Chapter VI

RESEARCH FINDINGS AND CONCLUSIONS

6.1 Overview

In this chapter, the research findings, implications, contributions and conclusions of the research are listed. The research findings are discussed in two parts. The first part is based on the empirical study and the second part deals with the findings of the study based on system dynamics modelling and simulation. The implications drawn from the study have also been presented in this chapter. The limitations of the study and scope for further research are also listed. Finally, the contributions made by this research and the conclusions have been highlighted.

6.2 Research Findings

6.2.1 Empirical Study based Findings

1. Through literature review it is found that OCB has influence on the performance of the organization and a deeper analysis led to the understanding that KM and TQM are the key processes developed in the service sectors to ensure quality performance. Hence, it is found that while studying the influence of the various dimensions of OCB on the performance of the organizations it is quintessential to consider the moderating influence of KM and TQM. The literature also revealed that there is an interrelationship between KM and TQM so, along with the moderating influence it is also necessary to study the interrelationships between the constructs. It is also found that there is no empirical model which established a relationship between these constructs. This understanding led to the development of a hypothetical research model which formed the basis of this study.
2. Having conceptualized the model, it is necessary to study the individual constructs in-depth and Meta-analyze the literature so as to identify the key dimensions under the given construct and the indicators of these dimensions. Application of the process called Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) and Analytic Hierarchy Process (AHP) based on its relevance lead the identification of the dimensions and their indicators under a given construct. The scanning of the existing standard questionnaires also provided the inputs in the metric development. These findings resulted in the development of a metric of measurement of OCB, KM, TQM and PERF which formed the four basic constructs in this research.

3. The pilot study using the metric that was developed provided the initial credibility to the metric in terms of its reliability and validity. These findings through the pilot study also provided the means for factor reduction and resulted in the development of a 63 item metric from an initial 127 item metric which would provide the data with adequate reliability and enable the testing of the hypotheses.

4. The findings through the descriptive statistics have provided general information about the data gathered in this research. The demographics study revealed that majority of the respondents in the sample size of 742 were either post graduates or Ph.Ds. in the age group of 25 to 45 years with considerable amount of experience in the service sector (about 2 -20 years) and were quite competent to meet the data requirements. The data mean ranged from about 3 to 4.5 with about one standard deviation indicating the left-side Skewness ensuring relatively higher level of agreement with the indicators of the study on the overall basis. The Skewness and Kurtosis proved the normality condition which was the requirement for the statistical analysis using the first generation and Structural Equation modelling (SEM) technique.
5. The descriptive statistics have revealed certain key aspects pertinent to this kind of research. The findings show that OCB is very well expressed by the knowledge workers in the service industry, as majority have expressed that OCB is in the category of ‘good’ and the range is from ‘average’ to ‘very good’, with majority oriented towards ‘good’ (61%). KM is not as dominant as OCB in terms of employee perceptions and ranges from ‘poor’ to ‘very good’, with majority oriented towards ‘good’ (42%). TQM is still a lesser perceived construct in comparison to KM and the perceptions range from ‘Bad’ to ‘very good’ with the majority oriented towards ‘good’ (38.1%). The Performance of the service organization is considered to be relatively ‘good’ as majority fall in this category (47%). These perceptions are in line with the reality as the service sectors in general are doing well despite the recession in the period of 2012-'13. The observation that OCB is perceived well is also true to a great extent that the service providers are committed to their profession. When it comes to KM it is practiced very well in the IT sector, to some extent in health care sector but not widely in use in higher education sector. So, it is reflected in the response. TQM is a manufacturing industry concept which is now becoming popular in the service sector so it is yet to be fully implemented, which is also rightly indicated through the study. The performance of the organization is also realistically projected by the response as the service organizations are performing moderately well across the sections.

