Others........

7.6.9 Motivation and Its Impacts on Employee Moral, Values and Work Ethics
This section of this thesis has purely been formulated after detailed investigation using ethnography as a research tool. In view of author lack of motivation has certainly negative affect on employee moral, values and work ethics; however it is extremely difficult to generalize the reason of why this happens. It cannot be said that moral, values and work ethics of an employee are affected in one way or another due to lack of motivation. In view of the author the answer as to how and why employee moral, values and work ethics are negatively affected by lack of motivation lies in ‘Hierarchy of Needs Theory’ (proposed by Maslow).

In order to obtain answer to the problem mentioned earlier the author conducted a small survey comprising of IT students, young and old IT professionals. Sample size of 47 was used for the analysis and in case of professionals; data was obtained from 5 companies. Consolidated findings of the data are as under:

<table>
<thead>
<tr>
<th>Table 7.5</th>
<th>Motivation Level of Students, Young and Old IT Professional as Per Maslow’s Needs Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>Motivation</td>
</tr>
<tr>
<td>Physical</td>
<td>High</td>
</tr>
<tr>
<td>Needs</td>
<td>Low</td>
</tr>
<tr>
<td>Medium</td>
<td>40%</td>
</tr>
<tr>
<td>High</td>
<td>0%</td>
</tr>
<tr>
<td>Young Professionals</td>
<td>Motivation</td>
</tr>
<tr>
<td>Self Actualization Needs</td>
<td>High</td>
</tr>
<tr>
<td>Esteem Need</td>
<td>Medium</td>
</tr>
<tr>
<td>Belongingness Needs</td>
<td>Low</td>
</tr>
<tr>
<td>Safety Needs</td>
<td>High</td>
</tr>
<tr>
<td>Physiological Need</td>
<td>Medium</td>
</tr>
<tr>
<td>Old Professionals</td>
<td>Motivation</td>
</tr>
<tr>
<td>Self Actualization Needs</td>
<td>High</td>
</tr>
<tr>
<td>Esteem Need</td>
<td>Medium</td>
</tr>
<tr>
<td>Belongingness Needs</td>
<td>Low</td>
</tr>
<tr>
<td>Safety Needs</td>
<td>High</td>
</tr>
<tr>
<td>Physiological Need</td>
<td>Medium</td>
</tr>
</tbody>
</table>

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From Table 7.5 it is clear that most of the students are at psychological need level and majority are highly or averagely motivated but as they step in their professional life their motivational level decreases from high to medium to the direction of medium to low due to professional system. Some of young professional who are highly motivated reach their self actualization need; however most of the others achieve job security and hence stay at safety need level. Among the old professional the people who are highly de-motivated are at their psychological need level and those who feel secure are a little inclined towards motivation. Among these old professionals those who are at the highest needs level tend to lose their motivation.

On account of the information and analysis obtained from Table 7.5, the author observed that generally motivation level of employees at the start of the career is better than as compared to the motivation level at higher career level. By the use of ethnography the author found that motivational decline from student life to professional life occurs due to deprived fulfillment of basic needs. Lack of fulfillment and payback of various needs in hard workers tend to lessen their motivation.

Decline of motivational level over time lowers sense of ownership of work / work place among professionals and vice versa. With low sense of ownership employee tend to lose disciplined approach towards their work like for instance coming on time, performing tasks to closure, continuous improvement, proactive work performance attitude etc. With deficiency of personal interest (motivation) large majority of employees at senior level tend to perform basic work and start working reactively as compared to proactive working approach. Decline of motivation triggers low moral and deprived professional attitude of employee by eliminating sense of ownership among workers, which is necessary for a progressive environment. According to author, ownership requires fulfillment of interest of an employee. Ownership therefore triggers interest for job in employees. With less sense of ownership employees tend to lose interest and thereby do not feel motivated towards their work. It is therefore necessary that employee must be kept motivated and must be ensured that they are part of the organization. Deficiency of ownership or motivation triggers deficiency of one another thereby resulting in low employee moral, poor work ethics and low employee values.

7.6.10 General Belief of Managers, Executives, Leaders, Consultants, Educationist and Policy Makers About The Roles of Motivation For The Organizational / Industrial Improvement of IT Sector

Generally most of the managers, executives, leaders, consultants, educationists and policy makers agree that motivation is certainly necessary for employee performance and for the industry sustenance. Although this common understanding seems very encouraging but nobody interviewed by the author could precisely tell as to how employee should be motivated or what motivates the employee. In other words every body realizes the importance of motivation for better organizational performance but unfortunately nobody has an idea as to how motivations must be used for organizational uplift.

7.6.11 Gender Issues

In order to study gender issues the author conducted a small survey comprising of IT students, young and old IT professionals. Sample size of 47 was used for the analysis and in case of professionals; data was obtained from 5 companies. Consolidated findings of the data are as under:

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Ownership can be given to employee by making them feel that they are part of an organization. For example it is important for the management to accept feedback from every employee!
Motivation among working men and women IT professionals varies as follows:

![Figure 7.11] Gender Wise Motivation Level of IT Working Professionals

Motivation among male and female IT students varies as follows:

![Figure 7.12] Gender Wise Motivation Level of IT Students

It is very clear that the motivational decline among female is higher as they enter into the industry which is big intimidation. The core reasons for this may be as under:

- **Women**, forming half the population, have been slow to embrace IT & Software. Social inhibitions, economic and other factors keep them away from IT and Software.
- Female students do not receive right career counseling. By right career counseling, it is meant that counseling specific to women must ensure detailed analysis of culture, social norms and religious values.
- Gender discrimination by parents: It is a common observation that most of parents in Pakistan spend far more for their boys as compared to girls for their education. Boys are usually considered to be the future financial supporting member of the family, so they become more eligible to get better quality education. This discrimination hampers the induction of a good percentage of girls in our IT and software industry.
- Cultural restraints: The cultural values and age-old customs still do not permit women to get advanced education in most of our families. Even if they get to reach a certain level of IT education, and get good jobs in the IT industry, they have to get married. In most of the cases, the girls either completely quit their professional career after marriage or resume their jobs after 1 or 2 years of marriage or sometimes even more than that. Since IT profession has the tendency to change very rapidly, and is too volatile, therefore females often fail to catch up after giving a break in their career.
- Disparity in pay structures: Another very common problem is the disparity in the respective pay structures of men and women in the IT sector. There has already been a debate generated on the issue that it is inconsistent with international labor laws. Surprisingly, few years back the disparity was not just a problem of the Third World but also of the US where the ratio of men's pay to that of women was $1 to 75 cents. However, it’s a fact that the women working in the IT sector are more disciplined, diligent and ambitious and are making significant headway in the field.
- Misjudgment of women’s contribution in offices: In a male-dominated society like that of Pakistan’s, women’s contribution in work environments is often underestimated. Generally women’s input to organization’s development and productivity is considerably more than males. Women usually avoid late-sittings in offices because of the obvious cultural norms of our society. Although, males spend more time in offices, even till midnight, but the equivalence of real effective work done by females and males is still questionable. This social constraint for women does not allow them to justify their real contribution. As a result, there are a very little percentage of females who reach high managerial & executive posts in organizations. Unfortunately, in most of our software houses, females keep on working in the development teams for years, and ultimately most of them either switch over their organization, change their profession, or simply quit and get back to their homes.
- Absence of gender specific perks: Currently extremely few organizations provide gender specific benefits to women like for instance maternity leaves etc.

### 7.7 Recommendations

Based on the discussion in Section 7.6 practices / ideas / recommendations have been identified in order

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§§§§§ In view of author females in IT sector are more effective and efficient.
to improve motivation within organizations. The author of the thesis has personally used the recommended framework in ZTE Pakistan Pvt Ltd and experienced massive improvement in employee satisfaction. Figure 7.13 explains the framework for organization’s management:

[Figure 7.13] Framework for Improving Employee Motivation in IT Industry of Pakistan

It is also important to highlight here that this section also presents recommendations / guidelines that must be put into practice by GOP. Figure 7.14 explains the steps that GOP should take for employee satisfaction:

[Figure 7.14] Steps Required To Be Taken By GOP for improving Employee Motivation in IT Industry of Pakistan
7.8 Conclusions
This chapter initially presents how and which parameters concerning employee motivation should be studied for the analysis purpose. Once the right parameters are identified, focus is laid on understanding and analysis of the issues (concerning employee motivation) identified in ‘Chapter Three’. The identified parameters are then studied using ethnography and survey/interviews as research tools. Each parameter is explored and analyzed using qualitative and quantitative methods. A framework is also formulated for the identification of the motivators and de-motivators. Once this is done, set of recommendations is obtained. Recommendations proposed are in form of a framework. Section 7.7 presents this framework. Figure 7.15a and Figure 7.15b explains which issues (identified in Figure 7.1 and Figure 4.3 {some issues were left unaddressed in the fourth chapter}) are addressed using a fish bone diagram as follows:

[Figure 7.15a] Addressing Employee Motivation Issues as Identified from Chapter Three

Improper Reward and
(Oral Rewards)
[Figure 7.15b] Addressing Organization’s Culture Issues as Identified from Chapter Three
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7.10 Endnotes

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CHAPTER EIGHT: DYNAMICS OF IDEAL LEADERSHIP FOR IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS OF CURRENT AND DESIRED PRACTICES)
8 CHAPTER EIGHT: DYNAMICS OF IDEAL LEADERSHIP FOR IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS OF CURRENT AN DESIRED PRACTICES)

8.1 Chapter Introduction
8.1.1 Executive Summary
This chapter of this research thesis presents major highlights concerning ‘Leadership’† within IT sector of Pakistan. The chapter not only explores§ but also presents detailed explanation of the main highlights by performing necessary qualitative analysis. In addition to exploration and explanation of leadership within IT sector of Pakistan, the chapter also explains all the important issues‡ arising due to the deprived leadership. As a result of detailed analysis performed, the chapter finally identifies important remedies for leadership revitalization as recommendations.

8.1.2 Background
Before we actually try to comprehend ‘Leadership’ within IT organizations of Pakistan, it is significant that we have a straightforward and uncomplicated understanding of what organizational leadership is and how is it important. As per Wikipedia source, House (Undated) defines leadership organizationally and narrowly as:

"The ability of an individual to Influence, motivate, and enable others to contribute toward the effectiveness and success of the organizations of which they are members."28

Organizationaly, leadership directly impacts the effectiveness of costs, revenue generation, service, satisfaction, earnings, market value, share price, social capital and motivation.28 Understanding ‘Leadership’ is a multifaceted job due to variability and the diversity of parameters involved such as norms, values, customs, civilization, ethics, styles, requirement, behavior, environment, scope, psychology, religion Etc. Several of the researchers, philosophers and religious figures have presented various concepts explaining how organizations’ leaders should behave, manage and work in order to boost organizations’ success, revenue, effectiveness, efficiency and most important quality. Various studies conducted by various researchers have been carefully interpreted and understood before proceeding with the research in this chapter. This has been done in order to understand that how ‘Leadership’ in IT organizations should be studied for understanding of loopholes and for understanding of the fact that how general improvements should be done. Researchers have worked on ‘Leadership’ and have presented diverse ideas for organizational improvement. It cannot be assumed that one idea is acceptable over another. Each philosophy has its own strengths and flaws. In order to carry out an effective research, the superlative ideas from various researchers have been combined together in order to comprehend leadership dynamics of Pakistan’s IT industry in an effective manner. Insight into the ideas of various researchers helped in understanding which leadership parameters should be studied as a top priority in order to study the existing leadership and which parameters should be addressed for improvement of leadership. Summary of many of these ideas is presented in Section 8.2. Discussion in this chapter also covers analysis of some of the areas§ that were identified under the root category** of ‘Leadership’.

8.1.3 Objectives
The main objective of this chapter is to obtain answer(s) to the ninth research question identified in ‘Chapter One’.

8.1.4 Purpose
This chapter enables the reader or stakeholders of this thesis in understanding the dimensions of leadership†† in IT sector of Pakistan. While conducting detailed analysis of the issues identified and clarified in ‘Chapter Three’, it was observed that many issues were related to leadership. This prioritizes ‘Leadership’ as an important subject matter / area to be considered and studied in order to propose improvements under the light of OD theoretical framework, so as to revitalize the IT organizations.

* This point onwards the term leadership would by default refer to leadership in IT organizations of Pakistan.
† Exploration w.r.t leadership within IT organizations covering discussion like what is done, what is not done, what are the loopholes, what must be done and / or what must not be done.
§ As identified in ‘Chapter Three’.
¶ Areas mean categories, like for instance ‘Empowerment’ and ‘Problem Solving & Decision Making’. All the issues identified against these categories in ‘Chapter Three’ were later put in root category of ‘Leadership’.
** ‘Chapter Three’ identifies the root categories!
†† ‘Leadership’ here and afterwards would refer to leadership in Pakistan’s IT industry. Same is the case with the term ‘leader’.

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8.1.5 Significance

It is important to emphasize the fact here that historically no similar exploratory and explanatory research has been conducted for IT industry of Pakistan that formally helped in understanding, clarification, explanation and analysis of ‘Leadership’ for IT industry of Pakistan. Till date there is no understanding of which leadership practices are most suitable for IT organizations in Pakistan, what is required in context of leadership, what kind of leadership exists currently in Pakistan’s IT industry, what are the loopholes in the current leadership practices and what must be done and / or not done.

8.1.6 Limitations & Constraints

Limitations and constraints identified in Section 4.1.6 also stand applicable for this chapter but in context of ‘Leadership’. In addition to limitations and constraints identified in Section 4.1.6, it is also important to mention here that this chapter identifies a leadership model that is proposed as relatively suitable for the IT industry of Pakistan. The validity, effectiveness and application of this model have only been observed in one of the IT organization based in Islamabad, Pakistan. This was done by the use of ethnography, whereby the author introduced changes in the leadership model within the organization, and performed organizational engineering after performing the necessary organizational diagnostics.

8.1.7 Scope

Section 8.1 of this chapter presents the introduction. Subsequent to Section 8.1, Section 8.2 and 8.3 present the literature review and the research methodology respectively. The literature that is reviewed in Section 8.2 relates to the conceptual understanding of the ‘Leadership’ philosophies. It also summarizes the literature reviewed that identifies loopholes in leadership styles / methods / practices in IT industry of Pakistan. In addition to the identification of loopholes, this section also covers the literature that presents the best and the existing (current) leadership practices in IT industry of Pakistan. Section 8.4 specifies the data collection methodology, sources of the data and tools used for data collection. Section 8.5 presents the main body of this chapter. It starts with the explanation and analysis of the issues presented in ‘Chapter Three’ against the domain of ‘Organizational Leadership’. Sub Section 8.5.2 presents consolidated findings related to leadership within IT organizations of Pakistan w.r.t survey / interview and ethnography. Overall, Section 8.5 presents the detailed analysis / discussion by presenting the existing leadership styles / methods / practices (what is done, or what is not done etc) in IT organizations of Pakistan, the loopholes in various styles / methods / practices and the desired styles / methods / practices (what must be done or what is not to be done etc) within IT organizations all in context of organizational leadership.

8.2 Literature Review

This part of this chapter introduces the literature reviewed concerning ‘Organizational Leadership’. Specific explanation of OL has been introduced in the Section 8.1.2. In addition to this, Section 8.1.2 also explains that many of the theories and philosophies that help us gain understanding of various facets of OL have been used for the analysis of leadership within IT sector of Pakistan. This section therefore, presents the summary of philosophies and ideas from various theorists / philosophers / specialists / researchers under the light of which, study in this chapter is conducted. Theory and concept of leadership are enormously defined and described by various theorists. Major concern of the author of this thesis has been in scrutinizing what to study or not study for understanding the theoretical framework of ‘Leadership’. It is important to realize here that no particular literature could be obtained from any source that particularly focused on leadership in IT industry of Pakistan. Some of the articles / literature was found that talked about leadership within Pakistan, but many of these were not selected as the right literature for this thesis due to the reason that these articles mostly discussed leadership at national and government level. In addition to this one other reason of not choosing this category of literature was that most of the literature that discussed leadership and Pakistan together; concerned industry that by no means could be considered similar to IT industry (in perspective of views, business and organizational practices etc).
A good collection of concepts of leadership is presented in ‘Chapter 13: Leading’ in the book ‘Management’ by Bartol and Martin (1997)1,8,6,17,20,23. Bartol and Martin (1997) present concepts like sources of leaders’ power, effective use of leaders’ power, ‘Leadership Traits’, ‘Leadership Behavior’, various situational theories and how leadership and innovation are related. In addition to ‘Chapter 13’, ‘Chapter 14’ of this book has also been used that focuses on managerial communication.

An extremely important concept of ‘Ideal leadership’ has been used in this chapter that has been presented by Stout (2001). ‘Ideal leadership’ is a scientific leadership theory. It identifies six critical ‘Leadership Capabilities’ and four ‘Leadership Conditions’.2,3 Stout’s theory of ‘Ideal leadership’ is descriptive, perspective and predictive in nature. The theory talks about adjustment to a leader’s capital for leadership effectiveness. The theory also uses the concept of leadership assessment measured by ‘Leadershipmetrics’. Not only the theory talks about adjustments in leadership capital for better performance rather the theory also focuses on right leadership in the right environment. Further to this Stout’s work also explains the concept of ‘Anti-leadership’.

Moving on, House and Podsakoff (1994)5 present various ‘Leadership Styles’ and its importance for effective leadership. Styles identified by House and Podsakoff have been obtained from various theories and research findings. It is important to note that the leadership styles presented by House and Podsakoff are not specific in nature. In this piece of literature, researchers discuss leadership styles including vision, passion, self-sacrifice, confidence, determination, persistence, image building, role modeling, external representation, confidence in followers, selective motive arousal, frame alignment and inspirational communication. According to the House and Podsakoff, leadership style is the most important determinant of ‘Leadership Effectiveness’. Like House and Podsakoff, Argyris (1976)6 also presented concept of leadership effectiveness. Talking about leadership styles, Lewin and Lippitt (1938)7,12 presented concept of leadership behavior in conjunction with leadership styles. Lewin and Lippitt presented three styles of leadership styles or behaviors i.e. autocratic, democratic and laissez-faire. In their research in University of Iowa, they trained adults in the styles found by them and made these adults in charge of different groups. Results of their study revealed, that group satisfaction and quality of work was directly affected by the leadership styles.

Leadership and innovation are two concepts that appear together in many studies. Most importantly Burns (1978)8, Bass (1985)10 and John, Hater, Bernard, Bass (1988)11 put extreme importance on innovation as an important parameter for good leadership. In these studies two kinds of leaders i.e. transactional and transformational leaders are identified. According to these studies, it is important that a transformational leader must have transactional skills (skills necessary to manage day to day events). Bass, particularly also identifies factors that are necessary for transformational leadership. These factors include ‘Charisma’, ‘Individualized Consideration’ and ‘Intellectual Stimulation’.

Talking about the various dynamics of leadership, it is extremely important to specify here that largely speaking, leadership and communication has been discussed by various researches together for organizational improvement. In this regard Hall (1959, 1976)13,14 and Kennedy & Everest (1991)15 present extremely important concept that relate cultural influences, communication and supervisor’s styles. According to these studies strong communication skills of the supervisors can help them in adjusting more readily to cultural context matters. Concepts by Luthans (1995)18, Kelly (1967)19, Tosi, Rizzo Carroll (1986)21, Johns (1987)22 help us understand how perceptions influence managerial communication and inter-personal processes.

Some other important theoretical frameworks studied include Carlyle’s (1986)4 concept of ‘Leadership and Authority’. An extremely important literature studied is that by Bennis (1989)24. Bennis actually explicated a dichotomy between managers and leaders. His work draws twelve distinctions between managers and leaders. Blake and Mouton (1964)27 presented ‘Managerial Grid Model’ based on leaders’ strength of concern of people and their concern for goal achievement. Concept of difference between leader and ‘Leadership Development’ have been explicitly studied from the work of Day (2000)25.


8.3 Research Methodology

Figure 8.0 presents the research methodology:
8.4 **Data Collection**

8.4.1 **Sources of the Data**
Three sources were used for data collection as follows:
- A) Literature
- B) Ethnography
- C) Survey / Interview: Conducted for IT employees in various IT organizations in Pakistan.

8.4.2 **Collection Method**
The data collection was done through three main resources as stated in Section 8.4.1. Data collection methodology for the first two sources would not be explained here due to the simplicity of discussion. For the survey / interview, data collection was mainly done using a pre defined questionnaire that was formulated after carefully consulting the literature and the ninth research question ***. This questionnaire was later circulated to various employees in IT industry randomly. Each employee was explained the questionnaire thoroughly. Ten interviews were conducted for the data collection from various employees. Only those employees were interviewed who were sure that they understood leadership dynamics and the general management style within their organization. In addition to this it was made sure that relatively senior employees were interviewed who had extensive working experience in IT in Pakistan. It was also ensured that each employee interviewed must have at least more than two years experience in his / her current organization. This was purposely done in order to make sure that each employee well understood the dynamics of leadership in their respective organizations.

Random sampling method was done for choosing the interviewee. As a result five females and five males were interviewed. Both interviewees agreed that they understood leadership dynamics of leadership within their respective organizations.

‘Online and Virtual Ethnography’ was also used for data collection and analysis. It is important to mention here that due to the contextual nature of the subject being studied in this thesis, the researcher had to deeply immerse in the subject by being part of the IT industry itself.

8.4.3 **Data Collection Tool Reference**
Refer to Annex 53.

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*** That relates to ‘Organizational Leadership’!
8.5 Analysis
8.5.1 Analysis of Issues Identified in Chapter Three (Related To Organizational Culture)

Several concerns have been identified in the third chapter that can be categorized, directly or indirectly, under the head of leadership. This section delineates the summary of the issues that were recognized earlier in order to facilitate stakeholders in gaining understanding of the existing problem areas (related to ‘Organizational Leadership’) within various IT organizations.

Table 3.11 identifies ‘Leadership’ as an important area of concern for the IT industry of Pakistan. In opinion of the author, despite the fact that the frequency of ‘Leadership Issues’ is less as compared to the frequency of issues under the categories of ‘Organizational Culture’, ‘Human Resource Management’ & ‘Quality Management’, but still OL can be termed as one of the root cause of many problems. In other words deprived OL can be termed as a ‘Vital Few’. Figure 3.8 suggests that leadership is seen as a severe issue by the senior and middle management staff members particularly. It is important that we give high weight age to the perception of senior and middle management staff members. This is due to the fact that it is normally the management staff within the organization that bridges the gap between leaders and the rest of the staff within the organization. In other words management staff deals the maximum with the leaders and the rest of the organization therefore their opinion is particularly necessary.

Discussion of issues related to leadership is simple and straight forward. Figure 8.1 helps us in explaining the issues using a fish bone diagram as follows:

In addition to the issues (related to leadership) identified in the third chapter, a revised and a more detailed issue collection (much qualitative) was done again for the analysis in this chapter. This exercise was repeated in order to validate the earlier leadership issues and to gain in depth knowledge of issues related to leadership. Figure 8.2 uses the Figure 8.1 and adds issues (in green color) that have been obtained after detailed qualitative analysis conducted in this chapter. The figure is as follows:
8.5.2 **Leadership Methods / Practices / Styles (Consolidated Findings from Survey / Interview In the Light of Ethnographical Perspective)**

This section of this chapter helps us in understanding the perception of various employees surveyed / interviewed (IT employees / IT staff members). As a consequence of investigation of the interviews of all employees; understanding is obtained against the various sub questions of research problem number nine identified in ‘Chapter One’. The analysis of each research question will not be limited to explanation and exploration of the idea of general employees surveyed, rather focus will also be laid on the identification of the best and the worst practices (loopholes), wherever possible. Overall analysis of the sub research questions is also done using the ethnographical observations. The identified practices (including best practices and the loopholes) would later be used for suggesting recommendations. Best practices, loopholes and experience from the ethnography would also be used for the formulation of a suitable leadership model. The comprehensive analysis of each problem (sub question of main research question) is as under.

8.5.2.1 **Leader (Who is?, Who should be? Who should not be?)**

When we try to examine the term ‘Leader’ for the IT industry of Pakistan then there are two different problems that must be taken care of. The first is that what we must have clarity as to what is the current institutionalized feeling of who is a leader? This institutionalized feeling may or may not be agreed by many IT employees at an individual level. The second important problem that needs clarification is that what in actual IT employees feel that who is a leader? In simple words we need to understand that what is actually understood and what actually employees feel should be understood?

Talking about the institutionalized feelings, in most of the organizations (the ones surveyed in particular) the term ‘Leader’ is simply understood as the organizations’ governing body. Most of the employees within these organizations are not familiar about what leadership is and what does it take to be an ‘Ideal Leader’. In some cases people have certain mixed views and recommendation about

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††† Means sub research questions of research problem number nine identified in ‘Chapter One’. From now onwards in this chapter, the term research question would by default mean sub research questions of research problem number nine identified in ‘Chapter One’, unless otherwise specified.

‡‡‡ In Pakistan!

§§§ IT organizations!

**** Larry Stout (2001): Inter-Disciplinary Leadership -- or IDEAL Leadership -- is a scientific leadership theory developed in 2001 by Larry Stout, a professor at the Stockholm School of Economics in Riga (Latvia). The model identifies six critical capacities, termed Leadership Capital and four capacities termed Leadership conditions. The six critical Leadership Capital capacities are the (1) vision and (2) values that constitute the leader's philosophy; the (3) wisdom and (4) courage that compose the leader's personal composition; and the (5) trust and (6) voice that enable them to influence others. The four vital Leadership Conditions necessary for these capacities to make a difference are (1) a place where the leader can hold sway, (2) a period that calls for his or her leadership, (3) a position that conveys leadership authority, and (4) people who are ready for leadership.

†††† The words people will be used to point out the people / staff members who were interviewed / surveyed from IT industry of Pakistan.
who is a leader. Many of the interviewees and the results of ethnography reveal that in most of the cases ‘Power’ is the main source of determining who is and is not a leader. Particular attention is paid to power parameters like for instance an individual’s ‘Legitimate Power’, ‘Reward Power’ and ‘Coercive Power’. Some people believe that people who are leaders are the ones who have extensive industrial experience. In addition to this many IT staff members also feel that normally leaders in IT organizations are the ones who are arrogant, possess directing attitude and have enormous focus on time saving and cost reduction values. Very few people feel that leaders are actually responsible for motivating the staff and for synergizing the energies of employees.

Coming to the second problem as discussed earlier, people (IT employees) have slightly different individual opinion about who the leader should be. Their perception of who is a leader is different from the current institutionalized practices. Among the many different views most of the people agree that leader should be a person who has a mission and holds the vision for the organization. It is believed by the people that it is actually the leader who should establish organization’s goals and objectives (long and short term). Many people feel that experience is not the only parameter that must be taken care of when choosing a leader. Rich experience is preferred by most of the employees when it comes to choosing their leader. The term rich experience here refers to a blend of managerial and technical experience. Most of the employees feel that necessary academic background (again preferably a mix of managerial and technical education) is also extremely essential for the right leadership. Coming to skills, general perception is that positive, motivating, influencing and persuasive attitude, right communication skills and knowledge (breadth based) are believed to be the backbone of ideal leadership for Pakistan’s IT industry. Many of the IT staff members believe that leaders must be an excellent practical example of executing the management’s core functions i.e. controlling, leading, planning, executing and managing. People believe that leaders must be open to staff members; they must be determined, innovative, must encourage team work, must manage risks proactively, must be able to earn their staff’s respect, must be self motivated, must be intellectual to a reasonable extent and must encourage change.

While getting insight into the above two problems it was largely observed that in most of the IT organizations the guidelines as to how the leaders should be selected are not clear. In simple words leader identification is done chaotically.

Continuing our discussion further, based on experience of staff members interviewed and ethnography, several of the results have also been obtained that help highlight the characteristics that are not suitable for leadership of IT organizations in Pakistan. To start our discussion most of the interviewees and results of ethnography reveal that the individuals who are deficient with the suggestions that were earlier discussed as suitable traits for leaders in Pakistan’s IT industry must never be given assignments related to leadership. In addition to this, individuals who tend to have misleading, poor or limited understanding about the ‘Soft Factors’ must also not be given any leadership assignments.

8.5.2.2 Vision & Leadership

Survey / interviews and the results of ethnography reveal that unfortunately in most of the cases leader’s vision is restricted to profit maximization, work completion and revenue generation. This is mainly due to the fact that in most of the cases the entrepreneurs and / or the organizations owners are the leaders themselves. Since owners are mostly concerned about income generation therefore their limited vision affects the long term organizations sustenance. In most of the cases poor understanding of the right and appropriate long term visions results in loopholes in various aspects within organization.

Many of the interviewees believe that organizational vision must be mutually agreed and commonly understood. According to many employees, the organizational vision must incorporate attributes like employee and customer satisfaction, employee growth, betterment of teams, quality and expansion.

8.5.2.3 Effective Leadership

Survey / interview results were not sufficient enough to answer how effective leadership can be done. Results of ethnography however can be used to answer this more precisely. In most of the organizations there hardly exists any concept / standard of measuring or understanding the leadership effectiveness. In one of the organizations ‘Leaders Key Performance Indicators’ (LKPIs) are used in order to measure the performance of the leader. These performance indicators are defined by relevant stakeholders who directly plan to evaluate the effectiveness of leaders. It is important to note here that other than the

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***In On Heroes, Hero-Worship, and the Heroic in History, Thomas Carlyle demonstrated the concept of leadership associated with a position of authority.***

[1] Wikipedia Source Validates: Many definitions of leadership involve an element of vision — except in cases of involuntary leadership and often in cases of traditional leadership. A vision provides direction to the influence process. A leader (or group of leaders) can have one or more visions of the future to aid them to move a group successfully towards this goal.
leader’s supervisors, relevant stakeholders group also includes people from the management and engineering / technical staff. The responsibility of the process of defining LKPIs is done by the quality management department that surveys the entire organization and performs the analysis of how and using which indicators actually the effectiveness of leadership within the organizations should be measured and thereby monitored. This exercise is done on regular basis so as to measure the performance of leaders according to the changing organizational needs. Other than the survey of organization, quality management department also uses the vision, mission, goal, objectives, leader’s roles and responsibilities defined in an organization for the definition of LKPIs. For different level of performance of the leaders necessary actions are taken accordingly. Extent of actions can even be replacement or retirement of a leader based on the severity and the criticality of the results. The organization that is discussed here also uses the bottom up appraisal system other than LPKIs in order to measure the leaders’ effectiveness.

Despite little understanding was obtained regarding effective leadership from the survey but one commonly understood norm is that for effective leadership, leadership effectiveness measurement program / policy must exist within an organization. Other than this it is also important to highlight here that interviewees and results of ethnography mutually agree that effective leadership comes from effective and timely stratification of leadership issues. This requires constant monitoring of effectiveness of leadership which in turn requires quantitative measurement strategy.

8.5.2.4 Leaders’ Trait & Style
Surveys / interviews reveal that leadership requires following traits that can be considered of higher priority such as calmness, positivistic approach, forward looking attitude, extroversion, charisma, resistance to stress, open mindedness, neutrality in opinions, strong sense of justice, fairness and strong decision making abilities. In addition to this ethnographical results indicate the Pakistan’s leadership currently lacks in aspect of ‘Social Factors’.

Several of the survey results reveal that ‘Democratic’, ‘Employee-Centered’ and ‘Transactional Forms of Leadership’ styles are most suitable for Pakistan’s IT industry. These recommendations can also be termed as validated by ethnography. Largely speaking, since motivation and job satisfaction are two of the extremely important parameters for running an IT organization, therefore ‘Path-Goal Theory’ can be considered as largely useful for effective leadership.

During the survey some of the interviewees have been found reporting that existing leadership styles include individualism, short term thinking, focus on profit alone, use of elements like for instance authority, position and use of force, unbalanced customer and employee focus, deprived focus on quality and high focus on unrealistic deadlines.

8.5.2.5 Leaders & Organizational Communication
In most of the cases generally, ‘Top-Down Communication Method’ is followed. Simply speaking usually the leaders interact only with their direct subordinates (in most cases; the senior managers). As specified earlier most of the leaders practice a closed door policy for the staff. Results of the interviews and surveys reveal that many of the people / interviewees believe that the reason of choosing the ‘Top-Down Communication’ approach can be mainly attributed to the communication style followed by the British leaders during the colonial era. In most of the cases (with an exception of only one organization), leaders restrict their communicating method to ‘Vertical’, ‘Downward’ and ‘Centralized’ communication. Also the communication between the organization’s employees and the leaders is very formal. Formal and limited communication between the leaders also gives rise to factors such as ‘Halo Effect’, ‘Projection’, ‘Stereotyping’ and ‘Perpetual Defense’.

8.5.2.6 Leaders’ Roles & Responsibility
Out of all the organizations surveyed / interviewed (validated by the results of ethnography), roles and responsibility of the leaders are not defined and are not mutually known / understood even in a single organization. This leaves a big loophole as roles and responsibilities of the leaders are not implicitly understood.

Some of the surveys / interviews reveal that following are the most important roles and responsibilities of the leaders with Pakistan’s IT industry in viewpoint of soft factors:

- Leaders must mentor, motivate and guide other employees.

***** Like before ‘leadership’ here and afterwards would refer to leadership in Pakistan’s IT industry.
††††† The opposite approach is ‘Job Centered’! With the ‘Employee Centered’ approach leaders focus on building effective workgroups dedicated to high performance goals.
• They should ensure that tasks are allocated, managed, monitored and carried out in an efficient and effective manner.
• They must develop understanding of the teams, groups and individuals within the organizations.
• Leaders must be able to influence people through their personality.
• They must ensure a participative management culture within organizations.
• They must be able to synchronize the corporate culture and social culture within and outside the organization.
• They must communicate regularly with employees at all levels.
• They must synchronize people (employees), processes, products, business, vision, missions, objectives and goals.

8.5.2.7 Leaders’ Development

In Pakistan's IT industry leaders are trained in very few organizations. In most of the cases trainings for the leaders are only limited to product based trainings. In hardly any organization leaders are trained against the management of the soft issues and other management areas. In view of many interviewees leaders develop through education, power given to them, communication within organization and experience.

8.5.2.8 Leadership and Collective Intelligence

Very few organizations practice 'Collective Intelligence' mainly through the use of participatory management. Since most of the organizations practice bureaucratic and autocratic style of leadership (with an exception of few) therefore the concept of collective intelligence is rarely seen to be actively in practice.

8.5.2.9 Anti-Leadership

All interviews conducted reveal that ‘Anti Leadership’ largely exists in Pakistan’s IT industry. Main reason of presence of ‘Anti Leadership’ is deficiencies in ‘Leadership Capital’. These results are also validated by ethnography.

8.5.2.10 Leadership and Mentoring

Pakistan’s IT industry presents a mixed scenario when we focus on the use of mentorship by the organization’s leaders for the development of employees. Use of mentorship is seen widely and largely present in relatively small technical teams particularly. In case of non technical teams the presence of mentorship is rather relatively less. This difference in presence of mentorship between the two kinds of teams can be attributed to the fact that technical teams require relatively more knowledge flow from the supervisory figures therefore forcing mentorship at the middle management level. In case of senior management or leaders’ level, mentorship is relatively less. Top reasons of this deficiency could be lack of knowledge of leaders, lack of a leader’s vision, closed communication, inappropriate leadership styles and fear of knowledgeable and more skilled subordinates. In some cases staff members have also be found reporting that most of the leaders mentor the female members of the management only and thereby nurturing gender biasness.

8.5.2.11 Managerial Grid Model And Leadership In IT Industry of Pakistan

In nearly all the cases (interviews / surveys / ethnography results), it has been found that leaders in Pakistan have high concern for production and extremely low concern for people, thereby making leadership in Pakistan’s IT industry fall in the category of “Produce Or Perish”.

8.5.2.12 Leadership & Decision Making

In nearly all the organizations surveyed, no formal decision making process exists. Normally decisions by the leaders are made in isolation, individually and without taking necessary feedback from stakeholders who would be affected due to the decision. Adding up in some of organizations surveyed staff members feel that decisions (right or wrong) are normally imposed by their leaders. Further to this no risk management is done against the implemented decision, thereby leaving a room for uncertainty.

Wikipedia Source: David Day (2000) distinguished between leader versus leadership development. Leader development focuses on the development of the leader, such as the personal attributes desired in a leader, desired ways of behaving, ways of thinking or feeling. In contrast, leadership development focuses on the development of leadership as a process. This will include the interpersonal relationships, social influence process, and the team dynamics between the leader and his/her team at the dyad level, the contextual factors surrounding the team such as the perception of the organizational climate and the social network linkages between the team and other groups in the organization.

George Pór, defined the collective intelligence phenomenon as "the capacity of human communities to evolve towards higher order complexity and harmony, through such innovation mechanisms as differentiation and integration, competition and collaboration." Leadership Capital is one aspect of the Ideal Leadership model, which is defined as the six competencies that constitute the leader's ability to direct an organization forward in a positive direction. These competencies are: wisdom, courage, trust, voice, vision and values.

Leadership conditions are the second component of the Ideal Leadership model. Conditions are the elements that give a leader the opportunity to lead. Basically, a person must be in the right place, at the right time, doing the right things, with the right people.

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8.5.2.13 **Leadership & Organization, Planning & Controlling**
Based on survey / interviews and results of ethnography, leaders in Pakistan’s IT industry usually do not plan formally. The same is true for controlling and organization.

8.5.2.14 **Leadership & Empowerment**
Like the case of mentoring, the functional managers empower employees to some extent. Leaders on the other have not been found empowering employees or their immediate subordinates (validated from surveys / interviews and ethnography).

8.5.2.15 **Leadership: Skills and General Requirements**
General leadership requirements / skills can be enormous. Here focus is only laid on specific requirements / skills that have been set as high priority requirements. General prioritized perception of an ideal leader is that he / she should be aware of all the issues within the organization, he / she must be an extrovert, must encourage participatory management, must be effective, must have distinctive personality, must be open minded, caring for employees, should have strong sense of justice, must posses strong knowledge and skills, leaders should encourage change, must have strong charismatic personality, must be able to transform organizations whenever a change is necessary, must be proactive, mature, must be able to make people follow and must understand leadership as a discipline. With all this it is also extremely important that leaders should not exploit the employees due to the fact that jobs in the IT market are limited.

In addition to the requirements and / or skills stated above, it is extremely necessary that all leaders must strongly focus on the use of OD concepts like for instance ‘Action Research’, ‘Appreciative Inquiry’, Coaching, Collaboration, ‘Collective Decision Making’, ‘Corporate Culture’, ‘Employee Research’, ‘Group Management’ (dynamics, ‘Focus Groups’, ‘Group Emotions’ and behavior in particular), ‘Institutional Memory’, ‘Change Management’, ‘Organizational Parameters’ (like for instance design, climate, communication, culture, engineering, learning and performance in particular), ‘Organizational Psychology’ and Sociology.

8.5.3 **Leadership Model for the IT Industry of Pakistan**
Figure 8.3 presents the model formulated for the establishing, improving, controlling, developing and monitoring the leadership function within IT organizations of Pakistan. The proposed model has been actually implemented in one of the organizations by the author. Results and effectiveness of the model have been cross checked and found satisfactory and successful.
8.6 Recommendations for a Relatively Ideal†††††† Leadership

Based on the discussion in Section 8.5 and particularly in Section 8.5.2 ideal practices have been identified in order to fill the loopholes / gaps in the ‘Base Culture’ ‡‡‡‡‡‡. Each recommendation presents leadership improvement methodology. The author of the thesis has personally used the following recommendations in ZTE Pakistan Pvt Ltd and experienced massive improvement in leadership. Recommendations are as follows:

- Identify the right leaders. It is important to identify the leaders not only by their performance and the amount of revenue / profit / benefit that an individual is able to acquire for the organization.
- It is not necessary that the organization’s owners / shareholders etc are necessarily the leaders.

†††††† 100% of the interviewed staff and the organization surveys reveal that none of the organizations has an ideal leader.
‡‡‡‡‡‡ Concept has been discussed in fourth chapter.
• It is not necessary that the person who is leader is essentially the best employee within an organization.
• Parameters like ‘Expert Power’, ‘Information Power’ and ‘Referent Power’ must be used as special parameters and must be given high priority when identifying the leaders. Identification of a leader must not be done only on the basis of an individual’s ‘Legitimate Power’, ‘Reward Power’ and ‘Coercive Power’.1
• Organizations should try to ensure that they have well defined leader’s identification criteria that is mutually discussed and agreed by at least the senior staff members.
• It must be ensured that senior staff members and other relevant stakeholders within the organizations well understand the theoretical and conceptual framework of ‘Leadership’. This can be done by the use of proper trainings.
• Well formulated, commonly understood, institutionalized and mutually agreed vision must be made by leaders. It is important that relationship between vision & missions, mission & goals and goal & objectives should be established by the leaders after mutual stakeholder review and approval. Ideally vision must cater parameters like employee and customer satisfaction, employee growth, betterment of teams, quality and expansion along with other parameters such as business expansion and revenue generation. It is also important that leaders must have a formal organizational strategy in conjunction with vision, mission, goals and objectives.
• Leaders’ effectiveness must be monitored and measured. Organizations must set policy for monitoring leadership. It is preferable that organizations (preferably quality management departments within organizations) should actually set criterion for evaluating the performance of leader (key performance indicators). These criterion or ‘Key Performance Indicators’ must be set by mutual consensus of all relevant stakeholders (particularly including management, technical staff and leaders’ supervisors). The ‘Key Performance Indicators’ must take into account organization’s vision, mission, goal, objectives, leader’s roles and responsibilities. All criterion / ‘Key Performance Indicators’ must be revised timely in order to cater the changing needs of the organization. Performance against the ‘Key Performance Indicators’ must be measured (preferably by the quality management department) timely and must be shared with the leader for timely improvement. A proper predefined action plan must exist (also mutually agreed by all relevant stakeholders) for all performance levels that must be part of the organization’s policy. Appropriate actions must be taken against all performance evaluations and results should be monitored till closure. It is also preferable that all organizations must have bottom up appraisal particularly of the leader.
• Use of ‘Coercive Power’1 for leading and ‘Autocratic Leadership’7 style must be strictly avoided / discouraged.
• ‘Democratic’7, ‘Employee-Centered’§§§§§§ and ‘Transactional Forms of Leadership’9,10,11 are most suitable for Pakistan’s IT industry.
• It is important to understand that Pakistan is a ‘High Context Cultural Society’13,14,15. In such cultures emphasis on the communication process is on establishing and strengthening of relationships in the course of exchanging information.13,14,15 This natural requirement requires the leaders to focus heavily on their ‘Listening Capabilities’ and ‘Feedback’. ‘Management by Wandering Around’ (MBWA)16; ‘Decentralized Communication Networks’17; ‘Upward, Horizontal and Informal Communication Methods’17 are highly required for IT industry of Pakistan. Leaders must try to minimize the affect of ‘Attribution Theory’18,19 by eliminating ‘Causal Judgments’18,19 through awareness and elimination of ‘Fundamental Attribution Error’20 and ‘Self Serving Bias’21,22. When communicating with the employees leaders must not only limit their focus on the language but also on ‘Paralanguage’***** and ‘Kinesic Behavior’††††††. When communicating with the employees leaders must not only limit their focus on the language but also on ‘Paralanguage’***** and ‘Kinesic Behavior’††††††.
• Define the leaders’ roles and responsibilities and share this information organization wide.
• Leaders’ roles and responsibilities must try to include the items indicated in Section 8.5.2.6.‡‡‡‡‡‡‡, §§§§§§§
• Leadership styles including individualism, short term thinking24, focus on profit alone, use of elements like for instance authority, position and use of force, unbalanced customer and employee

§§§§§ The opposite approach is ‘Job Centered’! With the ‘Employee Centered’ approach leaders focus on building effective workgroups dedicated to high performance goals.4
*****Paralanguage: Vocal aspects of communication that relates to how something is said rather than to what is said.
††††††† Kinesic Behavior: Body movements such as gestures, facial expressions, eye movements and postures.
‡‡‡‡‡‡‡ http://en.wikipedia.org/wiki/Leadership
§§§§§§§ http://en.wikipedia.org/wiki/Leadership_Character_Model
EI is constantly changing. It is important that trainings for the leaders must not be limited to the technical areas rather leaders must be trained against the management areas too. It is also highly preferable that a proper training concerning ‘Leadership’ should be scheduled for all the leaders immediately after the identification process. Leaders’ skill enhancement program must be made within the organizations. These programs must be made after carefully consulting the internal and external skills required for leading a particular organization. Some of the skills required for leading an IT organization in Pakistan are listed in Section 8.5.2.15.

Talking about trainings for the leaders, it is extremely important that leaders should be trained for ‘Quality Management’. Leaders must be given knowledge about this area so that they are able to understand, comprehend and realize the importance of this discipline. Trainings must also be given to the leaders against ‘Employee Satisfaction and Motivation’ so that they also understand and realize the importance of this area.

Leaders must understand the theoretical framework of ‘Collective Intelligence’ and must try to use the participatory management style in order to foster ‘Collective Intelligence’.

Leaders must try to develop ‘Leadership Capital’ by focusing on six competencies that constitute the leader's ability to direct an organization forward in a positive direction. These competencies are: wisdom, courage, trust, voice, vision and values. Leaders must mentor their staff. Leaders and relevant stakeholders must try to formulate ‘Mentorship Programs’ and also must try to execute them. In addition to mentoring of staff members it is also important that leaders are mentored by senior staff members as well (High Potential Mentorship). Concern for people and production must be managed / balanced proportionately. Leaders must buy in important organization’s staff members for an appropriate approach.

Decisions must be made by the leaders by involving relevant stakeholders and through mutual consensus. It is important that decision made by the teams must be revisited timely and consequences should be carefully reviewed. All stakeholders must be held accountable equally for the wrong consequence of the decision. While making decisions leaders should try to eliminate job ranks and title. It is also extremely important the decision making process must be carried out in presence of a well defined conflict management policy. All decisions made must pass through proper risk management.

Leaders must try to gain power by empowering employee (in particular senior and important members of the organization must be empowered).

Leaders must be empowered.

Organizations must try to avoid frequent change in choice of leaders. Change in organizational leadership must be done through proper ‘Succession Planning’.

Leadership requirements and skills that have been pointed out in Section 8.5.2.15 must be fulfilled one way or another.

Leaders must be able to understand the concept of ‘Emotional Intelligence’ and necessary theoretical framework practically.

8.7 Conclusions

This chapter initially presents how and which parameters of the organizational leadership should be studied for the analysis purpose. Once the rights parameters are identified, focus is laid on understanding

******** Many citations have been given earlier that help us validate our stance for power and authority for ideal leadership.

†††††††† Earlier it was recommended that performance against the key performance indicators must be measured (preferably by the quality management department) timely and must be shared with the leader for timely improvement.

§§§§§§§§ In formal mentoring programs, there are program goals, schedules, training (for mentors and mentees), and evaluation.

