CHAPTER-1

BACKGROUND TO RESEARCH

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CHAPTER-1

Background to Research

1.1: Introduction

This introductory chapter is divided into ten sub-sections. First, a brief background of Total Quality Management (TQM) and essence developing human resource for TQM are presented. Thereafter, the TQM methodologies in Indian context, overview IT-Sector in India, and then the problem discussion are, which in turn has lead to the purpose of research objectives, research hypotheses, scope & limitations of the study.

1.2: Background

In the global marketplace, there is an increasing competition among producers and marketers of goods and services. The focus for competitive advantage has come to be on quality, and quality has been considered as one of the important factors in manufacturing and service sectors to increase sales and profits (Belay, 2011). The concept of quality has been around for a very long time, but the stress on the word quality in every aspect of life i.e., in business, service or social life has increased in the last few decades (Raj Kumar et al. 2009). For tough competitive business environment and technological challenges, TQM is one of the most important managerial techniques to achieve competitive advantage for the both manufacturing and service industry (Talibet et al. 2012 c).

TQM is a management philosophy (Ehigie & McAndrew, 2005) and has been used as a competitive weapon by many firms for its success (Belay, 2011) and which deals with the quality of services and gaining
long term objectives (Azhar, 2013). Quality in any industries can be achieved through proper procedures. Service organizations are making use of well-known quality approaches like ISO 9000, TQM, Six Sigma, 5-S, quality function deployment, and continuous quality improvement (CQI) programs which have helped them in achieving their goals (Talib et al. 2011). The initiatives like ISO 9001, TQM and Six Sigma can be applied (Prajogo, 2005).

ISO 9000 consists of a standard approach to process documentation (Wolf and Harmon, 2005). ISO 9001 therefore describes processes as they actually are, not as they should be. Non-compliance to ISO 9001 is difficult as the system merely describes what people do daily.

TQM is seen as part of the older tradition of quality control (Wolf & Harmon, 2005). Klefsjo et al. (2001), argue that Six Sigma is a methodology within the framework of TQM. TQM starts with the values which make up an organization’s culture. This culture is created through the use of methodologies and tools. Six Sigma is seen as applying old tools in a new methodology that links tactical and strategic initiatives.

Any TQM methodologies (Klefsjo et al. 2001), have a philosophy incorporating the hard aspects of quality management and also soft aspects (Arumugam et al. 2009). The soft side of TQM tools (including top leaders commitment, customer orientation, empowerment, staff members’ contentment, training and education, reward and recognition) appear to be more important (Sureshchandar et al. 2002), than the hard side of TQM such as statistical tools and techniques (Mathews et al. 2001).
TQM methodologies are the process of updating the knowledge, developing skills, bringing attitudinal and behavioral changes, and improving the ability of the person to perform task efficiently and effectively. It is the basic responsibility of the company to educate and train their employees in TQM so that TQM can be implemented successfully (Talib et al. 2011 b) which leads to knowledge management (KM).

Knowledge Management (KM) is a process of managing information within the company for the company’s gain (Roy, 2002). According to Wen (2009), “knowledge management is creating, acquiring, sharing and utilizing knowledge in the organization to enhance performance”.

Knowledge Management has developed into different areas in the study of firms and is alleged to play an important part in attaining sustainable competitive advantage in the present day business and academic arena (Wong, 2006; Gloet & Berrell, 2003). For an organization to survive and succeed, it is crucial to manage TQM well and to attain KM holistically, both in terms of theory and practicality (Molina et al. 2004; Ju et al. 2006; Hsu & Shen, 2005).

In the KM process three most important processes consisting of knowledge acquisition, knowledge sharing and knowledge application will be the central elements (Darroch & McNaughton, 2003; Liao & Wu, 2010). The knowledge acquisition, sharing and application are softer practices of TQM. The emphases on human issues and involvement of employees have increased within the field of TQM.