6. The inter-sector comparisons in the descriptive statistics are also quite realistic. In Organizational Citizenship Behaviour, IT sector is leading in altruism, healthcare sector is leading in courtesy, conscientiousness and civic virtue is dominant in higher education sector. The informal interviews with the knowledge workers across the service sectors have by and large confirmed these revelations. In case of the IT sector
team-work is promoted to the extent possible as it is the driver of innovation and altruism is the quintessential aspect of teamwork. Knowledge officers of leading IT sectors during their interview have expressed that they have specialized training to promote sharing, caring and promoting ideas and these attitudinal aspects would promote a sense of belonging to the organization and bring out an altruistic approach among the employees. Courtesy is the highest in health care industry. The healthcare sector by its very nature need to be courteous to the patients. So, their high perception of this dimension is very well justified. Hospitals in particular are the centres where patients need personal attention and the service providers need to be sensitive to the individual needs of the patients, and hence, being courteous is a part of their service delivery. Sportsmanship is equal among all the sectors. This finding also goes well with the prevailing conditions in the service sector. Obeying organizational regulations, tolerating imperfect situations without complaint, and refraining from actions which may lead to unfavorable tension at the workplace and maintaining synergistic atmosphere within the organization against any adverse incidents is a part of the work ethics in the service sectors and irrespective of the type of the service sector it is perceived well. Conscientiousness and civic virtue is more expressive in higher education sector. Finally, higher educations do much more than imparting the professional knowledge to the students. Its responsibilities extend to the imparting of the moral ethics, civic sense, social responsibility, lifelong learning, socially acceptable behaviour and ultimately providing an environment to mold one-self into an integrated personality who is trustworthy, dependable, contributing to the society, and responsible. So with these set of responsibilities shouldered by the service providers in the higher education sector, it is natural that they express a high degree of conscientiousness and civic virtue.
7. In the construct -Knowledge Management, IT sector is leading in all the dimensions except for knowledge diagnosing where the healthcare sector is leading. This matches with reality in the sense that KM practices have been very well implemented in the IT sector. There is a knowledge management system (KMS) that is developed in the IT sector and a Chief Knowledge Officer who is responsible for providing training in the area of KM and perform the assessment of KM system on a periodic basis to ensure that the KM strategies are aligned with the organizational strategies. Systematic training is also given to the employees on the various operations in connection to KMS. Many companies have reward system for the use of the KMS in effective ways with an outcome of value added service to the customers. So, it is obvious that IT sector should be leading in the most of the dimensions of KM. The dimension knowledge diagnosis has been very well perceived by the healthcare sector. Again, this is an obvious descriptive statistics for the healthcare system as knowledge diagnosis is the quintessential aspect in healthcare sector. It is their survival tool and hence, they have even surpassed the IT sector in this dimension. It is observed that higher education sector is lagging behind the rest in all the dimensions of KM except for knowledge sharing where it is close to IT sector. This is again an obvious fact that higher educational institutes are the knowledge centers, which share knowledge and even though they do not have KMS they still have a strong practice of knowledge sharing.

8. In the construct – TQM, the descriptive statistics have indicated that IT sector is leading in all the dimensions, except customer management in which healthcare sector is leading. But, in most of the dimensions the healthcare sector is closely matching with the IT sector and the higher education sector is lagging behind. This is justifiable as both the IT sector and hospitality industries have TQM implemented in totality or
at least in terms of some of its principles like continuous improvement as ISO also insists on these things to some extent. Most of the education sectors are ISO certified today but TQM concepts are yet to be implemented. TQM is basically a manufacturing concept and IT sector or hospitals are closer to this in comparison to the educational institutes.

9. Overall Performance of IT sectors is leading way ahead the rest in both financial and non-financial performance followed by the healthcare sectors except in operational performance where both are showing equal performance. This result is true as during the past several years IT sector is leading the Indian economy. The higher education sector is the least performing in all the three measures of performance. Thus for the educational sectors to make progress in terms of performance it is important to benchmark their operational processes against those of the remaining two service sectors under consideration. Some of the best practices may have to be emulated from OCB, KM and TQM.