††††††††† Wikipedia Source: This kind of mentoring is used to groom up-and-coming employees deemed to have the potential to move up into leadership roles. Here the employee (protégé) is paired with a senior level leader (or leaders) for a series of career-coaching interactions. A similar method of high-potential mentoring is to place the employee in a series of jobs in disparate areas of an organization, all for small periods of time, in anticipation of learning the organization's structure, culture, and methods. A mentor does not have to be a manager or supervisor to facilitate the process.

******** Staff members who are senior, best performers, whose presence is critical for the organization, who are knowledgeable and / or who know a great deal about the organization through their experience!

†††††††††† Wikipedia Source: Emotional Intelligence (EI), often measured as an Emotional Intelligence Quotient (EQ), describes an ability, capacity, or skill to perceive, assess, and manage the emotions of one's self, of others, and of groups. As a relatively new area of psychological research, the definition of EI is constantly changing.

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and analysis of the issues (concerning leadership) identified in ‘Chapter Three’. The identified parameters are then studied using ethnography and survey / interviews as research tools. Each parameter is explored in order to identify the loop holes and the best practices. Once this is done, set of recommendations is obtained. The recommendations proposed directly help in resolution of the issues explained in Section 8.5.1. Other than the recommendations, this chapter also presents a model for improving leadership. Section 8.5.3 presents this model. Figure 8.4a and Figure 8.4b explains which issues (identified in Figure 8.2 and Figure 4.3 {some issues were left unaddressed in the fourth chapter}) are addressed using a fish bone diagram as follows:
Figure 8.4b: Addressing Organization’s Culture Issues as Identified from Chapter Three
8.8 Bibliography


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8.9 Endnotes


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CHAPTER NINE: FUNDAMENTAL TRIBULATIONS BY KEY SUPPORT FUNCTIONS WITHIN IT ORGANIZATIONS OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS OF REASONS AND REMEDIAL ACTIONS): A BEHAVIORAL, CULTURAL AND MANAGERIAL PRESPECTIVE
CHAPTER NINE: FUNDAMENTAL TRIBULATIONS BY KEY SUPPORT FUNCTIONS WITHIN IT ORGANIZATIONS OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS OF REASONS AND REMEDIAL ACTIONS): A BEHAVIOURAL, MANAGERIAL AND CULTURAL PREerspective

9.1 Chapter Introduction

9.1.1 Executive Summary
This chapter of this research thesis presents major tribulations faced by IT organizations in Pakistan due to deprived, ineffective and inappropriate working of support functions such as administration, HR and other operations related functions. The chapter not only explores but also presents detailed explanation and analysis of the main highlights of reasons behind the identified tribulations and the corresponding necessary remedial actions by performing necessary qualitative analysis.

9.1.2 Background
As we speak of the IT infrastructure, we mostly fail to take into account the presence of a strong support function backbone that is extremely necessary for the base operations within any industry. Unfortunately since in most of the cases, IT organizations are run by non managerial people therefore focus on the support operations is usually absent. This results in decline in organizational productivity, quality, improvement, growth and development.

Here in this chapter the author specifically focuses on the major support functions like ‘HRM’, ‘Administration / Logistics / Operations’ and ‘IT’ that are victim of malfunction within the IT industry.

9.1.3 Objectives
The main objective of this chapter is to obtain answer(s) to the tenth, eleventh and twelfth research question identified in ‘Chapter One’.

9.1.4 Purpose
The main purpose of this chapter is to help IT organizations’ management, operations management staff and general staff members gain understanding of how they can perform better by eliminating key problems in general working methodology of support functions within the organizations. The chapter indirectly also explains the role of support functions within the IT organization in overall enhancement of organizational efficiency, improvement, productivity, quality, growth and development.

9.1.5 Significance
It is important to emphasize the fact here that historically no similar exploratory, explanatory and analytical research has been conducted for the IT industry of Pakistan that formally helped in understanding, clarification, explanation and analysis of reasons behind key tribulations due to the support functions within IT industry of Pakistan. Till date; there is no understanding of how problems of inefficiency, productivity, quality and other related problems (that are caused due to improper functioning of support departments / functions) are to be taken care of.

9.1.6 Limitations & Constraints
As obvious from the chapter’s title, this chapter specifically focuses on the behavioral, cultural and managerial aspects only. The chapter does not focus on the technical issues. Further to this, the chapter mainly speaks of the administration / logistics, HRM and IT functions as because these have been found as key problem areas in the third chapter. Special emphasis is also laid on the training sub function when discussing HRM.

9.1.7 Scope
Section 9.1 of this chapter presents the introduction. Subsequent to Section 9.1, Section 9.2 and 9.3 present the literature review and the research methodology respectively. Special focus has been laid on literature concerning Pakistan only. Section 9.4 specifies the data collection methodology, sources of the data and tools used for data collection. Section 9.5 presents the main body of this chapter. It first discusses the issues related to support functions that were identified in the third chapter. Subsequently; the chapter provides extremely important insight to various reasons behind key tribulations due to support functions’ inappropriate work style. Finally based on the discussion in Section 9.6, Section 9.7 presents the set of recommendation and improvement remedies.
9.2 Literature Review

It is important to highlight here that for this chapter the focus was strictly limited to understanding of how support functions operate within IT industry of Pakistan. In other words the author specifically wanted to understand how managerially and culturally the support functions work within IT organizations. Unfortunately; as a consequence of our quest for this knowledge we found that hardly any literature focused on support functions like ‘Administration’, ‘IT’, ‘Logistics’, ‘Operations’ Etc in Pakistan’s IT industry. The result was that the author of the thesis had to start the discussion from scratch and had to explore virtually all aspect of working of the said functions within the IT industry. Extremely few pieces of literature; particularly by Sharf and Khan (2005)¹, Zakir (2005)², Saleh (2005)³ explains skill requirements for Pakistan’s IT industry, deficiencies in HRM in Pakistan’ IT industry and administrative functions within the industry respectively.

Talking about the international literature available, it is important to pinpoint that a lot of literature was obtained that focused on IT and HRM. This however was not the case for literature for other support functions.

9.3 Research Methodology

Figure 9.0 presents the research methodology:

9.4 Data Collection

9.4.1 Sources of the Data

Three sources were used for data collection as follows:

A) Literature
B) Ethnography
C) Interview: Randomly conducted from support staff in different IT organizations in Pakistan.

9.4.2 Collection Method

The data collection was done through three main resources as stated in Section 9.4.1. Data collection methodology for the first two sources would not be explained here due to the simplicity of discussion. For the interviews, data collection was mainly done using detailed interview sessions. Interviews were conducted under the light of studied literature, analysis of the third chapter and most importantly the research questions. Although no specific segregation was done, yet mostly the employees that were...
interviewed belonged to support functions within the IT organizations. It was also ensured that each employee interviewed must have at least more than one year experience in his / her current organization. This was purposely done in order to make sure that each employee well understood their respective organizations.

Random sampling method was done for choosing the interviewee. ‘Online and Virtual Ethnography’ was also used for data collection. It is important to mention here that due to the contextual nature of the subject being studied in this thesis, the researcher had to deeply immerse in the subject by being part of the IT industry itself.

9.4.3 Data Collection Tool Reference
Refer to Annex 58.

9.5 Analysis

9.5.1 Summary of Problems Identified in the Third Chapter

[Figure 9.1] Support Issues as Identified from Chapter Three (A Fish Not Worth Eating)

9.5.2 HRM

9.5.2.1 What is not done?
When discussing what is not done related to HRM in IT industry of Pakistan, it is important to specify and discuss how it is decided if something is done or not done? In order to explain how the decision concerning what is done or not done is made, it is essential that criteria are established categorically as follows:

Figure 9.2 explains:
Figure 9.3 explains the quality criteria set for analysis of quality of practice(s):

Figure 9.4 explains the criteria set for analysis of effectiveness of practice(s):

Figure 9.5 uses criteria from Figure 9.2, 9.3 and 9.4 and explains how the industry’s HRM practices look like after analysis:
9.5.2.2 Major Shortcomings and Explanation

Figure 9.5 clarifies much of the problems related to HRM in the IT industry of Pakistan. Here we perform a sort of root cause analysis and present the major shortcomings that are responsible for deprived HRM.

Most importantly, in many of the IT organizations there are no formal HR departments. In other words HRM is not performed exclusively in many organizations. Within the organizations that do perform HRM, HRM staff is not skilled enough. This problem mainly results in ignorance and absence of implementation of various HR sub functions within the organizations. Adding up; in very few organizations; management truly understands that role and the importance of HRM function. This problem forces the management to intermingle in HRM activities and skew the decisions due to absence of necessary analysis. Further HRM staff is unable to achieve the desired sponsorship for the management that is required for effective decision making.

The above mentioned problems in actual lowers down the chances of correct and complete implementation of the HRM practices. Further, it severally damages the quality and effectiveness of the practice being implemented.

9.5.2.3 Major Problems in View of HRM Managers

Among most of the HR managers interviewed, most of the managers believe the unaware management and general staff result in serious problems in implementation of the HRM concepts. Most of the managers believe that since HRM is considered the easy part of work within the organization therefore attitude of management and general staff members towards the HRM staff is as if they are second rated employees of the organizations.

Most of the HR managers also complain that mainly they are unable to perform well because management interferes in the decision making for an employee, that in actual should be made by HR managers after necessary analysis. In simpler words it can also be said that HR managers are not empowered enough to make decisions.

Further to the discussion above, most of the managers also feel that management confines the role of HRM to clerical jobs like for instance record keeping Etc. Unfortunately the HRM function / department is not allowed to operate the way it should according to international standards.

The most important point that has been pointed out by many of the managers is that while deciding and making plan for various organizational level activities (that are in turn dependant on HRM function), organization’s management and / or the activity manager(s) do not consult HR managers. This results in activities that are planned without the commitment of HR managers.

Other than this, most of the managers feel that the organization’s senior management / leadership uses highly autocratic behavior with HRM functions’ staff members.

9.5.2.4 Special Focus Topics

9.5.2.4.1 Training & Skill Development

How is it important?

IT industry mainly depends on the HR intellect for its success. Manpower is the only input to the IT production. This statement is enough to explain why training and skill development is extremely essential for the IT organization’s staff members. When we use the term skill development and training, then not only we refer to skill development and training for the technical staff members but also for the non-technical and the support staff members.

What are the issues?

• Trainings and skill development are usually considered as a secondary activity within the organization and generally it is not given the necessary importance.
• Training and skill development process is not institutionalized within the organizations.
• Organizations fail to carry out necessary training and skill need analysis.
• Training and skill development process / method suffer from serious weaknesses.
• Training and skill development process / method is not properly controlled / monitored from start to closure.
• Training and skill development programs are not planned.
• Improvement in the training and skill development process is not made within the organization.
• Training and skill development process / method are not quality assured.
• Training process’s deliverables are not quality assured.
• Training process’s work products are not quality assured.
• Generally training material, deliverables and work products are not configured.
• Training’s effectiveness is not measured/monitored.
• Trainers that train do not possess the right skills and expertise.
• Management and supervisory figures within the organization do not allow staff members to fully commit to trainings and skill development programs.
• General staff members consider training and skill development important only for acquiring certification. Generally, learning objectives are ignored.
• Many staff members consider training and skill development as a leisure activity.
• Individual’s performance and training assessment is not linked with the individual’s performance appraisal.
• Mostly training suffers shortage of necessary logistics arrangements.
• Organizations do not have any training policy, strategy etc.
• Since employees within the IT industry are mostly over tasked, therefore there involvement in the training and skill development process is always questionable. Employees are mostly over loaded due to ill planning and uncommitted work schedules.

9.5.3 Operations, Logistics and General Administration
9.5.3.1 What is not done?
Figure 9.6 uses criteria from Figure 9.2, 9.3 and 9.4 and explains how the industry’s selected operations, logistics and general administration practices look like after analysis:
[Figure 9.6] Level of Establishment, Quality and Effectiveness of Selected Operations, Logistics and Administration Practices

- Support to Quality Management
- Interdepartmental Coordination
- Policy Documentation and Maintenance
- Micro Administration
- Utility Cost Control
- Employee Benefits Management
- Vehicle Management
- Loss Management
- Intra Organizational Communication and Coordination
- Petty Cash Management
- Budget Management
- Procurement Management
- Security Management
- External Liaison
- Training Support
- Product Development Support Management
- Project Execution Support
- Warehouse Management
- Equipment Management
- Activity Management
- Repair and Maintenance Management
- Fixed Asset Management
- Equipment Monitoring
- Office Management
- Inventory and Stock Management
- Guest Management
- Travel and Transportation Arrangements
- General Support
- Employee Mobile Management
- Fixed Line Management

Level of Effectiveness in Achieving Targeted Discipline Goal
Level of Quality
Level of Establishment

Operations / Logistics / Administration Practice

Level
9.5.3.2 Major Shortcomings and Explanation
Figure 9.6 clarifies much of the problems related to operations, administration and logistics management in the IT industry of Pakistan. Here we perform a sort of root cause analysis and present the major shortcomings that are responsible for deprived operations, logistic management and administration. One of the major shortcomings faced within operations, administration and logistic function is that staff members are not appropriately educated, skilled and trained to work in an environment suitable for an IT based organization. Much of the staff related to operations, logistics and administration in various IT organizations are retired personal from the armed forces of Pakistan. This gives rise to bureaucratic style of work. Since all the organizations and the work within the organizations require support from the logistic, administration and operations function therefore many of the staff members belonging to these functions take advantage of this situation. The result is that staff members within operations, logistics and administration functions require special consideration from the staff from the rest of the organization.

In many cases many general staff members from all over the organization feel that the integrity, productivity, quality and effectiveness of the operations, logistics and administration function is questionable within their organization. Many employees are also reported of claiming that administration; logistics and operations staff members in their organizations have been involved in corruption somehow.

The above mentioned problems in actual, lowers down the chances of correct and complete implementation of the operations, administration and logistic practices. Further, it severally damages the quality and effectiveness of the practice being implemented.

9.5.3.3 Major Problems in View of Operations / Logistics and Administration
Managers
A major concern of most of the managers from this area is that their work is considered as less complex and easy. This attitude of the general staff members actually forces the employees to feel that productivity of the administration, logistic and operations department is not as per the required standards. Many of the managers from these functions also feel that they are not appropriately empowered and that the organizations themselves are not financially capable enough of performing all the necessary functions in this area. Many managers have been found reporting that technical staff members are usually impatient and this creates conflicts between them and the staff members.

The most important point that has been pointed out by many of the managers is that while deciding and making plan for various organizational level activities (that are in turn dependant on the administration, operations and logistic function), organization’s management and / or the activity manager(s) do not consult managers from the administration, logistics and operations function. This results in activities that are planned without the commitment of managers from administration, operations and logistics departments.

Other than this, most of the managers feel the organization’s senior management / leadership uses highly autocratic behavior with administration, operations and logistics departments’ / functions’ staff members.

9.5.4 Information Technology
9.5.4.1 What is not done?
Figure 9.7 uses criteria from Figure 9.2, 9.3 and 9.4 and explains how the industry’s selected operations, logistics and general administration practices look like after analysis:
9.5.4.2 **Major Shortcomings and Explanation**

Figure 9.7 clarifies much of the problems related to IT functions in the IT industry of Pakistan. Here we perform a sort of root cause analysis and present the major shortcomings that are responsible for deprived IT management.

Most importantly, in many of the IT organizations there are no formal IT departments. In other words IT functions is not performed exclusively in many organizations. Within the organizations that do have separate IT department, IT staff is not skilled enough. This problem mainly results in ignorance and implementation of various IT sub functions within the organizations. Adding up in very few organizations; management truly understands that role and importance of IT function. In most of the cases IT functions’ role in organizational development and improvement is not understood. Further IT staff is unable to achieve the desired sponsorship for the management that is required for effective IT management.

The above mentioned problems in actual lowers down the chances of correct and complete implementation of the IT practices. Further, it severely damages the quality and effectiveness of the practice being implemented.

9.5.4.3 **Major Problems in View of IT Managers**

The most important point that has been pointed out by many of the managers is that while deciding and making plan for various organizational level activities (that are in turn dependant on the IT function), organization’s management and / or the activity manager(s) do not consult managers from the IT function. This results in activities that are planned without the commitment of managers from IT departments. Other than this, most of the managers feel the organization’s senior management / leadership uses highly autocratic behavior with IT departments’ / functions’ staff members.

9.6 **Recommendations**

9.6.1 **What to Do in General at Macro Level?**

---

Organization Development for Revitalization of Information Technology Sector of Pakistan By: Ali Ahsan (All Rights Reserved)
9.6.1.1 HRM

Figure 9.8 explains:

[Figure 9.8] HR Improvement Process

- Formulate Exclusive HR Department / Function and Develop / Hire Skilled Staff
- Provide Sponsorship to HRM Department / Function
- Perform Continually
  - Time: T1
  - Time: T2

HRM Improvement Process
9.6.1.2 Operations, Logistics and General Administration

Figure 9.9 explains:

![Figure 9.9 OLA Improvement Process]
9.6.1.3 Information Technology
Figure 9.10 explains:

[Figure 9.10] IT Improvement Process

IT Management Improvement Process

- Perform Continually
- Time: T1
- Time: T2
- Formulate Exclusive IT Department / Function and Develop / Hire Skilled Staff
- Provide Sponsorship to IT Department / Function
9.6.2 Training Management

Figure 9.11 explains:

[Figure 9.11] Training Process Improvement Technique

Ensure That Busy Employees Equally
A Chance To Undergo Trainings and
Development Programs

Formulate Organizations’ Training
Skill Development Policy And Strategies

Ensure Necessary Support from All
Functions for Smooth Training Experiences
9.6.3 Industry’s Major Macro Level Training Needs

Figure 9.12 explains:

IT Industry’s Core Macro Level Training Needs

Training Required

Research Methods

Organization Culture

Soft Skills

Quality Management (TQM, PCMM)
9.6.4 Guidelines for GOP for Improvement in Project Management Function within IT Industry of Pakistan

It is also important to highlight here that this section also presents recommendation / guidelines that must be put into practice by GOP. Figure 9.13 explains the steps that GOP should take for improvement of operations management, administration, logistics management, HRM, training management and IT management in Pakistan’s IT industry:

[Figure 9.13] Steps Required To Be Taken By GOP for Achieving Better Operations Management, Administration, Logistics Management, HRM, Training Management and IT Management in IT Industry of Pakistan

9.7 Conclusions

This chapter specifically focuses on the improvement of the key support functions within IT organizations of Pakistan. In this regard mainly ‘Operations’, ‘Logistics’, ‘Administration’, ‘HRM’, ‘Training’ and ‘Information Technology’ functions are targeted. The chapter explores and explains the level of ‘Establishment’ of various practices concerning the said functions within IT industry of Pakistan. It also explains and measures the ‘Quality’ and ‘Effectiveness’ of various practices within these functions. Quality of any particular practice within various functions is particularly explained under the light of ‘Level of Standardization’ and ‘Level of Institutionalization’ of that practice. Measurement of ‘Level of Quality’, ‘Level of Effectiveness’ and ‘Level of Establishment’ help us gain understanding of the strength of various practices belonging to various functions (ones specified earlier).

Along with the above analysis, the chapter also explains key shortcomings concerning various functions and the major problems in view of the managers belonging to that function.

While recommending the chapter explains the macro level steps that need to carried out in order to improve the function pointed out earlier. In addition to this, the chapter also presents the techniques for improvement of training function. IT industry’s key training needs are also carefully analyzed and explained.

Figure 9.14a and Figure 9.14b explains which issues (identified in Figure 9.1 and Figure 4.3 {some issues were left unaddressed in the fourth chapter}) are addressed using a fish bone diagram as follows:
[Figure 9.14a] Addressing Organization’s Support Function Issues as Identified from Chapter Three
[Figure 9.14b] Addressing Organization’s Culture Issues as Identified from Chapter Three
9.8 Bibliography

PASHA LUMS, Study on Software Industry of Pakistan, Undated.


Serdar Türkeli, Undated, Software Engineering Employee Motivational Capital Model: SE-EMCM.


Christine E. Haile and Lisa Trubitt., Undated, "Tailoring Professional Development for IT Staff.


Makoto Nakayama and Norma Sutcliffe., Undated, "Managing IT Skills Portfolio.

Admin, HR, Training, IT Policy(ies) from Various IT Organizations.

**Capability Maturity Model Integration** (CMMISM), Undated, CMMISM for Systems Engineering and Software Engineering (CMMI-SE/SW, V1.1), CMU, SEI-USA.


### 9.9 Endnotes


CHAPTER TEN: PROJECT MANAGEMENT BARRIERS IN IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS OF REASONS AND REMEDIAL ACTIONS): A BEHAVIORAL, CULTURAL AND MANAGERIAL PERSPECTIVE
10 CHAPTER TEN: PROJECT MANAGEMENT BARRIERS
IN IT INDUSTRY OF PAKISTAN (EXPLORATION,
EXPLANATION & ANALYSIS OF REASONS AND
REMEDIAL ACTIONS): A BEHAVIORAL, CULTURAL
AND MANAGERIAL PERSPECTIVE

10.1 Chapter Introduction

10.1.1 Preface
Before proceeding with this chapter it is important to mention the names of two of author’s students i.e. Ms. Hina Sohrab Kiani and Ms. Omama Khurshid who partially helped the author in data collection and analysis for this chapter.

10.1.2 Executive Summary
This chapter of this research thesis presents major barriers to project management in IT sector of Pakistan. The chapter not only explores but also presents detailed explanation of the main highlights of project management practices by performing necessary qualitative and quantitative analysis. In addition to exploration and explanation of barriers to project management within IT sector of Pakistan, the chapter also explains all the important reasons of project failure. The chapter also identifies the personality traits that are ideally required by project managers in IT industry of Pakistan. As a result of detailed analysis performed, the chapter identifies important remedies for revitalization of project management function as recommendations.

10.1.3 Background
Pakistan’s IT industry today largely uses various kinds of projects for general business. Very few IT organizations in Pakistan are product based. Regrettably in most of the IT organizations; management and project management disciplines are considered redundant, futile and most importantly not the main focus of work. Like traditional mindsets, many believe that the best way to get work completed is through technical skills mainly. People, employees and / or team members or team heads within the projects consider technical work as the central focal point of the project and therefore pay no attention to project management. Although this chapter does not measure the cost of poor project management in IT organizations in Pakistan, but yet the author believes it to be reasonably high and result of major organizational and institutional set backs both in terms of financial and non financial aspects. It is due to these reasons, that the author (also indicated through the analysis of third chapter) believes that improvements in the project management function within the organizations is essentially required for the overall improvement and organizational sustainability, maturity and development.

10.1.4 Objectives
The main objective of this chapter is to obtain answer(s) to the thirteenth research question identified in ‘Chapter One’.

10.1.5 Purpose
The main purpose of this chapter is to help IT organizations’ management, project management experts, project management staff and general staff members gain understanding of how they can perform better in project management area by considering the soft side of their general working. The chapter identifies and analyzes problem that help us understand the barriers to management of project management function within the organizations.

10.1.6 Significance
It is important to emphasize the fact here that historically no similar exploratory, explanatory and analytical research has been conducted for the IT industry of Pakistan that formally helped in understanding, clarification, explanation and analysis of behavioral, cultural and managerial ‘Barriers to Effective and Efficient Project Management’ for the IT industry of Pakistan. Till date there is no understanding of which management, behavioral and cultural practices are most suitable for the project management in IT organizations in Pakistan.

* Exploration w.r.t project management covering discussion like what is done, what is not done, what are the loopholes, what must be done and / or what must not be done.
10.1.7 Limitations & Constraints
As obvious from the chapter’s title, this chapter specifically focuses on the behavioral, cultural and managerial aspects only. The chapter does not focus on the technical issues pertaining project management.

10.1.8 Scope
Section 10.1 of this chapter presents the introduction. Subsequent to Section 10.1, Section 10.2 and 10.3 present the literature review and the research methodology respectively. The literature that is reviewed in Section 10.2 limits mainly to behavioral, cultural and managerial aspect of project management discipline. Special focus has been laid on literature concerning Pakistan only. Section 10.4 specifies the data collection methodology, sources of the data and tools used for data collection. Section 10.5 presents the main body of this chapter. It first discusses the issues related to project management that were identified in the third chapter. This Section of this chapter presents most important analysis such as what are the highlights of current project management practices?, what are the most important cultural, behavioral and managerial barriers to project management?, what are the core reasons of project failure? and what kind of personality and / or behavior a project manager in Pakistan should possess. Finally based on the discussion in Section 10.6, Section 10.7 presents the set of recommendation and improvement remedies.

10.2 Literature Review
Although there is enormous amount of literature concerning IT and project management, but for this chapter, focus was largely limited to the literature concerning Pakistan’s IT industry. It is important to highlight the fact here, that literature (very seldom) that concerned Pakistan’s IT industry mostly discussed the technical barriers to project management. Much of the discussion concerning Pakistan’s IT industry, project management discipline and soft issues could not be obtained.

The most essential article used for the analysis in this chapter is that by McConnell (1996), in which focus is strictly laid on the classical mistakes by the project managers in the IT industry. Like McConnell (1996), Haider (2004) also discusses much of the similar areas but largely discussion in his article; focuses on the soft side of the project management. Specific discussion concerning people management has been made by Mishra (2005) and PCMM standard. Reasons of why IT projects fail have also been compiled by Neimat (2005).

Lewis’s (1995) book named ‘Fundamentals of Project Management’ has served as a bible for the analysis in this chapter. The discussion in this book covers management of teams, project cost(s), project mission, ‘project goals and objectives’, project scheduling, project control, ‘culture and project management’ and project scope management (but not limited to). This book presents a fast track approach for the management of projects. Most importantly, this book uses best practices concerning project management in order to explain how projects must be managed. Like wise, the book also focuses on the project management skill enhancement of the readers.

This chapter largely uses the approach of obtaining the industries’ best practices in form of recommendations. For the achievement of this goal, specific article / research papers / literature from Mehta (2005), Çai, Ghali, Giannelia, Hughes, Johnson and Khoo (Undated), Gotterbarn (2002), Yongxue (2003), Aaron (2003), Murch (2001), Buehring (Undated) and Visitation (2003) have been extremely helpful. All these articles largely discuss best practices and effective project management.

In order to analyze suitable project manager’s personality for IT industry of Pakistan, discussions from Wideman (2002) and Brown (Undated) have been used. Both these papers present suitable personality traits required in a successful IT project manager.

For the analysis of technical project management issues, CMMI and Project Management Institute’s (PMI), Project Management Body Of Knowledge (PMBOK) have been most widely used. Both present discussions concerning standards for project management. CMMI however largely speaks of IT project management from a view point of quality management discipline.

Other than the literature mentioned above Ammeter and Dukerich (2002), Ghali (2003) and Wideman (2002) all speak of team management within IT projects. Focus of their discussion also covers leadership, organizing and staffing in context of team management.

Other important aspects of project management have also been discussed in several other important articles. Example is that of planning which is discussed by Baar (2002), risk management which is discussed by Boehm (1991) and Charette (1989), procurement management which is discussed by Burt (1984), stakeholder management which is discussed by Foote (2002) and Freeman (1984),
decision making and problem solving in IT project that has been discussed by Ruhe (2001)\textsuperscript{34} and finally discussion concerning project roles and responsibilities that has been made by John and Brian (1997)\textsuperscript{36}.

10.3 Research Methodology

Figure 10.0 presents the research methodology:

10.4 Data Collection

10.4.1 Sources of the Data

Three sources were used for data collection as follows:

A) Literature

B) Ethnography

C) Surveys / Interview: Conducted for 17 IT employees randomly in different IT organizations in Pakistan.

10.4.2 Collection Method

The data collection was done through three main resources as stated in Section 10.4.1. Data collection methodology for the first two sources would not be explained here due to the simplicity of discussion. For the surveys / interviews, data collection was mainly done using a pre defined questionnaire that was formulated after carefully consulting the literature and the thirteenth research question\textsuperscript{†}. This questionnaire was later circulated to various employees in IT industry randomly. Each employee was explained the questionnaire thoroughly. 17 surveys / interviews were conducted for the data collection from various employees. Although no specific segregation was done, yet mainly most the surveyed employees were project management related staff members. It was also ensured that each employee

\textsuperscript{†} That relates to ‘Project Management’!
interviewed must have at least more than one year experience in his / her current organization. This was purposely done in order to make sure that each employee well understood their respective organizations. Random sampling method was done for choosing the interviewee. ‘Online and Virtual Ethnography’ was also used for data collection. It is important to mention here that due to the contextual nature of the subject being studied in this thesis, the researcher had to deeply immerse in the subject by being part of the IT industry itself.

**10.4.3 Data Collection Tool Reference**
Refer to Annex 57.

**10.4.4 Data Statistics for Surveys**

**10.4.4.1 Illustrations**

Figure 10.1 to 10.4 presents consolidated data findings:

[Figure 10.1] Distribution of Gender

![Distribution of Gender](image)

[Figure 10.2] Distribution of Experience

![Comparison of Various Experiences](image)
[Figure 10.3] Histograms of Various Experience Categories

Histogram: Total Experience

Histogram: IT Based Experience

Histogram: Project Management Experience

[Figure 10.4] Education Details

Education Level Distribution

- Bachelors (16 years): 12%
- Masters (18 years): 12%
- Masters (16 years): 18%
- Bachelor (14 years): 58%

Possession of Project Management Related Degree

- No: 82%
- Yes: 18%

Possession of Management / Business Administration Related Degree

- No: 94%
- Yes: 6%

Possession of Computer Science or Software Engineering Related Degree

- No: 0%
- Yes: 100%
10.4.4.2 Core Findings

A) Workforce surveyed did not possess appropriate project management skills. In simple words there is strict shortage of experienced staff for project management.

B) Mostly people do not possess any management, business administration and / or project management related academic degree.

10.5 Analysis

10.5.1 Analysis Method

Figure 10.5 explains:

10.5.2 Issues Identified in Chapter Three (Related to Project Management)

Several concerns have been identified in the third chapter that can be categorized, directly or indirectly, under the head of project management. This section delineates the summary of the issues that were recognized earlier in order to facilitate stakeholders in gaining understanding of the existing problem areas (related to ‘Project Management’) within various IT organizations.

Table 3.11 identifies ‘Project Management’ as an important area of concern for the IT industry of Pakistan. Following are the main problems that were identified (related to project management) in the analysis of the third chapter:

- a) Mismanaged resource and ineffective and inefficient resource management.
- b) Mismanaged suppliers and ineffective and inefficient outsourcing / supplier management.
- c) Inappropriate cost management.
- d) Project process management issues.
- e) Issues related to project planning.
- f) Issues related to project time management.
- g) Issues related to project’s productivity management.

10.5.3 Highlights of Current Project Management Practices

In most of the organizations (results of ethnography and interviews reveal), project management suffers greatly due to unaware, untrained, and inappropriately educated (education related to management and / or project management) employees. In most of the cases the project management is limited to scope, requirement and schedule planning. Even these three sub functions suffer largely due to improper skills
of so called project managers. In most of the cases the project manager’s most important work is limited to monitoring of product development life cycle. In nearly all the cases the project manager has no concern with other parameters of the project. Following figure clarifies the agenda point:

[Figure 10.6] Highlights of Core Project Management Practices in Pakistan

Cost management is not done by the project managers, rather this is considered as part of the organizations finance function responsibilities.

Quantitative Project Management: Not done because project management staff
10.5.4 Project Management Barriers (A Managerial, Behavioral and Cultural Perspective)

10.5.4.1 Finding: Issue Frequency W.R.T Project Management Sub Functions

10.5.4.1.1 Data

Table 10.0 explains the frequency of issues allocated to various sub function of project management. The following outlines the basic list that will further be revised based on relationship of one sub function with another.

<table>
<thead>
<tr>
<th>Table 10.0</th>
<th>Issue Frequency W.R.T Project Management Sub Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Management Sub Function</strong></td>
<td><strong>Issue Frequency</strong></td>
</tr>
<tr>
<td>Lack of Skilled Staff</td>
<td>76</td>
</tr>
<tr>
<td>Improper Quality Management</td>
<td>64</td>
</tr>
<tr>
<td>Inappropriate Human Resource Management</td>
<td>30</td>
</tr>
<tr>
<td>Lack of Stakeholder Involvement</td>
<td>25</td>
</tr>
<tr>
<td>Improper Planning</td>
<td>24</td>
</tr>
<tr>
<td>Organizational Leadership</td>
<td>20</td>
</tr>
<tr>
<td>Lack of Commitments</td>
<td>20</td>
</tr>
<tr>
<td>Inappropriate Human Resource Management</td>
<td>18</td>
</tr>
<tr>
<td>Improper Planning</td>
<td>17</td>
</tr>
<tr>
<td>Inappropriate Project Scope Management</td>
<td>16</td>
</tr>
<tr>
<td>Problems in Training Management</td>
<td>16</td>
</tr>
<tr>
<td>Communication Problem</td>
<td>15</td>
</tr>
<tr>
<td>Inappropriate Quality Planning</td>
<td>27</td>
</tr>
<tr>
<td>Improper Requirement Management</td>
<td>14</td>
</tr>
<tr>
<td>Inappropriate Time Management</td>
<td>12</td>
</tr>
<tr>
<td>Inappropriate Project Scope Verification</td>
<td>12</td>
</tr>
<tr>
<td>Improper Scope Planning</td>
<td>11</td>
</tr>
<tr>
<td>Inappropriate Resource Management</td>
<td>10</td>
</tr>
</tbody>
</table>

10.5.4.1.2 Illustration

Figure 10.7 presents data in Table 10.0:
### 10.5.4.1.3 Explanation of Project Management Sub Functions & Types of Issues Allocated to Different Sub Functions

Table 10.1 explains the project management sub function categories and also explains what kinds of issues are allocated to this category?

<table>
<thead>
<tr>
<th>Project Management Sub Function</th>
<th>Short Explanation of Sub Function and Types of Issue Allocated to This Sub Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Skilled Staff</td>
<td>Generally in most of the cases, any issue that exists due to the skill deficiency of workforce is included in this category. In most of the cases, skills that are deficient relate to project management skills, soft factor management skills, quality management skills, general management skills and others similar.</td>
</tr>
<tr>
<td>Improper Quality Management</td>
<td>Issues that exist due to quality management deficiencies within the project are included in this category. Most of such issues are result of overall deprived quality management within the organizations. Quality management issues include issues due to problematic quality engineering, quality monitoring &amp; control, quality assurance Etc.</td>
</tr>
<tr>
<td>Inappropriate Human Resource Management</td>
<td>Issues that exist due to human resource management deficiencies within the project are included in this category. Most of such issues are result of overall problematic human resource management within the organizations. Mainly issues that are related to project team’s soft skill management, issues that are related to project staffing, team development and other similar issues are put in this category.</td>
</tr>
<tr>
<td>Lack of Stakeholder Involvement in Planning, Monitoring &amp; Control</td>
<td>In most of the cases, while planning, monitoring &amp; controlling, the key responsible person fails to involve relevant stakeholders resulting in poor commitments. This category groups types of issues together that are result of poor stakeholder involvement in various activities such as project planning, monitoring and controlling.</td>
</tr>
<tr>
<td>Improper Planning</td>
<td>Self explanatory!</td>
</tr>
<tr>
<td>Organizational Leadership</td>
<td>Much of the issues included in this category relate to organization level leadership problems. For e.g. in some cases proper sponsorship cannot be obtained by the project managers and in other cases strategic level mismanagement within the organizations strongly hampers and damages the project work and activities. Many of the issues identified under this category are mainly existent within the projects due to lack of leadership qualities in the strategic level employees.</td>
</tr>
<tr>
<td>Lack of Commitments</td>
<td>Issues placed within this category include issues that arise due to lack of commitment of concerned stakeholders at the time of planning for various project activities. E.g. of an issue placed in this category.</td>
</tr>
</tbody>
</table>
Project Management Sub Function | Short Explanation of Sub Function and Types of Issue Allocated to This Sub Function
--- | ---
Lack of Focus on People & Soft Issues | Many of the issues that fall into this category relate to behavioral, cultural and managerial (soft side) aspects of project working. In other words issues that are placed in this category are related to soft factors (as discussed in the first chapter).
Inappropriate Team Management | In many cases, surveyed employees have been found reporting issues related to team management such as issues related to team development, team monitoring, team behavior management, team working style and habits etc. These kinds of issues are placed in this category. Inappropriate teaming can mainly be result of poor team management capabilities of the team supervisor.
Inappropriate Project Scope Management | Issues related to contract scope, project scope, product scope, and/or work scope are placed in this category. It is important to specify that in most of the cases scope is not managed, taken care of, verified with stakeholders and/or finalized clearly. This gives rise to issues concerning confusion regarding project work, delays, and misunderstanding etc within the project team.
Problems in Training Management | In most of the cases trainings are not managed, monitored, assessed, controlled, quality assured, evaluated etc. Much of the trainings are not paid any attention by the project supervisory figures. This results in issue concerning lack of employee skills, less technically sound employees and other knowledge deficiency related issues. Issues that are result of poor training management within the project are placed in this category.
Communication Problem | Self explanatory!
Inappropriate Quality Planning | It is extremely important for every project quality management activities are planned. Unfortunately in many of the projects, quality assurance is paid attention but most of the projects suffer shortage of planning of quality. This gives rise to quality mismanagement within the project. Issues placed in this category strictly exist due to absence of quality planning.
Improper Requirement Management | Requirement traceability is an extremely important function within scope management that is responsible for determining how various requirements within the projects impact each other. In some project and as per many quality standards, requirement management is done in order to maintain requirement traceability which is important for requirement change or scope change management. Improper requirement management results in improper requirements gathering, improper commitments to requirements, ill managed requirements traceability and finally problems in project change management. Issues that directly speak of presence of violation of any of the above discussion points.
Inappropriate Time Management | Issues related to project activity definition, activity sequencing, scheduling, monitoring/ maintaining and controlling schedules and project time. Issues placed in this category relate to scheduling and improper time management within the project.
Inappropriate Project Scope Verification | This is a part of scope management. Issues that are placed in this category are specifically related to verification of project scope from the concerned stakeholders.
Improper Scope Planning | This is a part of scope management. Issues that are placed in this category are specifically related to project scope planning with the concerned stakeholders.
Issues placed in this category ideally relate to poor or improper resource utilization. Mostly such issues are due to improper resource leveling and/or resource conflicts. Resource management ideally includes management, planning, monitoring and controlling of the project resources.
Improper Scheduling | Similar to time management but the difference mainly here is that the issues placed in this category specially concerns the improper schedules. For e.g. many of the schedules are made optimistically, pessimistically etc. Most of the times schedules do not point to the project supervisor managing skills.
Improper Estimation, Measurement & Analysis | Issues grouped in this category essentially relate to project managers’ capabilities to estimate (such as resource, size of project, cost etc) and perform measurement and analysis within the project. Estimation is important for planning; and measurement and analysis is an important project monitoring tool that is important for quantitative project management.
Improper Project Monitoring & Control | Very much self explanatory! In many cases project managers actually fail to monitor and control the projects in an appropriate manner. This problem is due to the reason that many a times project plans are not appropriate enough to monitor. Secondly many a times project managers do not know what to monitor and control within the project. CMMI specifically pinpoints project monitoring and controlling methodology that requires the project manager to objectively monitor the plans. Many a times, people believe that monitoring and controlling is a skill. Although this is partially true but project monitoring & control is not always a technical discipline of objectivity. Issues placed in this category are mostly the ones that violate discussion above.
Deprived Change Management | Issues placed in this category are mostly the result of ignored changed management protocol within the project. Ignorance of change management protocol results in adhoc, unsystematic, confusing and chaotic change resulting in rework, deviation from the project plan and scope mainly.
Unaware Customers | Mostly self explanatory! It is important to note that in Pakistan not many customers are aware of the software and IT project’s requirements management, project management and general management techniques.
Resource Conflicts | Issues specific to resource conflicts are placed in this category. Resource conflicts mostly occur due to improper resource management and disintegrated resource management and planning particularly. Disintegrated resource management and planning results in allotment of single resources to multiple tasks / activities and/or projects giving rise to resource conflicts.
Inappropriate Business Acquisition Methodology | Many a time project managers and supervisory figures and even the project team members violate the product development methodology. For example in many software development organizations, software development life cycle is violated. SDLC is mainly violated due to technical limitations of the team members. It is also violated due to short term vision, unrealistic deadlines and lack of team’s interest in project designs and documentation. This activity mainly concerns issues in this regard.
Violation of SDLC | Many a time project managers and supervisory figures and even the project team members violate the product development methodology. For example in many software development organizations, software development life cycle is violated. SDLC is mainly violated due to technical limitations of the team members. It is also violated due to short term vision, unrealistic deadlines and lack of team’s interest in project designs and documentation. This activity mainly concerns issues in this regard.
Inappropriate Cost Management | Cost management depends on cost planning, budgeting, estimation and most importantly cost monitoring and control. Unfortunately cost management in case of software and IT industry is limited to contract and accounting functions only. In most of the cases cost management is an adhoc function and does not usually involve the cost control of the product being developed. Mostly fixed cost, logistic/administrative cost and HR cost (salaries) are used for the cost control. Most of the software engineers do not know how to control the product cost using some automated tool such as MS Project. Inappropriate project’s profit, revenue, actual and planned cost leaving behind a major loop hole.
Absence of Use of Integrated Project Management | As discussed earlier, nearly all the project based organization today in Pakistan, run multiple projects. In most of the cases, the resources are mutually shared between various projects. This gives rise to planning and resource management issues. In disintegrated project management environment most of the project managers are not sure of how the resources need to be mutually shared with
### Project Management Sub Function | Short Explanation of Sub Function and Types of Issues Allocated to This Sub Function
--- | ---
Lack of Project Integration | Other project managers. This results in improper scheduling, planning etc. The result is rework, resource conflict, cost wastage, delays etc. This category of the issues groups issues together that are result of disintegrated project management.
Outsourcing Management | Issues grouped in this category are mostly related to supplier mismanagement. Most of the IT organizations do not monitor their suppliers and their work resulting in extremely important problems.
Lack of Legal, Contractual and Business Skills | Most of the project managers lack the necessary skills to understand, comprehend and manage contractual, legal, and business related affairs; resulting in project issues related to legal, contractual and business aspects. Such issues are placed in this category.
Inappropriate Risk Management | Very much self explanatory! Most of the project managers actually do not perform risk management. Those who do, do it for the sake of fulfilling some quality criteria set within the organizations that are striving to achieve quality. Lastly in most of the cases major issues related to risk management are that risk are not managed and not planned (forecasted) within the project plan.
Inappropriate Project Productivity Management | Lack of time and resource management and lack of project managers’ focus on improving the workforce productivity gives rise to productivity related issues. These issues are grouped in this category.
Inappropriate Procurement Management | Self explanatory!
Inappropriate Data Management | In most of the organization project data is not managed. Very few organizations actually make use of configuration management for project data management thereby resulting in extremely important problems.
Lack of Focus on People & Soft Issues | In case if the project manager is not familiar with the soft aspects of the project such as motivation, employee satisfaction, general management, social and cultural aspects of management, then this could seriously affect the overall moral of staff members within the project; resulting in problems related to project productivity, quality, performance and progress.
Inappropriate Teaming | Improper teaming results in lack of teamwork within the project and causes serious problems in projects performance and progress.
Inappropriate Project Scope Management | Improper scope management causes improper, unclear, uncommitted, unplanned, unconfirmed and unmanaged scope. The results are rework and confusion within the project team as to what must be done / not done. Absentee hampers project’s progress not only due to the earlier mentioned aspects; rather it also gives rise to internal and external conflicts.
Problems in Training Management | Problems related to training management result in mismanaged and low quality and / or nearly absent trainings. Similarly, problems in this area directly affect the skill development of the project staff. Deficiencies in this area affect performance in all the sub functions of project management for any given project.
Communication Problem | Generally self explanatory! Improper communication between the project team members affects overall project activities in all possible ways.
Inappropriate Quality Planning | Absence of quality planning creates problems in quality management thereby affecting overall project working.
Improper Requirement Management | Improper requirement management results in improper requirement traceability, requirement development and requirement gathering. These issues give rise to problems during change

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### 10.5.4.1.4 How the Identified Areas Impact Project Management Function?

Table 10.2 explains:

<table>
<thead>
<tr>
<th>Project Management Sub Function (Identified in Table 10.0) and Their Impact on Project Management Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How This Area Impacts Project Management Function?</strong></td>
</tr>
<tr>
<td>Lack of Skilled Staff</td>
</tr>
<tr>
<td>Improper Quality Management</td>
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<tr>
<td>Inappropriate Human Resource Management</td>
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<tr>
<td>Lack of Stakeholder Involvement in Planning, Monitoring &amp; Control</td>
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<td>Improper Planning</td>
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<tr>
<td>Organizational Leadership</td>
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<tr>
<td>Lack of Commitments</td>
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<td>Inappropriate Focus</td>
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<tr>
<td>Improper Planning</td>
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<tr>
<td>Inappropriate Project Scope Management</td>
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<tr>
<td>Problems in Training Management</td>
</tr>
<tr>
<td>Communication Problem</td>
</tr>
<tr>
<td>Inappropriate Quality Planning</td>
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<tr>
<td>Improper Requirement Management</td>
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</tbody>
</table>
Inappropriate Time Management
Time management problems impact project planning, scheduling and also reduces project productivity and performance. Poor time management also results in project delays due to mismanaged project monitoring and control.

Improper Scope Planning
As discussed earlier since in most of the organization scopes are not verified with concerned stakeholders then scope is largely subject to change during the project’s progress. Similarly poor scope verification results in lack of commitments to project scope.

Inappropriate Resource Management
Resource mismanagement results in resource conflicts and resources overlap. This results in overall decline in project’s progress, hampers project performance and also raises planning and monitoring related issues within the project.

Improper Estimations, Measurement & Analysis
Improper estimations create problems in project planning and force the project managers to formulate improper schedules. Lack of measurement and analysis does not allow project managers to measure the project performance against a specific information criterion.

Improper Change Management
Improper change management results in deviation from the original scope, rework, lack of project team’s common vision about the scope of the project etc. Lack of change management gives rise to serious project conflict related to project scope and strictly declines project productivity and quality.

Unaware Customers
Unaware customers mostly hamper project scope management, planning and project’s overall planning and monitoring function. Unaware customers may turn to be extremely deadly for the project’s implementation.

Inappropriate Cost Management
Results in cost mismanagement. This item is mostly self explanatory.

Absence of Use of Integrated Project Management
Lack of integrated project management results in overlapping plans, schedules, overlapping resources and resource conflict. These issues in turn affect the project’s progress and project’s performance.

Lack of Project Integration
Results in lack of coherence of various project activities affecting project implementation and completion indirectly.

Outsourcing Management
Results in uncontrolled supplier performance, progress and most importantly low quality deliverables. Problems in this area may also result in deviation of the suppliers from the actual internal requirements.