TQM requires an extensive refashioning of “softer” practices, whose elements consist of essentially dimensions of human resource
management (Ooi et al. 2005). A number of researcher advised that for TQM methodologies to be fully successful, it requires a wide-ranging adoption of “softer” approaches of TQM in any sectors (Pramuka & Adawiyah, 2012), there is a need to motivate employees to improve the level of services provided by giving enough training and education to employees so that they understand specific quality policy and TQM strategy (Talib et al. 2012 b; Mathews et al. 2001). TQM methodologies and Human Resource Management (HRM) are used as a powerful tools to quantify the way a business functions. The importance of the TQM methodologies and HRM culture is enhanced through its impact on employee morale and job involvement (Boon et al. 2007). Hence Training and education is an essential part of TQM implementation and should be given from time to time. Practical assistance, training, recognition and participation should be given to ensure that all employees acquire the relevant knowledge and experience to implement TQM (Talib et al. 2012 c; Talib et al. 2012 a).

Employees in TQM organizations are viewed as internal customers, if the internal customers are not satisfied, external customer satisfaction will be difficult, hence TQM emphasizes internal people issues (Vanichchinchai, 2011). Karuppaiyan (2012), argues that, The TQM methodologies are supported by Human Resource Development (HRD) strategies for effectiveness at all levels of the organization. Hence HRD for TQM enhances employee’s skill, empowers knowledge, job satisfaction and practicability.
1.3: TQM Methodologies in the Indian Context

Indian companies are facing big challenges as India is a knowledge hub but is facing huge international competition and higher customer demands. Thus, enhancing product/service quality and increasing competitiveness in the local, as well as global marketplace, are survival requirements for Indian companies. In fact, Indian companies need to increase their product/service quality as well as reduce the quality gap between Indian products/services and international products/services. Indian companies need to build systems of quality management. TQM methodologies application is one of best approaches to meet them.

Raj Kumar et al. (2009), conducted the research on various sectors like automobile engineering, textile engineering, electrical and electronics engineering, light weight engineering and heavy weight engineering works in India.

The research model suggests that the introduction of TQM consists of four stages:

1. preparation and awareness;
2. focus;
3. planning and implementation; and
4. development and backup.

The practices of the Quality Management Standard (QMS) towards TQM are undertaken by Indian companies include ISO standards, Six Sigma, lean Six Sigma and etc., (Raghunath & Jayathirtha, 2013). The ISO standard offers a good first step towards TQM and excellence. The following table briefs the percentage evolution of ISO standards at the end of year December 2011 throughout the world as well as in India.
**Table 1.2:** Percentage Evolution of ISO standards at the end of 2011.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>World</td>
<td>-3.47</td>
<td>4.14</td>
<td>0</td>
<td>24</td>
<td>34</td>
<td>7</td>
<td>15</td>
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<tr>
<td>India</td>
<td>-12.84</td>
<td>6.93</td>
<td>0</td>
<td>11.39</td>
<td>-3.72</td>
<td>13.32</td>
<td>29.60</td>
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(Source: ISO Survey 2011)

The quality management system ISO 9000 standards have fluctuations in evolution after recession i.e., 2008. The ISO/IEC 27001 gives the requirements for information security management systems have positive evolution at the end of year 2009 with 52.52% of evolution rate (ISO survey, 2011). But, at the end of year 2011 the evolution rate of ISO/IEC 27001 is 11.39% of 24% world’s total certificate. Today, centers based in India account for the largest number of quality certifications achieved by any single country.

**Graph 1.2:** Percentage Evolution of ISO standards at the end of 2011.

(Source: ISO survey 2011)

1.4: Overview of IT-Sector in India

At the end of the 20th century and the beginning of the 21st century, we witnessed the growing importance of computerized information systems. The number of computers increased rapidly, as did their applications in business, education, government, the military, medicine, and at home. Computerized systems can be found today in even the smallest businesses. In most cases it is impossible to run a competitive business without a computerized information system.

Information technology (IT) industry in India has played a key role in putting India on the global map. IT industry in India has been one of the most significant growth contributors for the Indian economy. The industry has played a significant role in transforming India’s image from a slow moving bureaucratic economy to a land of innovative entrepreneurs and a global player in providing world class technology solutions and business services. The industry has helped India transform from a rural and agriculture-based economy to a knowledge based economy. IT changes rapidly and due to the e-
Commerce revolution, it may be changing faster than ever. The industries have started to realize how IT infrastructure can be managed to best achieve today’s business goals under ever-changing business environments, in the midst of rapid changes of technology (Zainon & Salleh, 2011).

