Significance of Quality Management Practices and Domain Quality Delivery in IT Service Sector: A case Study of Tata consultancy Service

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Abstract:

As IT industry is moving more towards end to end business consultancy from mere software vendor, the demand of subject matter experts from different industry domains have increased. In the last decade most of the IT firms had gone for virtualised structure dividing their entire operations into industry specific sub units like banking, finance, insurance, telecom, healthcare, utilities, manufacturing and retail. While these vertical units directly interact with customers and mainly focus on domain competency, the horizontal units were developed with niche software and computer skill to address the needs of these vertical units. Seniors associates from different industries have been recruited and vertical units have emerged with a good mix of techno-functional skills. With this change in structure and mode of operation, modification and addition of some of the quality management practices as per the industry requirement became evident. Customers started expecting the inclusion of domain specific statutory and regulatory requirements in the software design itself. As a result the trend of IT organizations getting certified in different domain specific quality models like TL9000 for Telecom, AS900 for aviation or ISO 13485 for healthcare vertical has increased. All these models were developed as an extension of ISO 9001 and add or supplement requirements specific to that industry

Key Words: Banking, Finance, Insurance, Telecom, Industry, Healthcare, Utilities, Manufacturing, Retail Service

1.1. Introduction

In the last two decades software Industry in India has witnessed a sporadic growth in terms of revenue and manpower. Export orientation of Indian IT firms has forced the organization to adopt international standards for the quality of their product and services. USP of these software industries has gradually moved from least cost to quality of delivery. Contribution of the work done by different quality gurus like Edward Deming, Joseph Juran in different times is significant. Firms gradually started understanding that Quality is not only a shop floor activity that is restricted only in post production inspection and defect fixing but spans across a much wider spectrum.

Quality needs to be in-built from the strategy development to the end to end operations of the organization. Thus Indian software companies started imbibing the concept of TQM philosophy, whose foundation was established in Japan in 1950s, in their business operations and its implementation became instrumental for the success of the TCS. Study has also shown that with business growth and specialization of functions, TCS are also showing a growing trend for full or partial outsourcing of their quality functions. A number of studies have been conducted to estimate the impact of TQM implementation in business growth, critical success factors for TQM implementation and the implementation challenges faced by the TCS. While most of the study result showed a positive impact on business growth through TQM implementation, it has been seen that handful of soft aspects of TQM quality practices, such as employee commitment, shared vision and customer focus and some hard practices like Knowledge

1.2. Management, Configuration Management, Innovation, Software Design & Framework

While ISO provides general guidelines for implementing quality practices for all types of Industries, CMMI specifies software specific goals and practices that lead to effective implementation of quality management practices for IT firms. Apart from ISO and CMMI, Six Sigma and Lean methodology for software process improvement have also drawn management's attention in various organizations. **Six Sigma** started in 1980s in Motorola. Robert Galvin, at that time CEO at Motorola, realized the importance of working systematically with variance reduction as the Japanese had done for a prolonged period. Together with other quality practitioners he used the name Six Sigma. Especially after the remarkable success of the General Electric Company, its popularity grew many folded. Through the waste reduction technique in Lean and variation reduction technique in Six Sigma methodology, it related the software process improvement directly to improved revenue realization and bottom-line result. Use of statistical tools like hypothesis testing, analysis of variance, correlation & regression, paved the way for more measurement oriented performance evaluation, capability analysis, process yield and statistical process control.

In early 2000 the IT organizations also showed an increasing trend for domain quality certification relevant to their operational scope. Some of these important domain standards the IT organizations are adopting are TL9000 for Telecom, AS9100 for Aerospace industry, ISO 13485 for medical devices. TCS are also showing increasing interest for quality standards for their internal operation excellence and are getting complied with BS OHSAS 18001 standards for operational Health, Safety or ISO 14001 for environment management and PCMM assessment models for the well being and work environment for its associates.

2. Literature Review

Literature Review shows that extensive studies have been conducted both in manufacturing and service industry to understand the influence of various soft and hard quality management practices on effective implementation of TQM and its relation to company's performance.

Faisal Talib (Aligarh Muslim University), Zillur Rahman (IIT Roorkee) and M.N. Qureshi (Baroda University) (2010) attempted to develop a TQM implementation and evaluation research framework that can be used as a guide in the formulation of an effective TQM implementation approach to Indian service sector.