Lack of Legal, Contractual and Business Skills
Results in general mismanagement related to project legalities and contractual obligations. This item is mostly self explanatory.

Inappropriate Risk Management
Results in risk mismanagement. This item is mostly self explanatory. General consequence due to poor risk management is prevailing of unexpected risks and their affect on the overall project.

Inappropriate Project Productivity Management
Results in project delays, wastage and decline of project’s performance. This item is mostly self explanatory.

Inappropriate Procurement Management
Results in procurement mismanagement. This item is mostly self explanatory.

Inappropriate Data Management
As discussed earlier in this area results in data management thereby resulting in chaos, rework, loss of data integrity, data decentralization, data security lapses, lack of data backups etc.

Cross Cultural Management
Results in working gap between the project teams from different cultures. The overall problems due to these gaps may be reduced performance, cultural barriers, communication barriers, employee dissatisfaction, frustration among employees, reduced productivity, conflicts etc. All these things affect project’s performance and productivity.

### 10.5.4.2 Specific Major Problems Identified by Project Managers

Table 10.3 explains:

<table>
<thead>
<tr>
<th>Problem No</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The most widely existing problem that is faced by project managers is unavailability of skilled manpower. By manpower here we do not specifically limit our discussion to availability of technical IT related manpower only, rather manpower here also refers to manpower related to managerial and support functions within the projects.</td>
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<td>2</td>
<td>Unaware organisations’ senior management is a result of major setbacks within the projects. In most of the cases, management poses pressure on the project managers for project completion and related activities. Many of the project managers feel that although the organisation’s senior management pressures the project managers but at the same time they fail to provide necessary sponsorship for project execution.</td>
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<tr>
<td>3</td>
<td>The organization’s business development function is not aware of the organization’s technical capabilities. At the same time, project managers are usually not part of the pre contract finalization discussion. This results in...</td>
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</tbody>
</table>
a lot of gap between what actually organizations can do in a project and what they actually have to do. In most of the cases project managers believe that organizations’ infrastructure is not project management friendly. The configuration management system and the organization’s information management system do not support project management function completely. Customers are not familiar with the IT discipline which poses a lot of problems in general project kickoff, initiation, execution, controlling and closing activities. High employee turnover rate severally affects the project management function. Employee turnover in view of most of the project managers is mostly, directly associated with inappropriate employee compensation and benefits. Lack of employee’s work and professional ethics severally affects overall project management. Lack of support from organizations support departments such as administration, HR, quality management, IT and others affect project performance. De motivation among employees and project managers and lack of right organization’s leadership affects project management by all means.

10.5.4.3 Explanation of Cultural, Social and Managerial Issues That Are Reasons of Tribulations in the Identified Project Management Sub Function Which Are Source of Project Management Problems (Discussion based on Soft Issues [Soft Problems within Project Management Problem Areas])

Table 10.4 explains:

<table>
<thead>
<tr>
<th>Project Management Sub Function (Identified in Table 10.0) and Associated Cultural, Managerial and Social Tribulations</th>
</tr>
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<tbody>
<tr>
<td>Project Management Sub Function</td>
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<td>---------------------------------</td>
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<tr>
<td>Lack of Skilled Staff</td>
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<td>Improper Planning</td>
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<tr>
<td>Lack of Support from Stakeholder Involvement in Planning, Monitoring &amp; Control</td>
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<td>Improper Quality Management</td>
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<tr>
<td>Organizational Leadership</td>
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<tr>
<td>Project Management Sub Function</td>
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<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>Lack of Focus on People &amp; Soft Issues</td>
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<tr>
<td>Lack of necessary skills.</td>
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<tr>
<td>Lack of necessary skills.</td>
</tr>
<tr>
<td>Ignorance of quality management at all levels within a project.</td>
</tr>
<tr>
<td>Lack of necessary skills.</td>
</tr>
<tr>
<td>Inappropriate teaming</td>
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<tr>
<td>Inappropriate teaching and learning methodology followed within the culture.</td>
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<tr>
<td>Lack of quality management.</td>
</tr>
<tr>
<td>Negligence.</td>
</tr>
<tr>
<td>Weak human resource management.</td>
</tr>
<tr>
<td>Inappropriate and low quality higher education system.</td>
</tr>
<tr>
<td>Lack of quality management.</td>
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<tr>
<td>Weak human resource management.</td>
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<tr>
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<td>Weak human resource management.</td>
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<tr>
<td>Project Management Sub Function</td>
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<td>----------------------------------</td>
</tr>
<tr>
<td>• Negligence.</td>
</tr>
<tr>
<td>• Lack of vision within organizations.</td>
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<tr>
<td>• Leader’s incompetence.</td>
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<tr>
<td>• Lack of necessary skills required to train.</td>
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<tr>
<td>• Lack of organization’s management and leader’s focus on trainings for staff members.</td>
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<tr>
<td>• Feeling that training is a secondary job.</td>
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<tr>
<td>• Lack of staff development within organizations.</td>
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<tr>
<td>• Lack of necessary knowledge and academic background among leaders, project managers, quality managers and human resource managers.</td>
</tr>
<tr>
<td>• Lack of organization’s management and leader’s focus on staff development.</td>
</tr>
<tr>
<td>• Ignorance of training management at all levels within a project.</td>
</tr>
<tr>
<td>Inappropriate Quality Planning</td>
</tr>
<tr>
<td>• Many details appear in the next chapter.</td>
</tr>
<tr>
<td>• Inappropriate teaching and learning methodology followed within the culture.</td>
</tr>
<tr>
<td>• Negligence.</td>
</tr>
<tr>
<td>• Lack of quality management.</td>
</tr>
<tr>
<td>• Lack of necessary skills required to plan.</td>
</tr>
<tr>
<td>• Incompetence of project and quality managers.</td>
</tr>
<tr>
<td>• Lack of vision within organizations.</td>
</tr>
<tr>
<td>• Lack of organization’s management and leader’s focus on planning quality function for the projects.</td>
</tr>
<tr>
<td>• Lack of necessary knowledge and academic background among leaders, project managers and quality managers.</td>
</tr>
<tr>
<td>• Ignorance of quality management at all levels within a project.</td>
</tr>
<tr>
<td>Inappropriate Time Management</td>
</tr>
<tr>
<td>• Unecessarily dominating attitude of project managers and supervisors within the projects.</td>
</tr>
<tr>
<td>• Project managers’ and supervisors’ feeling that employees will follow.</td>
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<tr>
<td>• Project manager not understanding the relation of individuals’ strength and availability with the project progress.</td>
</tr>
<tr>
<td>• Negligence.</td>
</tr>
<tr>
<td>• Lack of team work.</td>
</tr>
<tr>
<td>• Lack of quality management.</td>
</tr>
<tr>
<td>• Incompetence of project managers.</td>
</tr>
<tr>
<td>• Lack of necessary skills.</td>
</tr>
<tr>
<td>• Incompetence of project managers.</td>
</tr>
<tr>
<td>• Inappropriate teaching and learning methodology followed within the culture.</td>
</tr>
<tr>
<td>• Improper stakeholder’s involvements and commitments.</td>
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<tr>
<td>• General attitude where planning is considered as a secondary exercise.</td>
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<tr>
<td>• Improper scheduling methodology.</td>
</tr>
<tr>
<td>• Inappropriate and low quality higher education system.</td>
</tr>
<tr>
<td>• Lack of necessary skills.</td>
</tr>
</tbody>
</table>

Organization Development for Revitalization of Information Technology Sector of Pakistan By: Ali Ahsan (All Rights Reserved) Pg:235
<table>
<thead>
<tr>
<th>Project Management Sub Function</th>
<th>Cultural, Managerial and Social Tribulations Responsible For Problems Within Project Management Sub Function</th>
<th>Project Management Sub Function</th>
<th>Cultural, Managerial and Social Tribulations Responsible For Problems Within Project Management Sub Function</th>
</tr>
</thead>
</table>
| Improper Scope Planning         | • Negligence.  
• Lack of quality within organizations.  
• Lack of quality management.  
• Lack of necessary skills.  
• Lack of necessary skills required to manage scope.  
• Lack of necessary knowledge and academic background among project managers and quality managers.  
• Incompetence of project and quality managers.  
• Inappropriate teaching and learning methodology followed within the culture.  
• Inappropriate and low quality higher education system.  
• Improper stakeholder’s involvements and commitments.  
• Ignorance of quality management at all levels within a project.  
• Lack of necessary skills required to plan.  
• General attitude where planning is considered as a secondary exercise. | Improper Resource Management | • Weak human resource management.  
• Details appear in the preceding chapter.  
• Lack of necessary knowledge and academic background among project managers and human resource managers.  
• Ignorance of human resource management at all levels within a project.  
• Incompetence of project and human resource managers.  
• Inappropriate and low quality higher education system.  
• Inappropriate teaching and learning methodology followed within the culture.  
• Negligence.  
• Lack of necessary skills required to plan.  
• General attitude where planning is considered as a secondary exercise.  
• Lack of project sponsorship.  
• Feeling that productivity management is not important. |
| Improper Scheduling             | • Inappropriate and low quality higher education system.  
• Inappropriate teaching and learning methodology followed within the culture.  
• Lack of staff development within organizations.  
• Negligence.  
• Lack of quality management.  
• Lack of necessary skills required to plan.  
• Incompetence of project managers.  
• General attitude where planning is considered as a secondary exercise.  
• Improper stakeholder’s involvements and commitments.  
• Unnecessarily dominating attitude of project managers and supervisors within the projects.  
• Project managers’ and supervisors’ feeling that employees will follow.  
• Project manager not understanding the relation of individuals’ strength and availability with the project progress.  
• Lack of team work.  
• Lack of organization’s management and leader’s focus on team communication.  
• Individualistic attitude among team members (particularly in project managers).  
• Improper scheduling methodology. | Improper Estimations, Measurement & Analysis | • Inappropriate and low quality higher education system.  
• Inappropriate teaching and learning methodology followed within the culture.  
• Lack of staff development within organizations.  
• Negligence.  
• Lack of quality management.  
• Lack of necessary skills required to plan.  
• Incompetence of project and quality managers.  
• General attitude where planning is considered as a secondary exercise.  
• Sense of ignorance among staff members during the time of planning.  
• Improper stakeholder’s involvements and commitments.  
• Lack of vision within organizations.  
• Lack of staff development within organizations.  
• Lack of necessary knowledge and academic background among leaders, project managers and quality managers.  
• Feeling that monitoring and control requires skills only and does not require a standard methodology. |
| Improper Project Monitoring & Control | • Negligence.  
• Lack of vision within organizations.  
• Lack of team work.  
• Lack of staff development within organizations.  
• Lack of quality management.  
• Lack of organization’s management and leader’s focus on staff development.  
• Lack of necessary skills to monitor & control the project.  
• Lack of necessary knowledge and academic background among project managers and quality managers.  
• Lack of change management system.  
• Individualistic attitude among team members (particularly in project managers).  
| Deprived Change Management | • Negligence.  
• Lack of vision within organizations.  
• Lack of team work.  
• Lack of staff development within organizations.  
• Lack of quality management.  
• Lack of organization’s management and leader’s focus on staff development.  
• Lack of necessary knowledge and academic background among leaders, project managers and quality managers.  
• Lack of change management system.  
• Individualistic attitude among team members (particularly in project managers).  
• Incompetence of project and quality managers.  
• Inappropriate teaching and learning methodology followed within the culture.  
• Inappropriate and low quality higher education system.  
• Recognition seeking attitude among team members (particularly in project managers).  
• Preference of bureaucratic method of communication at all levels within the projects.  
• Lack of organization’s management and leader’s focus on team communication.  
• Lack of necessary skills.  
• Information blocking attitude among planners and project monitoring and controlling bodies.  
• Feeling that monitoring and control requires skills only and does not require a standard methodology. |
<table>
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<tr>
<th>Project Management Sub Function</th>
<th>Cultural, Managerial and Social Tribulations Responsible For Problems Within Project Management Sub Function</th>
<th>Project Management Sub Function</th>
<th>Cultural, Managerial and Social Tribulations Responsible For Problems Within Project Management Sub Function</th>
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<td>Cultural, Managerial and Social Tribulations Responsible For Problems Within Project Management Sub Function</td>
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<td>General attitude where planning is considered as a secondary exercise.</td>
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Table 10.5 explains contribution (to total) of the above identified tribulations responsible for problems within project management sub functions:

**[Table 10.5] Percentage Contribution of Cultural, Managerial and Social Tribulations (Identified in Table 10.4) Associated With Project Management Sub Function (Identified in Table 10.0)**

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<th>Percentage Contribution in Total Reasons</th>
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<td>Lack of necessary knowledge and academic background among leaders, project managers and quality managers.</td>
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<td>Information blocking attitude among planners and project monitoring and controlling bodies.</td>
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<td>Project manager not understanding the relation of individuals’ strength and availability with the project progress.</td>
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<td>Cultural, Managerial and Social Tribulations Responsible For Problems Within Project Management Sub Function</td>
<td>Percentage Contribution in Total Reasons</td>
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<td>Lack of necessary knowledge and academic background among project managers and quality managers</td>
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<td>Lack of project sponsorship</td>
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<td>Lack of necessary skills required to improve communications</td>
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<td>Unnecessarily dominating attitude of project managers and supervisors within the projects</td>
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<td>Lack of necessary skills required in the project managers to build and develop team</td>
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<td>Lack of necessary skills to monitor &amp; control the project</td>
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<td>Preference of bureaucratic method of communication at all levels within the projects</td>
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<td>Resistance to change</td>
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<td>Incompetence of quality managers</td>
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<tr>
<td>Lack of necessary knowledge and academic background among project managers</td>
<td>0.21</td>
</tr>
<tr>
<td>Lack of necessary knowledge and academic background among quality managers, project managers and human resource managers</td>
<td>0.21</td>
</tr>
<tr>
<td>Lack of necessary knowledge and academic background among project managers and quality managers</td>
<td>0.21</td>
</tr>
<tr>
<td>Lack of necessary skills required to train</td>
<td>0.21</td>
</tr>
<tr>
<td>Lack of organization’s management and leader’s focus on planning quality function for the projects</td>
<td>0.21</td>
</tr>
<tr>
<td>Lack of organization’s management and leader’s focus on staff issues management and / or people management</td>
<td>0.21</td>
</tr>
<tr>
<td>Lack of organization’s management and leader’s focus on team development</td>
<td>0.21</td>
</tr>
<tr>
<td>Lack of organization’s management and leader’s focus on trainings for staff members</td>
<td>0.21</td>
</tr>
<tr>
<td>Lack of understanding of what procurement management is</td>
<td>0.21</td>
</tr>
<tr>
<td>Lack of understanding of what supplier management is</td>
<td>0.21</td>
</tr>
<tr>
<td>Leaders’ selection based on ownership not competence</td>
<td>0.21</td>
</tr>
<tr>
<td>Recognition seeking attitude among team individuals (particularly in project managers)</td>
<td>0.21</td>
</tr>
<tr>
<td>Sense of ignorance among staff members during the time of higher level commitments with the customers</td>
<td>0.21</td>
</tr>
<tr>
<td>Unaware customers</td>
<td>0.21</td>
</tr>
<tr>
<td>Unclear roles and responsibilities</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Total 100.00
10.5.5 Behavioral and Personality Requirements for Project Managers in IT Industry of Pakistan

10.5.5.1 Required Traits

10.5.5.1.1 Illustration

Figure 10.8 explains:

![Figure 10.8 Percentage Requirement of Various Personality Traits](image)

10.5.5.1.2 Explanation of the Identified Personality Traits

Table 10.6 explains:
<table>
<thead>
<tr>
<th>Personality Traits</th>
<th>Short Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technically Competent</td>
<td>The individual must be competent in technical areas such as software engineering discipline, IT discipline, computer science discipline, computer engineering discipline or related fields. Individuals must be able to understand basic management and particularly project management discipline.</td>
</tr>
<tr>
<td>Strong Communication Skills</td>
<td>This trait covers both written and oral communication skills. Particular focus is also laid on team communication.</td>
</tr>
<tr>
<td>Strong Problem-Solving &amp; Decision Making Capabilities</td>
<td>Generally, self explanatory! In most of the cases individuals fail to understand and evaluate various options that are available with them for decision making against a problem. In most of the cases individuals are not trained enough to actually understand how effective decisions can be made.</td>
</tr>
<tr>
<td>Strong Leadership Capabilities</td>
<td>Self explanatory!</td>
</tr>
<tr>
<td>Must Be Able to Make the Workforce</td>
<td>Self explanatory!</td>
</tr>
<tr>
<td>Strong Soft Skill Management Capabilities</td>
<td>We have already defined ‘Soft Factors’ clearly in the preceding chapters. Strong soft skills are extremely necessary for the management of issues concerning the soft factors.</td>
</tr>
<tr>
<td>Strong Monitoring &amp; Controlling Capabilities</td>
<td>The individual must clearly understand and exhibit the use of monitoring &amp; controlling functions within the projects. For this the individual must possess project management capabilities of monitoring and controlling work.</td>
</tr>
<tr>
<td>Analytical Thinking Capabilities</td>
<td>The individual must have investigative, diagnostic, systematic, logical and critical thinking.</td>
</tr>
<tr>
<td>Visioning Capabilities</td>
<td>The individual must be able to visualize and build mental picture of work whereby he / she should appreciate long term project, team and organizations’ goals and objectives.</td>
</tr>
<tr>
<td>Strong Team Management Capabilities</td>
<td>Self explanatory!</td>
</tr>
<tr>
<td>Strong Planning Capabilities</td>
<td>Self explanatory!</td>
</tr>
<tr>
<td>Strong Perceptive Capabilities</td>
<td>Individual must be sensitive to changes and must have strong observations. He / she must be able to understand and gain insight into various project’s problems, issues and work. Individual must be able to understand as to how people are managed in a project. This does not limit discussion to team management only rather people management also covers management of soft issues concerning project participants.</td>
</tr>
<tr>
<td>Strong People Management Capabilities</td>
<td>Self explanatory!</td>
</tr>
<tr>
<td>Strong Mentoring Skills</td>
<td>Must be able to provide counsel, advice and guide team members not only in their work but also in their personal life and issues.</td>
</tr>
<tr>
<td>Strong Issue Management Capabilities</td>
<td>This trait essentially relates to individual’s capability to manage, organize, plan, control and monitor project’s work products and deliverables.</td>
</tr>
<tr>
<td>Strong Innovative Abilities</td>
<td>Individual must be able to gather issues, analyze them and take corrective actions. He / she must ensure that corrective actions in actual resolve the problem. Individuals must ensure that corrective actions taken to resolve the issues are monitored to closure.</td>
</tr>
<tr>
<td>Strong Emotional Intelligence Capabilities</td>
<td>Individuals must possess the ability, capacity or skills to perceive, assess and manage the emotions of one’s self, of others, and of group. Generally self explanatory! Individuals must be able to realize the importance of time and resource management in particular and must ensure that all project related work is done effectively and efficiently in order to ensure high productivity.</td>
</tr>
<tr>
<td>Highly Productive &amp; Efficient</td>
<td>Individuals must be able to manage themselves.</td>
</tr>
<tr>
<td>Extravert</td>
<td>Much similar to ‘Strong Planning Capabilities’, this trait however strictly focuses on early planning parameter.</td>
</tr>
<tr>
<td>Consistency</td>
<td>Self explanatory!</td>
</tr>
<tr>
<td>Strong Listening Capabilities</td>
<td>Must be able to provide counsel, advice and guide team members not only in their work but also in their personal life and issues.</td>
</tr>
<tr>
<td>Strong Customer Relation Capabilities</td>
<td>Individual must be able to relate with customers and manage their needs, requirements keeping in view the inter-organizational capabilities and commitments.</td>
</tr>
<tr>
<td>Strong Charismatic Personality</td>
<td>Individual must have fascinating, compelling, captivating, appealing and enigmatic personality.</td>
</tr>
<tr>
<td>Sensing Capabilities</td>
<td>Must be able to develop rational understanding of various situations and must have reasonable wisdom.</td>
</tr>
<tr>
<td>Organization Capabilities</td>
<td>Must be able to organize work, teams, deliverables, work products, people and individual’s own self.</td>
</tr>
<tr>
<td>Negotiation Capabilities</td>
<td>Generally self explanatory! This capability is important for negotiations with the customers, project team, project sponsor and project support staff and other relevant stakeholders.</td>
</tr>
<tr>
<td>Must Possess Dominant Personality</td>
<td>Must be able to act assertively and be able to govern people.</td>
</tr>
<tr>
<td>Must be Experienced</td>
<td>Self explanatory!</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Self explanatory!</td>
</tr>
<tr>
<td>Highly Cooperative and Supportive Attitude</td>
<td>Must be accommodating and helpful to team members.</td>
</tr>
<tr>
<td>Balance Leadership (Somewhere between democratic and autocratic leadership style)</td>
<td>Self explanatory!</td>
</tr>
</tbody>
</table>
10.5.5.2  Missing Traits

10.5.5.2.1  Illustration

Figure 10.9 explains:

![Figure 10.9] Missing %age of Required Personality Traits

<table>
<thead>
<tr>
<th>Personality Traits</th>
<th>Short Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technically Competent</td>
<td>In most of the cases this trait does not exist in the project managers because of the following core reasons:</td>
</tr>
</tbody>
</table>

10.5.5.2.2  Where The IT Industry Fall Short of and Why?

Table 10.7 explains:

[Table 10.7] Missing Traits and Reason! Why They Are Missing? (A Cultural, Behavioral and Managerial Focused Discussion)
<table>
<thead>
<tr>
<th>Personality Traits</th>
<th>Short Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personality Traits</strong></td>
<td><strong>Short Explanation</strong></td>
</tr>
<tr>
<td><strong>Universities do not impart high quality technical education. Adding to this, not many university’s technical programs include management and / or project management discipline.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Most of the project managers are not familiar with management and / or project management discipline.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Most of the project managers never get a chance to improve their management skills on work.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Industry, universities and all relevant stakeholders in Pakistan mostly think that project manager must be competent in programming, tools and core engineering. Very few actually believe that for a project manager to be technically competent, competence in management is also required.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>In most of the cases, project managers are never trained against the management discipline in which they actually learn to solve problems and make decisions systematically, analytically and rationally. Basic reason of this deficiency is similar to the four points (reasons) mentioned in the short explanation of the first personality trait discussed in this table i.e. ‘Technically Competent’.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>A)</strong></td>
<td><strong>Universities do not pay attention to individual’s communication. The focus is laid mostly on imparting technical education only.</strong></td>
</tr>
<tr>
<td><strong>B)</strong></td>
<td><strong>Employers in IT industry do not provide many opportunities to their staff through which they can improve their communication skills.</strong></td>
</tr>
<tr>
<td><strong>C)</strong></td>
<td><strong>Communication is not incorporated in team work.</strong></td>
</tr>
<tr>
<td><strong>D)</strong></td>
<td><strong>Most of the project managers do not realize the importance of communications and therefore they do not feel enthusiastic themselves to improve their skills.</strong></td>
</tr>
<tr>
<td><strong>E)</strong></td>
<td><strong>Project managers, organizational experts and / or strategic management staff within the organizations believe that improving communication is redundant particularly in technical organizations.</strong></td>
</tr>
<tr>
<td><strong>Strong Team Management Capabilities</strong></td>
<td><strong>Major reasons of why team management skills are missing among project managers are as follows:</strong></td>
</tr>
<tr>
<td><strong>A)</strong></td>
<td><strong>Universities do not pay attention to individual’s team management capabilities. The focus is laid mostly on imparting technical education only.</strong></td>
</tr>
<tr>
<td><strong>B)</strong></td>
<td><strong>Employers in IT industry do not provide many opportunities to their staff through which they can improve their team management skills.</strong></td>
</tr>
<tr>
<td><strong>C)</strong></td>
<td><strong>Team management is not given much importance within most of the IT organizations.</strong></td>
</tr>
<tr>
<td><strong>D)</strong></td>
<td><strong>Most of the project managers do not realize the importance of team management and therefore they do not feel enthusiastic themselves to improve their team management skills.</strong></td>
</tr>
<tr>
<td><strong>E)</strong></td>
<td><strong>Project managers, organizational experts and / or strategic management staff within the organizations believe that improving team management is redundant as it is a natural capability and does not need any development.</strong></td>
</tr>
<tr>
<td><strong>F)</strong></td>
<td><strong>In schools, home and during general upbringing of individuals, most of the individuals are never taught to work in a team in Pakistan.</strong></td>
</tr>
<tr>
<td><strong>Strong People Management Capabilities</strong></td>
<td><strong>Major reasons of why people management skills are missing among project managers are as follows:</strong></td>
</tr>
<tr>
<td><strong>A)</strong></td>
<td><strong>Universities do not pay attention to individual’s people management capabilities. The focus is laid mostly on imparting technical education only. Lack of focus of universities on individuals’ soft skills results in lack of people management capabilities among individuals.</strong></td>
</tr>
<tr>
<td><strong>B)</strong></td>
<td><strong>Employers in IT industry do not provide many opportunities to their staff through which they can improve their people management skills.</strong></td>
</tr>
<tr>
<td><strong>C)</strong></td>
<td><strong>People management is not given much importance within most of the IT organizations.</strong></td>
</tr>
<tr>
<td><strong>D)</strong></td>
<td><strong>Most of the project managers do not realize the importance of people management and therefore they do not feel enthusiastic themselves to improve their people management skills.</strong></td>
</tr>
<tr>
<td><strong>E)</strong></td>
<td><strong>Project managers, organizational experts and / or strategic management staff within the organizations believe that improving people management is redundant as it is a natural capability and does not need any development.</strong></td>
</tr>
<tr>
<td><strong>Highly Predictive</strong></td>
<td><strong>Lack of visionary and forward looking approach among individuals results in inability of an individual to be predictive. Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in eliminating predictive behavior from individuals. In most of the cases parents, educational institutes, teachers, family members and other important people in an individual’s life discourage out of box thinking.</strong></td>
</tr>
<tr>
<td><strong>Analytical Thinking Capabilities</strong></td>
<td><strong>Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in eliminating analytical thinking from individuals. In most of the cases parents, educational institutes, teachers, family members and other important people in an individual’s life discourage out of box thinking.</strong></td>
</tr>
<tr>
<td><strong>Strong Leadership Capabilities</strong></td>
<td><strong>Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in individuals’ leadership capabilities. In most of the cases project managers are not trained with what management is, and this limits their focus on leadership. Other than these reasons, following reasons are also responsible for deficiency of this skill among project managers:</strong></td>
</tr>
<tr>
<td><strong>A)</strong></td>
<td><strong>Employers in IT industry do not provide many opportunities to their staff through which they can improve their leadership skills.</strong></td>
</tr>
<tr>
<td><strong>B)</strong></td>
<td><strong>Most of the project managers do not realize the importance of leadership and therefore they do not feel enthusiastic themselves to improve their leadership skills.</strong></td>
</tr>
<tr>
<td><strong>C)</strong></td>
<td><strong>Project managers, organizational experts and / or strategic management staff within the organizations believe that improving leadership skills is redundant as it is a natural capability and does not need any development.</strong></td>
</tr>
<tr>
<td><strong>Organization Capabilities</strong></td>
<td><strong>Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in individuals’ organization capabilities. In most of the cases project managers are not trained with what management is, and this limits their focus on work and self organization. Other than these reasons, following reasons are also responsible for deficiency of this skill among project managers:</strong></td>
</tr>
<tr>
<td><strong>A)</strong></td>
<td><strong>Employers in IT industry do not provide many opportunities to their staff through which they can improve their organization skills.</strong></td>
</tr>
<tr>
<td><strong>B)</strong></td>
<td><strong>Most of the project managers do not realize the importance of work and self organization and therefore they do not feel enthusiastic themselves to improve their work and self organization skills.</strong></td>
</tr>
<tr>
<td><strong>C)</strong></td>
<td><strong>Project managers, organizational experts and / or strategic management staff within the organizations believe that improving organization skills is redundant as it is a natural capability and does not need any development.</strong></td>
</tr>
<tr>
<td><strong>Strong Innovative Abilities</strong></td>
<td><strong>Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in eliminating innovative abilities from individuals.</strong></td>
</tr>
</tbody>
</table>
Personality Traits

<table>
<thead>
<tr>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals: In most of the cases parents, educational institutes, teachers, family members and other important people in an individual’s life discourage out of box thinking. Other than these reasons, following reasons are also responsible for deficiency of this skill among project managers:</td>
</tr>
<tr>
<td>A) Employers in IT industry do not provide many opportunities to their staff through which they can improve their innovation skills.</td>
</tr>
<tr>
<td>B) Most of the project managers do not realize the importance of innovation at work and therefore they do not feel enthusiastic themselves to improve their work and self organization skills.</td>
</tr>
<tr>
<td>C) Project managers, organizational experts and / or strategic management staff within the organizations believe that improving innovation skills is redundant as it is a natural capability and does not need any development.</td>
</tr>
<tr>
<td>Highly Productive &amp; Efficient</td>
</tr>
<tr>
<td>Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in individuals’ understanding of productivity and efficiency. In most of the cases project managers are not trained with what management is, and this limits their focus on work and self productivity and efficiency. Other than these reasons, following reasons are also responsible for deficiency of this skill among project managers:</td>
</tr>
<tr>
<td>A) Employers in IT industry do not provide many opportunities to their staff through which they can improve their productivity and efficiency enhancement skills.</td>
</tr>
<tr>
<td>B) Most of the project managers do not realize the importance of productivity and efficiency and therefore they do not feel enthusiastic themselves to improve their understanding of productivity and efficiency.</td>
</tr>
<tr>
<td>C) Project managers, organizational experts and / or strategic management staff within the organizations believe that improving understanding of productivity and efficiency is redundant as an individual is naturally productive / efficient and does not need any development.</td>
</tr>
<tr>
<td>Consistency</td>
</tr>
<tr>
<td>Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in individuals’ consistency in work. In most of the cases project managers are not trained with what management is, and this limits their focus on work and self consistency.</td>
</tr>
<tr>
<td>Strong Monitoring &amp; Controlling Capabilities</td>
</tr>
<tr>
<td>Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in individuals’ monitoring and controlling capabilities. In most of the cases project managers are not trained with what project management is, and this limits their focus on work and self monitoring and controlling. Other than these reasons, following reasons are also responsible for deficiency of this skill among project managers:</td>
</tr>
<tr>
<td>A) Employers in IT industry do not provide many opportunities to their staff through which they can improve their monitoring &amp; controlling skills.</td>
</tr>
<tr>
<td>B) Most of the project managers do not realize the importance of work and self monitoring &amp; controlling and therefore they do not feel enthusiastic themselves to improve these skills.</td>
</tr>
<tr>
<td>C) Project managers, organizational experts and / or strategic management staff within the organizations believe that improving the said skills is redundant as it is a natural capability and does not need any development.</td>
</tr>
<tr>
<td>Strong Planning Capabilities</td>
</tr>
<tr>
<td>Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in individuals’ planning capabilities. In most of the cases project managers are not trained with what project management is, and this limits their focus on work and self organization. Other than these reasons, following reasons are also responsible for deficiency of this skill among project managers:</td>
</tr>
<tr>
<td>A) Employers in IT industry do not provide many opportunities to their staff through which they can improve their planning skills.</td>
</tr>
<tr>
<td>B) Most of the project managers do not realize the importance of work and self planning and therefore they do not feel enthusiastic themselves to improve these skills.</td>
</tr>
<tr>
<td>C) Project managers, organizational experts and / or strategic management staff within the organizations believe that improving planning skills is redundant as it is a natural capability and does not need any development.</td>
</tr>
<tr>
<td>Patience</td>
</tr>
<tr>
<td>Universities, educational institutes at advanced and elementary levels, general upbringing of an individual and unfortunate work culture plays a major role in individuals’ patience in work. In most of the cases project managers are not trained with what management is, and this limits their focus on work and self patience.</td>
</tr>
</tbody>
</table>

### Table 10.8: Core Reasons of Project Failure

**10.5.6 Core Reasons of Project Failure (An Extract of Analysis)**

Table 10.8 explains:

<table>
<thead>
<tr>
<th>Reason No</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>There is strict shortage of project management skills in Pakistan. Organizations and universities are incapable to developing skilled manpower in this area. The learning, training and educating system within universities simply does not suit the modern day requirements.</td>
</tr>
<tr>
<td>2</td>
<td>Most of the project managers do not possess the right qualification. Hardly any project manager has a degree in management, business administration and / or project management. In most of the cases, project managers and necessary stakeholders do not acquire any partial knowledge concerning these areas in their basic graduate degrees (mostly technical).</td>
</tr>
<tr>
<td>3</td>
<td>Project Management Institute’s, Project Management Body Of Knowledge is generally not used as a project management standard. Further to this, this standard is not understood by most of the project managers and the IT organizations in general.</td>
</tr>
<tr>
<td>4</td>
<td>Skilled manpower is generally missing at all levels that is extremely important for the project management and execution.</td>
</tr>
<tr>
<td>5</td>
<td>Quality management is strictly ignored and deficient within organizations. Normally quality management staff does not interfere in project management function at all. Quality engineering, implementation, control, assurance &amp; monitoring etc are not done for the project management function within the organizations. Quality management staff members strictly lack capabilities to improve project management function. At the same time project managers and organization’s leadership considers quality and project management as not overlapping.</td>
</tr>
</tbody>
</table>
Reason | Explanation
--- | ---
6 | Human resource management is strictly ignored and deficient within organizations. Normally human resource management staff does not interfere in project management function at all. Various human resource management related functions are not executed for the project management support within the organizations. Human resource management staff members strictly lack capabilities to perform human resource management for project management function. At the same time project managers and organization’s leadership considers quality and project management as not overlapping.
7 | Project managers do not involve stakeholders in various projects’ activities. In nearly all the cases; commitments are never acquired by the project managers from the relevant stakeholders.
8 | Project and related activities strictly suffer due to lack of commitment from necessary stakeholders. In nearly all the cases; commitments are never acquired by the project managers from the relevant stakeholders.
9 | Other than the Project Management Institute’s, Project Management Body Of Knowledge’s Knowledge Areas, project manager and relevant project stakeholders lack necessary skills to plan, monitor, control, execute, initiate and close the project.
10 | Organization’s leadership does not play its part in improving the project management function. Project management skills are not incorporated into organization’s project management culture, general skills of staff are not developed in this area, projects are not sponsored appropriately, leaders are not clear of their role in project management and its improvement and finally leaders do not encourage improvement in the project management function in general.
11 | Project managers and organizations’ leaders do not take care of the soft and people issues when managing the projects. The importance of people and soft issue management is not realized by various stakeholders within the project.
12 | Project managers and organizations’ leaders strictly ignore team management, team development and teaming in general within the projects. The importance of team management is not realized by various stakeholders within the project.
13 | Skill development is not done; trainings are not incorporated into learning organizations system.
14 | Project managers and necessary stakeholders are generally and specifically deficient in the following areas of project management: A) Project scope management and in particular scope verification and planning. B) Project quality management and in particular quality planning. C) Project human resource management and in particular training and skill development. D) Project time and resource management in general (scheduling in particular). E) Project cost management.
15 | Project managers and necessary stakeholders within the project lack necessary knowledge of SDLC. This compels them to violate the SDLC rules and ignore SDLC practices.
16 | Project managers and necessary stakeholders within the project lack necessary knowledge concerning project legalities, contract management and business methods.
17 | Organizations’ leaders fail to relate the project management functions, business development function and quality management function within the organizations.
18 | Hardly any part of the industry uses the concept of integrated project management for the management of IT projects.
19 | Project suppliers are not managed and their work and deliverables are ignored by the project managers and relevant stakeholders.
20 | Project managers and relevant stakeholders have no concept of relating project management function with organization’s and project’s productivity.
21 | Projects suffer due to poor organization and control. Project deliverables, work products and data are hardly managed.
22 | The organization’s business development function is not aware of the organization’s technical capabilities. At the same time, project managers are usually not part of the pre contract finalization discussion. This results in a lot of gap between what actually organizations can do in a project and what they actually have to do.
23 | Organizations hierarchy and infrastructure are mostly not suitable for project management.
24 | Customers are not IT literate and project managers and other relevant stakeholders fail to manage gaps between customers’ requirements and project deliverables.
25 | High employee turnover rate severely affects the project management function.
26 | Lack of support from organizations support departments such as administration, HR, quality management, IT and others affect project performance. This is mostly due to bureaucratic culture within these departments.
27 | Employee de motivation hampers project work.
28 | Employee negligence, ignorance and lack of professional ethics hamper project management activities.
29 | Individualistic attitude hampers team work within the project thereby causing problems in general project management.
30 | Lack of vision, mission and long term organization’s strategy confuses project managers and project management staff.
31 | General incompetence of leaders, project managers, quality managers and other managers causes problems in general project management.
32 | Unsuitable communication system within the organizations hampers project activities.
33 | Autocratic managers and leaders cause problems in general project management.
34 | General resistance to change among project stakeholders does not allow improvement in project activities and project management.
35 | Unclear roles and responsibilities at the project and organization level severally impact project management function.
36 | Project managers strictly lack the traits identified in Table 10.7. The identified deficiency are source of incompetence of project managers.
10.5.7 Improving Time Management

Figure 10.10 explains:

[Figure 10.10] Improving Time Management (Solutions For IT Industry of Pakistan)

10.6 Recommendations

10.6.1 What to Do in General at Macro Level?

Figure 10.11 explains:
10.6.2 What Kind of Skill Development is Required? \(^{35,39}\)

Figure 10.12 explains:

- Incorporate the Missing Personality Traits Among Project Managers
- Define Roles and Responsibilities in Project Management...
10.6.3 What Macro Level Mistakes Project Managers Make?

Figure 10.13 explains:

- Development of General Management Skills
- Development of Skills For Using MS Project or Other Necessary Project Management Tool
- Development of Project Quality & Productivity Management Skills
- Development of General Management Skills
- Development of Project Quality & Productivity Management Skills
10.6.4 Guidelines for GOP for Improvement in Project Management Function within IT Industry of Pakistan

It is also important to highlight here that this section also presents recommendation / guidelines that must be put into practice by GOP. Figure 10.14 explains the steps that GOP should take for employee satisfaction:

- Practice Fear Based Management
- Ignore Management Cultural Issues
10.7 Conclusions
Figure 10.15 explains how the chapter concludes:
Figure 10.16 below explains which issues identified in Figure 4.3 (some issues were left unaddressed in the fourth chapter) are addressed using a fish bone diagram as follows:

[Figure 10.16] Addressing Organization’s Culture Issues as Identified from Chapter Three
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10.9 Endnotes


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CHAPTER ELEVEN:
BARRIERS TO IMPLEMENTING & MANAGING QUALITY IN IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS OF REASONS AND REMEDIAL ACTIONS): A BEHAVIORAL, CULTURAL AND MANAGERIAL PERSPECTIVE
11 CHAPTER ELEVEN: BARRIERS TO IMPLEMENTING AND MANAGING QUALITY IN IT INDUSTRY OF PAKISTAN (EXPLORATION, EXPLANATION & ANALYSIS OF REASONS AND REMEDIAL ACTIONS): A BEHAVIORAL, CULTURAL AND MANAGERIAL PERSPECTIVE

11.1 Chapter Introduction
11.1.1 Executive Summary
This chapter of this research thesis presents major barriers to implementing quality in IT sector of Pakistan. The chapter not only explores but also presents detailed explanation of the main highlights by performing necessary qualitative analysis. In addition to exploration and explanation of barriers to quality within IT sector of Pakistan, the chapter also explains all the important issues arising due to the deprived quality management. As a result of detailed analysis performed, the chapter finally identifies important remedies for revitalization of quality management function as recommendations.

11.1.2 Background
Quality management is an extremely important function for organization’s overall productivity, efficiency, effectiveness and for the long term organization’s stability and sustained performance. In high competitive industries such as IT industry, quality management plays extremely imperative role for the organization’s planning, organizing, controlling, monitoring, perfection, expansion and development. Pakistan’s IT organizations face tremendous challenges in competing with other Asian (particularly South Asian) counterparts. This high competition requires high quality, customer satisfaction and extremely fast services. In other words survival of only the fittest is possible in this scenario.

With global IT outsourcing being directed from developed to developing nations, Pakistan has a lot of chances to achieve large part of IT market in the international arena. This calls for Pakistan’s IT industry’s extreme focus on basic organization key performance measures such as ‘Quality’. India today falls in the first tier of IT economies and one lesson that we can surely obtain from the Indian IT industry is that we need to ensure high quality within the organizations for better and faster performance, customer satisfaction and for more market share.

11.1.3 Objectives
The main objective of this chapter is to obtain answer(s) to the fourteenth research question; identified in ‘Chapter One’.

11.1.4 Purpose
The main purpose of this chapter is to help IT organizations’ management, quality management experts, quality management staff and general staff members gain understanding of how they can achieve better quality by considering the soft side of the general working. The chapter identifies and analyzes problem that help us understand the barriers to management of quality function within the organizations. One of the chapter’s other purpose is also to identify the problems at the national level that hamper organizations quality management and quality improvement abilities.

11.1.5 Significance
It is important to emphasize the fact here that historically no similar exploratory, explanatory and analytical research has been conducted for the IT industry of Pakistan that formally helped in understanding, clarification, explanation and analysis of behavioral, cultural and managerial ‘Barriers to Quality Management and Implementation’ for the IT industry of Pakistan. Till date there is no understanding of which management, behavioral and cultural practices are most suitable for the management and implementation of quality in IT organizations in Pakistan.

11.1.6 Limitations & Constraints
As obvious from the chapter’s title, this chapter specifically focuses on the behavioral, cultural and managerial aspects only. The chapter does not focus on the technical issues pertaining quality implementation and management.

* Exploration w.r.t quality management covering discussion like what is done, what is not done, what are the loopholes, what must be done and / or what must not be done.
† As identified in ‘Chapter Three’!

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11.1.7 Scope
Section 11.1 of this chapter presents the introduction. Subsequent to Section 11.1, Section 11.2 and 11.3 present the literature review and the research methodology respectively. The literature that is reviewed in Section 11.2 limits mainly to behavioral, cultural and managerial aspect of quality management and implementation. Special focus has been laid on literature concerning Pakistan only. Section 11.5 specifies the data collection methodology, sources of the data and tools used for data collection. Section 11.6 presents the main body of this chapter. It presents explanation and analysis of the issues and barriers (cultural, behavioral and managerial) to quality management, implementation and improvement. Finally based on the discussion in Section 11.6, Section 11.7 presents the set of recommendation.

11.2 Literature Review
PCMM1 and CMMI2 standards are most widely used for understanding quality management discipline particularly in relation to software and IT industry. Unfortunately, although PCMM and CMMI largely focus on people, product, process and project quality, but together they fail to present discussion concerning behavioral, cultural and managerial barriers to quality. Many of the authors present culture and quality together as a discussion point. Several of authors like for instance Djerdjour and Patel (2000)3 present quality management and culture specific discussion for specific culture. In many cases, authors combine the best practices from experiences of various organizations world wide that can be straightly used for improving quality management function organization wide. In most of the cases discussion such as this, does not cater the cultural and the behavioral issues.

Literature reviewed can be grouped in following main categories:

A) The first category of literature concerns Pakistan IT / Software industry.
B) The second category of literature concerns global IT / Software industry.

Much of the literature concerning Pakistan is extremely rare and that too limits the discussion to the importance of quality management discipline in IT. In some cases, the discussion in most of the literature reviewed (first category) also covers the role of quality management as an organizational betterment tool. Literature concerning Pakistan’s IT industry also involves some discussion concerning the barriers to quality management. In such cases much of the barriers that are discussed limit to national level IT strategy flaws. None of the discussion concerns behavioral, cultural and managerial barriers to quality management. The most important literature found in relation to Pakistan is that of Kashif Manzoor (Undated), who talks about challenges to CMM‡ implementation in Pakistan.

The international literature reviewed also rarely presents quality management barriers in context of culture, behaviors and management. In most of the cases occasionally, discussion is made concerning quality management, management, culture and / or behaviors. In some of the reviewed literature reviews concerning cross cultural issues and its influences on quality management are presented. In this regard, Pheng, Sui, Ariefor and Winifredo (2000)4 specifically explain regional cultural influences and their affects on quality management. Similarly, Anbari, Khilkhanova, Romanova and Umpleby (Undated) explain project management issues by focusing on the implication of cross cultural environments on the work culture. Martinsons (2003)5 like many other authors, focus on the overall importance of IT and management together as a discipline. Nauman, Aziz, Ishaq and Mohsin (2004)6 speak about Pakistan as an outsourcing destination and also focus on quality as an important discipline. In short literature falling in the international category most widely concerns culture, technical aspects of quality management, importance and significance of quality management (but not limited to).

11.3 Specific Definitions
Quality Management: Quality management specifically means the overall management of quality function organization wide. In simpler words quality management is ideally a concept similar to TQM and focuses on improvement of quality of organization’s various elements like for instance people, processes, products, projects Etc.

Quality Engineering: This is a sub function of quality management and is used for process, procedure and policy engineering. By engineering we mean formulation of processes, policies and processes Etc.

Quality Control: This is a sub function of quality management and in software development organization this is used for product quality improvement. Software testing is a quality control activity.

Quality Implementation: This is also a sub function of quality management and is used for implementing quality. When we use the term implementation, we essentially refer to the implementation of processes, procedures and policies. Further to this it is also important to note that quality implementation relates to implementation of quality by training employees and also by guiding them. It

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1 Capability Maturity Model!
is also important to note that quality implementation also relates to implementing quality certification programs.

**Quality Assurance:** Here this term is being defined as per the standards of CMMI. Essentially quality assurance covers the CMMI level two ‘Key Process Area’ i.e. ‘People and Product Quality Assurance’ (PPQA). In extremely simpler words this sub function of the quality management function deals with the auditing, reviews, inspections etc.

**Quality Monitoring:** This is a sub function of quality management and relates to monitoring of quality function and its implementation organization wide.

**Quality Management Staff Members:** Members of organization who are responsible for the management of quality, organization wide. It can also be stated that quality management is the responsibility of these staff members.

**General Staff Members:** Members of the organization other than the staff members who manage quality.

**Quality Management Function:** The quality management job within the organization.

**Quality Certification Process:** The process of acquiring quality certification like for instance CMMI or ISO certification process etc. It is important to note here that certification process here includes the overall certification process of a particular quality body like for instance CMMI and the internal process that the organizations follow for acquiring the certification.

**Quality Certification:** Certification from some quality expert body like CMMI certification from SEI.

**Quality Certification Service Providers:** In Pakistan some organizations provide consultancy, training and general support services for acquiring some international quality certification like for instance, Netsol and Moodys are two such organization that help other organizations achieve quality certification such as that from CMMI, SEI.

**Implementing Quality:** Similar to ‘Quality Implementation’ as discussed earlier.

**Quality Management Program(s):** Quality management programs are made specifically for the uplift of general organizations’ quality. In some cases such programs are also made for acquiring quality certification like for instance CMMI certification.