India is considered to be a global Information Technology (IT) services hub. In general, services in India account for a larger share of GDP. An examination of the sectoral composition of its GDP for the period 1950-51 to 2006-07 brings out the fact that “servicization” of the production structure has taken place in India (Joshi S., 2008). But in the last 10 years especially after 1995 information technology industry has started contributing significantly in economic growth of India. IT now is a robust industry worth $60 billion. Not just a good human resource practice, but it has become a matter of survival for companies facing talent crunch. IT reduces the impact of barriers of time and distance in organizing and managing the service delivery of businesses. A large part of jobs are outsourced (Anjum & Tiwari, 2012). The IT and IT enabled Services (ITeS) has four major sub-components: IT services, BPO, Engineering Services, R&D and Software Products. IT/ITeS industry has been one of the key driving forces fuelling India’s economic growth. As a proportion of national GDP, IT/ITeS sector’s contributions have risen from 1.2% in 1997-98 to an estimated 7.5% in 2011-12. As per NASSCOM estimates, IT/ITeS sector (excluding hardware) revenues are estimated at US $ 87.6 billion in FY 2011-12. The IT/ITeS industry is expected to grow by 19% during FY 2012-13. The sector has also created tremendous entrepreneurial and job opportunities, generating direct and indirect employment of nearly 2.8 million and around 8.9 million respectively. Estimates reflect the growth to be more than 14 million
(directly and indirectly) by 2015 and around 30 million by 2030 (Thornton, Union Budget 2012-13).

IT requires high levels of technical and people skills. In the highly competitive market, most companies are seeking to differentiate themselves based on service and quality. The IT industry is a service industry that is both labour and skill intensive and although India has always had a large talent pool in these sectors, access to this large pool of skilled talent has made India a cost effective option for software development. A number of companies from the developed countries have outsourced their software development to India (Mulla & Premarajan, 2012). High-performing organizations emphasize knowledge and skill development for team and managerial skills as well as technical skills. The rapidity with which IT skills can become obsolete makes continuous technical skill updating essential (Major et al. 2007).

1.5: Rationale of the study

The information technology (IT) and IT-enabled services (ITeS) sectors in India have become crucial growth catalysts for the Indian economy. India’s IT and ITeS services besides its impact on growth, it is also a provider of skilled employment both in India and abroad, generating direct employment for nearly 2.8 million persons and indirect employment of around 8.9 million in 2011-12. While the global slowdown, increasing competition from new countries, and rising protectionist measures in the wake of job losses in developed countries have slightly dimmed the prospects for exports of IT and ITeS services, a great opportunity is waiting in India’s domestic market with increasing technology adoption within the government sector and the small and medium business (SMB) sector. As India offers low cost services, vast skilled talent pool, good
quality of infrastructure etc., India is the most preferred location for engineering off-shoring according to a customer poll.

Availability of skilled talent has been a major reason behind India’s emergence as global outsourcing hub. In particular, jobs in ITeS-BPO have risen rapidly, from 42,000 in 1999-2000 to 245,000 in 2003-04. One may argue that the IT-BPO services that are booming currently are relatively low value adding and low skill-intensive activities. The emergence of the country as a centre for outsourcing, such a highly knowledge-intensive service as software is helping to change the public perception of India and is focusing attention on the potential of the country in knowledge-based industries. This is because of the quality of the services provided by IT Sectors.

Quality is concerned with fulfilling the needs, wants and expectations of the valued customers. One of the key and stable definitions may be that, ‘quality is suitability for purpose’. Quality is also defined as ‘satisfying customer’s requirements’ or ‘fitness for purpose’. However, it is complex to define service quality rather than the quality of goods. Service quality can be defined as an attitude of the consumer relating to the results from comparisons between expectations of service with his perceptions of actual performance (Grönroos, 2007). One of the good solutions to improve quality is to provide right information to a right user in the right time. The method of TQM represents a new age in the management of an organization. Its elements such as participating management, the personnel training and the responsible service of customers (Balasubramani, 2013).