10. Regression analysis revealed that sportsmanship, conscientiousness, and civic virtue had significance influence on KM, whereas, only sportsmanship and civic virtue have significant influence on TQM. Thus, OCB is worth the investment. The results are in accordance to some of the earlier studies (Shapiro & Kessler, 2000; Scarbrough and Carter, 2000; Osterloh & Frey, 2000; Hislop, 2003; Martins & Meyer, 2012). Training the employees regularly to strengthen the organizational citizenship dimensions would contribute to the betterment of KM and TQM performance which has bearing on the performance of the organization.

11. All the dimensions of OCB except courtesy have significant influence on operational performance as revealed through hypotheses testing. This is quite justifiable as operational performance has to do much with the following of the procedures, rules
and policies of the organization and courtesy may not have a significant influence on it. Conscientiousness and civic virtue influence financial performance. Sportsmanship, conscientiousness and civic virtue influence non-financial performance and this finding is in agreement to the findings of a group of researchers (Bolino and Turnley, 2003; Jung & Hong, 2008; Beauregard, 2012). So, again this underscores the importance of the OCB as it even has the ability to directly influence the various measures of performance of the organization.

12. Hypothesis testing has revealed that OCB has positive influence on KM. In other words, the better the OCB in an organization, the better will be the KM. This is because many researchers have agreed to the point that in addition to the exploitation of the technology, the success of KM implementation in an organization is mainly a function of culture of the organization (Martins & Meyer, 2012 and Ramezani et al., 2013). Unless the culture is congenial for the knowledge creation to knowledge exploitation to the benefit of the organization KM initiatives will not succeed. Many organizations with top down approach on management have not been as successful as they had expected them to be. This is again indicative of the point that OCB has influence on KM.

13. Hypothesis testing has revealed that OCB has influence on PERF. This is again in alignment with earlier research (Bolino and Turnley, 2003; Jung & Hong, 2008 and Beauregard, 2012). This is an important revelation of this research because even without considering the moderators OCB has direct positive influence on PERF. The focal theme of this research is OCB. It is clear that OCB is a very important aspect in a service sector and it has a significant influence on the enablers of business performance as well as performance directly. So, the direct revelation is that better the OCB higher will be the overall performance of the organization.
14. KM was found to have a significant influence on the PERF of the organization. This revelation is in alignment with many other researchers (Martins & Meyer, 2012; Lee et al., 2012; and Bosua & Venkitachalam, 2013). In today’s knowledge driven economy ‘knowledge is power’ and having realized this more and more organizations are turning towards the implementation of Knowledge Management Systems (KMS). This research has indicated a clear influence of KM on performance of the organization and it justifies the investment made on the KMS. IT sectors have a clear system to identify, retrieve, validate, store, disseminate and use knowledge for the benefit of the organization but during the semi-structured interviews with the remaining two sectors it is revealed that there are no such full-fledged systems to manage knowledge. It would be a wise decision to invest on KM in the service sectors as it contributes to the performance.

15. KM has significant influence on TQM as revealed through the hypothesis testing. This is again in alignment with many of the earlier studies (Saket, 2009; Weng-Choong et al., 2009; Aboyassin et al., 2011). Both TQM and KM are the enablers of performance of the organization but among the two KM is the antecedent. It is evident that a well-designed KMS can positively contribute to the TQM positively. In other words, better the KM better will be the TQM. As mentioned in the previous section it would be worthwhile to consider KM seriously and reap its benefits.

16. The hypothesis testing has revealed that OCB has significant influence on TQM. This is again in alignment with a group of researchers (Ho et al., 2001; Turnipseed and Rassuli, 2005; Arawati, 2005; Buentello et al., 2008; Jung & Hong, 2008 and Narimani et al., 2014). The reason for this positive influence is that TQM has many ‘soft’ aspects attached to it in addition to ‘hard’ aspects which are mainly technology based. Unless, the people issues are handled with sensitivity to the requirement the
TQM implementation is not possible to the full extent. OCB is if practiced and demonstrated well in an organization, the level of dedication, commitment, competency and professionalism will be higher and the environment will be congenial for TQM implementation.