**Quality Management Department(s):** The department(s) that manages quality management function organization wide.

**Quality Management Team(s):** The team(s) that manage quality management function organization wide.

### 11.4 Research Methodology

Figure 11.0 presents the research methodology:
11.5 Data Collection

11.5.1 Sources of the Data
Three sources were used for data collection as follows:
  A) Literature
  B) Ethnography
  C) Interviews

11.5.2 Collection Method
The data collection was done through three main resources as stated in Section 11.5.1. Data collection methodology for the first two sources would not be explained here due to the simplicity of discussion. For the interviews, data collection was mainly done using long discussions with the relevant stakeholders (in our case quality managers and quality management experts mostly). 20 interviews were conducted for the data collection from various senior quality management employees. Employees interviewed worked in different IT organizations of Islamabad as part of quality management departments / functions. It was also ensured that each employee interviewed must have at least more than two years working experience as a quality staff member in his / her current organization. This was purposely done in order to make sure that each employee well understood their respective organizations and the implementation of quality function in it. All the organizations’ quality management practices and general staff’s behavior towards quality was carefully observed by the author and highlights were captured. Special focus was laid on managerial, behavioral and cultural perspective. Random sampling method was done for choosing the interviewee. ‘Online and Virtual Ethnography’ was also used for data collection. It is important to mention here that due to the contextual nature of the subject being studied in this thesis, the researcher had to deeply immerse in the subject by being part of the IT industry itself.

11.5.3 Data Collection Tool Reference
None, just plain long interviews sessions and observations!

11.6 Analysis

11.6.1 Barriers (Causes and Consequences)

11.6.1.1 Sponsorship
Implementing quality organization wide requires proper sponsorship. By sponsorship we mean that quality management team in actual convinces and buys the decision maker’s agreement for implementing quality program organization wide. Sponsorship essentially deals with sponsorship of manpower, finances and other resources for implementing quality organization wide. Unless and until proper sponsorship is not given to quality management program, it is not possible for the quality management team to run the quality management program organization wide. In Pakistan’s IT industry, in very few cases; quality management function / team within the organizations is able to acquire necessary sponsorship from the organization’s decision makers. These few organizations are mainly the organizations that have plans to undergo a quality certification programs, or have already undergone the quality certification process. On the other hand generally in most of the organizations, quality management function within the organizations is extremely limited and confined to software testing mainly. In some cases quality management departments / functions within the organizations do not possess the right kind of expertise so as to convince management that they can actually deliver. In such cases; naturally, the management and the decision makers do not pay attention to sponsoring the quality management function. The worst case is of those organizations in which quality management team exists and they possess the right (or at least relatively suitable) expertise for implementing quality programs organization wide. In such organizations, quality teams are assigned responsibility of uplifting the quality of the organization or in other words their main goal / target is to acquire quality certification. What makes the situation worst in these kinds of organizations is that in some cases, such organizations are not provided with the appropriate sponsorship. Results of this deficiency are endless dead loops of problems. Without proper sponsorship these organizations cannot pursue the quality management program and at the same time quality management departments within these organizations are assigned responsibility of uplifting organizational quality. These kind of situations cause chaos, frustration and most importantly extreme confusion for the quality management team lowering down their moral, work efficiency, productivity, interest and motivation for work. Core reasons as to why sponsorship is not given by the decision makers to the quality management

§ IT organizations running any category of IT related business.
include (but not limited to): thinking that quality management is a secondary job, thinking that why we should waste money on quality, unawareness about how quality indirectly benefits organizations, thinking that money and resources would be wasted, thinking that quality management team does not possess the right expertise (which may be true in some cases) and others…

11.6.1.2 Commitment

When we use the term ‘Commitment’ in quality management discipline, then essentially we refer to the fact that for any job / work / task / activity / project / program / Etc relevant human resources would commit their availability, time, involvement, responsibility, effort, energy Etc for its completion. By committing, an individual gives assurance that he / she would maximize the completion of any activity, using his maximum capacity and abilities.

Generally in Pakistan’s work culture lack of commitment is a big problem. The same can be observed in Pakistan’s IT industry. This situation becomes even worse in cases when the task against which commitment is being acquired is related to quality management. Lack of commitment to quality management task is a problem at two levels. Firstly, commitment within the quality management teams is questionable and secondly commitment of the staff other than the quality management team members is also a problem. The later being a more intense problem. Lack of commitment of quality management staff members to their basic work i.e. quality management; leaves quality implementation work incomplete. This lack of commitment leaves loop holes in quality engineering, quality assurance and quality control activities mainly. Lack of commitment of staff members other than the quality management teams to quality management function trigger problems related to quality implementation organization wide.

Why people fail to commit to quality management function within the organizations is a big question. Reasons of quality management staff members not committing to their work i.e. quality management are (but not limited to): lack of interest in job, lack of sense of achievement, poor compensation and benefits against the work they perform, people management overhead, office politics, lack of necessary sponsorship, lack of team work, lack of job satisfaction due to the feeling that we are doing work related to support, personal issues, infrastructure problem, general job dissatisfaction and lack of motivation.

Reasons of staff member (other than the quality management staff members) not committing to quality management function are (but not limited to): lack of interest, thinking that quality management is a redundant activity, thinking that what benefit will such commitments bring to our work, thinking that commitment to quality management would make us deviate from our basic goal, thinking that implementing quality is the job of quality management staff members only, office politics, fear of individual’s work deficiencies being exposed, customers’ pressure, supervisors’ pressure, deadlines, workload, thinking that what good will such work do to my career or how will I be compensated, lack of vision, lack of knowledge about benefits of quality, general arrogance, thinking that quality management team does not know anything about the core business details and requirements, poor leadership, poor organizational infrastructure, personal problems, job dissatisfaction and lack of motivation.

11.6.1.3 General Perception that Quality Management is A Secondary Activity

In most of the cases staff members generally feel that quality management is an important organizational function. But when it comes to stepping down to the real implementation of quality within the organizations, many staff members treat quality management function as a secondary activity.

Many of the general staff members, also to some extent staff members belonging to quality management function within the organizations, believe that quality management does not directly help in completion of organizations’ core business. In other words they believe that functions like for instance project management, product management, software development, IT and other similar functions are extremely important for completion of business activities like for instance project completion or product launch.

What most people fail to understand is that although it is true that quality implementation works at the organizational level but the results / improvements that appear in an organization due to quality management essentially improves working within the projects, products, people and virtually everything else. Since the output of the quality management is indirect i.e. improvement within organization, people, projects, processes and products therefore it becomes a secondary activity in view of those who work on those organizational functions that contribute directly to organization’s products / projects etc.

Another myth observed about quality in Pakistan’s IT industry is that quality is subjective and theoretical whereas in actual and in view of international quality standards like for instance CMMI, quality is extremely objective and to the point.

Wrong perception about the importance of quality as a primary function naturally results in less attention to quality program organization wide.

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11.6.1.4 Employees’ Fear of Quality Management Staff

A serious dilemma that hampers quality management and its implementation within organizations is that members of staff that do not belong to the quality management departments / teams, to some extent fear employees who belong to quality management department.

Reasons of this problem could be many among which few are as follows:

A) It is generally an observation that most of the quality management staff members present themselves as a work and individual auditing and inspecting body. Although auditing and inspection are important quality management functions but by no means, these two functions must be used against the audited / inspected employee. In some cases tendency is that quality management staff members exploit the negative audit and the inspection results by pumping supervisors against the staff members or through general office politics. One of the reasons of this attitude can be that quality management staff members like to tell the management / superiors and supervisory figures within the organizations that general work quality decline is the result of improper focus of inspected / audit employee on his / her work. Secondly, through these actions quality management staff members would like to highlight their importance and their work efficiency in order to explain to the management that it is them who can identify problems within the organization.

B) Another reason of the fear that we are discussing is the general absence of transparency and the fear of being exposed. These two problems generally force the employees to hide work from auditors / inspectors and therefore generally the employees fear quality management staff members. Employee’s fear of quality management staff members discourages transparency, discourages openness in attitude for resolution of problem, encourages information hiding, increase late or zero detection of problems related to quality, results in unsatisfied customers (not the client only) and gives rise to general problems in implementation of quality organization wide.

11.6.1.5 Financial Arrangements for Implementing Quality

Much of the discussion concerning this item has already been made under the head of ‘Sponsorship’. Here however; we specifically focus on the availability of necessary funding for implementing quality organization wide.

With an exception of one organization (at least in knowledge), hardly any organizations are there that truly provide funding for the quality management and implementation program. This however is certainly not true when it comes to acquiring quality certification. It is important to specify here that very few organizations are there that focus on quality certification and therefore it can be easily said that very few organization fund the quality management and implementation program. It is important to note however that by genuine funding we do not mean funding for certification only rather we mean funding for the general organizational improvement irrespective if the organization is seeking or not seeking any quality certification.

Lack of funding poses operational barriers to quality implementation and management. It introduces issues related to resource shortage, fewer than required trainings, fewer chances of improvement in quality of organizational infrastructure, lesser chances of acquiring quality human resources, lesser chances of acquiring necessary material like for instance books and affiliations with international quality focused organization like for instance CMMI, ISO and IEEE Etc, lesser chances of acquiring external consultancy, fewer chances of retention of team members from quality department Etc.

Lack of funding may be due to multiple reasons out of which few important ones are: lack of trust of management on quality team’s performance, lack of management realizing that quality will help improve organization and increase the rate of return by improving organizational productivity, quality, efficiency and effectiveness, presence of feeling within organizations’ management that quality is a secondary job and is limited to theory only, Etc.

11.6.1.6 Administration and Logistics Support

It is a unique observation, but indeed observed in many of the organizations, that staff members from administration and logistic support department really experience upper hand when it comes to comparing them with the rest of staff members in other functions within the organization. This strong; yet very much correct statement seems valid because most of the employees in other departments within the organization depend on administration and logistics function within the organization for their work execution. Unfortunately; in Pakistan, a general work norm is that if someone is dependant on someone then no matter how much the dependent employee holds the right to services of the independent employee but he / she has to create some linkages (other than professional linkages) with the independent employee for his / her work execution. This is very much also true in case of IT industry of Pakistan. In most of the IT organizations the education level of the administration and logistic staff
members is not sufficient. In many cases staff members who are in charge of administration or logistics function are retired army personal who are not very much familiar with the dynamics of modern organization.

Untrained, unprofessional, ineffective, inefficient and uneducated staff members in the administration and logistics teams hamper productivity thereby hindering the quality implementation directly. Much of the work by the administration and logistics departments within the organizations is also not monitored to closure.

Many of administration and logistic support staff members practice red tape management style. Many others have bureaucratic method of working. Delay in completion of work and processes not only hamper general productivity, rather it forces the other employees to feel frustrated.

In most of the cases, nearly all the staff members in the IT organization think that quality management function within the organization is limited to employees who in actual fall in the project management or product management / development departments. This feeling, that is more like a practice, in actual, hinders the implementation of quality in departments such as administration and logistics, thereby eliminating the concept of TQM. Summarizing our discussion, in plain words administration and logistics department do not support the work of quality management department. This practice is not only true for the quality management department rather all the functions within the IT organizations. Secondly, administration and logistics department consider them out of scope of quality management thereby eliminating quality control within these departments.

11.6.1.7 HR Support

Like administration and logistics department, the support of the HR department is extremely important for the implementation of quality; organization wide. General behavioral practices discussed for administration and logistics departments and the issue of educational level also applies in case of HR departments in IT industry of Pakistan.

Most of the organizations in the IT industry of Pakistan do not formally make use of quality management function and the ones that do limit their focus to software testing mainly. Extremely few organization (particularly the ones that are striving for some quality certification or the ones that have some quality certification like for instance CMMI, ISO etc) make use of quality management function within the organization for managing quality of products, projects and processes. In nearly all the cases however, there is hardly any emphasis on people quality management. Very few organizations (needle in a hay stack) understand the concept of PCMM and therefore make use of it.

The discussion in the above paragraph, puts emphasis on the involvement of HR department for people quality management, which in actual is absent from the industry. This is one issue. The second issue covers the general support that the HR department should provide and provides in actual for implementing quality.

In regard to our second issue, it is important to explain here that functions like for instance staffing, performance appraisals, recruitments and general policy making must be in lined with the quality management requirements of the organization. Quality management function acts as a major method of organizational understanding. In case if HR and quality management departments do not work side by side then it is extremely difficult to implement the quality requirements within the organizations. Here by quality requirements we mean quality requirements particularly concerning HR.

Support from the HR is also required for the selection of the right employees for managing quality. In some cases quality management implementation must also be linked to the HR performance appraisals so as to make people implement quality for acquiring necessary benefits. In short, for implementing people quality management, HR department must work side by side with the quality management teams. This however, unfortunately, is not happening.

11.6.1.8 IT Support

Modern quality management uses modern process engineering practices. An extremely modern, efficient and effective method of process engineering is to have automated workflow based applications that maintain the process flows and also enables reasonable monitoring. In addition to these automated workflows; the modern concept of TQM heavily relies on paperless office concept, fast communications and extremely strong networking. All these important requirements of quality management need extreme support from IT management support department / function.

Here it is also important to mention that general trend of IT staff members in Pakistan’s IT industry is to fix computer and network related problem mainly. Limited work scope of IT staff members and nearly zero involvement in quality management support creates barriers to quality management and implementation.
In most of the cases, in nearly all the organizations IT staff members are not quality assured and neither they are involved in any quality management activity. Mostly IT staff members do not pay any attention to quality staff members and feel that their working has no link with the quality management staff.

11.6.1.9 Office Politics
Generally office politics is the biggest source of hampering organizational activities. Office politics cause de-motivation and dissatisfaction among employees. In many of the cases, observations and interviews with industrial quality management experts suggest that they face tremendous amount of office politics within the organization in one way or another. Many a times major cause of this office politics is quality policy, process and procedure formulation. Normally during process, policy and procedure engineering, organizational team members who are stakeholders of a particular policy or process or procedure, create hurdles in making the right decisions for the right policy, processes and procedures. In most of the cases, stakeholders create hurdles in the right decision making for policies, procedures and processes in order to cater some personal demand from work or in order to implement their own particular methodology of working no matter how incorrect it is. Generally mankind is resistant to change. This is very much also true for Pakistan’s IT team members who like to continue with their own method of working. Sub grouping within the organization due to personal interests of employees trigger opposition within the office and becomes a reason of office politics. Generally office politics acts like a hurdle in quality engineering and implementation.

11.6.1.10 Employees’ Key Performance Indicators
The concept of key performance indicators is widely used by the Chinese. The summary of this concept is that each employee is communicated set of indicators that will ultimately determine his / her performance appraisal. In most of the Pakistan’s IT organizations, this practice is conducted informally, where the management gives some tasks to the employees and then decides employee performance appraisal based on his / her task completion and correctness status. Although this seems like the right method but in actual, from the perspective of quality management, it is important that quality work delivery should also be included in the key performance indicators list of all employees. Since, normally this is not a practice therefore producing quality work and following quality practices is not in the ‘Things To Do List’ of most of the employees who are not part of the quality management team. Reason of not keeping quality work delivery as part of key performance indicators is general unawareness about quality, lack of interest in quality, poor understanding of benefits of high quality, generally wrong perception that employees who are not part of the quality management team will be deviated from their original work if quality is part of their key performance indicators list and finally wrong perception that quality management is the job of quality management team only.

11.6.1.11 Performance Appraisals and Quality Management
Like our last point of discussion; most of the organizations do not base their performance appraisal criteria for employees’ appraisals on quality of work done by the employees. This eliminates employee awareness and concern for quality thereby making quality implementation and management difficult. Reasons of why quality is not used as one of the parameter for performance appraisal are similar to the reasons discussed in the last sub section when we were discussing the employees’ key performance indicators and their role in quality implementation and management. Further to the discussion above; absence of quality in the performance appraisal criterion list makes the employees feel that focus on quality would not benefit employee financially or in their career growth.

11.6.1.12 If I Work For Quality, The Quality Head Would Be Pleased, What About My Boss?
A global phenomenon is that every one likes to please their boss. This is also true for the Pakistan’s IT industry. Generally; supervisory figures (as also discussed above) in Pakistan’s IT industry are not interested in quality, they do not consider quality important for the benefit of organization, they think that quality is limited to academics and theory only and they think that quality is the job of quality management department only. It is due to these few and other similar reasons that supervisory figures do not focus on quality. Also quality is usually not part of their performance criterion list as stated above. Under this situation most of the supervisors never force their sub ordinates to focus on quality. Normally in all cases subordinates are forced to work on those aspects of work, which determine their and their supervisor’ career growth and benefit enhancement. In such a situation employees fail to focus on quality as their focus is to satisfy the requirements of their bosses only.

11.6.1.13 Project Managers and Project Management
Project management is in actual one of the most important function of any IT based organization and in
particular in case of software development organization. In most of the cases, project management function experience sense of urgency. Similarly; the project manager is an extremely busy employee within the organization. Not only time is a matter of concern of project manager but other elements of project like for instance cost, scope, resources, skills, customers, vendors, budgets and other similar elements are matter of great concern of the project manager. Although this is an extremely true reality that project manager is an extremely important and busy employee within an organization but at the same time an equally important but correct statement is that project management function and thereby the project managers heavily rely on the quality management function. Similarly; it can also be said that quality management function is strictly dependant on project management function and commitment from project manager in order to implement quality organization wide.

We have already discussed the importance of project management and quality management and their dependency on one another. It is now important to highlight some of the core behavioral issues that the quality management staff faces when dealing with project management staff. These issues are as under:

A) Since project management is an extremely important, objective and core function of an organization therefore a large amount of focus on quality is required from the project staff. Unfortunately this is not the case as because normally the project management staff is extremely busy due to which their focus on quality management is minimized.

B) Since project manager’s key performance indicators list does not normally contain quality as an important indicator therefore his / her focus on quality management is low, thereby triggering ripple affect in the lower staff.

C) Since project managements staff within the organization experience pressure from support departments like for instance admin, HR, quality management Etc and higher management staff, customer and vendors too, therefore it is normally the case that project management staff starts feeling frustrated. In this scenario it becomes almost impossible for any project manager or project management related staff to focus on quality management.

D) In most of the organization (particularly in case of organizations that are not pursuing any quality certification), quality processes, policies and procedures are not in lined with the organization’s best practices and requirements. This results in frustration among project management staff members as they feel frustrated about the general work methodology that is not very much in lined with the actual work efficiency and effectiveness requirement.

E) Generally speaking project management staff does not commit to quality management.

F) In most of the cases project management staff feels that quality management is a redundant function and that quality management is extremely limited to theory and academics.

G) Most of the project managers and the project management staff feel that quality is the job of the quality management staff. It is also a general feeling that quality management staff is not aware of the project requirements and therefore the quality processes, procedures and policies are not favorable for project execution. In many cases this later statement is false and in some cases it is indeed true.

H) Project managers and project management staff feel slightly responsible for business revenue and organization’s profit. They think (also the management feels), that they are superior to other departments as it is them who in actual run the organization.

I) High employee turnover rate in most of the IT organizations forces employees to lose focus on project and quality management together.

J) Although quality management staff members play a vital role in project execution but in actual in most of the cases during benefits and rewards distribution much of the importance is not given to quality management staff members.

K) In many cases project management staff members consider the role of quality management limited to project’s product testing only.

Much of the causes against all the problems enlisted have been discussed already. A major consequence of poor coherence between quality management and project management is that in most of the cases project execution and working and the project deliverables normally do not meet the right quality standards. On top of this, since for any organization, various projects are a great source of repeating the best quality practices therefore in case of poor project and quality coherence repeatability is lost and organizations fail to institutionalize working.

11.6.1.14 Customers

In most of the cases customers impose pressure on their vendors. This results in natural tendency of general staff members at the vendor end to deliver fast solution. In many of the cases fast solution
delivery to the customers is done at the cost of low quality solution and low commitment to quality processes, procedures and policies. This fast solution delivery at times results in customer dissatisfaction as well. It is also usually the case that if the customer is dissatisfied from the project / product quality or project / product team work methodology and style then entire blame is put on the quality management staff members leaving them frustrated and confused.

It is also important to mention here that the above mentioned situation occurs mostly due to the tight and internally disagreed timelines and most importantly due to poor project planning estimations. Normally the project manager and the senior management are responsible for the dissatisfied customers as in most of the cases false deadlines are quoted to clients in order to acquire business from the market.

11.6.1.15 Institutionalization

Institutionalization requires repeating a process, a procedure and a policy within an organization not by force but by making a practice as organization’s standard work methodology i.e. mutually agreed and applied by all the relevant employees. Institutionalization requires an extremely strong process engineering methodology, a dedicated quality team that understands the organizational quality requirements objectively and it requires staff members besides the quality department who realize the importance of quality management. In other words institutionalization only takes place in an organization once the quality implementation methodology exactly suits the organizational work requirements and that it is agreed by all the relevant stakeholders. In extremely simpler words any practice in an organization can be termed as institutionalized if it is practiced without anyone telling anyone how to do it.

In most of the IT organizations in Pakistan (with an exception of few that are CMMI quality certified or pursuing quality certification) institutionalization does not take place. This is mainly because of the fact that employees and management’s commitment to quality management function is extremely low, which makes it impossible to implement quality in organization on first go. Remember! Institutionalization only occurs, once a quality practice is well implemented within an organization. Poor management’s and staff’s commitment to quality management function does not allow quality practice repeatability and therefore institutionalization cannot be achieved. In addition to poor commitment there are also other sources of improper institutionalization including office politics (hampers quality implementation), leader’s limited vision towards quality, tough customers, false deadlines, improper criterion in key performance indicators, improper quality engineering, less interest in quality and others… Lack of institutionalization does not allow changes in the quality and general work culture within an organization.

11.6.1.16 Interdepartmental Coherence

Poor coherence, communication and synchronization between various departments within an organization hamper organization’s quality management. It is the utmost role of the quality management staff members to identify the contact points between various departments (formal in particular like for instance one of the contact point between development and testing department is that they have to submit code to each other) and set standard processes against communication / coordination through these contact points. In general, departments within the IT organization work in isolation and do not allow organization development through openness to other sub departments.

Poor coordination, communication and poor synchronization between various departments could be a result of team / department leads’ attitude where they like to control their staff members through minimum interaction with others. This severally damages the quality process, procedure and policy implementation and management by creating hiccups.

11.6.1.17 Quality Certification Service Providers

The role of quality certification service providers should not only be to help assist an organization in acquiring quality certification, rather it must also be to assist organization in truly uplifting the organization’s quality. In case of Pakistan’s IT industry the first case is mostly true. Quality certification service providers massively influence the employees working in the organizations as because their presence assures managements’ commitment to quality function. In case if quality certification providers only limit their discussion and focus to acquiring certification then their presence does no good to the real quality uplift. In most of the cases the service providers are careful about their image. In order to preserve their image as a successful certification provider, they focus on clearing the requirements of the certification by hook or by crook, thereby resulting in false quality picture of an organization that does no good to organization in perspective of quality in the longer run.
11.6.1.18 Role of PSEB
PSEB is largely focusing on quality management for IT organizations in Pakistan by assisting the local companies in acquiring CMMI certifications. Although this is an extremely important and correct method of improvement but unfortunately several of the CMMI certified organizations still have quality loopholes because of their focus on CMMI certification only and limited focus of true quality improvement.
Although CMMI certification support program is an excellent move by PSEB, but limited vision of PSEB in acquiring of certification only hampers the national IT quality uplift.

11.6.1.19 Role of Universities (Software and IT Education)9,11
Quality management in IT industry of Pakistan suffers greatly due to the misconceived role by universities that provide IT education in Pakistan. This is because most of the universities that provide IT education in Pakistan limit their curricula to only IT based core subjects. Very few universities provide management education (including communication, general management, languages etc) as a support education for IT learning. Result of this issue is that most of the students as they graduate from the universities do not understand the managerial requirements of running an organization. It can also be said that our universities produce engineers, computer scientists and IT expert who do not know anything about the management of their work.
Other than the issue mentioned above very few IT institutions and universities in actual teach subjects like that of software engineering, software project management, software quality management etc to students. Awareness of only the core technical side of IT industry does not help student develop visionary approach towards working in IT industry of Pakistan. The worst part on top of these issues is that in many cases the IT education quality does not meet the desired international criterion.
Low quality education and unaware students, as they enter the industry, lack the vision for working in the IT sector. Result is low productivity, confines of options in business and certainly unawareness of the quality requirements of the industry.

11.6.1.20 Standardization
A major problem in quality management in IT industry of Pakistan is standardization. By standardization we here refer to standardization of the processes, policies, procedures, methods, operating procedures, documents, deliverables etc. Normally the standardization of process, procedure, documents, methods and deliverables is done against some international or self-defined standard.
Standardization is extremely important within the organization in order to have a common work approach within the organization. Standardization requires understanding of the best practices, documenting it, training all other staff against the best practice and then using the best practice. Unfortunately in Pakistan’s IT industry standardization is an extremely cumbersome process because:
A) Staff members are generally resistant to change and would like to work in their own way.
B) Quality management staff members are not fully skilled of producing the right standard for the organization that best suits the organizational needs.
C) Generally quality management staff members are not skilled enough to understand, use and implement some international standard.
D) Since, generally, the staff members in the organizations do not take quality management and its related activities seriously; therefore they resist using the standards.
E) Conflicts between staff members and quality management staff members result in zero usage of the standards.
F) Others…
Major consequences of poor standardization are that it discourages quality implementation and makes quality management exercise cumbersome. Further to this it gives rise to chaotic and confusing work practices.

11.6.1.21 Repeating Quality Practices
Repeating quality practices requires standardization and institutionalization as discussed earlier. If standardization and institutionalization is not done; practice repetition cannot take place. Repetition of practices and methods identified as a result of quality engineering is important for the general uplift of quality organization wide. In Pakistan’s IT industry no focus is laid on standardization and institutionalization, therefore processes and best practices repeatability is impossible and questionable.

11.6.1.22 Follow Someone Else!
As per the conversation and discussion with various quality experts in IT industry of Pakistan, many believe that generally employees’ attitude is that they would not like to follow anyone else’s working
methodology. Everyone in general likes to work the way they like. This attitude can be due to the reason that generally as a nation we are never taught to work in a team. Most of the employees limit their work and its quality to themselves only. They fail to understand and realize the consequences of their work on other employees’ work. Result is again poor standardization, lack of institutionalization, difficult quality management and its implementation.

11.6.1.23 Attribution by Quality Management Staff Members

A major part of work of quality management department is to inspect and audit work and other staff members. In formal terms of CMMI; this process is known as quality assurance. Quality assurance is the most important corrective action for process and quality improvement. Quality assurance requires that the audits and inspections must be done for the employees by the quality management staff, so that improvement opportunities can be found. After the audit, improvements can be made by reengineering the process or a procedure against which the employee was audited or inspected or by controlling the process or a procedure, or by training staff members against a particular process or procedure so that they can escape mistakes in future.

Unfortunately in Pakistan, quality management staff uses audits and inspection for attributing the failures to particular employee. This is also true for higher level audits where the organizations plan to seek some international quality certification. Attribution introduces office politics and plays its role in provoking management to think negatively about an employee. Attribution also causes a sense of information hiding among employees whereby they try to minimize their interaction with the auditor or inspector. In books of quality management discipline, attribution is an unhealthy act and introduces negative attitude towards quality management. Attribution also discourages fault finding and information spread within an organization thereby creating barriers for quality management and improvement.

An important question is why attribution is done by quality management staff? A simple answer to this could be that in most of the cases the management believes that quality is the job of the quality management team only. It is due to this reason that management always expects from quality management team. The truth however is that quality management team is just a quality facilitator within an organization and in actual quality depends virtually on everyone. Based on this negative ideology of the management, quality management team members normally tries to convince the management that reason of low quality are other employees and not quality management staff members themselves and for this they attribute the failures to individuals.

11.6.1.24 Deadlines

A major problem in Pakistan’s IT industry work culture is establishment of the false, internally unapproved and uncommitted deadlines. In most of the cases deadlines are set based on customers’ requirements and based on the reason that organizations tend to present solution to their customers in shorter span of time as compared to others and thereby establish / develop business. Although this does not look like a problem in the short run but uncommitted deadlines have long term problems as follows:

A) Uncommitted deadlines cannot be met usually. In most of the cases organizations’ employees who are stakeholders of any particular deadline fail to buy in the uncommitted and disagreed deadline thereby working inefficiently for the completion of deadline.

B) In most of the cases uncommitted deadlines introduce less sense of ownership among employee, higher workload, deprived resource management and de-motivation.

C) Uncommitted deadlines normally result in low quality solution thereby displeasing the customers in the longer run.

Above we have discussed few of the problems associated with the uncommitted deadlines. A major consequence of uncommitted deadline is the decline in the internal quality management. With uncommitted and tighter schedules; workforce within the organization fails to give due importance to quality management (which in itself is considered as an unimportant activity). Uncommitted deadlines means uncommitted employees and uncommitted employees means that employees would try to complete their work without taking care of the necessary measures required to maintain the quality at the product and organization level.

11.6.1.25 Documentation / Technical Writing

In majority of the cases, documentation and technical writing becomes a major source of quality mismanagement. Major reasons are as follows:

A) In most of the cases IT staff members (be it from any sub function of an IT organization) try to avoid documentation and technical writing. In short, interest of general staff members in technical writing and documentation is extremely less. Major reason of this attitude could be the educational
background through which most of the IT employees go through. In most of the universities in Pakistan, that teach IT discipline, very less importance is given to technical writing, written communications, languages and core software engineering. The result is that most of the students are prepared for handling programming and theta betas type of work only.

B) In many cases technical writing and documentation is correct grammatically and as per the rules of the English language, but unfortunately the documentation does not comply with the international engineering standards at all. This again is due to universities’ less focus on engineering and communication together as a discipline.

C) Documentation and technical writing in normally thought to be female’s area of interest. Most male employees find themselves more comfortable in other functions within the organization. Low quality and improper documentation poses a lot of quality management issues. Some of the most important problems that are related to quality management which become evident from low quality and deprived documentation and technical writing include (but not limited to): less chances of standardization, poor quality control, rework in quality management, higher requirement of training and less efficiency and accuracy etc.

11.6.1.26 Process Definition and Engineering Methodology
In most of the IT organizations in Pakistan process definition and engineering methodology is extremely inefficient and ineffective.
Many organizations do not in actual understand what process engineering and definition is all about. Some of the organizations (very few) in actual understand process engineering and definition. Out of this set of organizations, most of the organizations that understand process engineering and definition completely or largely are the ones that have CMMI level three or above certification. Others; that are not CMMI certified understand and implement process engineering and definition partially and their process engineering and definition methodology is either ineffective or inefficient.
Normally process engineering and definition methodology requires mature stakeholders and extremely well skilled and trained quality management experts. Normally process engineering and definition is considered to be the job of quality management staff members only, which in actual is partially true. In actual; process engineering and definition is only facilitated by the quality management staff members. Essentially process engineering and definition requires involvement of a process engineering group comprising of important stakeholders who understand the process requirements of an organization. Normally such important process group members must be mature and experienced staff of the organization.
Process engineering and definition largely depends on quality management staff members’ abilities in identifying the correct process requirements and discussing and engineering the requirements with the process group members. It also depends on the ability of quality management staff members in finalizing the requirement through conflict resolution between the group members. Ideally and most importantly how well process engineering and definition is done within an organization also depends on the quality management staff’s ability in writing the process technically and communicating it to others. Process engineering and definition also largely depends on process group member’s ability to communicate, resolve conflict and identify the right requirements for any process.
In Pakistan, large employee turnover does not allow mature process engineering. This is because the process group members are not capable enough to identify the right organizational process requirement in short period of time. Secondly; employees (belonging to quality management and process group) are not otherwise capable enough to work with process engineering discipline. Poor language ability of general staff members, improper technical writing skills, improper communication and engineering skills; all become causes of deprived process engineering and definition.
Other than the technical aspects; several quality management staff members have also reported that process engineering and definition also suffers from individualistic attitude, office politics, lack of team work, excessive job rotation and limited process group members’ vision.
Quality management discipline largely depends on standardization of processes, procedures, policies and documentation standards. Standardization in turn depends on process engineering and definition. In other words organization’s internal quality management, implementation, control and monitoring; all depend on efficiency and effectiveness of the process engineering and definition process. In Pakistan, unfortunately, low quality process engineering and definition, poses a lot of problems to general quality implementation within the organization.

11.6.1.27 Process Implementation Method
Much of the problems concerning process implementation are similar to problems of process
engineering and definition like for instance problems particularly related to communication, conflicts and staff’s engineering skills discussed earlier. In addition to this; generally; discussion for process implementation is also similar to discussion for process engineering and definition.
Some of the specific problems faced by the quality management experts as they implement processes / policies / procedures in Pakistan’s IT industry are as follows (not including the discussion in the last point):
A) Generally processes, policies and procedures engineering is done by one set of employees whereas processes, policies and procedures that are engineered are normally applied and implemented on employees who normally did not engineer them on first place. This situation gives rise to a lot of conflicts as the engineered process normally does not meet the right work requirements.
B) Mostly staff members are resistant to change therefore they are not comfortable with work method changes. It is important to make them realize that change is beneficial for them.
C) Process implementation requires highly skilled trainers, which unfortunately is a big deficiency within most of the organizations in Pakistan.
D) Office politics, general leg pulling and lack of interest of a particular department’s / function’s supervisors are few major sources of poor process implementation.
E) Management normally believes that process implementation is the work of quality management staff only. In many of the cases where process engineering and implementation is done, process implementation is set as a key performance indicator of the quality management employees. This approach cause de-motivation among quality management staff members.
F) Others…
Issues, causes and consequences discussed above cause general hindrance in effective process implementation.
11.6.1.28 Focus on Product, Projects and Processes Only
As discussed earlier, quality management in Pakistan is only restricted to product, projects and process quality improvement only. This is a major set back as because people quality is completely ignored.
Major reason of ignoring people quality management is limited vision of the management. Major consequences of ignoring people quality is lack of employee satisfaction, de motivation among employee, unskilled employees and other problems related to general human resource management.
11.6.1.29 Availability of Local HR Suitable for Quality
Many of the quality experts in Pakistan’s IT industry believe that local HR is not trained for quality management activities within IT industry. This statement is true both for the general staff that are present within the organization and the quality management staff members as well.
Essential deficiencies related to quality management in local human resource include (but not limited to): Lack of necessary knowledge concerning computer science; software engineering (or related) and quality management discipline, improper technical writing and documentation skills, lack of knowledge concerning soft skills; management in general, languages and communications.
Major consequence (as obvious) of lack of high-quality manpower that matches the requirement of quality management skill set is that the industry is unable to acquire suitable human resource for the management of quality.
11.6.1.30 Men, Documentation and Quality Management Function
Extremely strange, but generally male employees in Pakistan’s IT industry show less interest in pursuing a career in quality management. Generally male employees are also less interested in quality related activities within the organization and as per the observations their documentation, technical writing and communicating skills are generally not better than their female counterparts.
In some cases male employees have also been reported of saying that quality management is a lady’s job. Many also think that quality management is the easy part of work.
Attitudes such as discussed above have no solid backgrounds, yet they deeply affect the involvement of male staff members in quality management activities within the organization. Such chauvinistic opinion cause damage to quality management as a discipline and hinders effect quality management within organizations.
11.6.1.31 Compensation and Benefits for the Team Members who Work on Quality
A major observation that has been obtained is that in most of the IT organizations in Pakistan, staff members who work on quality management are not compensated equally w.r.t their co coworkers who work at an equal organizational hierarchal level but in some other function (particularly software
development, business development and project management departments / functions). Major reason of this differentiation is management’s thinking that quality is a secondary activity and that quality management is a relatively easier job. Also, since the management does not take interest in quality management as they should therefore they invest less on this area.

Unjustified, unequal and improper compensation and benefits to quality management staff members leaves major problems in quality management staff’s motivation and satisfaction. This creates a lot of problems in quality management in any organization.

11.6.1.32 Leadership

Limited vision of leaders severely blocks quality management activities in Pakistan’s IT industry. As we all know that it is the leader who determines how an organization would actually work therefore unless and until leaders do not buy quality as an important tool for organizational sustainability, quality function cannot be implemented in an organization. In short visionary leadership style is extremely essential (‘Chapter Eight’ discusses ideal leadership requirement for IT industry of Pakistan).

11.6.1.33 Organizational Reporting Hierarchy

Quality management depends on standardization and repeatability of best practices which in turn largely depends on process engineering and documentation. It is important to note that effectiveness of process definition, process implementation and control depends on consistency and correctness of the organizational reporting hierarchy. Following are few major problems that exist in Pakistan’s IT industry in regard to organizational hierarchy:

A) In most of the cases organizational hierarchy is not defined therefore reporting channels are not clear. This confuses the quality experts while implementing quality and engineering it. Definition of organizational hierarchy is not considered as an important task by the management.

B) In many cases the quality management departments and staff members report under staff members within the organization of whose quality they have to manage. This creates a lot of transparency issues. Further to this, this arrangement does not allow quality management staff members in truly identifying the weakness of any particular individual. Overall result of this situation is that organizations’ improvement is simply blocked.

Major reasons of absence of organizational reporting hierarchy and incorrect hierarchy are management’s limited vision and interest in this activity.

11.6.1.34 Organization’s Long Term Goals, Objectives, Mission(s) and Vision

To start with, most of the IT based organizations do not have a defined long or short term objectives, goals, mission and vision. Since mostly; these things are not defined therefore individually people fail to understand their role within the organization and their performance criterion. Absence of mission, vision, goals and objectives also does not allow people in understanding how these four things relate to one another and what should be their direction of work for achieving necessary objectives then goals then mission and then vision.

Some organizations define either mission, vision, objective or goal but they do not define objective to vision relationship as discussed earlier. Absent or unclear objective to vision relationship hinders organization’s overall productivity.

Very few (needle in a hay stack) organizations actually understand, document, maintain and clarify objective to goal to mission to vision relationship to their employees. In nearly a wide majority of organizations vision, mission, objectives and goals (defined or undefined) do not include quality as an important parameter of consideration. The result is that general staff members lose interest in quality as an important function of the organization.

Major reasons of discrepancies in this area are management’s limited vision and interest in this activity.

11.6.1.35 Transparency

As in knowledge of all, transparency is extremely important within an organization for a healthy work environment. Especially in case of people management; transparency helps a lot. Pakistan’s IT organizations experience shortage of transparency in their everyday working. Excessive information hiding, closed door management and strict confidential communication channels introduce sense of less ownership among employee making them de motivated and unsatisfied. Why transparency issues exist in Pakistan’s work environment is because generally people like to hide information from one another in order to flatter their supervisors whenever possible. There are other several reasons as well that are not being discussed here due to chances of deviation from core agenda. Other than the indirect causes, since transparency causes information hiding therefore quality management implementation becomes difficult and weaker.
11.6.1.36 Superiority Complex
Many of the quality management experts feel that quality management and implementation suffers another major problem and that is when employees within the organization feel that they possess more knowledge as compared to others.
Feeling of knowing everything (or more) forces an individual not to acquire knowledge (if any) from a person who is thought to be less knowledgeable. This feeling introduces flaws in the organizational learning capabilities. It is also important to mention here that normally in Pakistan’s IT culture experienced staff members feel that they are certainly more knowledgeable. This feeling among experienced employees eliminates the innovative and novel ideas from the young coworkers within an organization. Barriers to knowledge dispersion and decline in organizational learning curve hamper quality implementation and management.

11.6.1.37 Attribution of Failure of Quality Certification
The most demotivating and inappropriate cause of quality management implementation and decline is attribution of employees to one another in case of failure of any quality certification like for example CMMI. Having interviewed many quality experts, most believe that the management, quality staff members and general staff members all attribute the failure of quality certification to one another. This habit of attributing failure to one another; causes extreme de motivation. In some organizations the worst part is played by the management, where they actually fire the employee from quality management department (in particular) and general staff members who were in one way or another involved in any particular failure of quality certification.

Why this attribution is done is mainly due to fear of management. The quality management staff members always like to convince the management that process definition and engineering was perfect but the certification failed mainly due to any particular person who did not follow the guidelines of process, policy or a procedure. On the other hand general staff members like to convince management that reason of failure is not their inappropriate conformance to processes, policies and / or procedures, rather the reason is incorrect and inappropriately engineered processes, policies and / or procedures. There are other many things that each party attributes to one another. Other than group attribution, many a time attribution is done towards individual. The results and consequences are all the same as discussed earlier.

11.6.1.38 Multicultural Environments
Some of the IT organizations in Pakistan’s IT industry have multicultural environment. ‘Chapter Twelve’ and ‘Chapter Thirteen’ of this thesis discuss few important problems (particularly in relation to quality management) that exist in multicultural environments. It is important to specify here that details of problems would not be discussed here.

Ignoring the detailed discussion, it is important to specify that quality management in multicultural environment has its own dynamics whereby the quality management team specially needs to take care of communication and cultural gaps. In addition to this in most of the IT organization there is a wide difference between working styles of international and local staff members. These differences relate to general work practices, cultural practices, general approach, vision etc and are responsible for the decline of quality. Further discussion against this item would be carried out in subsequent chapter.

11.6.1.39 Quality Management Staff Member’s Career
Career development and growth are most important motivation factors for any employee. Unfortunately in Pakistan’s IT industry, staff members belonging to quality management function experience problems in this area. In most of the organizations, employees working on quality management are not given any career growth and development options. In simpler words employees from quality management discipline are usually not given any raises in designation and not many options are made available to them for their general career development.
Reason behind this phenomenon is that management in IT industry of Pakistan usually does not focus on quality management as an important area / function within the organization. Mostly management members believe that staff members belonging to quality management function play a secondary role in organization’s core business and their importance therefore; is relatively less. Lack of management’s commitment to quality management function results in management’s negligence towards quality and the quality management staff members.

Consequence of this attitude of IT organization’s management towards quality management staff is that generally; the quality management staff feels de motivated, depressed, they experience less sense of ownership within the organization and general employee and job satisfaction is seriously affected. It is
also important to note that mostly these reasons are the core problems due to which there is high quality management employee turnover. Quality management employee’s career growth and development problems create barriers for quality management and implementation due to unstable and unsatisfied human resource.

11.6.1.40 Returns, Awards to Quality Management Staff in Case of Successful Quality Certification

It is extremely horrible to note that in most of the IT organizations (with an exception of few) that successfully acquire CMMI certification (or any other certification like for example ISO Etc) quality management employees’ services are usually terminated. If not so, in some cases usually the quality management functions experiences downsizing. In some cases employees are not laid off directly. In such organizations quality management employees are usually irritated to an extent that they leave the organization themselves. Very few organizations, that achieve quality certification retain their employee and give benefits to them. This is an extremely rare case.

The reason of this horrible act by the management of IT organizations is much similar to the reasons stated for some other points earlier. In simple words, interest and management’s commitment to quality are the core factors responsible for this behavior. In addition to this, management in most of the organization (as discussed earlier) feels that quality management is a secondary job. Some management members feel that quality management staff members are only important for acquiring quality certification. This limited vision for the quality uplift in the IT organizations makes the presence of employees belonging to quality management completely redundant in view of management; once the certification is acquired.

Consequence of this act of IT organizations’ management is high decline of general organization’s quality after the certification and extreme disappointment and de motivation of the quality management staff members.

11.6.1.41 Focus on Certification

As discussed in the last point, management in IT organization is not focused on general quality uplift within an organization. In most of the IT organizations, focus on quality management is laid only for acquiring quality certification. This approach towards quality management does not allow realistic improvement within any organization. Management in Pakistan’s IT industry considers quality improvement as a by product of quality certification, whereas the case is quite opposite. Inappropriate and incorrect focus of the management regarding quality management makes quality implementation and management exercise cosmetic. In this scenario actual improvements cannot be made easily within an organization and quality management staff members experience frustration, less job satisfaction and lack of interest in their work. Further to this, this approach by the management introduces insecurity and makes quality management staff members feel insecure as they achieve any particular certification.

11.6.1.42 Reactive or Proactive

Most of the quality management experts believe that quality management suffers mainly due to reactive approach of the management and the general employee towards quality. This behavior also mainly stems form lack of interest towards quality. Consequences of this behavior of organization’s employees towards quality imposes extra burden on quality management staff members in convincing the management and the general staff members to work for the quality improvement. General delays reducing productivity of quality management staff members, frustration of quality management staff members and difficult and complex implementation of quality are the main results of reactive behavior of management and general staff members towards quality.

11.6.1.43 Business Development / Contract / Account / Legal Management

General view of the business development, legal and accounts management staff members is that quality management is not applicable on them and their work. This approach is completely incorrect and is a result of lack of interest of both the management and the staff members belonging to these functions within the IT organization. Since in most of the IT organizations, business development, legal and accounts / contract management department do not focus on quality therefore this directly affects the efficiency and effectiveness of the project / product management function. Other major consequences include (but not limited to) poor planning, poor costing, extremely incorrect scheduling, unsatisfied customers, difficulties in vendor management (where applicable), internal and external resource issues, poor project and product
performance, general quality deterioration and extreme difficulties in quality management of projects, products and people (relevant stakeholders). Some behavioral issues include general frustration among employees, job dissatisfaction and most important lack of interest and commitment to work.

11.6.1.44 Quality is Subjective!
Most of the quality management experts believe that general perception of IT staff members is that quality is subjective and theoretical mainly. This approach towards quality makes staff members lose interest in quality for objective improvement. Although it is true that quality is slightly subjective but as far as quality sub functions like for instance quality engineering, control, monitoring, implementation and other sub functions are concerned, quality is extremely objective. Since most of the staff members like to be objective in their work therefore they perceive quality as a redundant and unimportant part of business. This attitude makes quality management cumbersome for the quality management staff members. In addition to this, quality is generally an ignored function within the organizations.

11.6.1.45 Micro / Macro Management
It is extremely important that employees at various management levels realize correctly of how and to what level they should actually manage. Unfortunately this is a problem in Pakistan’s IT industry to some extent. In some of the organizations the concept of micro or macro management is not well understood and not practices appropriately. In some cases management at strategic level gets involved in micro management whereas in other cases line managers make use of macro management techniques. Inappropriate mix of macro and micro management at various organizations’ levels (hierarchies) create operational barriers and reduces organizations’ productivity. In general organization’s monitoring function is seriously affected at various levels if the managers do not understand and realize appropriately that to what level they should manage. Management flaws at various levels not only hinder operations, but rather it decreases the overall organizational efficiency and effectiveness thereby indirectly hindering the organizational goals, objectives, mission and vision. Inappropriate, excessive or little management control also introduces job dissatisfaction among employees and is also a reason of employees’ loss of interest in job. In such situation quality management becomes extremely difficult and quality management staff members in actual have to adjust their work according to the management style of managers at various levels. Inappropriate management control at various levels within the organizations is mainly due to improper leadership and also due to less reliance on quality function. It is important to mention here that level of management control is directly dependant on quality and human resource management functions, as because it is the quality and human resource management functions within the organization that in actual determines the roles and responsibilities of managers at various organizations’ level. Where we say that level of management control is dependant on quality management, the opposite is also true as because quality largely depends on managers correctly realizing their roles and responsibilities.