In another research work with a sample size of 600 firms four chosen service industries Healthcare, Banking, Information and Communication Technology (ICT), and Hospitality, the authors Faisal Talib, Zillur Rahman and M.N. Qureshi (2013) also empirically established the positive correlation between these TQM practices and quality performance. Research of M Hasan and R.M. Kerr, University of New South Wales, Sydney, indicated that Role of top Management and Customer Satisfaction are among the most important critical success factors of TQM in terms of their effect on organisation's performance. Chin S. Ou, Fang C. Liu, Yu C. Hung (Department of Accounting and Information Technology, National Chung Cheng University, ChiaYi, Taiwan, ROC), David C. Yen (b Department of Decision Sciences and Management Information Systems, Miami University, Oxford, Ohio) empirically examined the extent to which TQM and business performance are correlated and how TQM impacts various levels of business performance through improved operating performance by increased quality performance, increased customer satisfaction as well as market share. To establish a relationship between TQM and financial performance Kenneth M. York and Cynthia E. Miree from Oakland University, USA (2004) analysed the influence of TQM based quality models like MBNQA and other state quality awards the financial performance of the company measured in terms of increased sales, profit, market share.

3. History of Tata Consultancy Services (TCS)

TCS is Asia's largest IT services company, with presence across 35 countries.

3.1. Background

Tata Consultancy Services Limited (TCS) is Asia's largest Information Technology consulting, services, and BPO organisation. Incorporated in 1968, the company has been promoted by the Tata Group. During the early boom years of IT services outsourcing, TCS concentrated as much on servicing the Indian market as on growing its international business. This focus helped the company acquire significant competencies to manage large complex projects like depository systems and stock exchanges that could be later taken to other markets.

Today the company has a presence in 35 countries across six continents. Its customers include six of the Fortune Top 10 US companies. In the year 2003 the company achieved a significant milestone for Indian IT firms, when its revenues crossed US$ 1 billion. Two years later, it achieved the milestone of becoming the first Indian IT company to cross the US$ 2 billion annual revenue mark. Its huge resource base of over 66,000 employees instils confidence with large customers that view TCS as a competent and dependable player, with the expertise and proven ability to handle large and complex projects.

TCS' growth has been driven by a host of acquisitions in India as well as abroad. It merged the Tata Group's holdings in Airline Financial Services (AFS), WTI and Phoenix Global Solutions to create its BPO business in 2004. It also acquired Computer Maintenance Corporation (CMC) in 2001, which gave it a foothold in the domestic government sector. This was followed by the acquisition of Tata Infotech in April 2005, which brought in capabilities in systems integration, contract manufacturing and training. Internationally, TCS has made strategic acquisitions of FNS (Australia) and Comicrom (Chile) and has a joint venture with the Pearl Assurance Group (UK).

The company's promoters, Tata Sons Limited, along with other entities of the promoter group, hold a majority stake in TCS (83.69 per cent). Domestic financial institutions, mutual funds, private corporate bodies, non-resident Indians and the Indian public hold the residual shares.

| Company	Products	Established	Founder	Distribution
TCS	IT services	1968	Tata Group	North America, South America, Europe, Africa, Asia, Australia

Figure-1: Brands value of TCS

3.2. Products and services

The company's areas of operation include consulting, application software development, maintenance and enhancement, enterprise solutions implementation, software products and frameworks, software R&D, IT enabled services and IT infrastructure establishment and maintenance. It provides services in system software, commercial applications and engineering and industrial services and serves a number of industry verticals. Amongst these, Banking, Financial services and Insurance is the largest, followed by the Manufacturing and Telecom verticals. The company also has a significant presence in Retail & Distribution, Life sciences & Healthcare, Energy and Utilities, Media and Entertainment, Transportation and Government.

Figure-1: TCS Service Sectors (Questionnaire Survey Analysis)