17. The hypotheses testing also revealed that both the moderating influences viz., KM and TQM between OCB and PERF have failed to produce a significant influence and also surprisingly in the context of service sectors under consideration TQM has not found to influence PERF. It is to be understood that TQM is a manufacturing concept even though KM is more of a service organization concept. However, they do not moderate well between OCB and PERF despite the fact that OCB and KM both have positive and significant influence on PERF as revealed in this research.

18. When Design of Experiments (DOE) were applied on to the variables of study under the interaction effects of the exogenous variables, Sportsmanship, Conscientiousness, and Civic virtue were significantly influencing the overall performance of the organization. These are important dimensions of OCB under the interaction effects. It has to be noted that the exogenous variables of this research are not completely independent of each other and to certain extent they may have influence on each other, or in other words, they may interact with each other to produce influence on the endogenous variables. Under such situations it was revealed that interaction between sportsmanship and civic virtue (first order interaction); altruism, conscientiousness, and civic virtue (second order interaction); courtesy, sportsmanship, and civic virtue (second order interaction) had significant influence on overall performance of the organization. This revelation is important because all the previous empirical studies have considered the dimensions of OCB individually but completely ignored the interaction effect of these dimensions. It can be observed that individually acting,
Sportsmanship, Conscientiousness, and Civic virtue have significant influence on performance but when interacting with each other sportsmanship and civic virtue can produce an impact on PERF together. Conscientiousness and civic virtue can be supported by altruism as an interaction and contribute to PERF. Finally Sportsmanship and civic virtue can be supported by courtesy to contribute to PERF. This observation could be of immense help to the strategic planners when they plan to produce an ideal OCB in the organization. To simplify the revelation, Sportsmanship, conscientiousness and civic virtue are very important if overall performance of the organization has to be improved. Further the combination of sportsmanship and civic virtue is also important in producing the enhanced performance of the organization. Courtesy can interact with the combination of sportsmanship and civic virtue to produce enhanced performance and altruism can interact with conscientiousness, and civic virtue to produce increased performance. This revelation is very much supported by the regression equation.

6.2.2 Modelling and Simulation based Findings

The statistical significance testing will reveal the relationship between the variables but does not indicate the variation in the endogenous variables for a given variation in the exogenous variables. But in the interest of this research it is important to note this variation so SD modelling and simulation is performed. Following are the specific findings of the modelling and simulation.

1. If the efforts are taken to improve OCB at a rate of 40% then in a span of 3 years and 2 months, the service organization can operate at 75% efficiency in knowledge management (KM).
2. If the efforts are taken to improve OCB at a rate of 40%, in a span of about 3 years and 3 months, the service organization can operate at 70% efficiency in total quality management (TQM).

3. If the efforts are taken to improve OCB at a rate of 60%, in a span of about 3 years, the service organization can operate at 60% efficiency in overall performance (PERF).

4. If the efforts are taken to improve sportsmanship, conscientiousness, and civic virtue at a rate of 60%, in a span of about 3 years, the service organization can operate at 55% efficiency in overall performance (PERF).

6.2.3 Implications to the Strategic Planning Managers

1. Knowledge management (KM) has significant influence on both TQM and overall performance of the organization as revealed in this research. So, managers involved in strategic planning should consider strengthening the KM processes in the organization. Understanding of how to measure and evaluate the impacts of intellectual capital and keeping track of performance is a major obstacle in turning investments toward promoting intellectual capital into a source of competitive advantage (Anantatmula & Kanungo, 2008). This has to be realized by the strategic managers of the service organizations. During the semi-structured interviews with the managers of the IT companies it was informed that some of the IT companies have approaches such as Balanced Score Card Approach which is used to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals.

2. Measurement of knowledge is very important in the context of management of knowledge. As stated by Ahn and Chang (2002), without valid and reliable
measurement of knowledge, it becomes very difficult to develop a comprehensive theory of knowledge or knowledge asset. Measurement assumes similar importance for knowledge management systems as well. While discussing approaches to build KM systems (KMS), Jennex and Olfman (2002) contend that the measurement of a KMS is crucial to understanding of how these systems should be developed and implemented. The service organizations under consideration may have to develop a metric for measurement of knowledge so that they may improve the content on a timely basis.