TQM is based on the following concepts: Change must be based on needs of the customer, not the value of the provider, Lack of achievement most likely is caused by system failure rather than by individual, Decisions for
improvement must come from providers of the service (product) rather than from top managerial authority and the emphasis must be on continuous improvement rather than on meeting a specific standard. TQM calls for flexible planning and a climate of continuous change. (Balasubramani, 2013).

According to Vouzas & Psychogios (2007), there are two substantial aspects of TQM that can be identified; the ‘hard’ side and the ‘soft’ side. The hard (or technical) side refers to management tools and practices, while the soft (or philosophical) is associated with management concepts and principles.

There are eight most common soft principles in the TQM: Leadership and Management, Strategic Planning, Focus on Customer, focus on Employees, Focus on Suppliers, Focus on Material Resources, Process Management and Performance results (Rad, 2006). TQM focuses on Process Improvement, Customer and Supplier Involvement, Teamwork, Training and Education in an effort to achieve Customer Satisfaction, Cost Effectiveness and Defect Free Work. TQM provides the culture and climate essential for innovation and technology advancement (Huang & Haseeb, 2013). The study revealed the importance given by the contractors to employee training that is reflected in the technical and productivity capability of the organization. Employees should be empowered to make decisions on the matters of quality and encouraged to propose solutions related to their work problems. It is suggested that through effective communication and improved project coordination, workers must be motivated to improve their work performance (Asim et al. 2013).

The role of IT in quality improvement is: Increasing quality awareness, online information about the quality level and reducing quality cost. Nine key dimensions of TQM in IT (Khanam et al. 2013) are:

1. Total Employee Involvement
2. Continuous Improvement
3. Continuous Training
4. Teamwork
5. Empowerment
6. Top-management Commitment and Support
7. Culture Change
8. Democratic Management Style and
9. Customer Satisfaction

The critical success factors in successful implementation of TQM in a service industry like IT Sector are: include Top Management Support, Continuous Improvement, Benchmarking, Customer Focus, Quality Department, Quality System, Human Resource Management, Recognition and Reward, Problem Analysis, Quality Service Technologies, Service Design, Employees, Servicescapes, Service Culture and Social Responsibility (Shahin & Dabestani, 2011).

Training of employees is crucial for building the 'human capital' of the organization. Training and Education are essential to provide employees with new techniques and practices necessary to implement TQM successfully. Training and Education are also necessary for teaching the TQM philosophy that requires permanent change in individual behaviors and attitudes and leads to strengthening the organization’s culture. Training and Education are primary levers for change, and they have significant influence on the change
process. Training should focus on building quality skills with equal attention paid to behavioral skills and quality tools needed for change in performance management and recognition. Training includes explanation of overall company operations and product quality specifications. Specific measures for evaluating training include the time and money spent by organizations in training employees and management in quality principles, problem solving skills, and teamwork (Shahin & Dabestani, 2011).

The soft dimensions are critical for successful implementation of TQM; they include the Role of Leadership, HR Philosophy and Systems, Role of HR Functions and Relationship with Partners (Tripti Singh & Geetika, 2011). Proper utilization of Human Resources is the duty of quality managers to integrate every function and process which affects quality like design and development quality management, improvement, control, maintenance, and assurance of quality (Pankaj et al. 2013).

Indian service managers as well as practitioners emphasize to maintain organization culture, guiding values among employees, Work environment; Service Culture; servicescapes; and the physical environment. Beside this, continuous training and education in new and emerging quality tools and techniques will constantly encourage the workers to continuously improve the product and services of the company (Talib et al. 2012 c).

TQM has become a significant issue on the Indian managerial agenda for service sector. There is no opposition to the implementation of TQM in principle (Talib et al. 2011b). The reasons for choosing information technology enabled services (ITeS) is their high gross domestic product (GDP) share in Indian economy, highly labor intensive industries and provides substantial employment as Service industries in India has the awareness TQM concepts.
The TQM enhances the quality of products, processes and services, and should be practiced throughout the company to get desired results. The further study can be carries in training to the employees in TQM concepts and practices (Talib et al. p. 233., 2011b).