11.6.1.46 Team Work
Quality management experts in IT industry of Pakistan feel that lack of team work extremely undermine the quality management programs. Lack of team work is mostly due to individualistic attitude where every person likes to represent the idea that he / she is the reason of success and not the reason of failure. Lack of team work also occurs due to office politics, job dissatisfaction, de motivation among employees and most importantly due to supervisors and team members who do not allow benefits / rewards to be dispersed equally within the team. Since quality improvement totally depends on collective and unanimous effort therefore lack of team work hinders quality implementation. Lack of team work also occurs due to unclear organizational objectives, goals, performance indicators, mission and vision.

11.6.1.47 Change Management
As known to all of us change is extremely important for any organization and so is change management important. Change management is an approach; extremely necessary for the change of approach of individuals, teams and organizations. Since quality management’s core responsibility is to identify and implement macro and micro level changes necessary for organizational improvement therefore it is extremely important that change management must be done extremely carefully and with full devotion within the organizations. Change management process not only controls changes in organizations, work products, projects, processes, working methodology, procedures only rather it also includes change management for change in attitudes, believes and behaviors of individuals. In Pakistan, employees are generally resistant to change. Not only employees; but organizations, teams and their work and deliverables are not managed through change management process.
Lack of change management within the organization for people, product, projects, teams, processes and procedures etc. is because of three reasons mainly. The first reason is that change management experts (in our case quality management staff) are not familiar of how change should be implemented. The second reason of resistance to change is that the new change in itself does not seem better to relevant stakeholders than previous scenario. These two reasons are due to lack of expertise of change agents or in our case quality management staff members. The third reason of deprived change management is commitment towards improvement which is essentially less, organization wise. Some staff members are also resistant to change as they suffer from superiority complex and feel that their working methodology is better than anyone else as because they possess more experience or larger knowledge pool. Resistance to change also occurs due to general individualistic attitude, lack of team work, office politics, less interest of staff members, job dissatisfaction and de motivation among employees etc. Unsuccessful change management within the organization creates hurdles for quality management.

11.6.1.48 Trainings
Quality management process relies heavily on trainings. It is therefore extremely necessary that trainings must be managed, effective and must be able to achieve desired outcomes. Unfortunately, since quality management is not considered as an important activity therefore supervisors and employees within the IT organizations do not commit to trainings for quality management. Lack of interest in quality management trainings results in poor quality management knowledge dispersion, absence of employees from trainings (concerning quality management), improperly managed and ineffective trainings, dissatisfied trainers from quality management department etc. All these factors directly affect the quality management process within the organization. Another important factor that needs consideration concerning training is that normally the trainers (quality management employees within the organization), who train employees of the organization for quality management, fail to deliver trainings in efficient and effective manner. This is due to poor knowledge base of the trainers.

11.6.1.49 Staffing & Recruitment
TQM; in addition to its various aspects requires heavy focus on management of people. One of the aspects of people management is that people within the organizations must possess that right skills, expertise and attitude. In most of the IT organizations in Pakistan, heavy focus is laid on the technical expertise of the potential staff members during staffing and recruitment process. Although this seems quite correct but certainly this is not enough. It is extremely important that right people must be selected in the organization. When we use the term right people, we essentially not only refer to the people with the right expertise, rather we also focus on people with the right attitude and the right skills. Here by attitude we refer to individual’s work ethics, professional and general ethics (but not limited to). Skills not only refer to technical and work related skills rather our discussion also involves presence of soft skills like for instance communication, conflict resolution skills, planning and strategic skills, documentation / technical writing skills, understanding of engineering processes, customer, project, product, people and general management skills (but not limited to). Since focus in most of the IT organizations is laid only on technical expertise of potential employees during the recruitment and the staffing process therefore generally the employees who are hired within the organizations lack visionary approach towards work and in particular quality management. Most of the staff members that are hired do not possess any knowledge of organization’s various functions other than their core work. Most of the staff members do not possess that right engineering, management and soft skill knowledge. It can also be said that staff members posses depth based knowledge of one area whereas breadth based knowledge is also essential. These problems overall hinders quality and people management activities within the organizations. Here it is also important to specify that in most of the organization the recruitment and staffing body (HR departments / Managers etc) are not trained and skilled enough to conduct the recruitment and the staffing process keeping in view the organization’s mission, vision, goals and objectives. Why focus is laid on the technical expertise only is because generally; the management and the recruitment and staffing body within the IT organizations do not possess visionary approach towards work and organizations themselves.

11.6.1.50 Conflict Management, Decision Making & Problem Solving
In most of IT organizations, there is no standard method or process / policy / procedure of internal conflict resolution. This leaves a wide open gap in fulfillment and completion of tasks, discussions, decision making and /or problem solving (particularly in relation to quality management). General cause of absence of conflict management procedure / process is management’s unawareness about the
importance of this process / procedure, least interested management and unawareness about the dis
genesis due to absence of conflict management process / policy / procedure / method.
It is also important to note here that conflicts seriously affect the quality engineering process and does
not allow engineering process groups within the organizations to formulate various quality and
organizational related polices / procedures / processes etc. The same is true if the engineering group
members are trained for effective and efficient decision making and problem solving.
In most of the cases, staff members from all over the organizations are not familiar with the decision
making and problem solving techniques. This leaves grey area in organization’s efficiency and
effectiveness. Lack of expertise in problem solving and decision making is also generally due to
management’s unawareness about the importance of these two important points.

11.6.1.51 Arrogance
Most of the quality management experts within IT organizations feel that arrogant, egotistical and
overconfident employees persistently affect quality implementation within IT organizations. In most of
the cases such employees simply refuse to listen and follow the procedures / policies / processes set by
quality engineering process group. Arrogance introduces superiority complex among employees and
makes them feel in control of all the desired knowledge. Unfortunately the knowledge available with
such employees is usually always limited and is based on individual ideas and experiences. These
individual ideas are not comparable to the knowledge of any engineering process group within the
organization that is responsible for the analysis of organization dynamics and for the formulation of
necessary processes, procedures and policies.

11.6.1.52 General Organization
In view of the author and many other quality experts within IT industry of Pakistan, ‘Organization’ is
the most important element of management discipline for quality improvement within an organization.
Unfortunately in Pakistan’s IT industry teams, groups, individuals, organizations’ work products,
organizations’ deliverables and work is generally not organized. Lack of organization causes rework,
delays, reduces organizational productivity, reduces efficiency and gives rise to general mismanagement.
All these elements in turn affect the overall organization’s quality and working of quality management
department itself.
The worst scenario here is that in some of the organizations, quality management departments and staff
members fail to organize their work thereby hindering quality management.
Reason of not organizing properly is lack of employee’s interest in their work mainly, personality issues
and improper professional grooming.

11.6.1.53 Information Hiding
Many quality experts report that many employees always try to hide official information. This attitude
severely damages organization’s improvement opportunities by affecting the knowledge acquisition
process. Information hiding practice is mainly done by employees who try to get individual recognition
from their supervisors, who want to be part of office politics culture or who want to create problems in
other employees’ work.

11.6.1.54 Job Rotation and Enlargement
Pakistan’s IT organizations suffer from resource availability issues. In order to cater these issues, job
rotation and enlargement practice is widely used. Job rotation and enlargement practices are extremely
helpful but their excess creates problems for quality management within the organizations. Quality
management heavily relies on implementation of processes, procedures and / or policies. Policies,
procedures and processes implementation require clear definition of roles and responsibilities. With
changing roles and responsibilities implementation of policies, processes and processes become
extremely cumbersome exercise. This directly hampers quality management.

11.6.1.55 Roles and Responsibility Definition
Quality management depends on standardization which in turn largely depends on policy / process /
procedure engineering, documentation and implementation of these processes / procedures / polices. It is
important to note that effectiveness of process engineering, definition, implementation and control
largely depends on organizational roles and responsibility definition and consistency in these roles and
responsibilities. With rapidly changing internal roles and responsibilities extra rework is required (under
change management process) for stratification of processes / policies / procedures according to latest
working methodology. Changes in policies / procedures / processes also require change in existing
documentation and reimplementation of policies / procedures / processes.
Change in responsibilities and roles occur to resource issues mainly. In usual cases; roles and

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responsibilities are revised or updated based on the standard employee appraisal process (or based on other genuine reason), whereas in some cases roles and responsibilities are changed / revised in order to satisfy employees, in order to facilitate an employee who is at an important position (and wishes to leave the organization), in order to facilitate personal interest of employees and management, in order to handle termination of services of an employee, in order to move an important employee from important to unimportant position, in order to eliminate office politics, in order to facilitate employee who has linkages with organizations’ customers, in order to please those employee that influence other employee’s working Etc.

11.6.1.56 Feedback System

Quality engineering, improvement and overall quality management process largely relies on feedback from all over the organization. In Pakistan’s IT organizations, hardly any formal method of collection of feedback exists. In many of the organization no formal or informal feedback collection is done. In some organization emailing, meeting and informal chatting between the quality management experts, the management and the organization’s employees is a source of feedback collection. Very few organizations make use of online feedback forums for the collection of feedback. Out of the many organizations that collect feedback formally or informally, extremely few organizations officially make use of these feedbacks for the improvement of organization and its quality. Major reasons of not collecting feedback or limited feedback collection is management’s and quality management staff member’s limited interest and vision concerning organizational improvement. An extremely worst scenario is that in case of some organizations quality management departments do not allow feedback in order to avoid changes in their existing work and to avoid change management and rework. Hindrance to feedback collection and improvement from feedback overall decrease the quality management improvement and the improvement of quality as a whole within the organization.

11.6.1.57 Quality Management Expertise

As discussed earlier, very few IT organizations have dedicated quality management departments. Those that do, have extremely limited working confined to product testing only. Out of the organizations that have dedicated quality departments / functions, some focus on product, process and project quality management, extremely rare focus on TQM and people management as well. For the discussion above it can be easily said that quality management function is not dedicatedly and completely carried out in organization in IT industry of Pakistan. Further to this a major problem is that quality management department / function within the organizations lack technical and managerial expertise to implement quality organization wide. This limits organization’s growth and development in term of quality. Reason of lack of quality management expertise in the quality departments / functions is universities’, employees’ and managements’ limited vision about quality and deficiency in universities’ academic curricula in perspective of quality and general management.

11.6.1.58 Suppliers and Vendors

In most of the IT organization, quality management function is confined to internal quality management only. Although this approach is extremely correct but it is also extremely important that quality of suppliers and vendors must also be managed. In this regard, only the organizations that are CMMI level two or above certified in the supplier sourcing discipline, manage their vendor and supplier agreements and work deliverable quality (some only do this for acquiring certifications only). Main reason of not managing the supplier and vendor quality is limited vision, ignorance and lack of realization of benefits of vendor / supplier quality management. Zero quality management of vendors and suppliers results in mismanagement of the supplier and the vendor contracts. Lack of quality management in this area introduces problems in relation to controlling and monitoring the supplier and the vendor performance. Lack of supplier and vendor quality monitoring reduces chances of high quality of output / deliverables / work from the vendors / suppliers. These discrepancies further make the organizations’ customers unsatisfied due to poor quality.

11.6.1.59 Issue Management

Very few organizations actually manage their issues to closure. Those that do are mostly the ones that are CMMI level two or higher certified (some only do this for acquiring certifications only). In most of the cases; issues within the organization are never heard, never analyzed and never handled. In some organizations issues are collected but not analyzed and handled, whereas in others; issues collection is only limited to product development, business development, project management and
Improper, inappropriate and informal issue management introduces environment with ever increasing and never ending problems. Normally issue management is not done within the organizations due to managements’, quality management experts’ and general staffs’ ignorance and unawareness about the importance of issue management for quality improvement.

11.6.1.60 **Engineering Process Groups**

Quality management heavily relies on quality engineering which in turn relies on capabilities, abilities, performance and working of ‘Engineering Process Groups’. ‘Engineering Process Groups’ (some software organization use the term SEPG: ‘Software Engineering Process Group’) comprises of experts from various functions within the organization who understand the organizational (respective functions) requirements in relation to quality management for their respective function. Members of these groups are not only responsible for (with the help of quality management staff members) making quality processes / policies / procedures for their respective function rather it is their responsibility to implement the quality (with the help of quality management staff members). Unfortunately, in Pakistan’s IT industry, members of these groups simply limit their role to feedback only. They do not actively participate in the engineering and the implementation of the quality procedures / policies / processes. This creates a lot of burden for the quality management staff members. One of the major problems experienced by the quality management staff members is the lack of expertise of members of these groups and lack of their interest in group discussion, group meetings and work related to quality management. In addition to lack of interest, in most of the cases, members of these groups do not allow implementation of a policy / procedure / processes that is made by someone else in their respective function (at the same time they do not make these policies / procedures and processes themselves).

Problems stated above directly affect the quality engineering and implementation within the organization. Inappropriate, inexperienced and less knowledgeable group members of ‘Engineering Process Groups’ hinder quality management.

In Pakistan, ‘Engineering Process Groups’, as stated above only and rarely exists in companies that acquire or strive to acquire some quality certification.

11.6.1.61 **Internal Influences on Leaders**

As per observations of quality management experts, in some cases some employees influence leaders’ attitude against the quality management programs. General reason of this influence is conflict of influencing employee with quality management staff members / department / practices, personal self interests and office politics.

Major consequence of this influence on leaders is that they lose interest in quality management and thereby their commitment is limited or nearly absent.

11.6.1.62 **Employees’ Personal Issues**

In many cases quality suffers due to employee’s personal issues. Personal and family issues of employees hinder employee focus on work in general and the victimized employee loses control and interest in work. In such conditions mostly the employees perform their basic tasks only and completely ignore quality which is perceived as an extra work. This drastically affects quality management.

11.6.1.63 **Ignorance**

General ignorance is one of the main reasons of quality mismanagement. This attitude is present in the organizations’ employees if their supervisors are not interested in quality management or the employees are extremely busy or overburdened with their base work.

11.6.1.64 **Rude Behaviors**

Some of the quality experts have experienced that the quality management and /or the general staff become rude with one another during quality management sub function execution like for instance engineering, implementation Etc.

Impolite, discourteous, offensive and bad-mannered behavior results in serious conflict and terrible organizational environment, therefore blocking quality management and implementation.

11.6.1.65 **Organizational Infrastructure**

Inappropriate and unhealthy work environment lowers employee satisfaction and motivation which in turn affects people quality management due to job dissatisfaction. In addition to this, quality management function to some extent partially depends on infrastructure requirements such as IT infrastructure, presence of training and meeting rooms, Etc.

Main reason of unhealthy and inappropriate organizational infrastructure is lack of funds and limitation of leaders’ vision.
11.6.1.66 **Recognition**
Lack of management’s interest in quality management, does not allow management to recognize the work done related to quality, organization wide. Recognition of quality related work is a problem both for the general and the quality management staff. Since generally; management does not recognize quality the way it recognizes the achievements of other functions like for instance project management, business development, Etc, therefore employee lack motivation in doing quality management related work. Further to this, recognition problem also eliminates employee interest for work related to quality.

11.6.1.67 **Research**
Quality management and in particular TQM requires understanding of various organizational dynamics. It is further important that quality management staff members continually try to improve organization by establishing and institutionalizing the world wide best practices and by continually evaluating the organizational quality needs. This kind of work requires research within the organization and research in regard to obtaining understanding of the international best practices.

Unfortunately, in Pakistan’s IT industry, quality management staff members (with an exception of extremely few organizations) do not perform any research for understanding, analysis, exploration and / or explanation of any international standard / best practice. Similarly they do not perform any research for understanding, analyzing, exploring and / or explaining the organization’s internal behavior / shortcomings. Lack of research leaves the quality management and improvement program and activities one step below the desired level.

Lack of research is due to general attitude of the staff members. In most of the cases in Pakistan, staff members are never trained, encouraged and / or required to conduct research during their professional or academic affiliation.

11.6.1.68 **Employee Turnover and Brain Drain**
As very well discussed before, employee turnover and brain drain from the organization severely affects the quality management and improvement program organization wide. This is because employee turnover and brain drain (from both general and quality management staff members) largely affects the quality engineering and implementation. Further with changing staff and with elimination of key staff members from the organizations, quality management programs have to largely undergo through the reimplementation and change management process. Employee turnover and brain drain largely occurs due to dissatisfaction of employees. It is also a result of low motivation and inappropriate human resource related policies.

11.6.1.69 **Understanding of Quality Management Sub Functions**
A widely existing problem as identified by many quality experts is that generally staff members and quality management employees within the IT industry do not understand various sub functions of quality management. In this regard confusions exists as to what is quality control, quality monitoring, quality management, quality monitoring, quality implementation, quality engineering Etc. Lack of awareness of such basic level knowledge hinders basic quality management and improvement organization wide.

Reason behind this lack of knowledge of the quality management’s sub function is lack of knowledge and expertise within the IT industry and lack of knowledge at the academic end.

11.6.1.70 **Placement of Quality Management Department within IT Organization**
In some of the organizations; the quality management department reports to the project management function, whereas in others quality management departments report to the product management executives.

This approach does not allow quality management staff members to control quality of their superior departments / function thereby creating a big loop hole. It is important to note that reason of this mismanagement is office politics, management’s less awareness, and management’s less interest.

11.6.1.71 **Resource Conflicts**
Generally; in most of the organization (with an exception of few), there are no dedicated quality management human resources. This scenario naturally creates resource conflicts. Further to this; resource conflicts are also common in case of general staff members who are always confused about how they should manage their core work and their focus on quality.

Few reasons of resource conflicts are (but not limited to) limited funds available to an organization, over burdened staff members, poor resource planning, disintegrated project management, resource mismanagement, less interest of organizations’ management in quality management program Etc.

Resource conflicts decline productivity, efficiency and effectiveness of quality management program. It further eliminates focus of quality management and general staff on quality management activities.
Another major problem is that resource conflicts give rise to general conflicts thereby further affecting the quality management and improvement organization wide.

11.6.1.72 Legal Issues
In most of the cases, as the organizations reach a reasonable quality level, they plan on acquiring some quality certification. This calls for a formal contract between the organization and the quality certification service provider. Unfortunately, a major problem that most of the quality management staff members experience is the lack of abilities to formulate, understand and manage contracts. Similar to this situation, understanding of contracts is extremely important for the quality uplift of project management, product management and business development function. Absence of knowledge concerning legal issues creates a large barrier for general quality management. Main reason of unawareness about the legal and contractual issues is the lack of knowledge of quality management staff members about business laws and contract management discipline. This issue is due to poor training at both the professional and the educational level.

11.6.1.73 Literature
Quality management function most of times requires availability of necessary literature like for instance IEEE standards, CMMI standards Etc for research and understanding. Unfortunately in most of the organizations, no importance is given to quality management. This attitude of the management and the general staff members does not allow acquisition and availability of proper literature for quality management staff members. The result is poor and deprived understanding of the quality management staff. Lack of knowledge of staff members severely undermines quality management activities.

11.6.1.74 Go Quantitative
Although in most of the organization quality management function is executed but very few make use of quantitative methods for the research, understanding, analysis and exploration of the quality trends within the organizations. Many of the organizations lack the necessary quality management staff that has the ability to use statistical and quantitative techniques for the improvement of the quality. It is also important to mention here that quantitative methods are avoided by quality management staff members because usage of quantitative methods requires deep understanding of the subject. Unfortunately in Pakistan’s universities and IT organizations; no specific trainings / coaching are given to students / employees that teach them to use quantitative methods. Lack of quality management staff members’ quantitative expertise hinder quantitative quality management which is extremely essential for quick, error free, objective and precise quality management and improvement.

11.6.1.75 External Infrastructure Barriers
In addition to many important points that were discussed earlier, at times external infrastructure barriers also affect the organizations productivity and quality. These external barriers mainly include lack of power supply, poor performance of vendors (as discussed earlier) {for instance water supply, paper supply and supply of other equipment necessary for day to day organization’s operation} Etc.

11.6.1.76 General Mismanagement
General mismanagement and lack of management ability, skills and capability within the organization seriously affects the overall quality management function. This is very much true in case of Pakistan’s IT organizations where management is not so strong and capable. Much of the causes and consequences have been discussed earlier, however broadly speaking weak internal management results in lack of achievement of organizational objectives, goals and mission. In addition to this it is in actual the management that determines the overall performance of the organization and its function. Quality management function heavily relies on management’s commitment and sponsorship and the right management’s vision for its success.

11.7 Recommendations
Figure 11.1a presents set of recommendations framework:
[Figure 11.1a] Quality Improvement Recommendation Framework (A Cultural, Behavioral and Managerial Perspective)
Figure 11.1b presents key to Figure 11.1a:

Figure 11.2 presents set of recommendations for improvements required at national level:

Table 3.11 identifies ‘Quality Management’ as an important area of concern for the IT industry of Pakistan. Discussion of issues related to quality management is simple and straightforward. Figure 11.3 helps us in explaining the issues using a fish bone diagram as follows:
11.8 Conclusions
This chapter presents analysis and exploration of the cultural, behavioral and managerial barriers to quality improvement, management and implementation. It also specifies improvements that are required for the uplift of quality in relation to behaviors, culture and management. The chapter also presents recommendations for the improvements in this area at the national level.

Figure 11.4a and Figure 11.4b explain which issues (identified in Figure 11.3 and Figure 4.3 {some issues were left unaddressed in the fourth chapter}) are addressed using a fish bone diagram as follows:
[Figure 11.4b] Addressing Organization’s Culture Issues as Identified from Chapter Three
11.9 Bibliography


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11.10 Endnotes


[13] Kerstin V. Siakas, Undated, What Has Culture to do with SPI?, Technological Educational Institution of Thessaloniki, 28th Euromicro Conference (EUROMICRO ’02), Pg 376.


CHAPTER TWELVE: MANAGING SUPERVISORY DIVERGENCE IN CROSS CULTURAL IT ORGANIZATIONS OPERATING IN PAKISTAN (EXPLORING, ANALYZING AND EXPLAINING PROBLEMS AND SOLUTIONS)
12 CHAPTER TWELVE: MANAGING SUPERVISORY DIVERGENCE IN CROSS CULTURAL IT ORGANIZATIONS OPERATING IN PAKISTAN (EXPLORING, ANALYZING AND EXPLAINING PROBLEMS AND SOLUTIONS)

12.1 Chapter Introduction

12.1.1 Preface

Before proceeding further it is important to mention here that the author of this thesis with the help of his supervisor i.e. Dr. Ali Sajid extracted a research paper out of this chapter that was accepted and published in “2nd International Conference on Knowledge Generation, Communication and Management: KGCM 2008, June 29th - July 2nd, 2008 – Orlando, Florida, USA”.

12.1.2 Executive Summary

History has shown that global IT conglomerates seem to be ahead of their Pakistan’s counterparts in terms of technological evolution and the ability to realize technology on time. On the other hand a closer look reveals that in this era of globalization, many a times, globally recognized general supervision practices do not guarantee operational excellence. Given the reality that multinationals experience sturdy competition in Pakistan from other counterparts, it becomes imperative to comprehend that guaranteeing operational excellence in Pakistan particularly for global management, requires focus on employee contentment & motivation (the two key elements important for operational and long term excellence in South Asia). This focal point can be achieved only by enhanced understanding of cross cultural divergence in term of middle management and how these divergent ideas are sources of unconstructive, abstract but significant consequences.

12.1.3 Background

“Pakistan a viable destination for BPO”
Lehman Brothers Pakistan IT Industry Report, 2006

“Pakistan as a rising star offers a surprising new home in South East Asia for Outsourced Customer Management”
IDC, USA from the Report Pakistan as Rising Star, July 2006

The above two statements have been used from the presentation “Destination Next” by PSEB. The statements above are the only few statements out of many that help us in realizing the importance of IT industry in relation to interest of the foreign companies (Refer to Annex 56). The foreign direct investment alone in IT & Telecom Sector has been $ 1,937.7 million (2005-2006).† It is also important to note that as per BOI, GOP (Ministry of IT & Telecom, PTA, PTCL, PSEB, Economic Survey 2005-06) there are 58 foreign IT & Telecom companies working in Pakistan. As per the figures from state bank of Pakistan foreign direct investment in the IT and Telecomm sector has been 789.0, 949.4 , 1,524.0 and 1937.7 Million USD in 2002-03, 2003-04, 2004-05 and 2005-2006 respectively.

The above positive expansion of the IT industry in relation to foreign direct investment calls for better and careful understanding of the business and management requirements for foreign based IT organizations in Pakistan. Based on the fact stated here it is important to understand that management practices in countries like Pakistan need to be carefully understood. Particular focus should be laid by the foreign investors who plan to do operations in IT sector of Pakistan in understanding of ideal management practices suitable for the country. In addition to this foreign (particularly) and local management must together carefully understand the divergent management issues, problems and their possible consequences.

The author believes that understanding of this divergence between management styles would be beneficial for the foreign based IT organizations in Pakistan. Further to this the author also believes that understanding, analysis, clarification and elimination of these differences would help reduce the negative influences of supervisory divergence on operations and employee motivation in particular.

12.1.4 Objectives

The main objective of this chapter is to obtain answer(s) to the fifteenth research question; identified in ‘Chapter One’.

* Investment Potential (next 3-5 years) (Post 2005-2006): USD 5-8 billion (Source: BOI, GOP)
† There are several foreign IT companies doing business in Pakistan. Many of these companies contribute a lot to IT revenue. This research question is particularly important for these companies. It is important that they understand the dynamics of management in Pakistan and realize and understand the difference in management style between foreign and local management requirements.
12.1.5 Purpose
The research being undertaken is to test the proposition that required and recommended supervisory practices in IT corporations of Pakistan differ dramatically from management practices in IT organizations in other countries. This research focuses on recognition of the proposition that global management practices (especially in terms of human resource satisfaction & daily operational course of action) do not necessarily help these organizations in achieving their long term objectives in Pakistan. The paper focuses on how foreign managers should manage in Pakistan. The paper does not focus on identification of the fact that how Pakistani management should actually manage / work in organizations.

12.1.6 Significance
It is important to emphasize the fact here that historically no similar exploratory, explanatory and analytical research has been conducted for the IT industry of Pakistan that formally helped in understanding, clarification, explanation and analysis of supervisory divergence (including issues and consequences) for IT industry of Pakistan. Till date there is no understanding of how supervisory divergences influence IT organizations in Pakistan.

The research in this chapter reveals management of supervisory divergence as an integral factor for organizations in Pakistan for obtaining competitive advantages. It is intended that findings of research in this chapter can be used to bring improvements in the work being done in the IT industry. This may serve as a valuable contribution in uplifting the IT economy of Pakistan.

12.1.7 Limitations & Constraints
Although the subject has its scope covering the entire Pakistan but due to its similarity of social and corporate environment the applicability of the information (input) has only been observed in Islamabad and Lahore due to limitation in access to other cities.

12.1.8 Scope
Section 12.1 of this chapter presents the introduction. Subsequent to Section 12.1, Section 12.3 and 12.4 present the literature review and the research methodology respectively. Section 12.5 specifies the data collection methodology and the sources of the data. Section 12.6 presents the main body of this chapter covering following agendas:

1. The basic significant divergent corporate social and cultural factors responsible for operational bottleneck, productivity & quality decline.
2. The five primary divergent social and cultural factors responsible for general motivational decline of employees in Pakistan.
3. The five primary divergent social and cultural factors responsible for unconstructive long term significant consequences in organizations in Pakistan.

After the analysis and discussion, necessary recommendations are given in Section 12.7. Section 12.7 identifies management practices necessary for minimizing negative consequences due to supervisory divergence.

12.2 Chapter Specific Abbreviation and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tr>
<td>PK</td>
<td>Pakistan</td>
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<td>IND</td>
<td>India</td>
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<td>SL</td>
<td>Sri Lanka</td>
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<td>SR</td>
<td>Social Responsibility</td>
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<tr>
<th>Abbreviation</th>
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<td>SA</td>
<td>South Asia</td>
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<td>BN</td>
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12.3 Literature Review
Comprehensive literature is available that concerns supervisory management differences and conflict management practices and theory worldwide. Details of this literature are not being discussed here due to the reason that we are concerned with literature concerning Pakistan and IT industry of Pakistan in particular. It is important to specify here that literature concerning Pakistan’s IT industry, supervisory divergence and conflict management is not available at all. Adding up the literature concerning conflict management and Pakistan in general is extremely rare therefore no significant theoretical framework could be established.

12.4 Research Methodology
Figure 12.0 presents the research methodology:
12.5 Data Collection
12.5.1 Sources of the Data
Three sources were used for data collection as follows:
   A) Literature
   B) Ethnography
   C) Internet, newspaper Etc
   D) Industry Feedback

12.5.2 Collection Method
The data collection was done through four main resources as stated in Section 12.5.1. Data collection methodology for the first three sources would not be explained here due to the simplicity of discussion. For the industry feedback, data collection was mainly done using informal extensively long discussions with necessary stakeholders from the industry who were actively involved in management of IT organizations.

12.6 Analysis
12.6.1 Managing and Minimizing Supervisory Divergence
12.6.1.1 The Basic Significant Divergent Corporate Social and Cultural Factors Responsible For Operational Bottlenecks, Productivity & Quality Decline
Starting with our discussion, it is important for us to start the debate and find out social and cultural factors that are responsible for operational bottlenecks, productivity and quality decline. Initiating the debate let us look at these factors in a single snapshot.

12.6.1.1 Information Stretch
PK, IND & other South Asian nationals commonly belong to community that necessitate information more than desired to complete their set of activities. Explanation of this behavior is that by ancestry most South Asians possess anti risk adoring behavior. In other plain and straightforward terms, underprivileged livelihood in South Asia requires greater awareness of all employees to focus well on their jobs. This in another expression means that employees who would struggle to give their best shot at least, possess an attitude where they require extra ordinary clarification to operate at their best without any wastage and overheads.
In relation to above discussion it has been observed by the author that employees in many foreign based
IT organizations report about their managers that they hinder the daily operations of all local staff resulting in low productivity of all individuals & organization itself. The argument above has been put forward after separating the issue of verbal communication barrier which in itself is a major source of information barriers.

12.6.1.1.2 Visioning
Interviews / surveys and ethnography reveal that in foreign based IT organizations in Pakistan (Results reviewed in PK) by and large, managers focus on short term objectives only. The problem when and as seen by many of the managers is in an isolated framework independent of concealed but coexisting activities & consequences. Work environments & ethics in SA (particularly in PK & IND) are profoundly dependent on hidden overheads and complex communal structures. This is due to highly emotional & socially active workforce. Operations in such social setups require management that does not view problems and issues in seclusion. Adding to this conclusion, operations and general management in Pakistan demands focus on long term consequences and strategies.

12.6.1.1.3 Standard of Livelihood
Dissimilarity in perspective of “What is a good standard of living?” is a matter of contention. For most foreign managers high-quality living syndrome is separated from the base factors like joint family infrastructure and the synthetic demonstration in society. Superior livelihood in Pakistan is much dissimilar in a way that it not only caters the element of self satisfaction but also focuses on representation of an individual socially. This basic mix and match between the working cultures augments social issues for Pakistani subordinates that forces them to input their energies in maintaining equilibrium between their own social requirements and requirements enforced by their foreign supervisor, hence lowering their productivity.

12.6.1.1.4 Confidence & Trust
Pakistan is one of the countries around the globe where citizens have British colonial influence. This resulted in mass communication of this region with other parts of the world. The affect of globalization can be observed openly from the very beginning of time when rulers like Muhammad Bin Qasim, Mughals, British and other great emperors stepped in the region for trading and political purposes. Pakistan has conventionally been open towards trade and generally the society is willing to absorb other cultures in it. On the other hand an observation by local IT staff members is that foreign managers have lower tendency to open up for mass communication mainly due to the language factor and due to their low willingness to cope up with other cultures. This self induced low profile attitude by foreign managers results in basic management barriers. This results in further turn down of self confidence among local employees. Foreign managers, basically practice closed circle attitude (as observed by many Pakistani Managers) and mostly they do not rely straightly on their Pakistani coworkers due to their limited confidence on them. Source of this mistrust on coworkers is also due to the social working style that has influences of corruption as well.

12.6.1.1.5 Empowerment
Due to the low ability to trust subordinates by foreign managers, it becomes impossible for the foreign managers to give up power in order to gain power. This straightly results in over and undesirable occupancy of the management resulting in factors like inadequacy of time, restriction of energy, meager vision, administrative productivity decline, poor utilization of the resources at the subordinate level and most prominently decisions that do not accommodate the social constraints.

12.6.1.1.6 Management by Objectives
Survey conducted for this research against 30 middle management personal (In IT organizations in PK) working under foreign management supervision indicate that in most of the cases middle management style is similar to concept of “Management by Objectives”. This notion is very much comparable to middle management practices in Pakistan. Middle management style in Pakistan’s IT industry is comparable to MBO. This is due to high unpredictability and uncertainty of event and activities. Despite this tendency, unlike foreign managers, middle management in Pakistan’s IT industry as a social attribute do not lose focus on the processes (the argument here does not involve the discussion of how efficient and effective the processes are). Foreign supervisors however, generally fail to cope up with the procedures (especially during urgencies) resulting in quality deterioration and operational bottlenecks.

12.6.1.1.7 Responsibility Definition
In continuation to discussion in the last point, one big cause why foreign management does not follow processes & procedures is that within many of Pakistan based foreign organizations roles and responsibilities are not clearly defined. This gives rise to issues like overlapping of work &
responsibilities. This finding has been purely obtained after ethnography.

### 12.6.1.8 Excessive & Inappropriate Job Rotation
A major dissimilarity observed is that mostly managers from other parts of the world working in Pakistan’s IT do not feel hesitant of doing any job mainly due to their background and upbringing that supports dignity of labor. Pakistan by its ancestry is part of a society where citizens are extremely emotional & self-esteem or ego is very high. This makes it absolutely cumbersome for any Pakistani staff member to work on any subject matter if he / she does not find it appropriate for him or herself. Secondly in countries like Pakistan, which possess a relatively unstable infrastructure & deprived work environment, job rotation poses overheads that lower productivity and create operational bottlenecks again.

### 12.6.1.9 Inflexible, Delayed & Weak Decision Making Without Consultation of Local Staff
This part of the chapter is very much self explanatory. Based on the analysis conducted in PK, most of the subordinates having foreign supervisors believe that fundamental hindrance in smooth execution of operation lies in delayed decisions. In addition to this another observation is that most of the decisions taken by foreign management do not elucidate the solution to a particular problem, the decisions are made without proper problem investigation, without consultation & moreover they are inflexible even if the decision is incorrect.

### 12.6.1.10 Stumpy Reliance on Trainings
Pakistani staff members being naturally communicative, confident and aggressive look forward to training as a tool of higher learning. This philosophy, however fails when the trainer or the trainee is from another culture, who believes that trainings can only be imparted to them in the most optimum manner if the source / training party is from their own culture. This results in least interest in trainings from foreign counterparts. One major cause behind not taking the trainings seriously by foreign managers is slight superiority complex in terms of technological edge that foreign managers have over Pakistanis. This trait compels them to overlook expertise of their Pakistani team members.

### 12.6.1.11 Reliance on Work Environment
A good observation is that some foreign managers (particularly from China) do not rely profoundly on the quality of their work environment. In author’s viewpoint they are the nation who can deliver the maximum under any kind of circumstances. For any manager from nations such as China; personal offices, stationery and other working conditions ranging from temperature to illumination Etc are not that significant. This, however, is not true for most Pakistani staff members, where work environment is considered to be one of the biggest sources of job satisfaction. For some managers (particularly Chinese), low dependency on work environment can be result of their subtle / understated attitude. For Pakistanis, high dependency on the work environment may be a cause of a deprived nation. This difference in attitude results in poor synchronization between the two different kinds of management styles.

### 12.6.1.12 Moderate Xenophobia
The given indicator might appear as a negative observation for some foreign managers, but in reality the conceptual framework that it covers is not that negative. By discussing xenophobia, the focus is made on the fact that Pakistanis have open and absorbing cultures. Some nationals, however, possess a slightly closed circle attitude. This observation has been made after discussions with many managers in Pakistan who think that common cause of hindrance to their base operations is low reliance of foreign staff on their Pakistani counter parts.

### 12.6.1.13 Career Building
While on job, top priority of employees in Pakistan is to look after their benefits. For some of the foreign managers the situation is slightly dissimilar. Since managers belonging to different nationalities are relatively more loyal and patriotic therefore their focus is on the organization first. For this they would de prioritize their own requirements and desires from life. In addition to this, foreign managers are generally focused on their long term benefits whereas Pakistani staff members possess a completely reciprocal attitude. Further, factors like designation, organizational hierarchy, power and influence on others hand do not play a significant role in determining focus of foreign staff on their career. For Pakistanis however, these factors are the key determinants for a successful career.

### 12.6.1.14 Focus on HR (Retention)
Although it is very well known that foreign managers never let go the people whom they trust but at the same time earning their trust is a cumbersome task. Some of the foreign managers (particularly from countries like China) have less concern of HR availability. Although this concept is similarly practiced
in Pakistan, but the focus on HR retention is relatively higher. The two approaches therefore hinder the base productivity.

12.6.1.15 Understanding Local Customers
Low acceptability to customer’s customs and culture- many team members in Pakistan suggest that, since foreign managers are at times not flexible against social norms of recipient nation therefore strict attitude towards their own culture hinder base operations.

12.6.1.16 Oral & Mass Communications
Language barriers and barriers to technical writing impose notable delays to projects & operations.

12.6.1.17 Accepting Improvement Feedbacks
Foreign mangers do not allow feedback to their current management system. Poor feedback mechanism does not allow improvements and management customizations according to local norms.

12.6.1.2 The Five Primary Divergent Social and Cultural Factors Responsible for General Motivational Decline of Employees in Pakistan

Table 12.0 explains:

<table>
<thead>
<tr>
<th>Table 12.0</th>
<th>Five Primary Divergent Social and Cultural Factors Responsible for General Motivational Decline of Employees in Pakistan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign Management</td>
<td>Pakistani Management</td>
</tr>
<tr>
<td>Religious Conviction:</td>
<td>High religious values.</td>
</tr>
<tr>
<td>Social Activeness:</td>
<td>Highly active socially.</td>
</tr>
<tr>
<td>General Lifestyle:</td>
<td>Flexible.</td>
</tr>
<tr>
<td>Vision:</td>
<td>Focus is on short term objectives.</td>
</tr>
<tr>
<td>Standard of Livelihood:</td>
<td>High requirements.</td>
</tr>
</tbody>
</table>

12.6.1.3 The Five Primary Divergent Social and Cultural Factors Responsible for Unconstructive Long Term Significant Consequences in Organizations in Pakistan

Table 12.1 explains:

<table>
<thead>
<tr>
<th>Table 12.1</th>
<th>Five Primary Divergent Social and Cultural Factors Responsible for Unconstructive Long Term Significant Consequences in Organizations in Pakistan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign Management</td>
<td>Pakistani Management</td>
</tr>
<tr>
<td>Empowerment &amp; Employee Trust:</td>
<td>Low trust on employees and centralized sense of management.</td>
</tr>
<tr>
<td></td>
<td>Medium trust on employee and moderate sense of management (not too centralized nor decentralized).</td>
</tr>
<tr>
<td>Cross Cultural Information Spread:</td>
<td>Low information exchange</td>
</tr>
<tr>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td>Job Definition:</td>
<td>Poor job definition</td>
</tr>
<tr>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Vision:</td>
<td>Focus is less on short term objectives.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Rotation:</td>
<td>High job rotation</td>
</tr>
</tbody>
</table>

12.7 Recommendations
Table 12.2 explains:

Organization Development for Revitalization of Information Technology Sector of Pakistan By: Ali Ahsan (All Rights Reserved)
### Table 12.2 Target Factor & Explanation

<table>
<thead>
<tr>
<th>Target Factor</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visioning</td>
<td>a. All senior management key players must have a common and approved vision to process relationship diagrams for their respective teams / departments / functions etc.</td>
</tr>
<tr>
<td>Standard of Livelihood</td>
<td>b. Foreign management must understand the local understanding of ideal standard of livelihood.</td>
</tr>
<tr>
<td>Confidence &amp; Trust</td>
<td>c. Managements of either side must have strong monitoring &amp; control.</td>
</tr>
<tr>
<td>Empowerment</td>
<td>d. Proper neutral hierarchy and quality organizational setup can help resolve this grey area.</td>
</tr>
<tr>
<td></td>
<td>e. Timely reviews can help earn trust from either side.</td>
</tr>
<tr>
<td></td>
<td>f. There must be a conflict resolution department.</td>
</tr>
<tr>
<td>Management by Objectives</td>
<td>g. MBO must be practiced at the operational level only.</td>
</tr>
<tr>
<td></td>
<td>h. MBO strategy does not pay off higher or functional management level.</td>
</tr>
<tr>
<td>Responsibility Definition</td>
<td>i. Clear responsibility matrix must be identified.</td>
</tr>
<tr>
<td>Excessive &amp; Inappropriate Job Rotation</td>
<td>j. Job rotations must be done after mutual discussion from employees and must be done in a timely fashion.</td>
</tr>
<tr>
<td>Inflexible, Delayed &amp; Weak Decision Making</td>
<td>k. Veto system must be in practice.</td>
</tr>
<tr>
<td>Without Consultation of Local Staff</td>
<td>l. All organizations must have different workgroups.</td>
</tr>
<tr>
<td></td>
<td>m. Member of these workgroups must have common opinion pertaining to every decision.</td>
</tr>
<tr>
<td></td>
<td>n. Empowerment helps in quick decisions as well.</td>
</tr>
<tr>
<td>Stumpy Reliance on Trainings</td>
<td>o. Transfer of technology can help.</td>
</tr>
<tr>
<td>Reliance on Work Environment</td>
<td>p. Proper transfer of technology can help us obtain the right trainers.</td>
</tr>
<tr>
<td>Moderate Xenophobia</td>
<td>q. Both the parties need to be flexible to some extent.</td>
</tr>
<tr>
<td>Career Building</td>
<td>r. Must be avoided.</td>
</tr>
<tr>
<td>Focus on HR (Retention)</td>
<td>s. Proper career paths must be identified.</td>
</tr>
<tr>
<td></td>
<td>t. Foreign management must realize that their functionality is dependent on local HR. Local HR must be given importance.</td>
</tr>
<tr>
<td>Understanding Local Customers</td>
<td>u. Training programs must be there for foreign managers by local managers to help them understand the local customers and their requirements with reasons.</td>
</tr>
<tr>
<td>Oral &amp; Mass Communications</td>
<td>v. Training programs help.</td>
</tr>
<tr>
<td></td>
<td>w. Interpreters play a key role.</td>
</tr>
<tr>
<td>Accepting Improvement Feedbacks</td>
<td>x. Interpreters play a key role.</td>
</tr>
</tbody>
</table>

### 12.8 Conclusions

As discussed in the background, the chapter is specifically meant for improvement of management practices in foreign based IT organizations in Pakistan. The author believes that many organizations in Pakistan that are foreign based in the IT industry require general improvement in their management style (compatible with the local work and general culture) for the general uplift of the whole IT industry. The chapter specifically focuses on the management aspects that make management of IT organizations in Pakistan different from the management of IT organizations in other part of the world. The author specifically focuses on the foreign management practices that experience conflicts in the local industry.

General results of research reveals that supervisory divergences occurring due to conflict in the management styles of the local and foreign management strictly lowers quality, productivity and employee motivation. Further to this it is also revealed that much of the problems arising due to supervisory divergence have long term destructive affects on the organizations.
12.9 Bibliography


Human Resources, China's People Problem, (2005) Hong Kong And Shanghai, From The Economist Print Edition.


**12.10 Endnotes**

CHAPTER THIRTEEN: MANAGING SOCIAL VALUES IN CROSS CULTURAL IT ORGANIZATIONS OPERATING IN PAKISTAN (EXPLORING, ANALYZING AND EXPLAINING PROBLEMS AND SOLUTIONS)
13.1 Chapter Introduction

13.1.1 Preface
Before proceeding further it is important to mention here that the author of this thesis with the help of his supervisor i.e. Dr. Ali Sajid extracted a research paper out of this chapter that was accepted and published in “2005, IEEE International Engineering Management Conference, A Strategic View of Engineering and Technology Management.” on September 11 – 14, 2005 held at St. John’s, Newfoundland & Labrador Canada. The conference was organized by IEEE Engineering Management Society, IEE Management Professional Network, IEEE Newfoundland & Labrador Section and IEEE Canada. The conference IEEE Catalog Number is 05CH37681C and ISBN Number is 0-7803-9140-3.

13.1.2 Executive Summary
Recent history has shown that many IT organizations in Pakistan implement corporate social responsibility (CSR) and sustainability practices. The question does not lie in understanding if these organizations are really doing a better job of avoiding unethical conduct on a large scale but the question is that do they understand Corporate Social Responsibility requirements for Pakistan’s society? A closer look reveals that in this era of globalization the present day business operations in the United States, Europe and other parts of the world are not as different as many assume. Both have to deal with the muddled up explanation of what it means for a company to be ethical and responsible.

Given the reality that the multinational corporations yield massive influence in developing countries like Pakistan, India Etc, where working in the corporate atmosphere is considered a symbol of class, it is quite appropriate to insist that actions of these capitalist multinationals must be synchronized with the fact of realization of greater responsibility in helping address the rising encumber of basic human needs (yet ignored in Pakistan).

13.1.3 Background
Section 12.1.3 presents background that is equally important for this chapter. Much of the discussion is similar. The only difference lies in the fact that this chapter speaks of how IT organizations must manage their business practices and social values when operating in Pakistan (irrespective if it is foreign based organization or not). This chapter does not talk about issues arising due to supervisory divergence; rather it focuses on the corporate social responsibility.

13.1.4 Objectives
The main objective of this chapter is to obtain answer(s) to the sixteenth research question; identified in ‘Chapter One’.

13.1.5 Purpose
This research is being undertaken to test the proposition that ethics, governance and corporate social responsibility practices for corporations based in the Pakistan differ dramatically from corporations based in other parts of the world. The analysis is meant to provide IT companies in Pakistan with a better understanding of the similarities and differences between the business environments. For any IT organization in Pakistan following are the important areas in which pondering would instigate after reading this entire chapter:

• What is the business rationale for corporate responsibility and how can we set key performance indicators?
• What is an effective corporate social responsibility for any organization?
• Which parameters (social and organizational) must be focused at for defining and improving corporate social responsibility?
• How various business practices differ from the social norms and how the difference impacts organizations and its employees?