3. Strategic managers must consider the use of Information and Communication Tools (ICT) that have been used very effectively in the sharing of explicit forms of knowledge which is especially important for the documentation of the organizational knowledge base, which is essential requirement of the knowledge service organizations. This is because there is a need to store the tacit knowledge that is available in the minds of the employees into the explicit form so that it may be available for the use of all the employees. ICT are the important enabler for KM initiatives in organizations so the strategic managers must divert special budget provision for the augmentation of these tools. This will further strengthen KM which has emerged as a very significant dimension contributing both the TQM and PERF.

4. To strengthen the KM activities in an organization the strategic managers need to consider the socio-organizational factors. First, the 'internal social capital' (Pinho et al., 2012) of the organization need to be strengthened by the strategic managers through training. This refers to the organization cooperating and being interconnected, aligned, and focused on clear purpose. It is an indicator of how individuals, teams and decision makers within the organization are aligned, trust
each other, and cooperate fruitfully for the benefit of the organization. Second, the ‘external social capital’ (Yang et al., 2011) should be strengthened which refers to degree to which the individuals and the organization communicate and cooperate with the other organizations, participate in networks and partnerships, communicate effectively with divergent set of audiences, and involve in publishing and patenting. Third, ‘socio-organizational factor’ (Cameron, 2009), which refers to the ability of the organization to provide positive leadership, clear direction and vision, developing trust and mutual care, promoting autonomy and psychological safety, developing and providing assets for knowledge sharing, and creating an innovative environment. These three factors need to be considered by the strategic managers in the context of KM so that the organization will be benefitted.

5. Sportsmanship has emerged as an important aspect of OCB which needs to be strengthened. Okurame (2012) has related career growth prospects positively with sportsmanship because when employees have favourable perceptions of prospects for career growth, they are likely to be more willing to go along with work changes even when these are not particularly convenient for them. So this contributes to the performance. That is one of the reasons why Sportsmanship is linked positively with PERF in hypothesis testing. So, the strategic managers need to create an environment that nurtures sportsmanship. Sportsmanship involves tolerating the inevitable inconveniences of work without complaining and this comes only through dedication to service and sense of belongingness to the organization, and also, a sense of ownership. So, incentive or salary alone may not serve the purpose and managers may have to motivate the employees constantly and create an environment for them where they feel at home. Training on a regular
basis on motivation, innovation, creativity, decision making, problems solving, stress management, work-life balance, team work, systems thinking etc., may be conducted regularly so that the employees learn the required knowledge, skills and attitude for being positive all the time. The semi-structured interviews with the managers revealed the fact that these training programmes were not a regular features in some of the service organizations. As this research has found that the dimensions Sportmanship has a positive link with PERF it needs to be promoted if the organization has to enhance its performance and these training programmes may be conducted regularly.

6. Conscientiousness is found to have a positive relation with the PERF. The employee need to demonstrate certain skills such as reporting clearly both in writing and orally. Keeping up to date with organizational procedures, standards, protocols. Be punctual and go beyond the normal requirements when situation demands. Maintain good communication with supervisors, be well organized and tidy, report promptly on equipment malfunction or deficiency. In brief work diligently and conscientiously all the time. This is possible only when a right kind of environment is provided to the employees. There should be ample opportunity for the employee to air their opinion about the problems they encounter. Employees should be provided the right kind of training as mentioned in the previous section. The recruitment process should be very well managed by the organization so that the right talent is attracted, nurtured, motivated and retained in the organization so that they contribute to the growth of the organization. The strategic managers have the responsibility to create the right kind of environment which is congenial for the development of all these qualities in the employees. Strategic managers may introduce ‘mentorship’ in the organizations. The IT
sectors have successfully tried this but educational sector and healthcare sector do not seem to be practicing this seriously as observed in the semi-structured interviews. The HR managers should identify the employees who have a proved track record and make them mentors for the newly joined employee so that the protégé will grow in the organization under the tutelage of the mentor and inculcate all the qualities of the mentor and grows up to be a conscientious employee. Special incentives may be provided for the mentors for taking extra effort to train their protégées. Studies have indicated that empowerment and conscientiousness are positively correlated (Sutherland et al., 2007). So, the HR managers need to empower the employees so that they also develop the conscientiousness.