Many of the basic TQM elements dealing with people have been examined in previous studies such as: Teamwork, Reward and Recognition, Customer Focus, Organizational Trust, Extensive Training, High Level of Communication, Management Commitment at all levels, Employee Involvement, Empowerment and Organizational Culture (Ooi et al. p. 64., 2005). All the above research studies focus on the soft aspects of TQM i.e., human resources aspects. No above mentioned studies reveal about the Training and Education for TQM in service sector like IT Sector.

1.6: Statement of the Problem

In the last few years, new and quick advancements in information and communication technologies (ICT) have entered the field of Human Resource Development (HRD). Many new technological and electronic tools, such as e-learning, were developed paving the way to several kinds of learning and training programs. Today the information technology is indeed a base of development for countries and a benchmark practice for leading and successful organizations. Success in this area depends on the success of micro and macro projects of information technology, and this success is not achievable unless all aspects, especially the most valuable element, e.g., the human resources, are considered. Because, the policies related to human resources in the projects are changing, so the roles of managers of IT projects will also change in this
regard (Tohidi, 2011). Human resources are an organization’s greatest assets because without them, everyday business cannot be completed. Human resources and the potential they possess are key drivers for an organization’s success. With globalization and technological advances, today’s organizations are continuously changing. Thus, organizational change impacts not only the business but also its employees. Many research articles suggest about TQM have been published over the past decade viz., “HRM effects on TQM” (Alireza et al. 2011), “Proactive coaching for employee development and improved business results” (Bourg et al. 2010), “Does TQM influence employee’s job satisfaction?” (Ooi et al. 2005), “A review on an employee empowerment in TQM practice” (Thamizhmanii & Hasan, 2010) and “Assessing the awareness of total quality management in Indian service industries An empirical investigation” (Talib et al. 2011b). In order to maximize organizational effectiveness, human potentials, individual’s capabilities, time and talents must be managed and developed. It is commonly believed that investment in employee learning can generate positive performance-related outcomes for organizations. Hence, the Human Resource Development (HRD) works to ensure that employees are able to meet the organization’s goals (Haslinda, 2009). Hence, in the backdrop of the above discussion, the researcher has undertaken a study, entitled “DEVELOPING HUMAN RESOURCES FOR TOTAL QUALITY MANAGEMENT (TQM) IN IT INDUSTRY”.

1.7: Objectives of the study
The main objective of the research is to examine the sufficiency of existing HRD for TQM in IT Sector. The objectives are crystallized as follows:

1. To identify the HRD practices for TQM in IT Sector.
2. To analyze the existing HRD practices for TQM in IT Sector.
3. To evaluate the influence of HRD for TQM in IT Sector.
4. To explore TQM critical success factors in IT Sector.
5. To develop the model for Training and Education for TQM factors.

### 1.8: Research Hypotheses

In order to accomplish the objectives laid down, certain hypotheses have been formed as shown below. Hypotheses H\(_{21}\) to H\(_{25}\) relate to the second objective, H\(_{31}\) to H\(_{37}\) relate to the third objective, H\(_{4}\) & H\(_{41}\) relate to the fourth objective and H\(_{51}\) to H\(_{58}\) relate to the fifth objective of the study.

**H\(_{21}\):** The profile of the IT Sector are dependent on TQM practices and are significant.

**H\(_{22}\):** The member distribution on the IT Sector by size are dependent of TQM practices and are significant.

**H\(_{23}\):** The employee’s level are dependent on perception of TQM practices and are significant.

**H\(_{24}\):** The employee’s experience are dependent on perception of TQM practices and are significant.

**H\(_{25}\):** The employee’s qualification are dependent on perception of TQM practices and are significant.

**H\(_{3}\):** TQM Training & Education are positively related with TQM practices and are significant.
H₃₁: TQM Training & Education are positively related with Organizational Support and are significant.

H₃₂: TQM Training & Education are positively related with Quality Culture and are significant.

H₃₃: TQM Training & Education are positively related with Employee Involvement and are significant.

H₃₄: TQM Training & Education are positively related with Employee Encouragement and are significant.

H₃₅: TQM Training & Education are positively related with Employee Teamwork and are significant.

H₃₆: TQM Training & Education are positively related with Communication and are significant.

H₃₇: TQM Training & Education are positively related with information and analysis and are significant.

H₄: TQM Critical Success Factors are positively related and are significant.