* There are several foreign IT companies doing business in Pakistan. Many of these companies contribute a lot to IT revenue. This research question is also particularly important for these companies. It is important that these companies understand the social values of employees in Pakistan’s IT industry and realize their basic social responsibility. The given research is also important for the local organizations who plan to manage their work and working ethics.
† By default we mean IT corporations / organizations in Pakistan from this point onwards.
13.1.6 **Significance**

It is important to emphasize the fact here that historically no similar exploratory, explanatory and analytical research has been conducted for the IT industry of Pakistan that formally helped in understanding, clarification, explanation and analysis of management of social issues for IT industry of Pakistan. Till date there is no understanding of how social issues influence IT organizations in Pakistan. The research in this chapter reveals management of social issues as an integral factor for organizations in Pakistan for obtaining competitive advantages. It is intended that findings of research in this chapter can be used to bring improvements in the work being done in the IT industry. This may serve as a valuable contribution in uplifting the IT economy of Pakistan.

13.1.7 **Limitations & Constraints**

Although the subject has its scope covering the entire Pakistan but due to its similarity of social and corporate environment the applicability of the information (input) has only been observed in Islamabad and Lahore due to limitation in access to other cities. Most of the discussion is restricted to social values, practices & setup in urban Pakistan. This research does not cater issues that organizations may come across during implementation of the action items / recommendations.

13.1.8 **Scope**

Section 13.1 of this chapter presents the introduction. Subsequent to Section 13.1, Section 13.3 and 13.4 present the literature review and the research methodology respectively. Section 13.5 specifies the data collection methodology and the sources of the data. Section 13.6 presents the main body of this chapter covering following agendas:

1. The changing social trends in Pakistan and their relation with the corporate practices.
2. The social factors responsible for decline of productivity in the hi-tech corporate environment and its repercussions.
3. Managing these issues so as to reduce the unconstructive effect.
4. The corporate factors responsible for decline of motivation in employees in Pakistan and its repercussions.
5. The historical examples in relation to this topic.

After the analysis and discussion, necessary recommendations are given in Section 13.7. Section 13.7 identifies management practices necessary for minimizing negative consequences due to mismanagement of social values.

13.2 **Chapter Specific Abbreviation and Acronyms**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
</tr>
<tr>
<td>PK</td>
<td>Pakistan</td>
</tr>
<tr>
<td>IND</td>
<td>India</td>
</tr>
<tr>
<td>SL</td>
<td>Sri Lanka</td>
</tr>
<tr>
<td>SR</td>
<td>Social Responsibility</td>
</tr>
<tr>
<td>SA</td>
<td>South Asia</td>
</tr>
<tr>
<td>FBS</td>
<td>Federal Bureau of Statistics Pakistan</td>
</tr>
<tr>
<td>BN</td>
<td>Bangladesh</td>
</tr>
</tbody>
</table>

13.3 **Literature Review**

Comprehensive literature is available that concerns CSR practices and theory worldwide. Details of this literature are not being discussed here due to the reason that we are concerned with CSR literature concerning Pakistan and IT industry of Pakistan in particular. It is important to specify here that literature concerning Pakistan’s IT industry and CSR is not available at all. Adding up the literature of CSR concerning Pakistan in general is extremely rare therefore no significant theoretical framework could be established.

Similar to the case of CSR, ample literature is available that talks about management of social values internationally. Like CSR, however social value management related literature does not exist for Pakistan’s IT industry. Extremely rare literature exists for Pakistan in general that concerns management of social values.

13.4 **Research Methodology**

Figure 13.0 presents the research methodology:
13.5 Data Collection

13.5.1 Sources of the Data

Three sources were used for data collection as follows:

A) Literature  
B) Ethnography  
C) Internet, newspaper Etc  
D) Industry Feedback

13.5.2 Collection Method

The data collection was done through four main resources as stated in Section 13.5.1. Data collection methodology for the first three sources would not be explained here due to the simplicity of discussion. For the industry feedback, data collection was mainly done using informal extensively long discussions with necessary stakeholders from the industry who were actively involved in management of IT organizations.

13.6 Analysis

13.6.1 Managing Social Values

13.6.1.1 The Basis of CSR

‘Corporate Social Responsibility’ (CSR) is a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis. Every aspect of business has a social dimension. CSR practices in Pakistan must encourage open and transparent business practices that are based on ethical values and respect for employees, communities and the environment. It must be designed to deliver sustainable value to society at large, as well as to shareholders.

Today, corporate social responsibility goes far beyond the philanthropy of the past. Donating money to good causes at the end of the fiscal year is simply not the solution (A study revealed that at the end of the 21st century, 51 of the 100 biggest economies in the world were corporations, and only 21 countries had GDPs that were higher than the top six corporations also 2 million work-related deaths occur each...
year in Asia.) and is instead an ongoing responsibility that companies have to fulfill in the form of maintenance of environment and best working practices. This is for their engagement in their local communities and for their recognition that survival factor depend not only on quality, price and uniqueness but on how, cumulatively, they interact with companies’ workforce, community and environment. Figure 13.1 clarifies:

![Figure 13.1] Basic CSR Tree for SA

13.6.1.2 The Changing Social Trends in Pakistan and Their Relation With The Corporate Practices
(Trend title is followed by trend analysis / description followed by relation with corporate practices.)

13.6.1.2.1 Family Setups
Recent studies conducted by the FBS\(^1\) have shown that increase in educational responsiveness, increase in the contribution of females workforce in the labor force, general health decline over the years and relocation from rural to urban areas have contributed mainly to the shift in family setups in Pakistan. Among the main reasons of shifts in family setups is that the increasing dependency on the house wives (poorer the family the greater is dependency). Although this dependency has an increasing trend; but the female workforce of Pakistan is not skilled (educated) enough to fulfill the responsibilities in this regard. The second most important factor contributing to the family setup shift is the escalating overburdened male population (overburdened from both work & domestic issues). Finally the shift in the structure of employment by industry is the main contributing factor. Industrial trends show that the share of workforce in agriculture sector has decreased from 48.4% in 1999-2000 to 42.1% in 2001-2002. This decline is noted for both males and females. The non-agriculture sector such as manufacturing, trade, services and transport have created, relatively, more employment opportunities during 2001-2002. Changing family trends (ones stated) directly contribute in the decline of productivity, employee’s availability and the motivational level hence lowering the company’s efficiency. The imperative point to be noted is that CSR policy makers must acknowledge that shifts in these family setups is a significant catalyst while formulating organizational policy.

13.6.1.2.2 Requirements Shift
With the changing family setups and other social parameters the basic parameter affected is the requirements shift. From requirements shift, we mean the necessities associated with day to day living. Some good illustrations could be growing requirement of self owned automobile (currently 9 per 1k people is the main contributing factor), awareness of education as a basic obligation, improved exposure to higher standard of living that influences the pace of requirements transformation, realization of

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inadequacy of time that triggers many changes in terms of consumption of various products, general life style etc.

Changing requirement trends (particularly outlined in the examples) directly contribute to decline of productivity if not in line with the labor / HR practices. The corporations must cater all the requirements of any employee if he / she cannot sustain under his / her milieu, family setup etc. The HR departments must study these changes and must contribute to updating procedures, infrastructure and perks.

13.6.1.2.3 Increasing Educational Achievement

Indicators accessed such as primary schools, middle schools, secondary schools, secondary / vocational institutions, teachers per primary school, teachers per middle school, teachers per secondary school, students per primary school, students per middle school, students per secondary vocational institutions, enrollment in universities over time (as available on FBS), moreover the recent industrial growth rate i.e. 8% approx (PK) reflect continuous raise in educational awareness and setup of Pakistan.

Educational accomplishment of any society contributes to self awareness of individuals, resulting in better understanding of their social & moral rights and resulting in increase in requirement of better standard of living. This naturally demands all corporate sectors to have more socially acceptable policies that result in better management.

13.6.1.2.4 Continuous Rise in Quantity and the Quality of the Labor Force

Statistics confirm that majority of workforce is between 19 to 39 years of age. Maximum population in this regard lies between 20 to 24 years. In Pakistan only; the participation rate of workforce in economic activities has increased from 29% in 1999-2000 to 29.6% in 2001-2002. Labor force has augmented for the non agriculture sector with an increase in employed and unemployed personal.

The given statistics show persistent raise in workforce magnitude. This can naturally be attributed to higher literacy rate that again is responsible for better quality. This factor again in turns results in repercussions outlined earlier.

13.6.1.2.5 Increase in Fiscal Pressures Constraining Government Investment in Infrastructure (Transportation Mainly)

The most important ingredient of infrastructure of any society is transportation. There has been a sustainable increase in vehicles on road, particularly due to the variety of choices of lease options with different banks. On the other hand infrastructure of roads has not changed over time to compensate this transfer of load. The increase in length of roads in Pakistan has been from 249.9K Km to 251.8K Km from 2000 to 2003. This is not sufficient keeping in view increasing population of the urban areas and the increasing social demands of the work force (good means of transportation). Other important statistics (unsatisfactory) include: Highways: 141,252 km, Railways: 8,163 km, Pipelines: 5,179 km, Waterways: 0 km (PK), Airports: 85, Heliports: 9 (PK).

Corporations fail to understand the infrastructure problems faced by an employee resulting in continuous depression. In Pakistan the transportation means are inadequate and expensive (beyond buying power of an ordinary employee). Most corporations should try to have their own means of transport for betterment of employee satisfaction in this regard. Moreover, employees who even have their own means of transport have to depend on some other means when it comes to family issues resulting in the same loop hole.

13.6.1.2.6 Climate Shifts

Statistics from FBS PK & other resources show that Pakistan has relatively extreme weathers when compared with other parts of the world. The temperature in Pakistan has increased over the years with a relative decrease in rain fall.

The change stated above contributes naturally to the employee’s efficiency decline. Most corporations fail to implement the policies according to the climatic necessities of the region. In particular the office hours and the dress code compulsions that are fixed and not compliant to change aggregate the problem. American and Chinese work environments have shown us that we necessarily require a mentally and physically acceptable environment for better performance.

13.6.1.2.7 Migrations

As per the world ranking Pakistan is the 9th largest country when it comes to city population. This shows that Pakistan is among the biggest recipients of migrant from rural areas. The population of main cities of Pakistan is increasing at an alarming rate.

Organizations can give preference to locations outside the metropolis. More migrant to cities means requirement of enhanced infrastructure and over utilization (scarceness) of scarce resources. This leads to the same conclusion that, since, an ordinary man’s life is affected by this situation therefore it
naturally affects the corporate productivity and becomes a matter to ponder over by the corporations while shaping up their policies.

### 13.6.1.2.8 Changing Population Statistics
Statistics show that the population and its related attributes are changing at a phenomenal rate in Pakistan. This can be attributed to a lot of things out of which some mainly being (education, general awareness, communications, migrations………).

Changing population statistics require a continuously changing corporate approach towards realization of its social responsibilities. At least the factors such as population density, per capita income, literacy rate, life expectancy rate and others must be studied at the government level and result of the analysis must be available to all the corporations.

### 13.6.1.2.9 Labor Force Participation
Quantitative issues have been highlighted earlier. Here we only glance at the increasing labor force participation. Also contribution of female workforce (urban) has amplified. This relative increase can, mainly, be attributed to decrease in services in the agriculture sector that naturally contributes to increase in manufacturing and other sectors.

Increased effect of labor force participation introduces more issues pertaining urbanization, infrastructure availability for more human resource. This does not necessarily go in favor of easy CSR policy unless the corporate realizes that more labor means more jobs that ultimately highlight the importance of employee satisfaction. Also increase in labor force means decline in unpaid family workers. This gives rise to unresolved issues and unavailability of family issues resolving body. The corporations must therefore try to compensate and resolve all personal issues of employees.

### 13.6.1.2.10 Political Influences
Political influences often confuse corporations of what should be their social responsibilities. These confusions suggest that politics can (and should) take over some of the functions of corporate social effort. Although this is generally accepted norm by most organizations but why the important question is that why should unaccountable groups claim responsibility for social decision-making. Politics is often good for a running country, but there is little evidence that it is good for corporations. Most corporations must consider the major political impacts on the social life of employees and then must try to shape it up accordingly.

### 13.6.1.2.11 Ignorance & Unawareness of Basic Labor Rights
Most multinational corporations in Pakistan fail to understand and execute operations under full awareness of the labor laws. Adding up; the poverty; and the joblessness factor makes it almost impossible for any employee to know (or acquire) his / her basic labor rights.

Improper HR policy formulization and impossible to implement practices create basic bottlenecks if not in line with national social practices & labor laws causing decline to employee’s physical and emotional abilities.

### 13.6.1.2.12 Unemployment & Poverty Rise
Increase in unemployment and poverty are the factors directly influencing employees dependency on organizations’ policies (right or wrong). Increasing unemployment results in increase in dependency of employee, eliminating his capability to feel satisfied in case of ill practices within the company.

### 13.6.1.3 The Social Factors (Urban Pakistan) Responsible For Direct Decline of Productivity in the Hi-Tech Corporate Environment and Its Repercussions
(Factors are followed by Associated Social Reason followed by Repercussions on Employee Attitude (Unconstructive Affect[s]))

#### 13.6.1.3.1 Family Dependencies on Work Force
Associated Social Reason: Population concentration, general aversion concerning working female, uneducated family unit (particularly the female and the old members), unfamiliarity and resistance to change by senior family members to new social setup, unavailability of employment opportunities for young family members, longer child spoon feeding concept, emotional closeness.

Repercussion: Pre occupant mental state of employee due to high expenditure and responsibility fulfillment, de-motivation in work, low work force morale, squeezed rest hours, poor mental and physical health of employees, less room for improvement by employee, tendency to be less innovative, general productivity decline, tendency in employees to look for better opportunities, tendency in employees to utilize office hours on personal work, others…

#### 13.6.1.3.2 Low Living Standards
Associated Social Reason: High inflation rate, low per capita income, poor urban infrastructure, less
governmental support, others…
Repercussion: Discussed earlier.

13.6.1.3.3 Unavailability of Automated Environments (Immaturity of Technology), Late and Improper Realization of Technology
Associated Social Reason: Misguided investments for technology acquisition, lack for central technological strategy, unavailability of online systems like ATM, E-banking, E shopping, E billing Etc, natural tendency of resistance towards change.
Repercussion: Discussed earlier.

13.6.1.3.4 Political & Bureaucratic Overheads
Associated Social Reason: general instability, delayed response to public demands, insecure governments, corruption, process overheads, others…
Repercussion: Discussed earlier.

13.6.1.3.5 Access to Good Transportation Systems
Associated Social Reason: Investment in infrastructure, ill planning by government, urbanization leading to over population, increase in vehicles due to lease options, centralized investments by the government.
Repercussion: Discussed earlier.

13.6.1.3.6 Urban Growth Rates
Associated Social Reason: Poor access to education and other basic human rights, low rural standard of living, low agriculture subsides by the government, feudal practices, others…
Repercussion: General productivity decline, tendency in employees to look for better opportunities, sense of instability at job and higher daily overheads, tendency in employees to utilize office hours on personal work, others…

13.6.1.3.7 Englishism
Associated Social Reason: English as a status symbol!
Repercussion: General productivity decline. Others…

13.6.1.3.8 Ill Health
Associated Social Reason: Low access to proper hospitals & medication, poor water and sanitary conditions, poor family health, unavailability of clean food during office hours and smoke free environments!
Repercussion: Discussed earlier.

13.6.1.3.9 Leisure Developments and their Biophysical Impacts
Associated Social Reason: Capitalism, massive investments from corporations not preserving the local image, undesired occupancy caused in urban areas, others…
Repercussion: General productivity decline, squeezed rest hours, tendency in employees to look for better opportunities, tendency in employees to utilize office hours on personal work, sense of higher daily overheads, others…

13.6.1.3.10 HR Exploitation
Associated Social Reason: Non facilitating HR attitude, general tendency of display of power, joblessness, HR seen as the ultimate employer, others…
Repercussion: Discussed Earlier.

13.6.1.3.11 Environment
Associated Social Reason: Poor infrastructure and ill planning, others…
Repercussion: Discussed earlier.

13.6.1.3.12 Poor Governmental Infrastructure
Associated Social Reason: Lack of education, ill planning and undesired politics, others…
Repercussion: Discussed earlier.

13.6.1.4 The Corporate Factors Responsible For Decline of Motivation in Employees in Pakistan and Its Repercussions
(Factor are followed by Mistaken Philosophy followed by Repercussions / Solutions)

13.6.1.4.1 Inflexible Timings
Mistaken Philosophy: Most organizations believe that employees will misuse the policy of flexible timings.
Repercussions / Solutions: Rigid working hours result in delays of employee’s personal issues resolution hence causing mental absence from work, de motivation and most importantly undue stress. Inflexible
working hours may force the employee to utilize the leaves for resolution of home / personal issues, resulting in continuous restlessness.

13.6.1.4.2 Understated Working Hours
Mistaken Philosophy: Most companies in South Asia state their usual hours as standard practice but think and practice overtime. Their basic philosophy is that employee will be able to deliver more with greater working hours.
Repercussions / Solutions: Hi tech employee’s productivity massively depends on easiness of mind, liberation from concerns from home. Overstated working hour results in restiveness, impediment to employees’ social and family commitments and most importantly agitation!

13.6.1.4.3 Unawareness of the Social & Political Setup
Mistaken Philosophy: Why must we be aware of social and political issues of any country?
Repercussions / Solutions: Unawareness in this regard amplifies the possibility of deviation from the suitable CSR for any particular nation.

13.6.1.4.4 Lack of Conducive Environment
Mistaken Philosophy: Employee is being paid so what else he needs?
Repercussions / Solutions: Unawareness of organizational updates to particular employee elevates sense of favoritism between employees hence loosening up their team work spirit.

13.6.1.4.5 Delayed Decision
Mistaken Philosophy: We have set procedures to look upon employee’s request? He / She has to follow it.
Repercussions / Solutions: Delayed decision regarding employee’s request forces the employee to not only consider management as a non helping platform but also as a slipshod entity.

13.6.1.4.6 Information Flow Process
Mistaken Philosophy: Why is he / she anxious about knowing policies Etc? He / she has nothing to do with this.
Repercussions / Solutions: Lack of awareness of organizational updates to particular employee elevates sense of favoritism between employees hence loosening up their team work spirit.

13.6.1.4.7 Less Fortunate Understanding of Basic Employees’ Requirements from Life
Mistaken Philosophy: We have nothing to do with the employee’s personal life and his / her requirements. We have a professional bond only.
Repercussions / Solutions: Personal life and poor understanding of employee’s basic needs hinder building up of relationship between the organization and the employee. This issue raises other issues starting from de motivation to pre occupancy of employee psychological vigor and lowers employee contentment from his / her job.

13.6.1.4.8 Staffing
Mistaken Philosophy: Staffing means finding the person with the required skills and abilities to perform job. It is solely technical, professional and most importantly depends on past educational / professional abilities. It is a controllable factor.
Repercussions / Solutions: Staffing does not only mean finding the right person only. It is also about finding the person with the right requirements. Setting aside the technicalities, if a potential employee does not have the visualization to position the right job for him / her then the corporations end up with a dissatisfied work force. Good staffing is controllable process by mutual involvement of all concerned parties. Staffing with considerations of employee’s technicalities always escalate poor long term relationship between employees and employer.

13.6.1.4.9 HR Department Misconduct
Mistaken Philosophy: The central assignment of HR is to control HR. HR is a facilitating body. Management in Pakistan is often confused about what controlling is? Management is facilitation; it is the key dependency of an employee in an organization. Role of HR is unique and is the biggest source of employee’s dissatisfaction if not realized properly.

13.6.1.4.10 Administrative Overhead
Mistaken Philosophy: There is a process to everything.
Repercussions / Solutions: Process overheads, delays and tribulations are the most significant issues when employee’s satisfaction is a focal point of discussion in Pakistan. Sluggish processes not only infuriate employee but lower the general efficiency of any organizations. Processes must be automated
and most importantly undersized.

13.6.1.4.11 Health Management
Mistaken Philosophy: All our employees are insured Or We pay the one basic salary for all health issues. Repercussions / Solutions: Health management requires a lot to be done on companies’ behalf. We have already discussed the problems and issues concerning health supervision in Pakistan. Good health also requires establishment of appropriate leave policy within the organization in case of physical condition decline of employee or dependents. It requires proper insurance coverage and establishment of services within the organization to deal with emergency issues.

13.6.1.4.12 Communication Barriers
Mistaken Philosophy: Why do we require reducing communication barriers to develop good CSR policy?
Repercussions / Solutions: Good communicational interchange within corporations boost better understanding of employee’s problems and issues and enable the management to build up a healthier team with which CSR is taken in naturally.

13.6.1.4.13 Process Imposition
Mistaken Philosophy: They have to follow it?
Repercussions / Solutions: Sluggish processes as discussed trigger dissatisfaction. Good processing requires continuous improvement, process monitoring and minimization of overheads and delays.

13.6.1.4.14 Rigidity in Organizational Policy
Mistaken Philosophy: They have to follow it?
Repercussions / Solutions: Rigid policies and policy making must engage feedback mechanism from employees. Policies are meant for the people not vice versa. Poor policy making and rigidity, triggers de motivation and exploitation by general policy makers (particularly in Pakistan policy making is taken more like enforcement).

13.7 Recommendations
13.7.1 Managing the Issues Identified in Section 13.6.1.3 So As To Reduce the Unconstructive Effect
(Factors are followed by Resolution Strategies)

13.7.1.1 Family Dependencies on Work Force
- Realization of employee family requirements,
- Flexible timings,
- Choice of individual with suitable family background during staffing for a particular post,
- Avoiding overtime as a regular practice,
- Setting up of employee help desk within corporations.

13.7.1.2 Low Living Standards
- Company budgeting for employee helps on need basis,
- Establishment of proper reward and award system,
- Establishment of employee requirement awareness system.

13.7.1.3 Unavailability of Automated Environments (Immaturity of Technology)
- Discussed earlier!

13.7.1.4 Political Verdicts
- Discussed earlier!

13.7.1.5 Access to Good Transportation Systems
- Low cost company owned transporting vehicles (common bus system often helps increase employee’s interaction and team work abilities, moreover helps in understanding of employee’s requirements from casual talks).

13.7.1.6 Urban Growth Rates
- Visibility of career growth patterns,
- Providing stability on job,
- Providing employee with complete picture of future opportunities for his / her career,
- Neutral contracts,
- Establishing long term employee relationships,
- Etc!
13.7.1.7 **Englishism**
- Developing employee request mechanism,
- Routine entertainment opportunities for bridging gaps,
- Staffing of employees with identical family / social backgrounds.

13.7.1.8 **Ill Health**
- Proper leave mechanism,
- Employee and family health insurance,
- Winning employee trust through better and increased employee help.

13.7.1.9 **Leisure Developments and their Biophysical Impacts**
- Establishment of proper environment for employees to avoid sense of inferiority,
- Eliminating the cultural barriers.

13.7.1.10 **HR Exploitation**
- Eliminating of HR evaluation system.

13.7.1.11 **Environment**
- Friendly atmosphere,
- Eliminating bossy culture,
- General employee facilitation and respect at all levels.

13.7.1.12 **Poor Governmental Infrastructure**
- Discussed earlier!

13.7.2 **Minimizing De Motivational Affect through Better Management**
(Factor are followed by Resolution Methodology)
- Inflexible Timings: Develop an automated system for monitoring labor hours.
- Understated Working Hours: Do not commend late sittings. There are long terms issues associated with this.
- Unawareness of the Social & Political Setup: All corporations must study the culture of any area where they plan to setup.
- Lack of Conducive Environment: Give an environment that the employee feels proud of.
- Delayed Decision: Automate the processes!
- Information Flow Process: Build online forums.
- Less Fortunate Understanding of Basic Employees’ Requirements from Life: Build feedback mechanism.
- Staffing: Staff; do not discover!
- HR Department Misconduct: Help!
- Administrative Overhead: Help!
- Health Management: Discussed earlier.
- Communicational Barriers: Trainings and occasional trips help.
- Process Imposition: Make easy and easily absorbing processes.
- Rigidity in Organizational Policy: Be easy! Use feedback mechanism.

13.8 **Conclusions**

13.8.1 **The Critical Factors Requiring Review**
As per the analysis in this chapter following factors require review from organizations:
- Work & family,
- Improper working hours & work organization,
- Improper working conditions,
- Wages & income,
- Maternity and health protection,
- Minimization of hidden workplace violence & harassment,
- Reshaping the local cultural definitions,
- Understanding national natural issues,
- Decline in general ethical practices.

13.8.2 **The Action Items**
- CSR management is part of running business.
- High-quality CSR practices do not hinder long term business practices and expansion.
• CSR is not the responsibility of government only.
• CSR is not simply about obeying the law and paying taxes.
• CSR in Pakistan specifically requires managing the demands and expectations of stakeholders.
• Unionizing can never substitute CSR in Pakistan.
• Benefit due to cheap labor and less costly production zones in Pakistan must be distributed to workforce as well.
• Role of state and civil society must be to monitor corporations, ensure that they are acting responsibly and participate in creating frameworks that ensure standards for all levels of production, manufacturing and distribution.
• Governments must devise a mechanism to hold foreign companies accountable for their actions.
• A document representing “Code of Conduct” is not the solution.
• CSR strategy must ensure that society does not suffer from disparities of income and provision of basic services like health care, education and literacy.
• Corporations must realize that the success of business even in narrow financial terms depends on the success of society as a whole.
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13.10 Endnotes
[6] Data from Pakistan Development Gateway!
CHAPTER FOURTEEN:  
CONSOLIDATED KEY FINDINGS, 
RECOMMENDATIONS, 
CONCLUSION AND CULMINATION POINTS
14CHAPTER FOURTEEN: CONSOLIDATED FINDINGS, RECOMMENDATIONS, CONCLUSIONS AND CULMINATION POINTS

Before actually proceeding with the main agenda of this chapter, it is important to highlight that earlier all chapters presented core analysis, recommendations and findings (but not limited to). This supplementary chapter, however, has mainly been added to this thesis in order to explain the stakeholders of this research the outcome of the research conducted for this thesis in the most summarized, simple and yet comprehensive way. The following discussion explains:

14.1 Core Findings
1) OD can be used for ‘Organizational Diagnostics’ for IT industry of Pakistan.
2) OD can also be used for Pakistan or for that matter any country’s IT organization’s ‘Organizational Engineering / Reengineering’.
3) Using OD framework, methods, theories and philosophies; essentially customized frameworks, methods and theories can be formulated that can help in overall organizational development.
4) Application of OD framework, methods, theories and philosophies can only be specific to any country’s IT industry. Framework, methods, theories and philosophies specific to one country’s IT industry cannot be readily applied on another country’s IT industry without proper diagnostics. This is mainly as because application of OD discipline in IT; largely involves people and thereby culture specific issues.
5) Since IT / software discipline heavily relies on management of people, therefore OD can be used to understand mix of ‘IT’ / ‘Software Engineering’ and related disciplines with ‘Social Science’ discipline.
6) Existing OD methods, theories, philosophies and frameworks and subsequently the methods, frameworks, theories and philosophies that have been formulated in this thesis; help in overall organizational development of IT sector of Pakistan by focusing on ‘Soft Issues’ mainly.
7) Application of the methods, frameworks, theories and philosophies that have been formulated in this thesis using OD as a discipline help us improve ‘Quality’, ‘Productivity’ and ‘General Management’ within IT industry of Pakistan.
8) The outcome of the research conducted in this thesis strongly helps us comprehend the importance of ‘Soft Factors’ for the improvement of IT sector of Pakistan.
9) OD diagnostics performed in this thesis for IT industry of Pakistan strongly suggest that Pakistan’s IT industry is deficient with basic management capabilities in relation to ‘Soft Factors’.
10) GOP must pay full attention to management of issues related to ‘People’, ‘Organizational Culture’ and other soft issues in Pakistan’s IT industry and focus must not be limited to organizational certification (for instance quality certification using CMMI) only. Specific management of people, culture and issues related to soft factors can be done using frameworks, methods, techniques, best practices, theories, philosophies and planned intervention strategies that have been outlined in various chapters in this thesis.
11) Planned intervention strategies proposed in this thesis for organizational diagnostics and organizational engineering / reengineering all proof to be beneficial.
12) Using OD for IT industry’s improvement requires understanding of quantitative and qualitative research methods.
14) OD diagnostics conducted for this thesis strongly suggest that ‘Organizational Culture’ attributes maximum to Pakistan’s IT industry’s soft issues mismanagement.
15) Methods, theories, philosophies, frameworks and best practices proposed in this thesis for IT industry of Pakistan (in context of OD) can directly be used for ‘Organizational Improvement’. Having said so, immediate affects can be observed on organization’s performance; particularly in
terms of ‘Quality’, ‘Productivity’ and ‘Return on Investment’. Subsequently overall application of methods, theories, philosophies, frameworks and best practices can help Pakistan’s IT industry move from ‘Tier 3’ to ‘Tier 1’ IT economies.

16) GOP’s IT industry improvement strategy does not cater management and soft issues within IT organizations.

17) Research reveals complete absence of use of OD and / or management discipline for organizational improvement in Pakistan’s IT industry.

18) Exploration reveals that globally, OD has been used very rarely for IT industry’s improvement.

19) Research reveals that although CMMI is being largely used as a quality improvement framework in IT industry of Pakistan, and the same is being encouraged by PSEB, but the general affect on IT industry is not promising enough due to specific focus on quality certification only and absence of focus of actual quality improvement.


21) The research reveals major deficiencies in relation to education and experience within IT industry of Pakistan. The identified deficiencies can be termed as key sources of poor organizational development.

22) Research reveals that analysis of best practices concerning OD within industry of Pakistan and correspondingly recommendations in form of best practices is the most ideal method of immediate success for organizational improvement.

23) Research reveals that for a ‘Strong Culture’ in organizations within IT industry of Pakistan, ‘Base Culture’ must be aligned with the ‘Ideal Culture’.

24) Research reveals that parameters such as ‘OD Theories / Philosophies for Organizational Understanding’, ‘General Management Theories / Philosophies for Organizational Understanding’, ‘Organizational Understanding’, rather parameters such as ‘Practical Dimensions’, ‘Cultural Dimensions’ and ‘International Practices’ must also be used.

25) Research identifies that ‘Employee Satisfaction’ affects parameters like quality, productivity, employee moral, value and ethics within IT industry of Pakistan.

26) The thesis also identifies that various soft factors internal and external to an IT organization that affect ‘Employee Satisfaction’.

27) Research reveals that IMFF can be readily used to identify the core motivational factors of employees. This framework has the ability to identify and distinguish the factors at the level of individual and group employee. It narrows from generic factors to the most specific factors and then identifies the set of factors at group level as well as at individual level. The framework is successfully tested for IT industry of Pakistan. Expected results were obtained in case of Pakistan’s IT Industry. For factors identification process, IMFF focuses on three major domains i.e. ‘Motivational Theories’, ‘Society’ and ‘Industry’.

28) Section 7.6.3 to 7.6.10 presents various findings in relation to motivation within IT industry of Pakistan in context of OD.

29) Research reveals that ‘Organizational Leadership’ in IT industry of Pakistan experiences inappropriate leadership understanding, inappropriate leadership identification, lack of vision, general ineffectiveness, inappropriate leadership styles and traits, unhealthy leadership communication, absence of leadership roles and responsibilities, absence of leadership development, absence of collective intelligence, anti-leadership, mentoring, lack of decision making, poor planning, absence of control, lack of empowerment and lack of suitable leadership styles.
30) Research reveals the majority of the operational practices (in context of OD) particularly related to ‘Administration’, ‘HRM’, ‘Training Management’, ‘Logistics’ and ‘IT’ function suffer from lack of establishment, lack of quality (standardization and institutionalization) and lack of effectiveness.

31) ‘Training Management’ is one of the most affected functions within IT industry of Pakistan and is a root cause of many problems.

32) ‘Project Management’ function within the IT industry suffers from severe soft issues. Part(s) of the IT organizations in Pakistan working on this function lack severe knowledge and resource pool with the right kind of experience, education and skills.

33) Overall situation of the IT industry reveals that ‘Project Management’ practices are only performed at a very elementary level.


35) Project managers in IT industry of Pakistan have important behavioral and personality related deficiencies.

36) ‘Quality Management’ function within the IT industry suffers from severe soft issues.

37) ‘Supervisory Divergences’ exist in IT organizations in Pakistan having people from different cultures. There are several divergent social and cultural factors the act as root cause for operational bottlenecks, loss of productivity, low quality, motivational decline and unconstructive long term significant consequences.

38) There are no standards for ‘Corporate Social Responsibility’ in IT industry of Pakistan.

39) Changing social trends in Pakistan have deeply affected corporate practices in Pakistan and this requires call for management of social issues in technical organization. Several of these changing factors are direct reason of decline in ‘Organizational Productivity’, ‘Quality’, ‘Employee Motivation’.


41) IT organizations in Pakistan must make use of PCMM in conjunction with CMMI for improvement in ‘People Management’ along with improvement of process, product and projects. The same must be promoted by GOP.

14.2 Hypothesis Analysis

At the beginning of the thesis, hypothesis that had been established pinpointed OD as a revitalization tool for IT industry of Pakistan. Analysis, research, findings, recommendations and investigations reveal that OD can surely be used for revitalization of IT sector of Pakistan. This can mainly be done by using right OD diagnostics and engineering / reengineering techniques.

14.3 Addressed Agendas

Following are the core agendas addressed in this thesis:

1) Does deficiency of usage of OD discipline (for organizational improvement) in IT industry is a cause of low ‘Productivity’, ‘Quality’, ‘Return on Investment’ and other soft performance indicators?

2) Can OD be used for revitalization of IT organizations and subsequently IT sector of Pakistan?

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**** Section 9.5!
+++ Section 9.5.2.4.1!
+++ Section 10.4.4.2!
+++ Figure 10.6!
***** Section 10.5.4!
***** Section 10.5.5!
+++ Section 11.6!
++++ Section 12.6.1!
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3) If answer to the last question is ‘YES’ then how can we use OD for revitalization of IT organizations and subsequently IT sector of Pakistan?
4) What are industry’s problem areas in view of OD discipline?
5) How industry’s problem areas (in view of OD discipline) can be fixed using OD?
6) Is lack of OD one of the reason of poor performance of Pakistan’s IT industry in comparison with other IT economies having similar culture?

14.4 Key Recommendations
Following are the core recommendations identified in this thesis:
1) IT organizations in Pakistan must use OD as a revitalization tool.
2) GOP must make necessary reforms for implementation of OD enabled culture in Pakistan’s IT industry.
3) Methods, processes, procedures, frameworks, techniques and best practices proposed in this thesis have been specially customized / engineered / reengineered for IT industry of Pakistan. These methods, processes, procedures, frameworks, techniques and best practices must be carefully applied in IT organization after detailed organizational diagnostics. It is important that results must be monitored and controlled over time. This recommendation is not one time and therefore the organizational maturity in context of OD must be developed by reanalysis, repeat diagnosis and reengineering various facets of organizational elements in the light of this thesis’s previous detailed recommendations (within various chapters).
4) General and comprehensive understanding of OD must be developed, industry wide.
5) Relation of ‘Software Engineering’ and / or related disciplines and ‘Social Sciences’ discipline must be understood industry wide.
6) General and comprehensive understanding of ‘Management’ discipline must be developed, industry wide.
7) General and comprehensive understanding of ‘Soft Factors and Issues’ must be developed, industry wide.
8) Focus of improvement in various soft factors must not be limited to process, product and / or projects only. In this regard people must be made part of improvement strategy.
9) IT organizations and GOP must have clear plan(s) for organizational improvement using OD as an intervention strategy. These plans must be made after necessary OD diagnostics and outcomes of these plans must be monitored, controlled and subsequently managed to closure. Detailed recommendations outlined in this thesis in earlier chapters can be used to develop these plans.
10) Importance of managerial and technical curricula must be realized industry wide.
11) GOP must ensure that IT education’s quality in Pakistan meets the industry’s OD needs as outlined in this thesis.
12) Research culture (in context of OD) must be promoted at all levels within the industry and individual organizations so as to address applied problems related to OD.
13) For improvement in IT organizations (particularly for organizational diagnostics and for identifying organizational engineering / reengineering techniques), universities and industry must work together. In simple words, universities must be able to address applied problems in context of OD in the industry and at the same time IT industry must ensure transfer of complete knowledge to universities for obtaining right answer to their problems.
14) For immediate affects on organization’s performance; particularly in terms of ‘Quality’, ‘Productivity’ and ‘Return on Investment’, detailed recommendations outlined in this thesis in the earlier chapters must be carefully interpreted, analyzed and implemented by IT organizations in Pakistan.
15) GOP’s ‘IT Policy’ and ‘IT Strategy’ must incorporate implementation of OD, industry wide for Pakistan’s IT organization’s improvements.
16) IT organizations and GOP must focus on real value addition and not certifications only.

§§§§§§ Here discussion is restricted to macro level recommendations only. Detailed recommendations (identified in form of best practices, frameworks and methods) have been explained in previous chapters already.
18) Industry must try to adopt the various best practices identified in this thesis.
19) For a ‘Strong Culture’, organizations within IT industry of Pakistan must ensure that ‘Base Culture’ is aligned with the ‘Ideal Culture’.
20) Recommendations for ‘Ideal Culture’ must be implemented, industry wide.
21) IT organizations must ensure they develop understanding of their respective organizations using ‘OD Theories / Philosophies for Organizational Understanding’, ‘General Management Theories / Philosophies for Organizational Understanding’ ‘Practical Dimensions’, ‘Cultural Dimensions’ and ‘International Practices’.
22) IT organizations must ensure that they develop ‘Organizational Understanding’ using sources identified in Figure 5.8.
23) IT organizations must ensure that they develop ‘Organizational Understanding’ using ‘Puzzle Approach Framework’ formulated in this thesis.
24) IT organizations must ensure that they enhance ‘Employee Satisfaction’ using ‘Employee Satisfaction Framework’ formulated in this thesis.
25) IT organizations in Pakistan must ensure that various soft factors (identified in this thesis) internal and external to an IT organization that affect ‘Employee Satisfaction’ must be managed.
26) IMFF must be implemented at group and individual level within all IT organizations.
27) Results of IMFF must be monitored and managed.
28) IT organizations must ensure that they enhance ‘Employee Motivation’ using ‘Employee Motivation Framework’.
30) ‘Ideal Leadership’ must be implemented using best practices identified in Section 8.6.
31) For improving operational practices (in context of OD) particularly related to administration / logistics, HRM and IT function following processes must be implemented by IT organizations in Pakistan:
   a. ‘HRM Improvement Process’
   b. ‘OLA Improvement Process’
   c. ‘IT Improvement Process’
   d. ‘Training Improvement Process’
32) Individual IT organizations and GOP must cater the industry training needs as per the ‘IT Industry’s Core Macro Level Training Needs’.
33) For improving ‘Project Management’, IT organizations must implement ‘Framework of Macro Level Action Items for Improving Project Management’.
34) For effective ‘Project Management’, framework for ‘Skills Requirements for Effective Project Management in IT Industry of Pakistan’ must be implemented and project management skills must be developed correspondingly.
35) For effective ‘Project Management’, ‘Macro Level Mistakes Made by Project Managers’ must be eliminated.
36) For effective ‘Quality Management’, ‘Quality Improvement Recommendation Framework (A Cultural, behavioral and Managerial Perspective)’ must be implemented by IT organizations.
37) Standards formulated for ‘Corporate Social Responsibility’ in IT industry of Pakistan must be understood at government and individual organizational level.

******** Section 4.6!
††††††† Refer to analysis in ‘Chapter 5’!
Figure 5.7!
Figure 6.16!
Section 6.5.2.7!
Figure 7.13!
Figure 8.3!
Figure 9.8!
Figure 9.9!
Figure 9.10!
Figure 9.11!
Figure 9.12!
Figure 10.11!
Figure 10.12!
Figure 10.13!
Figure 11.1a!
Section 13.6.1.1!
†††††††††† Figure 13.8.1!
requiring review must be monitored and managed and necessary actions must be taken for managing ‘Social Values’ (particularly in multi cultural IT organizations).

38) GOP and multi cultural IT organizations must understand the changing social trends in Pakistan and must also take into account social and corporate factors responsible for productivity and motivational decline. Issues, problems and concerns identified as a result of this study must be managed so as to reduce the unconstructive affect.

39) In order to manage ‘Supervisory Divergences’ in multi cultural organizations in Pakistan, ‘Target Factors’ must be addressed by these organizations.

40) IT organizations in Pakistan must make use of PCMM in conjunction with CMMI for improvement in ‘People Management’ along with improvement of process, product and projects. The same must be promoted by GOP.

14.5 Proposed Future Research Opportunities

The most important future researches that can be conducted in continuation of this thesis are as follows:

1) The overall proposed methods, processes, procedures, frameworks, recommendation and best practices can be readily used for application in IT organizations in Pakistan for their revitalization, using OD discipline. During the applied research, improvement in methods, processes, procedures, frameworks, recommendation and best practices (proposed in this thesis) can be made.

2) The thesis itself identifies many issues, concerns and problems of Pakistan’s IT industry in relation to OD that are not addressed in the thesis (only high priority areas are analyzed in this thesis). These remaining problems, concerns and issues can also be studied and like wise recommendations can be suggested.

3) The thesis holds capability of identify a lot of detailed issues that can be further analyzed, studied, understood and explained.

4) The thesis does not study implication of problems, concerns and issues of OD on ‘Hard Issues’ of the Pakistan’s IT industry. This can be another area of research.

5) The research presented in this chapter, needs to be revised, rechecked and re-explored after 5 to 10 years. This is due to rapidly changing national and international IT industry setup and practices.

14.6 Major Intellectual Contribution (But Not Limited To)

1) For the first time OD is used as a revitalization tool for IT industry worldwide.

2) ‘OD Diagnostics’ and ‘OD Engineering / Reengineering’ is performed in this thesis.

3) ‘OD Diagnostics’ have been used in order to obtain understanding of Pakistan’s IT industry problems, concerns and issues in context of OD.

4) ‘Method of Studying Cultural Layers’ has been proposed. This method uses new concepts of ‘Specific’, ‘Basic’ and ‘Ideal’ culture study.

5) Method of ‘Qualitative Research’ (using OD context) for cultural analysis has been proposed.

6) Framework has been proposed in form of ‘Best Practices’ for development of ‘Ideal Culture’.

7) Framework for ‘Organizational Understanding’ has been proposed. This framework develop understanding of IT organizations using ‘OD Theories / Philosophies for Organizational Understanding’, ‘General Management Theories / Philosophies for Organizational Understanding’ ‘Practical Dimensions’, ‘Cultural Dimensions’ and ‘International Practices’.

8) Framework of ‘Organizational Understanding Sources’ is developed.

9) ‘Puzzle Approach Framework’ is formulated in this thesis that helps in building better understanding of IT organizations.

10) ‘Framework for Achieving Employee Satisfaction in IT industry of Pakistan’ is developed.

11) IMFF is developed for motivational analysis.

12) ‘Employee Motivation Framework’ is developed.

13) Method of ‘Qualitative Research’ for analysis of ‘Leadership’ has been proposed.


15) Framework has been developed in form of ‘Best Practices’ that helps industry achieve ‘Ideal Leadership’.

16) Method of ‘Best Practice Analysis for Operations’ Implementation’ has been proposed.

17) For improving operational practices (in context of OD) particularly related to administration /
logistics, HRM and IT function following processes are developed:

a. ‘HRM Improvement Process’
b. ‘OLA Improvement Process’
c. ‘IT Improvement Process’
d. ‘Training Improvement Process’

18) ‘Training Needs’ have been proposed for IT industry.

19) Method of ‘Analysis for Project Management (The Soft Issue Perspective)’ has been proposed.

20) For improving ‘Time Management’, ‘Framework for Improvement in Time Management’ is developed.

21) For improving ‘Project Management’, ‘Framework of Macro Level Action Items for Improving Project Management’ is developed.

22) For effective ‘Project Management’, ‘Skills Requirements for Effective Project Management in IT Industry of Pakistan’ are identified.

23) Method of ‘Analysis for Quality Management (The Soft Issue Perspective)’ has been proposed.

24) For effective ‘Quality Management’, ‘Quality Improvement Recommendation Framework (A Cultural, Behavioral and Managerial Perspective)’ has been proposed.

25) Standards are formulated for ‘Corporate Social Responsibility’ in IT industry of Pakistan.

26) Method of ‘Analysis for Supervisory Divergences’ has been proposed for multi cultural IT organizations.

27) Method of ‘Analysis for Management of Social Values’ has been proposed for multi cultural IT organizations.

14.7 Some Policy Options (Macro / Government Level Proposed Reforms)

1) GOP must cater ‘Soft Factors’, ‘Management’ and OD in the national IT policy.

2) Industry wide training should be conducted for understanding OD.

3) OD culture must be promoted within IT organizations.

4) Labor laws for IT workers must be stratified.

5) Standard wage, compensation and benefit policy must be implemented at national level for IT industry of Pakistan.

6) Standard work hours must be promoted.

7) Specific measures must be taken so as to reduce gender discrimination at work.

8) Skill management development program must be made and implemented for the entire industry.

9) Eliminate substandard IT and related educational sources.

10) GOP must build IT industry’s ‘Management’ and ‘OD’ capabilities.

11) Measures must be taken to reduce employee turnover at national level.

12) ‘Leadership Development’ must be built at national level for all IT organizations.

13) GOP must ensure high quality of training, teaching and instruction within the IT industry.

14) GOP must provide training support and subsidies for IT industry.

15) Real ‘Project Management’, ‘Product Management’ and ‘Quality Management’ training programs must be developed and implemented.

16) GOP must not limit its focus on quality certifications only.

17) GOP must ensure that universities improve the quality of IT and related education. It is important that special focus must also be given to understanding of TQM, understanding of management, development of students’ soft skill, understanding of software engineering discipline, understanding of software quality management discipline, understanding of software project management discipline etc.

18) GOP must ensure that universities should ensure that IT students must develop the right communication and language skills and must master technical writing and documentation areas.

19) Universities must incorporate in student’s personality; visionary approach, innovative attitude and behaviour open to change.

20) Universities must also ensure that IT students or students from the related field must be able to understand the business functions, particularly functions like business development, contract management and legal aspects of conducting business.

21) Universities must ensure that students must be prepared to work in a research oriented culture within the universities in order to actually enhance their research capabilities.

14.8 Conclusions

Detailed conclusions are identified in every chapter. Here focus is limited to the final outcome of the thesis in broader perspective.
14.8.1 Proposed Revitalization Process for IT Sector of Pakistan

The figure above explains the OD revitalization process for the IT industry of Pakistan. This process is made after necessary diagnostics. It proposes engineering / reengineering in various areas at time ‘T1’. Before time ‘T1’ it forces organizations to focus on diagnosis mainly. As per this process the identified process must be repeated several times a year for betterment of the IT organization.

Recommendations

T1-2

USE

T1-1

Conclusions
ANNEXURES
## Annexure 1.