7. Civic virtue has also emerged as a dimension of OCB which has significant influence on overall performance of the organization. This variable is the willingness of the employee in routine and non-routine matters to accomplish the organization’s tasks. Strategic managers should note that ‘willingness’ is an attitudinal factor and is under the ‘soft skills’ category. So again, the recruitment process of the organization should be very effective so that the right kind of talent is attracted to the organization, trained and motivated so that they demonstrate the civic virtue which is a constructive involvement in the political process of the organization, including not just expressing opinions but reading one’s mail patiently, attending meetings, and keeping abreast of larger issues involving the organization (Islam et al., 2012).

8. System dynamics modelling and simulation has made a vital revelation to the strategic managers. It has indicated that if the OCB initiatives are improved at a rate of about 40% they can achieve about 75% efficiency in KM, 70% efficiency
in TQM, and 50% efficiency in overall performance of the organization in a span of about 3 years and 3 months. So, the strategic managers need to work closely with HR department in the service organization so that the initiatives recommended in the previous sections are implemented.

6.3 The Holistic Model for Performance

The outcome of the research is a full-fledged holistic model for the overall performance of the knowledge intensive service sectors (Figure 6.1). The roles of the individual components are as follows.

Organizational Citizenship behaviour: Most of the leadership studies are closely related to the organizational studies and this reiterates the role of OCB in any organizations. So, OCB forms the foundation of the holistic model for performance of the knowledge intensive service sectors. Altruism, civic virtue, sportsmanship, conscientiousness, and courtesy are the dimension of OCB among which sportsmanship, conscientiousness, and civic virtue were found to be having significant influence on performance in this research. The HR managers have the responsibility of attracting the right talent to the organization, train them and keep
Figure 6.1: The Holistic Model of Performance of Knowledge Intensive Service Sectors (Source: Author)
them motivated so that they demonstrate OCB to the fullest extent. OCB has significant influence on KM, TQM and PERF as studied in this research. Service management is mainly all about the process management and performance is a function of process management efficiency and effectiveness and this is where OCB can contribute immensely. The well-practiced OCB provides the proper mindset required for the manifestation of the organizational vision into reality. In any organization, technology is just the ‘enabler’ and processes are ‘means’ of accomplishing the set targets and OCB should act as the ‘human dimension’ which makes thing happen.

**Knowledge Management:** Knowledge is a ‘strategic asset’ in business. The ultimate aim of an organization should be to transform itself into a Learning Organization so that it will develop an ability to adapt into the ever changing business environment. This is not possible without a system of knowledge diagnosis, knowledge acquisition, knowledge generation, knowledge sharing, knowledge storing, and knowledge application. Again, it has to be supported well by the various dimensions of the OCB as they have significant positive influence on the efficiency of KM as observed in this empirical study. This is because KM happens at the overlap of people, process and technology and unless the people dimension is strengthened, the efficiency and effectiveness of KM is not possible. The knowledge intensive service organizations which are the focus of this study need to develop mechanisms to identify the sources of knowledge both from internal and external sources and assimilate it into the knowledge repository of the organization. A team of experts in the organizations need to validate this knowledge and develop a taxonomy and store it so that it can be accessed by the employees easily. Systems for the dissemination of the knowledge and use of the knowledge for the benefit of the organization may have to be developed. The system of rewarding the knowledge sharing has to be developed which has been successfully tried
in the IT sectors. Regular training programmes on the effective use of Knowledge Management System (KMS) may be necessary. Recruitment of the Chief Knowledge Officer (CKO) may be necessary whose role is to facilitate the knowledge generation and usage of it for the betterment of the organization. The KM strategy must be aligned to the corporate objectives so that it contributes to the accomplishment of the corporate vision. It is very much necessary to develop a metric for the measurement of KM efficiency so that the organization can improve the KMS from time to time.