H₄₁: Visionary & Leadership Commitment, Project Planning & Management, Understanding TQM Methodology, Project Prioritization & Selection, Organization Infrastructure, Customer Involvement, Cultural Change, Linking TQM Process to Improvement, and Benchmarking are one to one positively related and are significant.

H₅: The dependent & independent variables in the model are positively related & are significant.

H₅₁: The Training & Education and understanding TQM Methodologies are positively related and are significant.

H₅₂: Understanding TQM Methodologies and Project Planning and Management
are positively related and are significant.

**H53:** The Project Planning and Management and Benchmarking are positively related and are significant.

**H54:** The Benchmarking and Project Prioritization & Selection are positively related and are significant.

**H55:** The Project Prioritization & Selection and Linking TQM Process to Improvement is positively related and is significant.

**H56:** The Linking TQM process to improvement and customer involvement are positively related and are significant.

**H57:** The Customer Involvement and Cultural Change are positively related and are significant.

**H58:** The Cultural Change and Quality Culture are positively related and are significant.

### 1.9: Research Methodology

A mixed methodology will be used which include both qualitative and quantitative research. In the qualitative research methodology part, a detailed and comprehensive literature study have been carried out. The literature study consists of articles, books, web materials, excerpts of discussion with experts. The literature study is used to find out the features of HRM, HRD, TQM, Six Sigma tools and techniques. The analysis of these tools and techniques for process in IT-Sector, the research design applied research is descriptive and exploratory in nature. The sampling techniques, measurement techniques and collection of data are discussed in detail in the Chapter-4.

### 1.10: Scope and Limitations of the Study
Although the research was primarily focused on Developing Human Resource for TQM in IT Sector, the findings may be valuable for other researchers to carry out identical researches in other sectors. The study has covered different member distribution by size of IT companies in and around Bangalore covering a period of 8 years from 2000 to 2008. No research activity is free from limitations. The study has following limitations.

1. The researcher has selected National Association of Software and Services Companies (NASSCOM) listed companies.
2. The researcher has selected IT companies which have adopted TQM methodologies.
3. Comparative study is a rare possibility due to differences in HRD practices and choice of TQM tools.
4. The data thus gathered through primary survey are supposed to be facts.

1.11: Organization of the Thesis

This research report has been divided into Six Chapters as under:

Chapter-1: Background to Research

This chapter gives the outline of the research design of the present study covering: Significance of the study, the research objectives, research hypotheses, a brief research methodology, scope and limitations of the study.

Chapter-2: A Conceptual Framework and Review of Literature

This chapter gives a review of the research work done in the past in India as well in aboard. This chapter gives conceptual background of the Human Resource Management (HRM), Quality Management, Total Quality Management (TQM), HRM & TQM, Human Resource Development (HRD), HRD & TQM, TQM
as a process, Quality in IT Sector, TQM Practices in IT Sector, ISO, Kaizen, 5-S, Six Sigma, Lean Six Sigma, CMM, Barriers for TQM Implementation, Causes of TQM failure.

**Chapter-3: Profile of the Industries and Representative Organizations under Study**

This chapter gives overview of the Information Technology (IT) industry covering the inception, Segments of the Indian IT-Sector, Present Scenario of IT Sector, Indian IT market size growing, Export revenue of IT- Sector, Notable trends in the Indian IT & ITeS, Challenges Faced by IT & ITeS Sector, Sources of information for IT-Sector and Opportunities for IT- Sector.

**Chapter-4: Research Methodology**

This chapter covers Introduction, Research Design and Research Methodology. Further, Research Design and Research Methodology include primary and secondary collection, unit of analysis, population of the study, sampling technique, measurement of instrument, pilot study and Process of Data Analysis.

**Chapter-5: Relevance of HRD for TQM in IT-Sector**

This is a chapter in which all the data collected are presented in a systematic manner and analyzed by using parametric and non-parametric tests with the help of SPSS-16 Version and Ms-excel software.

**Chapter-6: Findings, Suggestions and Conclusions**

In this chapter the findings, suggestions and Conclusions are given on the basis of data analysis done statistically.
References:


Sigma market”, *BPTrends*, pp. 1-4.