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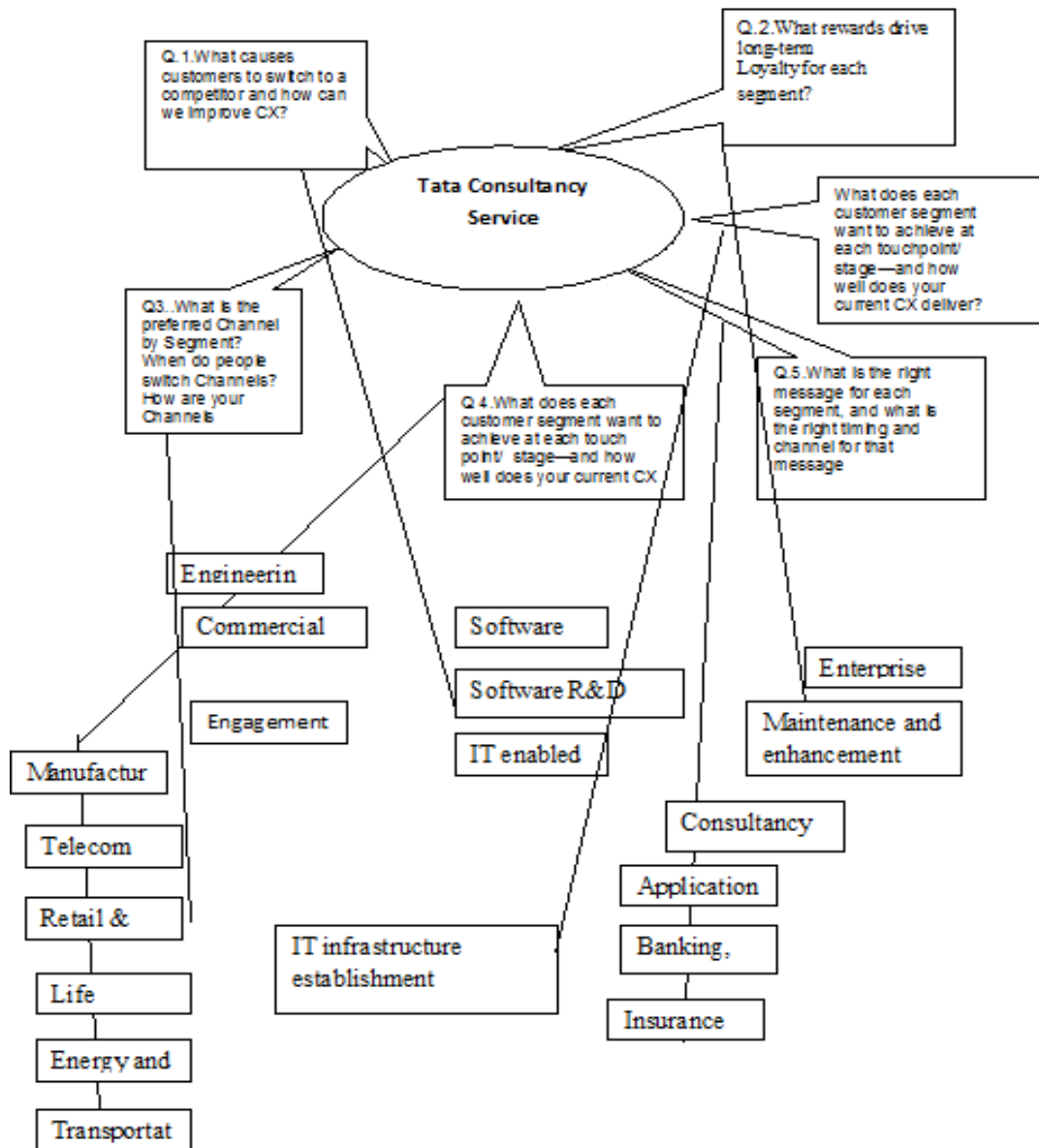
TCS' breadth of services comes closest to that offered by the likes of IBM, Accenture and EDS, starting from the bottom of the value chain with application development and maintenance projects to the top of the value chain with product development. Engineering design and services is one of the areas where TCS has an edge over its domestic rivals.TCS executes high-end work in aerospace design and industrial design because of its strong domain focus on the manufacturing sector. These capabilities, along with new offerings in consulting, infrastructure management services and BPO will serve as growth engines for the near future.

The company's areas of operation include consulting, application software development, maintenance and enhancement, enterprise solutions implementation, software products and frameworks, software R&D; IT enabled services and IT infrastructure establishment and maintenance. It provides services in system software, commercial applications and engineering and industrial services and serves a number of industry verticals. Amongst these, Banking, Financial services and Insurance are the largest, followed by the Manufacturing and Telecom verticals. The company also has a significant presence in Retail & Distribution, Life sciences & Healthcare, Energy and Utilities, Media and Entertainment, Transportation and Government.

3.3. Financial analysis

TCS was a closely held company till 2004, the year it got listed on the Indian bourses. During 2005 the company's consolidated revenue was US$ 2.2 billion. The company's consolidated revenue in FY 2006 was US$ 2.97 billion. The Americas were the largest contributors to the revenue, with a share of nearly 59.06 per cent, followed by EU, which had a share of 22.40 per cent. The share of revenue from the domestic market was 12.50 per cent, with the remaining contributed by Asia Pacific countries.

3.4. TCS' contribution in making "Made in India" global

TCS has a presence in 35 countries across the globe. It has established a global footprint, both in English speaking and non-English speaking areas with services and solutions provided to over 900 global clients through a network of more than 100 offices across the world. Aiming to be a truly global player, the company has non-Indian employees representing 6.5 per cent of its workforce across its international development centres and offices. TCS established its first global footprint way back in 1971 when it began serving customers in the US and later opened its first office in New York in 1979.Today it has over 50 offices in the US with more than 10,000 employees and five Centres of Excellence focussing on industry specific issues. After US, TCS moved on to UK in 1975, where it has 8 offices. TCS is the only Indian company that has a strong presence in the Spanish and Portuguese speaking regions of the world. Its business arm, TCS- IBERO America, provides high quality IT services as well as consulting and BPO services to over 100 clients across 12 countries including Mexico, Central America, South America, Spain and Portugal. In the Asia Pacific region, TCS has the capability to serve the Japanese, Chinese and Korean speaking zones.TCS' China centre meets this need, while also addressing the domestic market in that country.