**Total Quality Management:** TQM is basically a manufacturing industry concept as mentioned before, nevertheless, it is very much applicable to service sectors as there are common processes in both these types of industries. TQM is more of a philosophy of quality than the technicalities involved with it. However, all the TQM dimensions are derivatives of Deming’s 14 points, Juran’s 10 steps, and Corsby’s 14 steps combined with Statistical Process Control (SPC), Quality Control (QC), Benchmarking and Quality Function Deployment (QFD). While the Critical Success Factors (CSF) vary from authors to authors in the context of knowledge intensive service sectors the following have been specifically chosen: Customer management, Process management, People management, Top management leadership, Organizational learning, Continuous improvement, and Quality information management. These dimensions of TQM are of importance in the context of knowledge intensive service organizations. The TQM philosophy should contain support from top management, vision sharing, empowering of the employees, benchmarking, and involvement of all. In the service sectors the performance of service quality refers to the satisfying of both the stated and implied needs of the customers and there are intangibles attached to the deliverables of service. So the quality management need to be more robust.
Customer management must consider these needs of the customers. Process management demands the mapping of the core, sub-processes and support processes so that they are followed by all the employees. People management plays an important role in the service industries as offering quality service needs quality people who can operate independently with minimum or no supervision. This demands quality awareness on continuous basis, feedback on employee performance, inculcation of self-inspection skills, imparting of the ability to work in cross functional teams, etc. Recognition for innovation is an important aspect to be considered by the team responsible for people management. Top management must very clearly define the organizational values, directions and performance expectations. Quality must be inbuilt in all its activities and must ensure that the employees have clearly understood the quality goals. It should also supply all the necessary resources necessary for implementing quality. Organizational learning is complimentary to the Learning Organization concept introduced in the KM section of the model. The employees must be taught to know how well the company performs. Personal mastery must be supported and skill enhancement must be promoted along with the acquiring of the knowledge. Continuous improvement is the essence of TQM. New services must be introduced on a continuous basis, there should be a mechanism to continuously reduce the gap between the expected service and provided service. In information driven world of today, if the service organizations have to perform at top level of quality they should have a very effective Quality Information Management system. It should have a mechanism to gather structured data on all the customer related activities. The data should be collected from the source. Quality data should be readily accessible. Transparency in the quality data will make the customers develop confidence on the services and it also satisfies the requirement of Corporate Social Responsibility (CSR). It is important to note that both OCB and TQM contribute positively to the
PERF. Even though this research has failed to prove the contribution of TQM to the overall performance of the organization the influence cannot be undermined.

**Overall Performance:** The overall performance (PERF) of the organization is a function of financial performance, Non-financial performance and Operational performance. There are different levels of influences on these three measures of performance. First of all, OCB has significant influence on the PERF, second KM has significant influence on PERF, and third TQM has influence on PERF (but not indicated to be significant in this research). In addition, OCB influences both KM and TQM as a result of which the PERF may be improved. Financial performance comprises revenue growth, net profit, and the various financial ratios. Non-financial performance comprise investment in R & D which is yet to produce results, capacity to produce competitive profile, new product development being active, visible market development, and a good market orientation of the services. Operational performance comprises effective cost reduction and waste reduction measures, continuous quality improvement, flexible operational processes, and constant performance enhancement.

There should be a very efficient measurement system to keep tract of the progressive development of each of the components of the performance enhancement model. This is because what cannot be quantified cannot be measured and what cannot be measured its quality cannot be improved. So, it is essential to have a quantitative measurement for the performance of the each of the components of the holistic model of performance and the managers should measure the deviations from the set standards and find the cause for the deviations and set the processes right so that the required service quality is produced first time and every time.
6.3.1 Limitations of the Study and Scope for Future Work