### ICT at a glance

#### Afghanistan

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#### ICT Infrastructure & Governmental Environment

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<td></td>
</tr>
<tr>
<td>SCOOP servers:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Figures in brackets refer to unit per year. a: Data refer to 2004


Development Bank Group, World Bank.
ANNEXURE 3.

ICT at a glance

China

Country background information

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>East Asia &amp; Pacific</th>
<th>Lower INCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>1,204.9</td>
<td>1,211.9</td>
<td>1,225.9</td>
</tr>
<tr>
<td>Poverty (% of population below $1 a day)</td>
<td>18.6</td>
<td>18.6</td>
<td>18.6</td>
</tr>
<tr>
<td>Adult literacy rates (% of ages 15 and over)</td>
<td>92.8</td>
<td>93.7</td>
<td>94.0</td>
</tr>
<tr>
<td>Urban population (% of total population)</td>
<td>39.4</td>
<td>39.7</td>
<td>37.3</td>
</tr>
<tr>
<td>GNI per capita (Atlas method $)</td>
<td>820.0</td>
<td>460.0</td>
<td>200.0</td>
</tr>
<tr>
<td>GNI per capita (PPP $)</td>
<td>2,600.0</td>
<td>4,200.0</td>
<td>4,040.0</td>
</tr>
<tr>
<td>GDP growth (1990-91 and 1995-2000, %)</td>
<td>12.6</td>
<td>8.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Scientific and engineers in R&amp;D (per 1,000 people)</td>
<td>353.0</td>
<td>428.7</td>
<td>437.2</td>
</tr>
<tr>
<td>Expenditure on R&amp;D (% of GNI)</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
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</tbody>
</table>

ICT infrastructure & access

<table>
<thead>
<tr>
<th></th>
<th>1994</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone lines</td>
<td>1994</td>
<td>2000</td>
<td>2001</td>
<td>2002</td>
</tr>
<tr>
<td>Mobile phones (per 1,000 people)</td>
<td>100</td>
<td>200</td>
<td>300</td>
<td>400</td>
</tr>
<tr>
<td>Internet (per 1,000 people)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Television sets (per 1,000 people)</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
</tr>
</tbody>
</table>

Computers & the Internet

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal computers (per 1,000 people)</td>
<td>3.3</td>
<td>12.9</td>
<td>22.3</td>
<td>22.3</td>
</tr>
<tr>
<td>Internet users (thousands)</td>
<td>195.4</td>
<td>2,062.1</td>
<td>22,283.0</td>
<td>41,697.0</td>
</tr>
<tr>
<td>Internet users (per 1,000 people)</td>
<td>15.0</td>
<td>22.6</td>
<td>22.3</td>
<td>41.6</td>
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</table>

ICT expenditures

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT as % of GDP</td>
<td>2.9</td>
<td>5.7</td>
<td>7.8</td>
<td>7.8</td>
</tr>
<tr>
<td>ICT per capita ($)</td>
<td>13.6</td>
<td>22.7</td>
<td>41.6</td>
<td>71.4</td>
</tr>
</tbody>
</table>

ICT in government & environment

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet speed and access</td>
<td>3.3</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>E-mail traffic (billion e-mails)</td>
<td>3.2</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td>Competitor in ISPS</td>
<td>4.6</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Government online services availability</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
</tr>
<tr>
<td>ICT-related services</td>
<td>3.2</td>
<td>3.3</td>
<td>3.3</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Notes: Figures in brackets refer to previous year. a, b, c refer to 2001.

Sources: Country- and World Bank, country profiles: ICT infrastructure and access, BT and UNESCO, BT and Internet, 2000/01 and 2001/02 country profiles, national ICT status and government environment, World Economic Indicators, and World Bank's World Development Indicators. See Definitions and Sources for more complete information.

Organization Development for Revitalization of Information Technology Sector of Pakistan By: Ali Ahsan (All Rights Reserved)
Annexure 4.

ICT at a glance

India

<table>
<thead>
<tr>
<th>Country background information</th>
<th>India</th>
<th>South Asia</th>
<th>Low Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>958</td>
<td>1,271</td>
<td>1,358</td>
</tr>
<tr>
<td>Population growth (%)</td>
<td>12</td>
<td>3.1</td>
<td>10.5</td>
</tr>
<tr>
<td>Urban population (%)</td>
<td>50</td>
<td>52.2</td>
<td>54.5</td>
</tr>
<tr>
<td>Urban population (millions)</td>
<td>508</td>
<td>639</td>
<td>665</td>
</tr>
<tr>
<td>GNI per capita (PPP, $)</td>
<td>1,496</td>
<td>8,000</td>
<td>4,000</td>
</tr>
<tr>
<td>GNP per capita (PPP, $)</td>
<td>1,600</td>
<td>8,200</td>
<td>4,200</td>
</tr>
<tr>
<td>GNP growth (1990-91 and 1995-2001, %)</td>
<td>5.4</td>
<td>5.5</td>
<td>5.3</td>
</tr>
<tr>
<td>Scientists and engineers (R &amp; D, per million people)</td>
<td>13,333</td>
<td>13,333</td>
<td>13,333</td>
</tr>
<tr>
<td>Expenditure for R&amp;D (% of GNI)</td>
<td>3.6</td>
<td>5.0</td>
<td>0.6</td>
</tr>
</tbody>
</table>

ICT Infrastructure & Access

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet connections per 1,000 people</td>
<td>12</td>
<td>27</td>
<td>51</td>
</tr>
<tr>
<td>PCs per 1,000 people</td>
<td>2</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Internet users (%)</td>
<td>2.4</td>
<td>4.3</td>
<td>6.9</td>
</tr>
<tr>
<td>Internet subscriptions per 1,000 people</td>
<td>2.4</td>
<td>4.3</td>
<td>6.9</td>
</tr>
</tbody>
</table>

ICT Expenditures ($ billions)

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ICT imports &amp; government expenditure</td>
<td>6.7</td>
<td>13.9</td>
<td>18.0</td>
</tr>
<tr>
<td>ICT as % of GDP</td>
<td>2.1</td>
<td>2.9</td>
<td>3.6</td>
</tr>
<tr>
<td>ICT per capita ($)</td>
<td>7.8</td>
<td>15.0</td>
<td>16.0</td>
</tr>
</tbody>
</table>

 ICT Business & government expenditure (from Fig. 7.2 is highlighted)

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet speed and access</td>
<td>3.0</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>E-commerce</td>
<td>3.2</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>E-government</td>
<td>4.4</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>Government online services availability</td>
<td>6.1</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>E-commerce</td>
<td>3.9</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>ICT service providers</td>
<td>4.4</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>Service providers</td>
<td>122</td>
<td>135</td>
<td>270</td>
</tr>
</tbody>
</table>

Notes: Figures in italics refer to an earlier year; Data includes 2001.

ANNEXURE 5.

ICT at a glance
Iran, Islamic Rep.

<table>
<thead>
<tr>
<th>Country background information</th>
<th>Iran</th>
<th>H. East &amp; North Africa</th>
<th>Lower &amp; Sub-Saharan Africa</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>80.6</td>
<td>330.7</td>
<td>673.7</td>
<td>Low</td>
</tr>
<tr>
<td>Total employment (millions)</td>
<td>32.5</td>
<td>139.1</td>
<td>347.8</td>
<td>High</td>
</tr>
<tr>
<td>Total GDP (PPP, $)</td>
<td>3,000</td>
<td>3,000</td>
<td>3,000</td>
<td>Medium</td>
</tr>
<tr>
<td>Per capita income (PPP, $)</td>
<td>36.6</td>
<td>30.0</td>
<td>30.0</td>
<td>High</td>
</tr>
<tr>
<td>HDI</td>
<td>0.71</td>
<td>0.71</td>
<td>0.71</td>
<td>High</td>
</tr>
</tbody>
</table>

ICT infrastructure & access

<table>
<thead>
<tr>
<th>Year</th>
<th>Telephones per 1,000 people</th>
<th>Fixed &amp; Mobile lines (millions)</th>
<th>Fixed &amp; Mobile lines (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>224</td>
<td>260</td>
<td>260</td>
</tr>
</tbody>
</table>

Computers & the Internet

<table>
<thead>
<tr>
<th>Year</th>
<th>Personal computers per 1,000 people</th>
<th>Broadband subscriptions (thousands)</th>
<th>Internet users (thousands)</th>
<th>Monthly peak access charges</th>
<th>Annual growth in price of physical goods (price index)</th>
<th>Annual growth in price of services (price index)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>25.3</td>
<td>250.0</td>
<td>250.0</td>
<td>30.0</td>
<td>15.3 %</td>
<td>9.71 %</td>
</tr>
</tbody>
</table>

ICT spending

<table>
<thead>
<tr>
<th>Year</th>
<th>Total ICT ($ billions)</th>
<th>ICT as % of GDP</th>
<th>ICT per capita ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>150</td>
<td>3.5</td>
<td>3.5</td>
</tr>
</tbody>
</table>

ICT businesses & government environment

<table>
<thead>
<tr>
<th>Year</th>
<th>Broadband subscriptions (thousands)</th>
<th>Internet users (thousands)</th>
<th>Monthly peak access charges</th>
<th>Annual growth in price of physical goods (price index)</th>
<th>Annual growth in price of services (price index)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>250.0</td>
<td>250.0</td>
<td>30.0</td>
<td>15.3 %</td>
<td>9.71 %</td>
</tr>
</tbody>
</table>

Notes: Figures in italics refer to the previous year. a. Data refer to 2008.
Sources: Country background information, UNESCO and World Bank; ICT infrastructure and access, ITU and UNESCO; Computers and the Internet, ITU and UNESCO; ICT products & government environment, World Economic Forums Global Competitiveness Report 2001-2003 (chapter 4) and Internet surveys. See Definitions and Sources for more complete information.

Development Data Group, World Bank

Organization Development for Revitalization of Information Technology Sector of Pakistan By: Ali Ahsan (All Rights Reserved)
## ICT at a glance

### Malaysia

<table>
<thead>
<tr>
<th>Country background information</th>
<th>Malaysia</th>
<th>East Asia &amp; Pacific</th>
<th>Upper middle income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population, mid-year estimates</td>
<td>29,115</td>
<td>2,901</td>
<td>2,901</td>
</tr>
<tr>
<td>Poverty (% of population below $1 a day)</td>
<td>26.6</td>
<td>25.8</td>
<td>45.8</td>
</tr>
<tr>
<td>Adult literacy rate (% ages 15 and above)</td>
<td>96.4</td>
<td>92.9</td>
<td>90.3</td>
</tr>
<tr>
<td>Urban population (% of total population)</td>
<td>31.3</td>
<td>31.3</td>
<td>27.2</td>
</tr>
<tr>
<td>GNI per capita (PPP $)</td>
<td>4,014,0</td>
<td>3,980,0</td>
<td>300,000</td>
</tr>
<tr>
<td>GNI per capita (PPP $)</td>
<td>7,935,0</td>
<td>8,380,0</td>
<td>8,380,0</td>
</tr>
<tr>
<td>GDP growth (1990-91 and 1999-2001, %)</td>
<td>9.8</td>
<td>16.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Telephones and computers per 100 people</td>
<td>110.7</td>
<td>154.0</td>
<td>432.2</td>
</tr>
<tr>
<td>Expenditure on R&amp;D (% of GDP)</td>
<td>0.3</td>
<td>0.1</td>
<td>0.8</td>
</tr>
</tbody>
</table>

### ICT Infrastructure & Access

<table>
<thead>
<tr>
<th>Year</th>
<th>Telephone lines per 100 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2900</td>
</tr>
<tr>
<td>1999</td>
<td>2300</td>
</tr>
<tr>
<td>2000</td>
<td>2300</td>
</tr>
<tr>
<td>2001</td>
<td>2300</td>
</tr>
</tbody>
</table>

### Computers & the Internet

<table>
<thead>
<tr>
<th>Year</th>
<th>Personal computers per 1000 people</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2900</td>
</tr>
<tr>
<td>1999</td>
<td>2300</td>
</tr>
<tr>
<td>2000</td>
<td>2300</td>
</tr>
<tr>
<td>2001</td>
<td>2300</td>
</tr>
</tbody>
</table>

### Internet Usage

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Internet users (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2900</td>
</tr>
<tr>
<td>1999</td>
<td>2300</td>
</tr>
<tr>
<td>2000</td>
<td>2300</td>
</tr>
<tr>
<td>2001</td>
<td>2300</td>
</tr>
</tbody>
</table>

### ICT Surveys

<table>
<thead>
<tr>
<th>Year</th>
<th>Total I.T., Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2900</td>
</tr>
<tr>
<td>1999</td>
<td>2300</td>
</tr>
<tr>
<td>2000</td>
<td>2300</td>
</tr>
<tr>
<td>2001</td>
<td>2300</td>
</tr>
</tbody>
</table>

### ICT Infrastructure & Access

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Internet users (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2900</td>
</tr>
<tr>
<td>1999</td>
<td>2300</td>
</tr>
<tr>
<td>2000</td>
<td>2300</td>
</tr>
<tr>
<td>2001</td>
<td>2300</td>
</tr>
</tbody>
</table>

### ICT Business & Government Environment

<table>
<thead>
<tr>
<th>Year</th>
<th>Government on line services cost/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2900</td>
</tr>
<tr>
<td>1999</td>
<td>2300</td>
</tr>
<tr>
<td>2000</td>
<td>2300</td>
</tr>
<tr>
<td>2001</td>
<td>2300</td>
</tr>
</tbody>
</table>

### ICT Surveys

<table>
<thead>
<tr>
<th>Year</th>
<th>Total I.T., Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2900</td>
</tr>
<tr>
<td>1999</td>
<td>2300</td>
</tr>
<tr>
<td>2000</td>
<td>2300</td>
</tr>
<tr>
<td>2001</td>
<td>2300</td>
</tr>
</tbody>
</table>

### Notes

- Figures are taken from the relevant year, e.g., data counts 2001.
- Sources: Country background information, UNESCO and World Bank, ICT infrastructure and access, I.T. and UNESCO. Computers and the Internet, ICT and SILCA (ICT expenditures, I.T. business & government environment, MENA ECONOMIC FORUM’s Global Competitiveness Report 2001-2002) and official sources, see Definitions and Sources for more complete information.

Development Data Group, World Bank.
ANNEXURE 7.

ICT at a glance

Maldives

<table>
<thead>
<tr>
<th>Country</th>
<th>Maldives</th>
<th>South Asia</th>
<th>Lower middle income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult literacy rate (%) (ages 15 and over)</td>
<td>95.7</td>
<td>96.9</td>
<td>95.2</td>
</tr>
<tr>
<td>Union population (%) of total population</td>
<td>27.6</td>
<td>28.6</td>
<td>46.6</td>
</tr>
<tr>
<td>GNI per capita (current $)</td>
<td>21,970.0</td>
<td>4,281.0</td>
<td>2,320.8</td>
</tr>
<tr>
<td>GNI per capita (PPP $)</td>
<td>2,190.9</td>
<td>4,246.0</td>
<td>2,320.8</td>
</tr>
<tr>
<td>GNP growth (1900-66 and 1995-2001, %)</td>
<td>6.7</td>
<td>7.7</td>
<td>5.2</td>
</tr>
<tr>
<td>Scientists and engineers in R&amp;D (per million people)</td>
<td>158.5</td>
<td>754.2</td>
<td></td>
</tr>
<tr>
<td>Expenditure for R&amp;D (% of GNI)</td>
<td>0.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ICT infrastructure & access

<table>
<thead>
<tr>
<th>Year</th>
<th>Maldives</th>
<th>South Asia</th>
<th>Lower middle income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone subscribers per 1,000 people</td>
<td>57</td>
<td>91</td>
<td>127</td>
</tr>
<tr>
<td>Mobile phone subscribers per 1,000 people</td>
<td>196</td>
<td>254</td>
<td>293</td>
</tr>
<tr>
<td>Internet users per 1,000 people</td>
<td>2.3</td>
<td>2.6</td>
<td>3.0</td>
</tr>
<tr>
<td>Internet users per 100,000 people</td>
<td>223</td>
<td>285</td>
<td>55</td>
</tr>
<tr>
<td>Daily newspapers per 1,000 people</td>
<td>32</td>
<td>30</td>
<td>37</td>
</tr>
<tr>
<td>Radio receivers per 1,000 people</td>
<td>128</td>
<td>103</td>
<td>172</td>
</tr>
<tr>
<td>Television sets per 1,000 people</td>
<td>40</td>
<td>40</td>
<td>75</td>
</tr>
</tbody>
</table>

Computers & the Internet

<table>
<thead>
<tr>
<th>Year</th>
<th>Maldives</th>
<th>South Asia</th>
<th>Lower middle income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal computer users per 1,000 people</td>
<td>12.3</td>
<td>20.4</td>
<td>22.3</td>
</tr>
<tr>
<td>Internet penetration (thousands)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of PCs per 1,000 people</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Internet users (thousands)</td>
<td>0.3</td>
<td>6.0</td>
<td>4,122.9</td>
</tr>
<tr>
<td>Internet usage charges ($)</td>
<td>0.04</td>
<td>0.04</td>
<td>0.01</td>
</tr>
<tr>
<td>ICT expenditures ( billions)</td>
<td>1995</td>
<td>2001</td>
<td>2001</td>
</tr>
<tr>
<td>Total ICT ($ millions)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT as % of GDP</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT per capita ($)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

ICT business & government environment

<table>
<thead>
<tr>
<th>Year</th>
<th>Maldives</th>
<th>South Asia</th>
<th>Lower middle income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and access</td>
<td>-</td>
<td>3.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Internet &amp; e-commerce</td>
<td>-</td>
<td>3.4</td>
<td>3.6</td>
</tr>
<tr>
<td>High-speed Internet</td>
<td>-</td>
<td>3.2</td>
<td>3.7</td>
</tr>
<tr>
<td>Competition in ISPs</td>
<td>-</td>
<td>4.9</td>
<td>4.6</td>
</tr>
<tr>
<td>Government online services</td>
<td>-</td>
<td>1.9</td>
<td>5.0</td>
</tr>
<tr>
<td>Local rating for ICT use</td>
<td>-</td>
<td>2.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Economic growth</td>
<td>-</td>
<td>1.53</td>
<td>1.01</td>
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</table>


Development Data Group, Worldbank
## ICT at a glance

### Myanmar

<table>
<thead>
<tr>
<th>Country background information</th>
<th>1995</th>
<th>2001</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>48.8</td>
<td>51.3</td>
<td>53.9</td>
</tr>
<tr>
<td>Poverty (% of population below 30% of average)</td>
<td>52.9</td>
<td>50.0</td>
<td>48.9</td>
</tr>
<tr>
<td>Urban population (% of total population)</td>
<td>25.8</td>
<td>28.2</td>
<td>31.4</td>
</tr>
<tr>
<td>GNI per capita (Atlas method)</td>
<td>309.0</td>
<td>430.0</td>
<td></td>
</tr>
<tr>
<td>GNI per capita (PPP)</td>
<td>4,046.6</td>
<td>4,061.0</td>
<td></td>
</tr>
<tr>
<td>GDP growth (1995-96 and 1996-2001, %)</td>
<td>6.4</td>
<td>5.2</td>
<td>3.6</td>
</tr>
<tr>
<td>Government and suppliers (per 1,000 people)</td>
<td>0.7</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

### ICT Infrastructure & access

<table>
<thead>
<tr>
<th>1995</th>
<th>2001</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet users per 1,000 people</td>
<td>2.5</td>
<td>5.0</td>
</tr>
<tr>
<td>Fixed line phones per 1,000 people</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Mobile phone users per 1,000 people</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Internet subscriptions</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Computers & the Internet

<table>
<thead>
<tr>
<th>1995</th>
<th>2001</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal computers per 1,000 people</td>
<td>0.1</td>
<td>1.5</td>
</tr>
<tr>
<td>Internet use (hours/week)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of users per 1,000 people</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Telephone lines per 1,000 people</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

### ICT expenditures

<table>
<thead>
<tr>
<th>1995</th>
<th>2001</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ICT (US$ millions)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT as % of GDP</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT per capita (US$)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### ICT Business & government environment

<table>
<thead>
<tr>
<th>1995</th>
<th>2001</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet speed and access</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Internet traffic (bytes)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>High-speed internet access</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Competition in ISVs</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Government services availability</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Liberal rules for ICT use</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Data and Network services availability</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Notes

- Figures are in local currency unless otherwise stated.
- Data referring to 2001 is estimated.

Development Data Group, World Bank
### Annexure 9

#### ICT at a glance

**Nepal**

<table>
<thead>
<tr>
<th>Country background information</th>
<th>Nepal</th>
<th>South Asia</th>
<th>Low Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population in 1995 (millions)</td>
<td>25.4</td>
<td>226.1</td>
<td>2554.4</td>
</tr>
<tr>
<td>Population in 2001 (millions)</td>
<td>28.9</td>
<td>236.6</td>
<td>2723.1</td>
</tr>
<tr>
<td>Internet users (millions)</td>
<td>-</td>
<td>1.8</td>
<td>52.1</td>
</tr>
<tr>
<td>Mobile phone subscribers</td>
<td>-</td>
<td>19.0</td>
<td>247</td>
</tr>
<tr>
<td>PCs per 1,000 people</td>
<td>-</td>
<td>10.5</td>
<td>65.2</td>
</tr>
<tr>
<td>Internet usage per inhabitant</td>
<td>-</td>
<td>12.0</td>
<td>42.0</td>
</tr>
</tbody>
</table>

#### ICT Infrastructure & Access

<table>
<thead>
<tr>
<th>Year</th>
<th>Telephones (per 1,000 people)</th>
<th>Mobile phones (per 1,000 people)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>3.0</td>
<td>-</td>
</tr>
<tr>
<td>2000</td>
<td>8.5</td>
<td>1.5</td>
</tr>
<tr>
<td>2005</td>
<td>12.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

#### Computers & the Internet

<table>
<thead>
<tr>
<th>Year</th>
<th>Personal computers (per 1,000 people)</th>
<th>Internet users (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>2.0</td>
<td>0.2</td>
</tr>
<tr>
<td>2000</td>
<td>6.0</td>
<td>1.0</td>
</tr>
<tr>
<td>2005</td>
<td>10.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

### Notes
- Figures in brackets refer to a given year, e.g. Data refers to 2001.
- Sources: Country background information, UNESCO and World Bank; ICT infrastructure and access, IMF and UNESCO; Computers and the Internet, ITU and World Bank. For full technical details, see Definitional Sources for more complete information.
ANNEXURE 10.

ICT at a glance

Pakistan

<table>
<thead>
<tr>
<th>Country</th>
<th>Background Information</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>122.1</td>
<td>141.5</td>
<td>125.95</td>
<td>125.11</td>
</tr>
<tr>
<td>Literacy rate (%)</td>
<td>58.3</td>
<td>64.1</td>
<td>66.6</td>
<td>69.2</td>
</tr>
<tr>
<td>Urban population (%)</td>
<td>31.8</td>
<td>33.4</td>
<td>37.8</td>
<td>31.6</td>
</tr>
</tbody>
</table>

GDP per capita (PPP $) | 1,529.6 | 1,620.6 | 2,260.6 | 2,240.6

ICT Infrastructure & Access

<table>
<thead>
<tr>
<th>Year</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone lines</td>
<td>12</td>
<td>22</td>
<td>33</td>
</tr>
<tr>
<td>VCRs per 1,000 people</td>
<td>1.1</td>
<td>1.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Mobile phones per 1,000 people</td>
<td>0.2</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Internet users (thousands)</td>
<td>10.0</td>
<td>20.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Internet usage (hours per day)</td>
<td>0.2</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>ICT expenditure (million $)</td>
<td>5.0</td>
<td>10.0</td>
<td>15.0</td>
</tr>
</tbody>
</table>

ICT Business & Government Environment (rating from 1 to 7, 7 is highest)

<table>
<thead>
<tr>
<th>Year</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet speed and access</td>
<td>3.6</td>
<td>4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>Internet security and privacy</td>
<td>3.2</td>
<td>4.0</td>
<td>4.2</td>
</tr>
<tr>
<td>High-quality IT skilled</td>
<td>4.0</td>
<td>5.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Government levels of service and availability</td>
<td>2.0</td>
<td>3.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Notes: Figures in italics refer to annual average. All figures in 2001
Sources: Country background information, UNESC0 and World Bank, ICT infrastructure and access, and ICT & World Bank, ICT expenditure, IT World Economic Forum Global Competitiveness Report 2001-2002 (ityings) and National sources for more complete information.

Organization Development for Revitalization of Information Technology Sector of Pakistan By: Ali Ahsan (All Rights Reserved)
### ICT at a glance

**Qatar**

<table>
<thead>
<tr>
<th>Country background information</th>
<th>Qatar</th>
<th>High income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions) 1995</td>
<td>1.85</td>
<td>55.9</td>
</tr>
<tr>
<td>Life expectancy (years) 2001</td>
<td>78.2</td>
<td>78.1</td>
</tr>
<tr>
<td>Urban population % of total population</td>
<td>90.3</td>
<td>82.9</td>
</tr>
<tr>
<td>GNI per capita ($, Atlas method) 2001</td>
<td>26,110</td>
<td>21,600</td>
</tr>
<tr>
<td>GNI per capita ($, PPP) 2001</td>
<td>-</td>
<td>27,600</td>
</tr>
<tr>
<td>GDP per capita (PPP) 2001</td>
<td>-</td>
<td>27,600</td>
</tr>
<tr>
<td>Total and secondary enrol (per 1000 people)</td>
<td>-</td>
<td>729</td>
</tr>
<tr>
<td>Literacy rate (6 years and over)</td>
<td>-</td>
<td>729</td>
</tr>
<tr>
<td>Expenditure on R &amp; D (% of GNI) 2001</td>
<td>-</td>
<td>2.3</td>
</tr>
</tbody>
</table>

### ICT infrastructure & access

<table>
<thead>
<tr>
<th>Year</th>
<th>Telephones</th>
<th>Mobile phones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>223</td>
<td>0</td>
</tr>
<tr>
<td>2000</td>
<td>240</td>
<td>262</td>
</tr>
</tbody>
</table>

### Computers & the Internet

<table>
<thead>
<tr>
<th>Year</th>
<th>Personal computers</th>
<th>Internet users (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>54.4</td>
<td>-</td>
</tr>
<tr>
<td>2000</td>
<td>150.4</td>
<td>385</td>
</tr>
</tbody>
</table>

### ICT expenditures

<table>
<thead>
<tr>
<th>Year</th>
<th>Total ICT (mil.)</th>
<th>ICT as % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2000</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Notes

- **Notes:** Figures in italics refer to an earlier year. c. Data refers to 2001.
- **Development Data Group, World Bank**
ANNEXURE 12.

ICT at a glance

Sri Lanka

<table>
<thead>
<tr>
<th>Country background information</th>
<th>Sri Lanka</th>
<th>South Asia</th>
<th>Lower middle income</th>
</tr>
</thead>
<tbody>
<tr>
<td>186.1</td>
<td>186.0</td>
<td>179.0</td>
<td>1,202.0</td>
</tr>
<tr>
<td>Population under 5 (percent)</td>
<td>66.0</td>
<td>66.5</td>
<td>66.0</td>
</tr>
<tr>
<td>Youth population (% of total population)</td>
<td>216.6</td>
<td>221.9</td>
<td>237.0</td>
</tr>
<tr>
<td>GNI per capita (PPP, US$)</td>
<td>2,273.7</td>
<td>2,050.0</td>
<td>2,130.0</td>
</tr>
<tr>
<td>GNP growth (1999-2005 and 2005-2010, %)</td>
<td>0.0</td>
<td>4.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Population growth (per 1,000 people)</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Expenditure (in USD, % of GDP)</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
</tbody>
</table>

ICT infrastructure & access

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephones</td>
<td>11</td>
<td>41</td>
<td>27</td>
<td>121</td>
</tr>
<tr>
<td>Internet users</td>
<td>211</td>
<td>264</td>
<td>112</td>
<td>283</td>
</tr>
<tr>
<td>Mobile phones</td>
<td>217</td>
<td>269</td>
<td>4,934</td>
<td>22,782</td>
</tr>
<tr>
<td>Internet users per 1,000 people</td>
<td>1.9</td>
<td>1.8</td>
<td>1.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Cost of telephone per minute (US$)</td>
<td>0.03</td>
<td>0.04</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>Mobile phones per 1,000 people</td>
<td>3</td>
<td>23</td>
<td>53</td>
<td>90</td>
</tr>
<tr>
<td>International telephone operations</td>
<td>106</td>
<td>55</td>
<td>50</td>
<td>90</td>
</tr>
<tr>
<td>Cost of call to US (US$)</td>
<td>2.50</td>
<td>3.00</td>
<td>3.00</td>
<td>4.00</td>
</tr>
<tr>
<td>Daily newspapers per 1,000 people</td>
<td>30</td>
<td>25</td>
<td>42</td>
<td>40</td>
</tr>
<tr>
<td>Radio per 1,000 people</td>
<td>246</td>
<td>296</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Television sets per 1,000 people</td>
<td>28</td>
<td>111</td>
<td>75</td>
<td>210</td>
</tr>
</tbody>
</table>

Computers & the Internet

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal computers</td>
<td>1.1</td>
<td>7.1</td>
<td>4.2</td>
<td>22.3</td>
</tr>
<tr>
<td>Internet users (thousands)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Networked PCs (%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Internet users (thousands)</td>
<td>16</td>
<td>211.5</td>
<td>5,412.5</td>
<td>44,837.0</td>
</tr>
<tr>
<td>Variety of access charges</td>
<td>-</td>
<td>0.60</td>
<td>12.60</td>
<td>12.60</td>
</tr>
<tr>
<td>Internet access charge (US$)</td>
<td>-</td>
<td>0.60</td>
<td>0.10</td>
<td>0.20</td>
</tr>
</tbody>
</table>

ICT expenditures

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT business &amp; government expenditure</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT as % of GDP</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT per capita (US$)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: Figures in italics refer to an earlier year. Data refer to 2010.

Development Assistance Group, World Bank
ICT at a glance

Thailand

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone subscribers</td>
<td>441</td>
<td>612</td>
<td>1,212</td>
</tr>
<tr>
<td>Inland call / line (per 1,000 people)</td>
<td>290</td>
<td>340</td>
<td>390</td>
</tr>
<tr>
<td>Warnings (thousands)</td>
<td>1,685</td>
<td>2,012</td>
<td>2,202</td>
</tr>
<tr>
<td>Warnings (per year)</td>
<td>1.5</td>
<td>1.6</td>
<td>1.9</td>
</tr>
<tr>
<td>Internet users (per thousand)</td>
<td>0.35</td>
<td>0.39</td>
<td>0.46</td>
</tr>
<tr>
<td>Mobile phones (per 1,000 people)</td>
<td>200</td>
<td>250</td>
<td>300</td>
</tr>
<tr>
<td>Internet communications</td>
<td>1,458</td>
<td>1,745</td>
<td>2,031</td>
</tr>
<tr>
<td>CD-ROM (thousands)</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Cost of call (US$ per 3 minutes)</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>Daily subscribers (per 1,000 people)</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Radios (per 1,000 people)</td>
<td>180</td>
<td>235</td>
<td>290</td>
</tr>
<tr>
<td>Telephones (per 1,000 people)</td>
<td>100</td>
<td>125</td>
<td>175</td>
</tr>
</tbody>
</table>

Computers & the Internet

<table>
<thead>
<tr>
<th>1995</th>
<th>2000</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal computers</td>
<td>41</td>
<td>84</td>
</tr>
<tr>
<td>Household computers (thousands)</td>
<td>800</td>
<td>2,800</td>
</tr>
<tr>
<td>Internet (thousands)</td>
<td>560</td>
<td>2,680</td>
</tr>
<tr>
<td>Internet users (per 1,000 people)</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Internet usage minutes</td>
<td>9.0</td>
<td>21.8</td>
</tr>
<tr>
<td>Telephone usage minutes</td>
<td>0.25</td>
<td>0.22</td>
</tr>
</tbody>
</table>

ICT Expenditures

<table>
<thead>
<tr>
<th>1995</th>
<th>2001</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ICT ($ millions)</td>
<td>4,100</td>
<td>4,970</td>
</tr>
<tr>
<td>ICT as % of GDP</td>
<td>2.7</td>
<td>3.7</td>
</tr>
<tr>
<td>ICT per capita ($)</td>
<td>75.2</td>
<td>75.0</td>
</tr>
</tbody>
</table>

ICT Business & Government Environment

<table>
<thead>
<tr>
<th>1995</th>
<th>2000</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of internet users</td>
<td>100</td>
<td>125</td>
</tr>
<tr>
<td>Number of computer users</td>
<td>41</td>
<td>84</td>
</tr>
<tr>
<td>Internet usage minutes</td>
<td>9.0</td>
<td>21.8</td>
</tr>
<tr>
<td>Telephone usage minutes</td>
<td>0.25</td>
<td>0.22</td>
</tr>
</tbody>
</table>

### ICT at a glance

**Vietnam**

<table>
<thead>
<tr>
<th>Country background information</th>
<th>Vietnam</th>
<th>East Asia &amp; Pacific</th>
<th>Low Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (millions)</td>
<td>54.5</td>
<td>2601</td>
<td>2601</td>
</tr>
<tr>
<td>Poverty (% of population below $1 a day)</td>
<td>15.0</td>
<td>120.0</td>
<td>251.0</td>
</tr>
<tr>
<td>Additional years (% ages 10 and over)</td>
<td>11.8</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Urban population (% of total population)</td>
<td>32.0</td>
<td>64.0</td>
<td>54.0</td>
</tr>
<tr>
<td>GNI per capita (PPP, $)</td>
<td>2830.0</td>
<td>6410.0</td>
<td>4040.0</td>
</tr>
<tr>
<td>GDP growth (1990-91 and 1990-2001, %)</td>
<td>3.0</td>
<td>5.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Scientists and engineers in 1000 (per million)</td>
<td>2017.0</td>
<td>2070.0</td>
<td>2070.0</td>
</tr>
<tr>
<td>Expenditures for R&amp;D (% of GNI)</td>
<td>0.7</td>
<td>-</td>
<td>0.7</td>
</tr>
</tbody>
</table>

**ICT Infrastructure & Access**

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephones (miles)</td>
<td>11.0</td>
<td>32.0</td>
<td>51.0</td>
<td>25.0</td>
</tr>
<tr>
<td>Internet (per 1000 people)</td>
<td>60.0</td>
<td>200.0</td>
<td>200.0</td>
<td>200.0</td>
</tr>
<tr>
<td>Waiting time (hours)</td>
<td>2.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Internet (per 1000 people)</td>
<td>507</td>
<td>1440</td>
<td>1440</td>
<td>1440</td>
</tr>
<tr>
<td>GNI per capita (PPP, $)</td>
<td>2830</td>
<td>6410</td>
<td>4040</td>
<td>2940</td>
</tr>
<tr>
<td>Daily newspapers (per 1000 people)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Radios (per 1000 people)</td>
<td>197</td>
<td>619</td>
<td>619</td>
<td>619</td>
</tr>
<tr>
<td>Television (per 1000 people)</td>
<td>288</td>
<td>185</td>
<td>284</td>
<td>284</td>
</tr>
</tbody>
</table>

**Computers & the Internet**

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal computers (per 1000 people)</td>
<td>1.4</td>
<td>8.8</td>
<td>15.6</td>
<td>51.0</td>
</tr>
<tr>
<td>Internet subscribers (thousands)</td>
<td>2.7</td>
<td>22.0</td>
<td>22.0</td>
<td>22.0</td>
</tr>
<tr>
<td>Internet (per 1000 people)</td>
<td>22.0</td>
<td>320.0</td>
<td>320.0</td>
<td>320.0</td>
</tr>
<tr>
<td>WorldWideWeb access (per 1000 people)</td>
<td>18.0</td>
<td>21.0</td>
<td>21.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Telephones (per 1000 people)</td>
<td>23.0</td>
<td>6.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

**ICT Expenditures**

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (billion USD)</td>
<td>2.5</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>ICT as % of GDP</td>
<td>3.0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>ICT per capita (PPP, $)</td>
<td>15.0</td>
<td>30.0</td>
<td>30.0</td>
<td>30.0</td>
</tr>
</tbody>
</table>

**ICT Business & Government Environment**

<table>
<thead>
<tr>
<th>Year</th>
<th>1995</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet speed and access</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Internet phones</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Highly skilled IT/IT workforce</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Government information services availability</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Language is in IT usage</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Security services</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Notes:** Figures in table are in thousand million yen. Data refers to 2001.


**Development Data Group, World Bank**
ANNEXURE 15.

ICT at a glance

Bangladesh

<table>
<thead>
<tr>
<th>Country background information</th>
<th>Bangladesh</th>
<th>South Asia</th>
<th>Low Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (in millions)</td>
<td>125.1</td>
<td>132.4</td>
<td>1,378.6</td>
</tr>
<tr>
<td>Poverty (ratio of population below $1 a day)</td>
<td>28.1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Literacy rate (% of age group 7 and over)</td>
<td>66.2</td>
<td>56.6</td>
<td>56.7</td>
</tr>
<tr>
<td>Urban population (% of total population)</td>
<td>32.3</td>
<td>28.6</td>
<td>31.0</td>
</tr>
<tr>
<td>GNI per capita (2006 constant, $)</td>
<td>320.0</td>
<td>170.5</td>
<td>430.6</td>
</tr>
<tr>
<td>GNP per capita (PPP, $)</td>
<td>1,200.0</td>
<td>1,080.0</td>
<td>2,040.0</td>
</tr>
<tr>
<td>GDP growth (1990-95 to 1995-2001, %)</td>
<td>4.4</td>
<td>5.2</td>
<td>3.4</td>
</tr>
<tr>
<td>Proportion of R&amp;D (per million people)</td>
<td>0.14</td>
<td>0.03</td>
<td>0.3</td>
</tr>
<tr>
<td>ICT expenditure as % of GDP</td>
<td>0.4</td>
<td>0.3</td>
<td>0.3</td>
</tr>
</tbody>
</table>

ICT infrastructure & access

<table>
<thead>
<tr>
<th>1995</th>
<th>2000</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephones (per 1,000 people)</td>
<td>2</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Inland call (per 1,000 people)</td>
<td>50</td>
<td>60</td>
<td>110</td>
</tr>
<tr>
<td>Waiting call (thousands)</td>
<td>124</td>
<td>120</td>
<td>4,294</td>
</tr>
<tr>
<td>Waiting time (months)</td>
<td>2.3</td>
<td>1.9</td>
<td>4.4</td>
</tr>
<tr>
<td>Revenue per line ($)</td>
<td>780</td>
<td>630</td>
<td>175</td>
</tr>
<tr>
<td>Cost of call (yen per minute)</td>
<td>0.04</td>
<td>0.03</td>
<td>0.01</td>
</tr>
<tr>
<td>Monthly revenue per 1,000 visitors</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>International telecommunication (per 1,000 people)</td>
<td>188</td>
<td>91</td>
<td>65</td>
</tr>
<tr>
<td>Personal computers per 1,000 people</td>
<td>0.14</td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td>Dial-up Internet (per 100 line)</td>
<td>0.04</td>
<td>0.18</td>
<td></td>
</tr>
<tr>
<td>Fixed line users per 1,000 people</td>
<td>8</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>Fixed lines per 1,000 people</td>
<td>6</td>
<td>49</td>
<td>172</td>
</tr>
<tr>
<td>Telephone service per 1,000 people</td>
<td>2</td>
<td>7</td>
<td>25</td>
</tr>
</tbody>
</table>

ICT expenditure

<table>
<thead>
<tr>
<th>1995</th>
<th>2000</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total ICT ($ millions)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT as % of GDP</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ICT as % of GDP</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

ICT business & government environment

<table>
<thead>
<tr>
<th>1995</th>
<th>2000</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet speed &amp; access</td>
<td>2.6</td>
<td>3.6</td>
<td>-</td>
</tr>
<tr>
<td>Internet adoption (houses)</td>
<td>3.4</td>
<td>3.4</td>
<td>-</td>
</tr>
<tr>
<td>Highly skilled labor market</td>
<td>2.2</td>
<td>2.2</td>
<td>-</td>
</tr>
<tr>
<td>Government on-line services</td>
<td>4.6</td>
<td>4.6</td>
<td>-</td>
</tr>
<tr>
<td>Government online service availability</td>
<td>1.0</td>
<td>1.0</td>
<td>-</td>
</tr>
<tr>
<td>Internet users (100,000)</td>
<td>2.1</td>
<td>2.1</td>
<td>-</td>
</tr>
<tr>
<td>Government policies</td>
<td>1.0</td>
<td>1.0</td>
<td>-</td>
</tr>
</tbody>
</table>

Notes: Figures refer to the year in Data refer to 2006.

ANNEXURE 16.

TEXT BOX #1: SALIENT FINDINGS & METHODOLOGIES OF PRIOR STUDIES

CSP-SEARCC Study of ICT Manpower (2000): 314 of 441 organizations responded (71% response rate) of which 49.8% were IT suppliers, 14.3% public-sector, and 44.7% private sector entities. 225 of 500 IT professionals responded (45% response rate) of which 66.3% worked in development and 33.7% in services. Some salient findings are:
- 51.3% IT professionals worked in software development while 6.2% in IT Mgmt.
- IT professionals aged between 28-29 (35%), 20-24 (23%), and 30-34 (19%).
- Male: Female ratio is 9:1, with roughly proportional representation in jobs incl. IT mgmt.
- Salary levels: <3000 p (44%), 3001-5000 p (25%), 5001-9999 p (14%)
- 10% of organizations report shortage of manpower (36% extreme. 51% moderate)
- Top 5 skills in critical shortage: Application/systems development, network protocol, hypertext, database, mobile/wireless comm., and multimedia development

PASHA-UMS Software/IT Study (2002): Sample size was 331 organizations. Asked questions about domains, revenue sizes, projects acquisition, HR and quality practices etc. The sample was highly biased towards successful software houses. Salient findings are:
- Average programmer has the potential of generating $1,000 in exports every year.
- 75% of companies have ISO certification and 7% have CMM certification.
- Average stay of an IT professional in a company is about 2 years.
- Of the total employment, around 96-98% were programmers and 11% QA professionals.
- Larger firms (10+ FTE) employed double the QA professionals than smaller on a % basis.

UNCTAD Study (2004): Comprises review of secondary literature in the Pakistani and international contexts. Salient findings of the study, generally critical of the industry are:
- Discernible actions on only 18 of the 102 (17%) “commitments” of National IT Policy.
- Pakistan: 7th of 102 countries in Network Readiness Index.
- Actual spending under IT Policy 2000 laps allocations, esp. in Exports/Commerce.
- Revenues in Export: $12.2M (growth of 86%) and Domestic: $5M (growth of 49%)
- Current estimate of software exports at about $12 M


ANNEXURE 17.

<table>
<thead>
<tr>
<th>Table 1: Key Aggregate Statistics On Respondent Companies*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue &amp; Employment in Surveyed Companies</strong></td>
</tr>
<tr>
<td>Total Number of Software Houses Surveyed</td>
</tr>
<tr>
<td>Cumulative Revenues (calculated through mid-point estimation)**</td>
</tr>
<tr>
<td>Total # of Professional/Technical Employees</td>
</tr>
<tr>
<td>Average size of Company (in Professional/Technical Employees)</td>
</tr>
<tr>
<td>Revenue per Technical and Professional Employee</td>
</tr>
<tr>
<td>% Growth in Professional/Technical Employment (over last year)</td>
</tr>
<tr>
<td>% Growth in Revenues (over last year)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ownership Structure and Quality Characteristics of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Companies that are subsidiaries of Foreign Companies</td>
</tr>
<tr>
<td>% of Companies having Front Offices abroad (US, UK/DE/FR/ME, AP)</td>
</tr>
<tr>
<td>% of Companies having a Quality Certification (ISO, CMM)</td>
</tr>
<tr>
<td>% of Companies having a Dedicated Quality Assurance Team</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product &amp; Strategic Posture of Companies ***</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product/Service</strong></td>
</tr>
<tr>
<td>Product/Solution or Package Software Company</td>
</tr>
<tr>
<td>Software/IT Services Company</td>
</tr>
<tr>
<td>Software/IT Consulting Company</td>
</tr>
<tr>
<td><strong>Strategic Posture</strong></td>
</tr>
<tr>
<td>Product/service applicable to a niche Market</td>
</tr>
<tr>
<td>Product/service applicable to several industries</td>
</tr>
<tr>
<td>Product/service applicable to an industry vertical</td>
</tr>
</tbody>
</table>

* These are based on self-reported annual revenues
** The State Bank of Pakistan estimates the country’s exports figures of last year to be $32M.
*** This estimate needs to be used with great caution. The corresponding lower and upper limits are 359.25 and $10.05 Million. Please refer to Table II for a detailed categorised breakdown.
**** 46 software houses were surveyed in-person—while 14 submitted data through online survey.

### ANNEXURE 18.

**Table II: Size of Responding Companies by Revenue & Employment**

<table>
<thead>
<tr>
<th>Annual Revenues in US$ (PKR**)</th>
<th>#(% of Software Houses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater than $5 Million (PKR 300 Million)</td>
<td>4 (7.69%)</td>
</tr>
<tr>
<td>Between $1 and 5 Million (PKR 60-300 Million)</td>
<td>13 (22%)</td>
</tr>
<tr>
<td>Between $500K and 1 Million (PKR 30-60 Million)</td>
<td>9 (17.31%)</td>
</tr>
<tr>
<td>Between $200K and 500 K (PKR 12-30 Million)</td>
<td>10 (19.23%)</td>
</tr>
<tr>
<td>Between $100K and 200 K (PKR 6-12 Million)</td>
<td>6 (11.54%)</td>
</tr>
<tr>
<td>Between $50K and 100 K (PKR 3.6 Million)</td>
<td>5 (9.62%)</td>
</tr>
<tr>
<td>Less than $50K (PKR 3 Million)</td>
<td>5 (9.62%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52 (100%)</strong></td>
</tr>
</tbody>
</table>

**Full-time Employment**

| Greater than 250 Employees | 6 (10%) |
| Between 100 and 250 Employees | 8 (13.33%) |
| Between 25-100 Employees | 23 (38.33%) |
| Between 5-25 Employees | 22 (36.57%) |
| Less than 5 Employees | 1 (1.67%) |
| **Total** | **60 (100%)** |

* These are based on self-reported annual revenues

** Note: 1 US$ = 60 PKR

** Note: Eight companies in our sample did not report full-year revenues either because it was their first year of operation or because they were development centers of foreign companies with no independent revenue estimates of their own.