TCS uses the global Network Delivery Mode lTM, wherein it combines the skills of consultants with expertise on local industry and business issues with high quality solutions to its clients.TCS has structured its operations into Global Delivery Centres, Regional Delivery Centres and Near-shore Delivery Centres based on customer proximity and coverage. The 42 Global Delivery Centres in India, in addition to the one in China, are of very high scale, serve large customers, and have matured processes supported by a depth of skills. The Regional Delivery Centres like the ones in Budapest, Hungary and Montevideo, Uruguay are medium scale, serve regional and local customers and have selected capabilities. These centres have the distinction of being capable of addressing language and cultural challenges. The Near-shore Delivery Centres like the ones in New Jersey, USA and Peterborough, United Kingdom

for example, are smaller in scale, and support customers of the same geographies and time zone - meeting the needs of some customers that need the comfort of proximity.

TCS has aggressively backed its globalisation plans by strategic acquisitions. In 2005 it acquired Comicrom for US$ 23 million. Comicrom had revenues of US$ 35.5 million during FY 2005, and is a leading BPO organisation in Chile with a 57 per cent market share of the cheque processing business and counts more than 70 per cent of the banks operating in Chile as its customers. In October 2005, TCS made a strategic decision to become a complete solutions provider for the global banking industry by acquiring Sydney-based FNS, through the company's newly formed subsidiary in Australia, TCS FNS Pty Limited.

 The acquisition of FNS further strengthens TCS' portfolio of banking and financial services products by adding BANCS, a strong, scalable, high performance Core Banking Solution with an established global customer-base.TCS expects to derive high synergistic value by combining its own product portfolio with BANCS software and by offering the customer its servicing capabilities. BANCS has been installed in over 115 banks spread over 35 countries and its clients include Tier I and Tier II banks in emerging markets in Europe, Asia, Australia and Africa. In India, 40 per cent of all bank business will soon be done on BANCS software following its implementation at all branches of State Bank of India and its associate banks, Indian Bank and others.

3.5. The company acquired Swedish Indian IT

Resources AB (SITAR) through its subsidiary in Sweden viz.TCS Sverige AB, in May 2005. SITAR was TCS' exclusive partner in Sweden and a nonexclusive partner in Norway. SITAR's client list includes Ericsson, IKEA, Vattenfall and Hutchison. The acquisition has enabled TCS to deal directly with end-customers and help increase its market share in the region.

In October 2005, the company announced a new growth initiative to enter the Life Insurance and Pensions BPO market in the United Kingdom through a structured transaction with the UK based Pearl Assurance Group (Pearl).This strategic initiative to pioneer the next generation of industry-specific BPO solutions built around IIMS, the company's proprietary insurance solution platform, will start operating in FY 2007. It will service the Pearl Group's closed books portfolio of four million insurance policies and is expected to generate revenues of over GBP 480 million (US$847 million) over the next 12 years. During the year, TCS formed a majority-owned subsidiary in the UK named Diligenta Limited (Diligenta) to undertake the Pearl transaction. Diligenta will subsequently focus on offering similar services to other life insurance and pensions companies which presents its with a significant growth opportunity in an industry with high-entry barriers.

4. I. Importance of the Present Study

The study is very important from the point of view of dealing and developing the service marketing culture in the organization especially in the Service & Industry sector. In the cutting edge competition and liberalization, those organizations will survive and lead who will maintain service quality. The present paper is a humble attempt to identify the major factors based on descriptive research design and addresses very important aspect of service quality in service & industry sector.

4.2. Objectives

The main objectives of the present study can be figured out as follows.

- To study the applicability of service sectors dimension in selected TCS.
- To measure the perception of customers of selected TCS in terms of service quality.

5. Research Methodology

5.1 Research Design The present research is designed to explore the dimensions of service sector in the organizations. The conceptual frame work and theoretical linking of the subject is done and the entire research is divided in to two parts according to the problem definition and objectives. First Tentative norms are applied to the service sector profile to know the validity and reliability of the instrument. Then it is measured and compared for service sector dimensions by applying statistical tools. Sample Organizations were

5.2 Operationalization At this level the researcher has put the theoretical concepts to the conceptual frame. It has been found that service quality has been broadly characterized by service sector to capture the various dimensions of service sector pre tested instrument with extended items to capture two new dimensions namely „cost‟ and „accessibility‟ have been used. On the basis of above mentioned theoretical understanding the researcher has operationalize the concept.

5.3 Variables It can be characterized as consisting of five dimensions of indipended variable has shown in Graphs 1 & 2.

1. Tangibility 2.Reliability 3.Responsiveness 4.Assurance 5.Empathy

5.4 Sampling Plan (Population): It included all those 1) Selected TCS Zone 2) Existing customers for at least last two years in selected TCS. **Sampling Element:** The sampling elements of the defined population are existing customers at least for last two years in selected TCS.

5.5. Sample size: 350 samples were collected from the TCS employees.

5.6. Data Collection The researcher has used pre tested structured instrument for primary data collection. The questionnaire is used because they have items designed to elicit the information on the research interest and they have protocol for recording the responses. Care has been taken to keep them simple and to avoid leniency, severity, central tendency and halo error (positive and negative questions).

5.7. Hypotheses

On the basis of the literature review and the objectives of the study following Null hypotheses have been formulated:-

H01: There is no significant difference between perceptions of customers of selected Companies in terms of Tangibility.

H02: There is no significant difference between perceptions of customers of selected TCS in terms of Reliability.

H03: There is no significant difference between perceptions of customers of selected TCS in terms of Responsiveness.

H04: There is no significant difference between perceptions of customers of selected TCS in terms of Assurance.

H05: There is no significant difference between perceptions of customers of selected TCS in terms of Empathy.

H06: There is no significant difference between perceptions of customers of selected TCS in terms of Cost.

5.6. Factors fuelling TCS' global initiatives

On its partitas has continuously moved up the value chain by expanding its consulting offerings set, leveraging its proficiencies in emerging technologies such as Radio Frequency Identification (RFID) and embedded systems, and through new offerings in Engineering and industrial services.

To become an integral part of the global economists has used different global locations to deliver services. Its Delivery Centres in South America, non-English speaking Europe and China have not only given the company a multi-lingual workforce but also meet a critical requirement of large multinational customers, who require IT services in non-English speaking markets. Another key factor responsible for growth has been the company's excellent skills in managing its human resources.
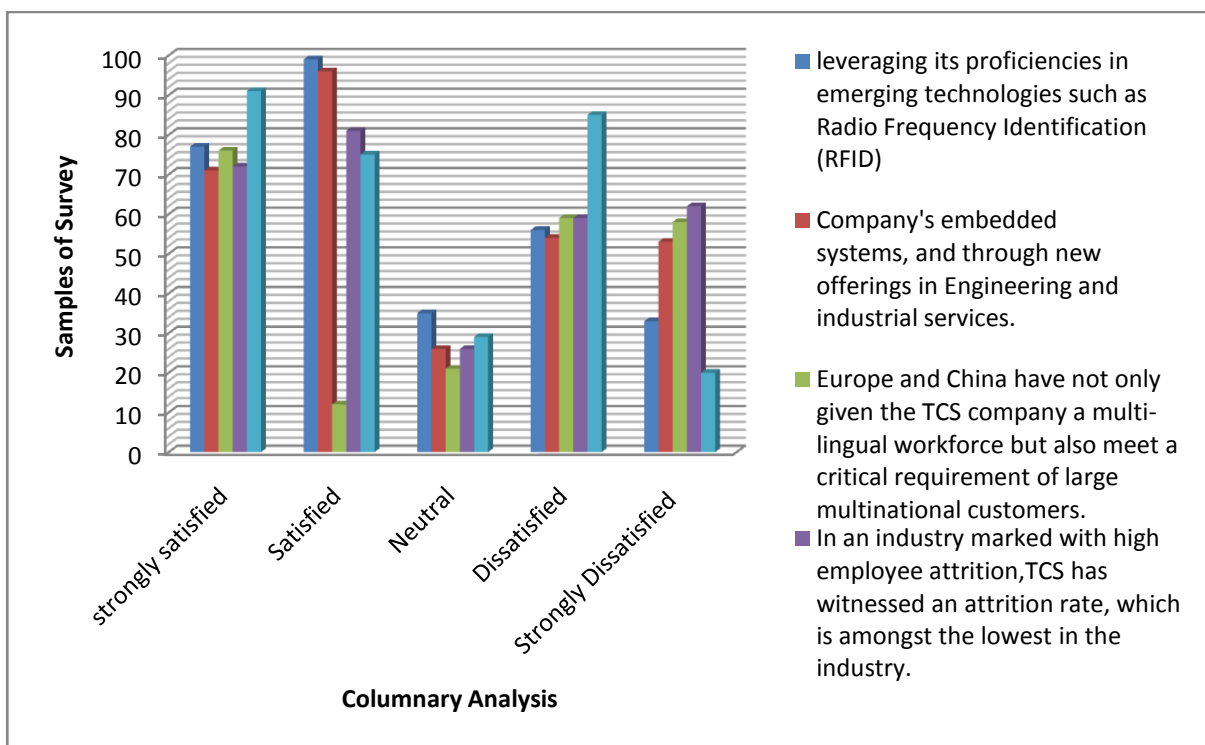
Graph-1: TCS' Global Initiatives