### ANNEXURE 19.

**Table III: Whom Do Pakistani Software Companies Sell To?**

<table>
<thead>
<tr>
<th>Exports vs. Domestic &amp; Products vs. Services</th>
<th>% of Total Revenues*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export-Products</td>
<td>22.50%</td>
</tr>
<tr>
<td>Export-Services</td>
<td>38.32%</td>
</tr>
<tr>
<td>Domestic-Products</td>
<td>23.37%</td>
</tr>
<tr>
<td>Domestic-Services</td>
<td>16.53%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exports vs. Domestic &amp; Public vs. Private Sectors</th>
<th>% of Total Revenues*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Sector (Govt.)— Domestic</td>
<td>8.51%</td>
</tr>
<tr>
<td>Public Sector (Govt.)— Foreign</td>
<td>5.90%</td>
</tr>
<tr>
<td>Private Sector – Domestic</td>
<td>30.79%</td>
</tr>
<tr>
<td>Private Sector – Foreign</td>
<td>54.77%</td>
</tr>
</tbody>
</table>

* These are based on self-reported percentages of annual revenues

ANNEXURE 20.

![Diagram showing Richard Hecks' Taxonomy of Software Businesses, as applied to Pakistan]


ANNEXURE 21.

<table>
<thead>
<tr>
<th>Sources of Initial Funding for Software Ventures</th>
<th>All Combined</th>
<th>Domestic Focused*</th>
<th>Hybrids</th>
<th>Export Focused</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savings of local (Pakistan-based) founders</td>
<td>N=58</td>
<td>N=10</td>
<td>N=11</td>
<td>N=20</td>
</tr>
<tr>
<td>Investment by (savings of) foreign partners/founders</td>
<td>43%</td>
<td>52%</td>
<td>72%</td>
<td>38%</td>
</tr>
<tr>
<td>Investment by a local partner (e.g. a business house)</td>
<td>32%</td>
<td>26%</td>
<td>18%</td>
<td>20%</td>
</tr>
<tr>
<td>Funded through initial project work (or cash-flows)</td>
<td>13%</td>
<td>15%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Venture capital or banking sources</td>
<td>15%</td>
<td>15%</td>
<td>0%</td>
<td>20%</td>
</tr>
<tr>
<td>Other</td>
<td>12%</td>
<td>21%</td>
<td>18%</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>7%</td>
<td>10%</td>
<td>0%</td>
<td>5%</td>
</tr>
</tbody>
</table>

* Domestic/Export-focused software house is one with >75% sales in domestic/export markets respectively

### ANNEXURE 22.

#### TABLE V: PREVALENCE OF KEY MANAGEMENT PRACTICES IN SOFTWARE HOUSES

<table>
<thead>
<tr>
<th>Key Managerial Practices Employed</th>
<th>Market Focus of Software Houses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Categories</td>
</tr>
<tr>
<td>Annexure 22.</td>
<td>N=58</td>
</tr>
<tr>
<td>MP1. Top management team primarily comprises people with technical degrees</td>
<td>81%</td>
</tr>
<tr>
<td>MP2. Company’s top-management team has started successful/unsuccessful ventures before</td>
<td>44%</td>
</tr>
<tr>
<td>MP3. Incentives (or profits) are shared among the company’s employees</td>
<td>51%</td>
</tr>
<tr>
<td>MP4. Company offers stock ownership to its employees</td>
<td>34%</td>
</tr>
<tr>
<td>MP5. Company offers additional benefits (e.g. flex times, maternity leaves) to female employees</td>
<td>69%</td>
</tr>
<tr>
<td>MP6. Provides some paid time to employees to work on their own interests</td>
<td>22%</td>
</tr>
<tr>
<td>MP7. Company holds regular employee bonding events (e.g. Tech-Forums, Picnics)</td>
<td>68%</td>
</tr>
<tr>
<td>MP8. Top leadership closes tracks cash-flows several months into the future</td>
<td>79%</td>
</tr>
<tr>
<td>MP9. Company’s employees are regularly briefed about strategy and goals</td>
<td>77%</td>
</tr>
<tr>
<td>MP10. Company continues to grow in revenues but not in terms of profitability</td>
<td>20%</td>
</tr>
<tr>
<td>MP11. Employees/managers often feel: “I have to do it myself, if I have to get things done”</td>
<td>39%</td>
</tr>
<tr>
<td>MP12. Portion of company’s current/future product-line comprises employee-conceived projects</td>
<td>36%</td>
</tr>
</tbody>
</table>

* These sub-categories exclude operations strictly categorized as “offshore-development-centers”.


### ANNEXURE 23.

#### TABLE VI: KEY TECHNICAL PRACTICES IN PAKISTANI SOFTWARE HOUSES

<table>
<thead>
<tr>
<th>Characteristics of Technical Quality</th>
<th>All Categories</th>
<th>Domestic Focused</th>
<th>Hybrids</th>
<th>Export Focused</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Companies with dedicated QA Team</td>
<td>N=58</td>
<td>N=10</td>
<td>N=11</td>
<td>N=20</td>
</tr>
<tr>
<td>Ave. size of the QA team (as % of total employment)</td>
<td>72%</td>
<td>75%</td>
<td>72.7%</td>
<td>68%</td>
</tr>
<tr>
<td>% of employee payroll spent on QA function</td>
<td>13.86%</td>
<td>12.64%</td>
<td>11.8%</td>
<td>16.9%</td>
</tr>
<tr>
<td>% of Companies with ISO/IEC Certification</td>
<td>49%</td>
<td>36%</td>
<td>79%</td>
<td>50%</td>
</tr>
<tr>
<td>Programmer to PM Ratio (PM incl. Team lead)</td>
<td>5.97</td>
<td>4.1%</td>
<td>6.4</td>
<td>5.7</td>
</tr>
<tr>
<td>Software Engineering Life Cycle Methodology Used</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Waterfall</td>
<td>32%</td>
<td>30.5%</td>
<td>54%</td>
<td>19%</td>
</tr>
<tr>
<td>Iterative</td>
<td>44%</td>
<td>36.8%</td>
<td>63%</td>
<td>40%</td>
</tr>
<tr>
<td>Prototyping</td>
<td>50%</td>
<td>64.8%</td>
<td>54%</td>
<td>30%</td>
</tr>
<tr>
<td>Homegrown</td>
<td>29%</td>
<td>18.7%</td>
<td>9%</td>
<td>49%</td>
</tr>
<tr>
<td>Other</td>
<td>10%</td>
<td>15.7%</td>
<td>9%</td>
<td>50%</td>
</tr>
<tr>
<td>How Often Are Technical Best Practices Used</td>
<td>Fresh</td>
<td>Fresh</td>
<td>Fresh</td>
<td>Fresh</td>
</tr>
<tr>
<td>Project plan tracking</td>
<td>1.87</td>
<td>1.69</td>
<td>2</td>
<td>1.94</td>
</tr>
<tr>
<td>Code and design reviews</td>
<td>2.72</td>
<td>2.58</td>
<td>3.2</td>
<td>2.44</td>
</tr>
<tr>
<td>Documentation of the code</td>
<td>2.58</td>
<td>2.3%</td>
<td>2.88</td>
<td>2.3</td>
</tr>
<tr>
<td>System to learn from on going projects</td>
<td>2.74</td>
<td>2.4%</td>
<td>3.11</td>
<td>2.76</td>
</tr>
<tr>
<td>Measurement and review of process quality</td>
<td>2.85</td>
<td>2.53</td>
<td>3.09</td>
<td>2.93</td>
</tr>
</tbody>
</table>

* Frequency scores are presented as an average: 1- daily/continuously, 2- weekly, 3- monthly, and 4- as needed (generally, small is better). Excluded from these figures are companies that don’t use a particular approach.

### ANNEXURE 24.

**TABLE VII: SUCCESS OF MARKETING STRATEGIES USED**

<table>
<thead>
<tr>
<th>Success of Marketing Strategies Used</th>
<th>Market Orientation of the Software Operation</th>
<th>Average Rating* (% Don’t Use)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Companies</td>
<td>Domestic Focused</td>
</tr>
<tr>
<td>MA1-Word of mouth approach (client referrals etc.)</td>
<td>N=57</td>
<td>N=19</td>
</tr>
<tr>
<td></td>
<td>3.78 (19%)</td>
<td>3.88 (10%)</td>
</tr>
<tr>
<td>MA2-Advertising in trade local/foreign journals</td>
<td>2.21 (59%)</td>
<td>2.20 (47%)</td>
</tr>
<tr>
<td>MA3-Attending local/foreign trade conferences</td>
<td>2.45 (33%)</td>
<td>2.23 (31%)</td>
</tr>
<tr>
<td>MA4-Initiate 1-to-1 communication w/ potential clients</td>
<td>3.70 (19%)</td>
<td>4.11 (5%)</td>
</tr>
<tr>
<td>MA5-Use pre-established networks/personal relationships</td>
<td>3.52 (29%)</td>
<td>3.6 (20%)</td>
</tr>
<tr>
<td>MA6-Alliances and agreements w/ channel partners</td>
<td>2.94 (36%)</td>
<td>2.53 (31%)</td>
</tr>
<tr>
<td>MA7-Depend on a “captive” client since formation</td>
<td>3.16 (57%)</td>
<td>3.46 (68%)</td>
</tr>
</tbody>
</table>

* Respondents were asked to rate the perception of successfulness of each of these approaches on a scale of 1-5 (1=least successful, 2=somewhat successful, 3=moderately successful, 4=quite successful, 5=most successful)


### ANNEXURE 25.

**TABLE VIII: HOW DO SOFTWARE HOUSES SPEND THEIR MONEY?**

<table>
<thead>
<tr>
<th>Major Expenditure Heads of Software Houses</th>
<th>Market Orientation of Software Houses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Combined</td>
</tr>
<tr>
<td>Marketing and Advertising</td>
<td>N=57</td>
</tr>
<tr>
<td></td>
<td>9.3%</td>
</tr>
<tr>
<td>Product Development / Service Delivery</td>
<td>46.4%</td>
</tr>
<tr>
<td>Product/Service Support</td>
<td>13.3%</td>
</tr>
<tr>
<td>Research and Development (R&amp;D)</td>
<td>8.4%</td>
</tr>
<tr>
<td>Quality Assurance</td>
<td>8.5%</td>
</tr>
<tr>
<td>Training and Certification</td>
<td>4.6%</td>
</tr>
<tr>
<td>Other</td>
<td>6.4%</td>
</tr>
</tbody>
</table>

* Domestic/Export-focused software house is one with > 75% sales in domestic/export markets respectively.


### ANNEXURE 26.

**TABLE IX: HOW DO SOFTWARE CEOs SPEND THEIR TIME?**

<table>
<thead>
<tr>
<th>Breakdown of Time Spent in an &quot;Average Month&quot;</th>
<th>Market Orientation of Software Houses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Combined</td>
</tr>
<tr>
<td>Day-to-day management</td>
<td>N=57</td>
</tr>
<tr>
<td></td>
<td>32%</td>
</tr>
<tr>
<td>Strategic &amp; Product Planning</td>
<td>20.5%</td>
</tr>
<tr>
<td>Fund-raising</td>
<td>6.0%</td>
</tr>
<tr>
<td>Marketing &amp; Business Development</td>
<td>24.6%</td>
</tr>
<tr>
<td>Hiring &amp; Recruitment</td>
<td>7.95%</td>
</tr>
<tr>
<td>Other</td>
<td>8.65%</td>
</tr>
</tbody>
</table>

* Domestic/Export-focused software house is one with > 75% sales in domestic/export markets respectively.


---

Organization Development for Revitalization of Information Technology Sector of Pakistan By: Ali Ahsan (All Rights Reserved)  Pg:xxi
ANNEXURE 27.

<table>
<thead>
<tr>
<th>TABLE XII: THE HOLY GRAIL OF INDUSTRY BEST PRACTICES?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important Structural Variables</td>
</tr>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td>Aggregate</td>
</tr>
<tr>
<td>Foreign Subsidiary</td>
</tr>
<tr>
<td>Town Office Area</td>
</tr>
<tr>
<td>Composition of Revenue Growth</td>
</tr>
<tr>
<td>Product/Service Mix</td>
</tr>
<tr>
<td>Dependence on Largest Client</td>
</tr>
<tr>
<td>Revenue Growth over Last Year</td>
</tr>
<tr>
<td>Employment Figures of Growth</td>
</tr>
<tr>
<td>Average # of Employees</td>
</tr>
<tr>
<td>Average # of Employees</td>
</tr>
<tr>
<td>Average # of Employees</td>
</tr>
<tr>
<td>Average Rating of High Contact Approach</td>
</tr>
<tr>
<td>Average Rating of Low Contact Approach</td>
</tr>
<tr>
<td>Top 3 Reasons for Success</td>
</tr>
<tr>
<td>Top 3 Reasons for Failure</td>
</tr>
</tbody>
</table>


ANNEXURE 28.

<table>
<thead>
<tr>
<th>TABLE XII: REALITY &amp; PERCEPTION—TOP-3 POLICY &amp; INFRASTRUCTURE BOTTLENECKS AFFECTING GROWTH OF SOFTWARE COMPANIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of Software Houses</td>
</tr>
<tr>
<td>Cost of IT/Telecom infrastructure (e.g. Bandwidth)</td>
</tr>
<tr>
<td>Availability of IT telecom infrastructure</td>
</tr>
<tr>
<td>Country’s image, over-and-above company’s brand</td>
</tr>
<tr>
<td>Quality of manpower</td>
</tr>
<tr>
<td>Low and medium security situation</td>
</tr>
<tr>
<td>Brain-drain and retention of talented employees</td>
</tr>
<tr>
<td>Absence of intellectual property regime (IPR)</td>
</tr>
<tr>
<td>Availability of human resources</td>
</tr>
<tr>
<td>Lack of availability of venture capital</td>
</tr>
<tr>
<td>Lack of government contracts to software firms</td>
</tr>
</tbody>
</table>


ANNEXURE 29.

<table>
<thead>
<tr>
<th>Table 1:</th>
<th>Global IT Professional Services Market*</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Professional Services</td>
<td>Value in U.S. ($ billions)</td>
</tr>
<tr>
<td>IT Services and Software</td>
<td>697.3</td>
</tr>
<tr>
<td>A. Software products</td>
<td>187.3</td>
</tr>
<tr>
<td>B. IT Services</td>
<td>509.9</td>
</tr>
<tr>
<td>C. Financial Solutions</td>
<td>678.8</td>
</tr>
<tr>
<td>D. Human Resources</td>
<td>58.8</td>
</tr>
<tr>
<td>E. Procurement</td>
<td>55.4</td>
</tr>
<tr>
<td>F. Engineering and Consulting</td>
<td>145.0</td>
</tr>
<tr>
<td>G. Logistics</td>
<td>15.5</td>
</tr>
<tr>
<td>H. Sales and Marketing</td>
<td>141.2</td>
</tr>
<tr>
<td>I. Facility Operations</td>
<td>20.0</td>
</tr>
<tr>
<td>J. Commissions</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>1,044.9</td>
</tr>
</tbody>
</table>

Source: Bearing Point, (2005), pg 7, Strategy For Increasing Exports of BPO, Pakistan Software Export Board, Government of Pakistan.
ANNEXURE 30.


ANNEXURE 31.

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Priority for Removal of Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLITICAL</td>
<td></td>
</tr>
<tr>
<td>Terrorism</td>
<td>High</td>
</tr>
<tr>
<td>Geopolitical instability</td>
<td>High</td>
</tr>
<tr>
<td>LEGAL</td>
<td></td>
</tr>
<tr>
<td>Non-enforcement of Intellectual Property Rights</td>
<td>Medium</td>
</tr>
<tr>
<td>Failure to enforce New York Arbitration Agreement</td>
<td>Low</td>
</tr>
<tr>
<td>BUSINESS</td>
<td></td>
</tr>
<tr>
<td>Perception issue</td>
<td>Full</td>
</tr>
<tr>
<td>Inconsistent SOP policies</td>
<td>Medium</td>
</tr>
<tr>
<td>No redressal for late fees</td>
<td>Full</td>
</tr>
<tr>
<td>Companies are reluctant to pursues legal action against low cost competitors</td>
<td>Full</td>
</tr>
<tr>
<td>Non-existence of Export and Economic Zones</td>
<td>Full</td>
</tr>
<tr>
<td>Lack enforcement against Pakistan</td>
<td>Medium</td>
</tr>
</tbody>
</table>


ANNEXURE 32.

<table>
<thead>
<tr>
<th>Country</th>
<th>No. of Procedures</th>
<th>Time (days)</th>
<th>Cost (% of debt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>25</td>
<td>241</td>
<td>26.5</td>
</tr>
<tr>
<td>India</td>
<td>40</td>
<td>425</td>
<td>43.1</td>
</tr>
<tr>
<td>Pakistan</td>
<td>30</td>
<td>365</td>
<td>45.9</td>
</tr>
<tr>
<td>Philippines</td>
<td>25</td>
<td>380</td>
<td>50.7</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>17</td>
<td>440</td>
<td>21.9</td>
</tr>
</tbody>
</table>


ANNEXURE 33.

<table>
<thead>
<tr>
<th>Country</th>
<th>Difficulty of Hiring Index</th>
<th>Rigidity of Hiring Index</th>
<th>Difficulty of Firing Index</th>
<th>Rigidity of Firing Index</th>
<th>Hiring (weeks)</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>11</td>
<td>40</td>
<td>40</td>
<td>30</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>33</td>
<td>20</td>
<td>90</td>
<td>48</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td>78</td>
<td>40</td>
<td>30</td>
<td>49</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>22</td>
<td>60</td>
<td>40</td>
<td>41</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>0</td>
<td>40</td>
<td>80</td>
<td>40</td>
<td>108</td>
<td></td>
</tr>
</tbody>
</table>

ANNEXURE 34.

Table 19: Starting and Closing Business

<table>
<thead>
<tr>
<th>Country</th>
<th>Starting a new Business</th>
<th>Closing a Business</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Procedures</td>
<td>Time (days)</td>
</tr>
<tr>
<td>AVERAGE</td>
<td>10</td>
<td>48</td>
</tr>
<tr>
<td>China</td>
<td>12</td>
<td>41</td>
</tr>
<tr>
<td>India</td>
<td>11</td>
<td>39</td>
</tr>
<tr>
<td>Pakistan</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Philippines</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>9</td>
<td>30</td>
</tr>
</tbody>
</table>

Source: Bearing Point. (2005), pg 69, Strategy For Increasing Exports of BPO, Pakistan Software Export Board, Government of Pakistan.

ANNEXURE 35.

Table 25: Comparison of IT-BPO industry sizes of Pakistan and India

<table>
<thead>
<tr>
<th>Country</th>
<th>Domestic revenue (including Hardware) - US $</th>
<th>IT-BPO - US $</th>
<th>Exports revenue (including Hardware) - US $</th>
<th>Export revenue as a percentage of domestic revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>600 million</td>
<td>160 million</td>
<td>17 %</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>8.2 billion</td>
<td>17.9 billion</td>
<td>218 %</td>
<td></td>
</tr>
</tbody>
</table>

Source: Bearing Point. (2005), pg n, Strategy For Increasing Exports of BPO, Pakistan Software Export Board, Government of Pakistan.

ANNEXURE 36.

Table 28: Distribution of Software Houses by Major Cities and Database

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Major Cities</th>
<th>No Of Companies</th>
<th>Oracle</th>
<th>DB2</th>
<th>SQL Server</th>
<th>Term Data</th>
<th>Access</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Islamabad</td>
<td>227</td>
<td>69</td>
<td>22</td>
<td>140</td>
<td>4</td>
<td>220</td>
</tr>
<tr>
<td>2</td>
<td>Lahore</td>
<td>257</td>
<td>88</td>
<td>30</td>
<td>106</td>
<td>0</td>
<td>250</td>
</tr>
<tr>
<td>3</td>
<td>Faisalabad</td>
<td>45</td>
<td>16</td>
<td>12</td>
<td>31</td>
<td>0</td>
<td>44</td>
</tr>
<tr>
<td>4</td>
<td>Karachi</td>
<td>297</td>
<td>90</td>
<td>18</td>
<td>202</td>
<td>3</td>
<td>356</td>
</tr>
<tr>
<td>5</td>
<td>Peshawar</td>
<td>15</td>
<td>8</td>
<td>7</td>
<td>5</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>6</td>
<td>Other cities</td>
<td>44</td>
<td>22</td>
<td>5</td>
<td>39</td>
<td>2</td>
<td>42</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>860</td>
<td>286</td>
<td>77</td>
<td>607</td>
<td>9</td>
<td>829</td>
</tr>
</tbody>
</table>

Source: Bearing Point. (2005), pg 83, Strategy For Increasing Exports of BPO, Pakistan Software Export Board, Government of Pakistan.

ANNEXURE 37.

Table 29: Distribution of Software Houses by Major Cities and Languages

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Major Cities</th>
<th>No Of Companies</th>
<th>SQL</th>
<th>VB</th>
<th>VC++</th>
<th>Java</th>
<th>HTML</th>
<th>CF</th>
<th>XML</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Islamabad</td>
<td>227</td>
<td>140</td>
<td>150</td>
<td>146</td>
<td>80</td>
<td>203</td>
<td>25</td>
<td>25</td>
<td>110</td>
</tr>
<tr>
<td>2</td>
<td>Lahore</td>
<td>257</td>
<td>196</td>
<td>206</td>
<td>122</td>
<td>98</td>
<td>220</td>
<td>35</td>
<td>31</td>
<td>152</td>
</tr>
<tr>
<td>3</td>
<td>Faisalabad</td>
<td>48</td>
<td>81</td>
<td>96</td>
<td>16</td>
<td>55</td>
<td>24</td>
<td>11</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>Karachi</td>
<td>267</td>
<td>202</td>
<td>252</td>
<td>160</td>
<td>72</td>
<td>216</td>
<td>52</td>
<td>38</td>
<td>160</td>
</tr>
<tr>
<td>5</td>
<td>Peshawar</td>
<td>15</td>
<td>9</td>
<td>13</td>
<td>7</td>
<td>5</td>
<td>11</td>
<td>3</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>Other cities</td>
<td>44</td>
<td>59</td>
<td>40</td>
<td>24</td>
<td>21</td>
<td>58</td>
<td>9</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>860</td>
<td>607</td>
<td>680</td>
<td>469</td>
<td>292</td>
<td>726</td>
<td>135</td>
<td>109</td>
<td>446</td>
</tr>
</tbody>
</table>

Source: Bearing Point. (2005), pg 87, Strategy For Increasing Exports of BPO, Pakistan Software Export Board, Government of Pakistan.
ANNEXURE 38.

Table 31: IT capability of selected countries

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Pakistan</th>
<th>India</th>
<th>China</th>
<th>Malaysia</th>
<th>Brazil</th>
<th>Argentina</th>
<th>Russia</th>
<th>Czech Republic</th>
<th>Singapore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to IT professionals</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>IT Literacy Low cost, high quality</td>
<td>High</td>
<td>Low</td>
<td>Moderate</td>
<td>Low</td>
<td>High</td>
<td>Moderate</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
<td>Poor</td>
</tr>
</tbody>
</table>

Source: Bearing Point. (2005), pg 91, Strategy For Increasing Exports of BPO, Pakistan Software Export Board, Government of Pakistan.

ANNEXURE 39.

SWOT Analysis of Pakistan as an Alternative ITPS Hub

A review of the internal and external environment is an important part of the strategic planning process. SWOT Analysis has been used to identify the Strengths and Weaknesses and examine the Opportunities and Threats currently faced by the ITPS sector in Pakistan. The strategy would focus on areas where Pakistan’s ITPS sector is strong and where the greatest opportunities lie. Also, it would enable us to build on strengths, exploit opportunities, remove weaknesses, and develop a strategy for dealing with threats.

STRENGTHS

- Pakistan has lowest cost base (labor and occupancy for a benchmark of 200 full time employees) in the top 36 countries with IT capabilities.
- Trained and experienced people are available for supporting and maintaining the IT infrastructure.
- Starting and closing a business in Pakistan is faster than all other countries in comparison.
- Pakistan is internationally known as a country with IT capability of moderate quality (and quantity)
- Pakistani companies have over 7 years of experience of developing Software for the international market
- Pakistani companies have more than 2 years of experience of providing BPO services to international clients.
- Most of the senior management of local BPO companies are seasoned professionals, and possesses good business perspective and communication skills. Many such individuals have prior experience abroad or at other Pakistani businesses.
- Pakistani companies have gained considerable expertise in certain niche sectors like Banking, Insurance, Finance and Telecom.
- Unavailability of redundant fibre optic Internet connectivity
- Government of Pakistan’s change in priority and straying focus from ITPS
- Inconsistency in governmental regulations and policies
- Lack of internal stability and law enforcement
- Shortage of trainers and the training facilities for upgrading the English language communication skills of available HR resources.
- Starting and closing a business in Pakistan is faster than all other countries in comparison.
- It has large pool of English speaking human capital (approximately 6.5 million).
- Admittedly, most of these people do not possess the proficiency in the English language to serve foreign clients, but it is estimated that the English language skills of at least 5-10 % of them can be upgraded to that level over a 3- 6 month period through training.
- It has extremely low Bandwidth Rate, US $ 2,000 per 2 MB
- Pakistani companies have more than 2 years of experience of providing BPO services to international clients.
- Pakistani companies have over 7 years of experience of developing Software for the international market
- Starting and closing a business in Pakistan is faster than all other countries in comparison.
- It has large pool of English speaking human capital (approximately 6.5 million).
- Admittedly, most of these people do not possess the proficiency in the English language to serve foreign clients, but it is estimated that the English language skills of at least 5-10 % of them can be upgraded to that level over a 3- 6 month period through training.
- It has extremely low Bandwidth Rate, US $ 2,000 per 2 MB
- Pakistani companies have more than 2 years of experience of providing BPO services to international clients.
- Pakistani companies have over 7 years of experience of developing Software for the international market
- Starting and closing a business in Pakistan is faster than all other countries in comparison.
- It has large pool of English speaking human capital (approximately 6.5 million).
- Admittedly, most of these people do not possess the proficiency in the English language to serve foreign clients, but it is estimated that the English language skills of at least 5-10 % of them can be upgraded to that level over a 3- 6 month period through training.

WEAKNESSES

- Perception of Pakistan (acts of terrorism, political issues, etc) reduces business confidence and technology spending Plans.
- Lack of internal stability and law enforcement
- Inconsistency in governmental regulations and policies
- Government of Pakistan’s change in priority and straying focus from ITPS
- Unavailability of redundant fibre optic Internet connectivity
- Unavailability of human capital to fill middle management positions
- Shortage of trainers and the training facilities for upgrading the English language communication skills of available HR resources.
- Lack of quality certification of Pakistani ITPS companies from the international professional certification bodies (CMMI, COPC, etc)
- Absence of quality consciousness and culture, which results in poor to moderate quality output.
- Domestic and international call centres are prohibited to operate under one roof, which is one of the major inhibitor in the growth and maturity of the call centres of the country. If allowed, the call centres can start their life as a domestic call centre and once they gain maturity and experience, can attract international business, but can also economize on costs. At present they have to maintain two separate establishments. Furthermore the international call centre start up gets trapped in a vicious cycle because they are unable to get the international business as result of lack of call centre experience.
- The electricity is charged at commercial rate for the ITPS companies and not at the industrial rate, in spite of the fact that ITPS has been declared as an Industry.
- Unavailability of corporate buildings that can house over 1,000 employees, which creates scalability issues and concerns for both the domestic and the international investors.
Non-existence of regulatory framework for creation of Virtual Special Economic Zones, which would enable the private buildings to be treated as virtual technology parks, subject to compliance with the regulatory laws. The absence of such a facility would cause huge public sector investment for creation of more technology parks to meet the demand and even then the companies may find it less conducive to their business than their own office premise.

- Lack of one window operation to set-up business
- Lack of regulatory framework for creation of Virtual Special Economic Zones, which would enable the private buildings to be treated as virtual technology parks, subject to compliance with the regulatory laws. The absence of such a facility would cause huge public sector investment for creation of more technology parks to meet the demand and even then the companies may find it less conducive to their business than their own office premise.

- Lack of business know-how of IT industry players
- Lack of venture capital availability in the country
- Lack of access to the international capital market
- Lack of understanding of legal and processes involved in ITPS and software products marketing
- Continued low literacy levels and degradation of education standards which further restrains the availability of IT professionals
- Poor communication and networking with non-resident Pakistani and their low support of the local IT industry
- The constant stream of Statutory Regulatory Orders (SROs) introduces a high degree of business uncertainty. As a result, the policy environment is felt to be at risk from political, geopolitical, and economic shocks.

Further infrastructure investments required to be a successful offshore alternative

OPPORTUNITIES

- Thriving global ITPS market with projected growth of 7% overall and 11% in the BPO sector
- Strong growth predicted in back office services for BPO (HR, accounting, general affairs) and procurement
- Only 14% of offshore outsourceable business has been actually offshore. Hence, a large portion of the market remains untapped.
- Concentration of outsourcing business in the hands of a few global ITPS vendors, which narrows down the area of focus for marketing efforts.
- Commitment terms of BPO contracts have short durations, which present an opportunity to get the expired contract work shifted to Pakistan.
- Early Entrants will benefit from minimal competition and available human capital
- Geographically well positioned to become part of the global IT hub
- Leverage off proven track record of sub-continent in providing outsourcing services to North American and Western European countries
- Strong demand for Finance and Telecom services from Western European and Japanese ITPS markets where Pakistan has indigenous skills.
- Increased focus of matured industries in USA and Western Europe to increase margins, which yearns for cost reduction
- Requirement of Software and English language skills by China to complement and support its computer hardware and manufactured goods export industry
- Presence of large group of companies in Pakistan who have international presence
- Rising costs in India, about 15-20% higher than Pakistan
- Indian strategy to build a truly global delivery model: As of 2004, all Indian vendors have an overwhelmingly large proportion of their workforce in India; the strategy put forward by NASSCOM implores the need to focus on building delivery capabilities in other low-cost geographies as well.
- High voluntary turnover rates in India. Vendors struggling to balance profitability, turnover, and increases in cost
- Recent changes in Indian tax policies require multinational companies to be taxed in India if they are outsourcing any part of their core function to India
- Focus of BPO industry on new technologies and growth requirements
- Unexplored Mid-market opportunities

THREATS

- Competition from Established Industry Leaders and Emerging BPO service provider countries
- Brain drain
- Lack of proven track record on a large scale and lack of proliferation of ITPS sector
- Might not be able to provide breadth of ITPS required for becoming part of global ITPS Hub
- Inability to move up the value chain can discourage vendors to bring in high-end projects
- Low margin, high penalties for non-compliance of SLA, especially in the case of call centers
- Few dedicated local BPO players
- Language, political and cultural differences


ANNEXURE 40.

Table 4.2: SWOT Analysis of Vendor Strategy Approach

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendors have customers – captured clientele</td>
<td>Vendors might not respond</td>
</tr>
<tr>
<td>Some of the largest ITPS vendors have presence in Pakistan</td>
<td>It may take long to build market confidence</td>
</tr>
<tr>
<td>ITPS market is fragmented because large vendors hold most of the market share</td>
<td>Unavailability of required human resources and IT</td>
</tr>
<tr>
<td>Through vendors Pakistan would be able to provide full breadth of ITPS</td>
<td>Low/minimum return on investment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escalating labor costs in India</td>
<td>GNP straying away from focus on ITPS</td>
</tr>
<tr>
<td>Unfavorable Indian Tax policies for MNC</td>
<td>Inconsistent GNP policies</td>
</tr>
<tr>
<td>Increasing labor turnover rate in India</td>
<td>Reversal of Incentives</td>
</tr>
<tr>
<td>Good IT to provide necessary infrastructure</td>
<td>Making continuous sustained investment</td>
</tr>
<tr>
<td>Large pool of English speakers</td>
<td></td>
</tr>
<tr>
<td>Niche Markets</td>
<td></td>
</tr>
</tbody>
</table>

Source: Bearing Point. (2005), pg 149, Strategy For Increasing Exports of BPO, Pakistan Software Export Board, Government of Pakistan.
ANNEXURE 41.

Table 13: Major problems for Indian software firms: Number of Firms

<table>
<thead>
<tr>
<th>Problem</th>
<th>Export</th>
<th>Domestic</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manpower shortage/skills</td>
<td>57</td>
<td>32</td>
<td>89</td>
</tr>
<tr>
<td>Employee attrition</td>
<td>44</td>
<td>27</td>
<td>71</td>
</tr>
<tr>
<td>Physical Infrastructure</td>
<td>12</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Commercial infrastructure</td>
<td>24</td>
<td>17</td>
<td>41</td>
</tr>
<tr>
<td>Quality certification</td>
<td>11</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Visas</td>
<td>33</td>
<td>NA</td>
<td>33</td>
</tr>
<tr>
<td>Finance/ Capital</td>
<td>29</td>
<td>14</td>
<td>44</td>
</tr>
<tr>
<td>Marketing access</td>
<td>42</td>
<td>17</td>
<td>59</td>
</tr>
<tr>
<td>Lack of domestic computerization</td>
<td>6</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>Lack of government support</td>
<td>10</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>Tariffs and other barriers</td>
<td>11</td>
<td>8</td>
<td>19</td>
</tr>
</tbody>
</table>

Note: The firms were asked to indicate their top three problems.
Source: CMU Software dataset – CMU Survey of Indian Software Industry.

ANNEXURE 42.

Table 12: Software professionals: Comparative salaries, 1997

<table>
<thead>
<tr>
<th>Designation</th>
<th>United States ($ per annum)</th>
<th>India ($ per annum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programmer</td>
<td>32,500 - 39,000</td>
<td>2,200 - 2,900</td>
</tr>
<tr>
<td>System Analyst</td>
<td>46,000 - 57,500</td>
<td>8,200 - 10,700</td>
</tr>
<tr>
<td>Programmer Analyst</td>
<td>39,000 - 59,000</td>
<td>5,400 - 7,900</td>
</tr>
<tr>
<td>Network Administrator</td>
<td>50,000 - 55,000</td>
<td>15,700 - 19,200</td>
</tr>
<tr>
<td>Database Administrator</td>
<td>54,000 - 67,500</td>
<td>15,700 - 19,200</td>
</tr>
<tr>
<td>Help-desk Support Technician</td>
<td>25,000 - 35,500</td>
<td>5,400 - 7,900</td>
</tr>
<tr>
<td>Software Developer</td>
<td>49,000 - 67,500</td>
<td>15,700 - 19,200</td>
</tr>
</tbody>
</table>

Note:
1. Converted at exchange rate of Rs. 41.50/US$.
2. Figures are starting salaries for large establishments employing more than 50 software professionals. These could be marginally lower for smaller organisations. Salaries for a particular designation would vary due to factors such as educational and experience profile of the professional, platform of operation, nature of assignment (contract/full-time), location of the employer, and additional technical/professional certification.
Source: INPAC, Mumbai

ANNEXURE 43.

Table 1: Thresholds of the tiers in the taxonomy.

<table>
<thead>
<tr>
<th>Maturity</th>
<th>Cluster / Critical Mass (Num. of organizations)</th>
<th>Export Revenues (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>&gt; 15 years</td>
<td>Hundreds</td>
</tr>
<tr>
<td>Tier 2</td>
<td>&gt; 10 years</td>
<td>100</td>
</tr>
<tr>
<td>Tier 3</td>
<td>&gt; 5 years</td>
<td>Tens</td>
</tr>
</tbody>
</table>

ANNEXURE 44.

<table>
<thead>
<tr>
<th>Tier 1</th>
<th>Label</th>
<th>Nations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1</td>
<td>Mature software exporting nations</td>
<td>Mostly OECD nations such as USA, Canada, UK, Germany, France, Belgium, Netherlands, Sweden, Finland, Japan, Switzerland, Australia. Includes entrants from the 1990s: Ireland, Israel and India.</td>
</tr>
</tbody>
</table>

| Tier 2 | Innovation software exporting nations | Only Russia and China |

| Tier 3 | Emerging software exporting nations | Brazil, Costa Rica, Mexico, Philippines, Malaysia, Sri Lanka, Korea, Pakistan, Romania, Bulgaria, Ukraine, Poland, Czech Republic, Hungary, others. (Note 3) |

| Tier 4 | Initial stage software exporting nations | Cuba, El Salvador, Jordan, Egypt, Bangladesh, Vietnam, Indonesia, Bangladesh, Iran, others. (Note 3) |

Table 2: The 4-tier taxonomy of the world’s software exporting nations.


ANNEXURE 45.

Top Global Sourcing Countries 2007

<table>
<thead>
<tr>
<th>Leader and Challengers</th>
<th>Active Participants</th>
<th>Potential Players</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>Bangladesh</td>
<td>Armenia</td>
</tr>
<tr>
<td>Argentina</td>
<td>Bulgaria</td>
<td>Bangladesh</td>
</tr>
<tr>
<td>Australia</td>
<td>Czech Republic</td>
<td>Bahrain</td>
</tr>
<tr>
<td>Brazil</td>
<td>Cuba</td>
<td>Bahrain &quot;Now&quot;</td>
</tr>
<tr>
<td>Canada</td>
<td>Costa Rica</td>
<td>Bolivia</td>
</tr>
<tr>
<td>China</td>
<td>Egypt</td>
<td>Dominica</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Estonia</td>
<td>Dominican Republic</td>
</tr>
<tr>
<td>Hungary</td>
<td>Latvia</td>
<td>Ghana</td>
</tr>
<tr>
<td>Ireland</td>
<td>Lithuania</td>
<td>Guatemala</td>
</tr>
<tr>
<td>Israel</td>
<td>Morocco</td>
<td>Japan</td>
</tr>
<tr>
<td>Malaysia</td>
<td>New Zealand</td>
<td>Kenya &quot;Now&quot;</td>
</tr>
<tr>
<td>Mexico</td>
<td>Nicaragua</td>
<td>Madagascar &quot;Now&quot;</td>
</tr>
<tr>
<td>Philippines</td>
<td>Nigeria</td>
<td>Malawi &quot;Now&quot;</td>
</tr>
<tr>
<td>Poland</td>
<td>Northern Ireland</td>
<td>Maldives &quot;New&quot;</td>
</tr>
<tr>
<td>Romania</td>
<td>Norway</td>
<td>Pakistan</td>
</tr>
<tr>
<td>Russia</td>
<td>Oman</td>
<td>Senegal</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Pakistan</td>
<td>Saudi Arabia &quot;New&quot;</td>
</tr>
<tr>
<td>South Africa</td>
<td>Sri Lanka</td>
<td>Sri Lanka</td>
</tr>
<tr>
<td>Spain</td>
<td>Turkey</td>
<td>Sudan</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Uganda</td>
<td>Thailand</td>
</tr>
<tr>
<td>Turkey</td>
<td>Vietnam</td>
<td>Tunisia</td>
</tr>
<tr>
<td>Ukraine</td>
<td></td>
<td>United Arab Emirates</td>
</tr>
</tbody>
</table>

Note: Other than the leader, all countries are listed alphabetically within category.


ANNEXURE 46.

Summary SWOT Analysis - India

Strengths
- Large, educated workforce
- IT experience
- English proficiency
- Government support
- Entrepreneurial zeal and nonconformist Indians
- Education system
- Process Quality leadership
- Work ethic and creativity
- Public culture
- Cost advantages
- Increasingly attractive destination for exports
- Outstanding cities of excellence: Bangalore, Chennai, Delhi, Hyderabad and Kolkata (Bengaluru)

Weaknesses (Challenges)
- Lack of experienced project and senior managers
- High attrition in the workforce
- Rising labor costs
- Strained infrastructure
- High telecommunication costs
- Strengthening upscaling
- Lack of Western business process knowledge
- Excessive opportunism
- Weak sales and marketing
- Cultural and communication issues (Culture back, public, etc.)
- No strong Indian brand in BPO
- Saturation in major cities

Opportunities
- Shift from call centers to innovation-based BPO
- Expand in non-English language markets
- Deliver global delivery capabilities
- Create global BPO brands
- Leverage IT experience
- Partner with Western BPO companies
- Joint ventures to target midsize businesses with ASP solutions
- Leverage relationships in West to access APAC\Middle East
- Offer higher value services: Financial Modeling, Testing, Remote Infrastructure...

 Threats
- Internal competition for resources
- Rapid growth in competing countries
- Government stability
- Buyers insatiable training to diversify to manage risks
- Rising labor costs
- Lack of global parity in telecom tariffs
- Market consolidation
- Offensive backdoors
- Privacy and Internet protocol regulations

ANNEXURE 47.

Summary SWOT Analysis – China

Strengths
- Safety and security
- Cost advantage
- Large, educated workforce
- Numerous technologies
- Numerous economic development zones that offer investment and tax incentives
- Government support
- Pool of workers with Japanese and Korean language skills
- Quality, low cost of infrastructure
- Attractive destination for investors

Weaknesses (Challenges)
- Despite larger labor pool, the supply of labor faces suitability and accessibility issues
- Shortages of skilled workers
- English language proficiency
- IP protection issues
- Cultural compatibility
- Legal and regulatory systems
- Lack of experienced managerial talent
- Lack of international name brands
- Lack of one stop destinations for all information
- Lack of process maturity (CMMS) and other quality certifications
- Shortfall of incentives for services

Opportunities
- Further penetration into Japanese and Korean markets
- Further penetration in English-speaking regions
- Booming telecommunications sector
- Non-violent BPO
- Leveraging Multinational Presence in China
- Business Continuity Planning (BCP)
- Cooperation with India
- Existing Vertical Industry Experiences (Manufacturing/Supply Chain)
- International exposure with 2008 Olympics

Threats
- Corruption and bureaucracy
- Different Expectations between Domestic Market and International Markets
- Haphazard economic reform
- Increasing salaries threaten low-cost advantage
- Strained infrastructure
- Intractability of Korean and Japanese markets
- Multinational and Indian companies taking key employees and a majority of the work
- Offshore backlash


ANNEXURE 48.

Summary SWOT Analysis – Malaysia

Strengths
- Strong government support, particularly for ICT and multinationals
- Global expansion of workforce
- Infrastructure investments and low labor costs
- English proficiency
- Western business customs
- Excellent business environment

Weaknesses (Challenges)
- Relatively high costs compared to other Asian countries
- Small country, low scale
- Shortage of skilled workers
- BPO experience
- Intellectual property protection
- Highly protected services sector

Opportunities
- BPO/Call Centers, particularly for other Asian countries
- Higher value services
- Multimedia Super Corridor attracting outsourcing services
- Secondary sites for captive SSC and ESS

Threats
- Terrorism and ethnic unrest
- Strained relations with the US
- Failure to attract skilled workers from other countries
- Corruption


ANNEXURE 49.

Summary SWOT Analysis – Philippines

Strengths
- World class English language proficiency and services
- Ability for US culture and attitudes to US Repatriates
- Highly skilled workers in both business processes and technology
- Strong work ethic, good interpersonal skills
- Low labor turnover rates
- "Consultant" and customer-centric business models that result in "in-house" solutions
- High quality low cost labor
- Government support
- Proven training of knowledge workers
- Information

Weaknesses (Challenges)
- Awareness and knowledge of Philippine "savvy" and culture
- Migrations of workforce to US
- Lack of marketed "IT" specific development association
- Ability to scale relative to many other Asian countries
- Experience management teams in non-operations
- Sales, marketing, and promotion skills set
- Shortage of mid-level management

Opportunities
- Expand with "direct" services rather than with contracting
- BOP & Call Centers
- High-value services
- Partnership with global ESSPs
- Create "global country" and ESSP brand
- Relinquish intellectual property in solutions

Threats
- Continue to be "outsourced" by India's marketing strategy
- Perception of political instability and terrorism
- Competition from lower cost providers, particularly in Asia
- Infrastructure coming under increasing strain
- Major brain drain, especially to US and Singaporean firms

ANNEXURE 50.

Summary SWOT Analysis - Vietnam

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses (Challenges)</th>
<th>Opportunities</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>- Lower salary costs</td>
<td>- BPO experience</td>
<td>- The government is continuing to move towards a more open economy</td>
<td>- Centralized Party’s policy decisions</td>
</tr>
<tr>
<td>- Secure environment lacking perception or influence</td>
<td>- English skills</td>
<td>- Japan and Korea are near shore opportunity</td>
<td>- Competition from more sophisticated providers</td>
</tr>
<tr>
<td>- Government support of ICT industry</td>
<td>- Education</td>
<td>- Internal Trade Agreement with US and desire to join WTO</td>
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<tr>
<td></td>
<td>- Poor infrastructure</td>
<td>- Continued growth in IT</td>
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<tr>
<td></td>
<td>- Cultural Compatibility</td>
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<tr>
<td></td>
<td>- Weak IT infrastructure</td>
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<td></td>
<td>- Weakness skills</td>
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<tr>
<td></td>
<td>- Corruption and inefficient bureaucracy</td>
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<td></td>
<td>- Small country that cannot match India's assets</td>
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<td></td>
<td>- Shortage of managerial talent and skilled workers</td>
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<td>- Lack of transparency in the legal and regulatory systems</td>
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<td></td>
<td>- Difficulty in attracting investment</td>
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</tbody>
</table>


ANNEXURE 51.

Research Instrument 1.11.1 Version 1.10.

ANNEXURE 52.

Research Instrument 1.11.5.xls

ANNEXURE 53.

Research Instrument 1.11.9.xls

ANNEXURE 54.

Research Instrument 1.11.7 Version 1.2.xls
ANNEXURE 55.

Research Instrument
1.11.8.xls

ANNEXURE 56.

<table>
<thead>
<tr>
<th>IT Sector Tax and other Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income Tax Incentives:</td>
</tr>
<tr>
<td>Income Tax on software exports from Pakistan</td>
</tr>
<tr>
<td>Income tax on IT training institutions</td>
</tr>
<tr>
<td>Income tax on venture capital firms</td>
</tr>
<tr>
<td>Sales Tax Incentives:</td>
</tr>
<tr>
<td>Sales Tax on computer hardware</td>
</tr>
<tr>
<td>Sales Tax on computer software</td>
</tr>
<tr>
<td>Sales Tax on import of PME (not manufactured locally)</td>
</tr>
<tr>
<td>Custom Duty:</td>
</tr>
<tr>
<td>Import of Plant, Machinery, and Equipment in the area of IT</td>
</tr>
<tr>
<td>Import of computer parts</td>
</tr>
<tr>
<td>Imported computers</td>
</tr>
<tr>
<td>(including both laptop computers)</td>
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<tr>
<td>Tax Incentives:</td>
</tr>
<tr>
<td>Registration of profits allowed to IT Sector companies</td>
</tr>
<tr>
<td>Foreign equity allowed in IT Sector</td>
</tr>
<tr>
<td>Initial Depreciation Allowance, % of PME cost</td>
</tr>
<tr>
<td>Rate of depreciation on computer equipment</td>
</tr>
<tr>
<td>Other Incentives:</td>
</tr>
<tr>
<td>Rates for DFI internet connection (E1 Line)</td>
</tr>
</tbody>
</table>

*SRO 575 dated June, 2005
* Exemption available for IT training institutions set up to June 30, 2005.

ANNEXURE 57.

Research Instrument
1.11.13 Version 1.1

ANNEXURE 58.

Research Instrument
1.11.10,11,12 Version