Table -1: Data Analysis of TCS 's Global Initiatives

Groups	Count	Sum	Average	Variance
Tangibility leveraging its proficiencies in emerging technologies such as Radio Frequency Identification (RFID)	5	387	77.4	64.3
Reliability: Company's embedded systems, and through new offerings in Engineering and industrial services.	5	363	72.6	1248.3
Responsiveness: Europe and China have not only given the TCS company a multi-lingual workforce but also meet a critical requirement of large multinational customers.	5	137	27.4	26.3
Assurance In an industry marked with high employee attrition,TCS has witnessed an attrition rate, which is amongst the lowest in the industry.	5	313	62.6	161.3
System Growth The training programmes conducted by TCS for its employees have become benchmarks in the industry	5	226	45.2	322.7

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	8531.36	4	2132.84	5.850129	0.00276	2.866081
Within Groups	7291.6	20	364.58			
Total	15822.96	24				

In an industry marked with high employee attrition, TCS has witnessed an attrition rate, which is amongst the lowest in the industry. This has been mainly the result of its efforts to align its business objectives with those of individual employees by investing in learning and development, robust career management, conducive work environment and strong reward and recognition mechanisms. The training programmes conducted by TCS for its employees have become benchmarks in the industry.TCS also has an enduring focus on processes for ensuring high quality delivery. It has received the ISO 9001 certification for quality. It is also assessed

under the Capability Maturity Model (CMM), which deals with the organisation's competency from the technology viewpoint. In addition it is getting assessed on People Capability Maturity Model (PCMM). In August 2004, TCS became the world's first organisation to achieve an integrated enterprise wide Maturity Level 5 on both the Capability Maturity Model Integration (CMMI) and the People CMMI. It has further set a benchmark in quality standards by becoming the first company in the world to use the SCAMPP methodology for PCMM ® appraisals.

Graph-2: Customer Service by TCS
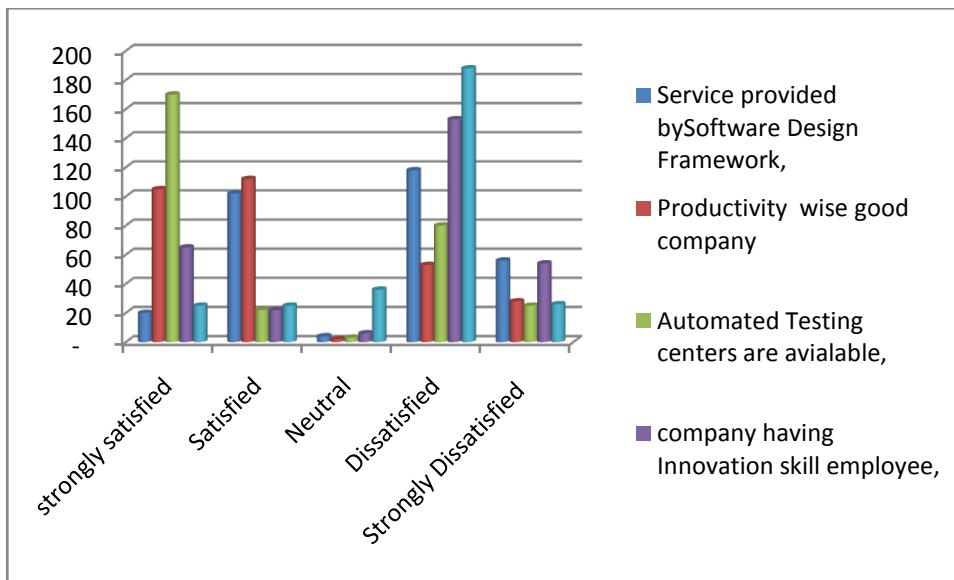
Data Analysis of Customer Service by TCS

SUMMARY				
Groups	Count	Sum	Average	Variance
Empathy Service provided by Software Design Framework,	5	385	77	3882.5
Accessibility Productivity wise good company	5	283	56.6	2130.8
Cost Automated Testing centers are avialable,	5	51	10.2	210.2
Domain Quality company having Innovation skill employee,	5	592	118.4	2948.3
Configuration Management is better part of Company,	5	189	37.8	248.2

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	33420	4	8355	4.434713	0.009961	2.866081
Within Groups	37680	20	1884			
Total	71100	24				

6. Testing of Hypothesis

6.1. Tangibility

Further table-2 of the analysis explains the ANOVA test calculation with a level of significance of .05. ANOVA test analysis here explains the pattern of the relationship between the independent variables. In the present case the table shows that the **F crit** 2.312741 value at α= .05 which is highly significant; from this value we can infer that the service quality of Industry and TCS's service sector in terms of Tangibility are different.

6.2. Reliability: The analysis explains the ANOVA test calculation with a level of significance of .001. ANOVA test analysis here explains the pattern of the relationship between the independent variables. In the present case the table shows that the p=.020 value at α= .001 which is highly Significant; from this value we can infer that the service quality of TCS in terms of Reliability are different. The above analysis and interpretation states that the null hypothesis is rejected.

6.3. Responsiveness: Similarly for p=.009 value at α= .05 which is highly significant; from this value we can infer that the service quality of TCS in terms of Responsiveness are different. The above analysis and interpretation states that the null hypothesis is rejected.

6.4. Assurance: The analysis for assurance p=.009 value at α= .05 which is highly significant; from this value we can infer that the service quality of TCS in terms of Assurance are different. The above analysis and interpretation states that the null hypothesis is rejected.

6.5. Empathy: F0r p=.009 value at α= .05 which is highly significant; from this value we can infer that the service quality of TCS in terms of Empathy are different. The above analysis and interpretation states that the null hypothesis is rejected.

6.6. Accessibility: Further analysis explains the ANOVA test calculation with a level of significance of .001. ANOVA test analysis here explains the pattern of the relationship between the independent variables. In the present case the table shows that the p=.000 value at α= .001 which is highly significant; from this value we can infer that the service quality of RB and TCS in terms of Accessibility are different. The above analysis and interpretation states that the null hypothesis is rejected.

6.7. Cost: Further Table-2 of the analysis explains the ANOVA test calculation with a level of significance of .05. ANOVA test analysis here explains the pattern of the relationship between the independent variables. In the present case the table shows that the p=.005 value at α= .05 which is highly significant; from this value we can infer that the service quality of industries and TCS in terms of cost of services are different. The above analysis and interpretation states that the null hypothesis is rejected

7. Future plans

TCS' articulated vision is to be a Global Top 10 company by 2010.At the core of this aspiration is a strategy wherein the company has identified six strategic growth areas - Consulting, BPO, IT Infrastructure services, IT Solutions & Services, Engineering & Industrial Services and Asset based offerings. Each of these businesses is expected to grow to US$ 500 million to US$ 1 billion in size over the next few years. In order to drive this growth in the futurists is strengthening its domain-specific offerings and end-to-end solutions.

It is also looking at unexplored opportunities in Eastern Europe, Russia and China in the form of potential markets or global delivery centres.

The domestic market offers multiple opportunities for growth with e-governance initiatives taking rooacross multiple states and consolidation across sectors like banking offering considerable opportunities for growth.TCS and State Bank of India have announced the formation of a joint venture called C-Edge Technologies Limited to provide advanced technology solutions and world-class domain consulting for the banking and financial services sector. After the acquisition of FNS, this joint venture will play a key role in deploying FNS products in the role of a preferred systems integrator.

The company expects inorganic growth via mergers and acquisitions to complement its organic growth riding on in-house capabilities. The acquisitions would be strategically chosen to close the present gaps in skills as well as bring in new clients.

8. Globalisation at a glance

• 169 offices in 35 countries across the world

• Strong foothold in non-English speaking areas – its business arm TCS Iberoamerica provides services to more than 100 clients in 12 Spanish and Portuguese speaking countries

• 87.5 per cent of revenues come from markets outside India

• Strategic acquisitions made to close gaps in current skills - Comicrom (Chile), market leader in banking and BPO business in Chile, and FNS, Australia based banking solutions company

9. Domain Quality Certification

. While TL9000 (Telecom Leaders 9000) Quality Management System developed by QuEST Forum in 1998 is an unique extension of ISO 9001:2008 to meet the supply chain quality requirements for Telecommunication Industry, AS9100 developed by SAE (formerly the Society of Automotive Engineers) in collaboration with AAQG (American Aerospace Quality Group) and IAQG (International Aerospace Quality Group), is an international quality standards for establishing and maintaining a quality management system for aviation and aerospace industry. ISO 13485 quality standards were developed in addition to ISO 9001 to suit medical devices manufacturing and related service requirements. Since medical device industry is highly impacted by a complex set of regulatory requirements and national and international standards, the quality assurance focus is more on validation process, compliance with statutory and regulatory requirements and effective product traceability and recall system. At the same time aviation industry being a high risk sector and passengers safety being of paramount importance quality focus is strongest in the design process. Multiple design phases including creation of conceptual design, creation of preliminary design, preliminary design review, and creation of detailed design drawings of 3D models and assemblies, critical design review are important.

 In TL9000 standards, additional requirements are mainly in the areas of performance measurements based on the reliability of the product, specialized service functions like installation, provisioning and trouble shooting and lab safety for equipment vendors, telecom network operators and suppliers. Telecom being an important line of business for software

industry, almost all the top TCS of the country got certified in TL9000 during 2000-2010. Wipro technologies being the first to get certified in year 2001, with a total of its 5 centres getting certified subsequently, followed by TCS that got its first TL9000 certification in 2006. 29 centres of Tata Consultancy Services Ltd. are TL9000 certified now. 7 centres of Cognizant Technology Solutions and 5 centres of Infosys are Tl9000 certified at present, the year of first certification being 2008 and 2009 respectively. For all these TCS the scope of certification is limited to software and services and hardware wherever necessary. Software and Service scope includes design, development, support and sustenance of Software Solutions and Services for the Telecom Industry.

The common scope for ISO 13485 certification by IT organization generally includes the contract manufacture and repairing of PCB assemblies for medical devices, development of suppliers and development of precision machined parts for use in medical devices, the provision of product design services and engineering services for normal and implantable medical devices. Tata consultancy services and its 5 centres across India first got certified in ISO 13485 in 2007. TCS also got certified in AS9100C in the year 2006, the scope of audit being the design of airframe structure, avionic systems, aircraft assembly tools and engine external components, provision for engineering services and analysis, tech publication and manufacturing support, design and development and maintenance of support software.

10. Limitations and Scope

The scope of the present study is limited to the city of Indore and surrounding area because of the availability of the resources. For the purpose of studying the service sector existing customers of TCS under study are considered. Further the tenure of association of customers subject to present study is quite stable. Personal interests of customers are not taken into consideration. Implementation and practices of the organizations differ from institute to institute and thus the result may vary. This is a pioneering study on this topic hence limited up to fundamental domain.

11. Further Areas of Research

There remains a scope and gap for further research in this domain of knowledge. It can be extended to regional, national level and to other professionally managed organizations. New variables can be developed taking in to account the other aspects of service quality. Further research can be done by developing a suitable model to test the contribution of each variable on dependent variables. In brief, it can be suggested that replication of this study on other randomly selected software organizations, and comparative analysis of software organizations can be made. Also further study can be done to identify the performance indicators of various categories of TCS with a view to evolve training policy/designs for marketing and product development personnel

The increasing interest and the growing trend of domain certification for the IT industry go in line with the improved overall and vertical business performance. The need of getting complied with the domain quality standards provides the vendors an in-depth understanding of the criticality of customers' business, driving factor for success, eventually helping them to improve their market share through a competitive advantage. This also enhances the customer's confidence level to work with their IT vendors as their end to end business partners. If the growth pattern of IT company is observed post these certification for overall or vertical performance an increasing trend is noticed. Like for TCS post 2006, the year of TL9000 certification Telecom vertical maintained a steady growth rate between 15- 20% and

Healthcare vertical post 2007, the year of ISO 13485 certification maintained a growth rate between 25-35%. However this result cannot conclusively establish the contribution these domain certification for business growth as there are various other parameters to be considered to identify the effective contributing factors. The scope for further study and

research exists to identify how much these practices from domain related quality models have helped the organizations to achieve their business goals or how much these quality awards or stamping have helped to win new or repeat business

12. Conclusion

The increasing interest and the growing trend of domain certification for the IT industry go in line with the enhanced overall and vertical business presentation. The need of accomplishment complied with the domain quality standards provides the vendors an in-depth understanding of the criticality of customers' business, driving factor for success, ultimately helping them to improve their market share through a competitive advantage. This also enhances the customer's confidence level to work with their IT vendors as their end to end business partners. If the growth pattern of IT company is observed post these certification for overall or vertical performance an increasing trend is noticed. Like for TCS post 2006, the year of TL9000 certification Telecom vertical maintained a steady growth rate between 15-20% and Healthcare vertical post 2007, the year of ISO 13485 certification maintained a growth rate between 25-35%.

13. Finding

However this result cannot conclusively establish the contribution these domain certification for business growth as there are various other parameters to be considered to identify the effective contributing factors. The scope for further study and research exists to identify how much these practices from domain related quality models have helped the organizations to achieve their business goals or how much these quality awards or stamping have helped to win new or repeat business

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