Like any other research this research has its set of limitations. The research adopts the mixed methods of research which includes both qualitative and quantitative data analysis. The qualitative data is subjective to a considerable extent and this may affect the repeatability and reproducibility of the results which is a limitation of the study. The quantitative analysis is mainly through statistical procedures and all the limitations of statistical methods are applicable to this research too. This includes several specific issues to name a few, the tests are only useful aids for decision-making. Hence, “proper interpretation of statistical evidence” is important to intelligent decisions. So the interpretations made in this research need not necessarily be the best possible ones. The statistical tests do not explain the reasons as to why do the difference exist, say between the means of the two samples which also act as the limitation of the methods. Results of significance tests are based on probabilities and as such cannot be expressed with full certainty. Statistical inferences based on the significance tests cannot be said to be entirely correct evidences concerning the truth of the hypotheses, and the size of the sample plays a dominant role here. As the second generation statistical tool is used in this research the sample size of just 200 may be adequate and in this research a sample size of 742 respondents has been chosen so to a considerable extent the analysis is reliable but still it is not completely generalizable. The instruments of all the four constructs are generic to both service and production organizations. These instruments have been modified to suit to the requirements of the knowledge intensive service organizations, however, the only justification is the validation of the instrument and the reliability analysis of the data obtained through it which by itself is not complete in all respects. So, there could be a chance for error in the measurement of the data however small or negligible it is.
The research has made use of Design of Experiments (DOE) to determine the main effect and interaction effect of the exogenous variables on the endogenous variables of interest. But DOE method relies on the ANOVA which is again a statistical tool and all the limitation of statistical methods mentioned above are applicable here too. Moreover, in DOE it is not possible to eliminate the confounded relationship completely. Replication with the same degree of accuracy in case of DOE is also a challenge. Nevertheless, DOE is the most efficient method for studying the interaction effect between the exogenous variables and this research has very successfully exploited that ability of this tool.

Multiple regression also has its own limitation. First of all the relationship may be non-linear but the multiple regression assumes a linear model. However, the coefficient of determination is in the acceptable range so the limitation may be overlooked as far as the generalizations are concerned.

In SEM analysis with regard to the process of model specification and identification there are several compromises made that may vitiate the original theory or model. For example the moderating and intervening variables are always questionable. So, this may affect the accuracy of generalizations based on SEM. The mathematical foundation lies on Partial Least Square Method (PLSM) which again is an approximation method which limits the accuracy of the model. Assumption of linearity is also a limitation of SEM. Requirement of a minimum of 10 subjects per estimated parameter is also a limitation of SEM. Residual covariance should be small and oriented towards zero for applying SEM. Finally, none of the reliability measures are 100% accurate in predicting the actual values and the repeatability of the results and the consistency are always questionable. Despite these limitations in the context of this research SEM has yielded results which have led to the development of a model to explain the interrelationships between the variables of interest.
Modelling and simulation has its own set of limitations. When practically it is not possible to create the desired environment modelling and simulation will be the only other nearest possibility. In this research System Dynamics (SD) based simulation has been used. The relationship established is based on the multiple regression model. So, the accuracy of the model is based on the goodness of fit of the multiple regression model which could be a limitation too. However, simulation results match the hypothesis testing results and thus these limitations may be overlooked as far as generalizations are concerned.

All the above limitations offer immense scope for the future research. First of all this research has studied the influence of OCB on PERF with the moderating effect of only KM and TQM. There could be other moderators or intervening variables which could act between the OCB and PERF. So future researchers may explore such variables and extend this research. There are also dimensional limitations with respect to each of the constructs used in this research. So, future researchers may add several other dimensions to the same set of constructs and may refine this research.

6.3.2 Conclusions

This research is timely and relevant in the present context of globalization and liberalization. The research deal with KM and TQM which are the burning topics in today’s research. Moreover, the research has been carried out in knowledge intensive service organizations and the outcomes of this research would be useful to the policy makers of these organizations.

From the literature review it was concluded that it was pertinent to undertake a study for empirically validating the influence of OCB on PERF with the two moderators KM and TQM. The extensive literature review has successfully identified the dimensions of each
of these constructs and enabled the development of a metric in the form of Likert 5-point scale. The sample size of 742 based on random sampling has been quite large enough for the generalization of results. The hypothesis testing has indicated that all the five dimensions of OCB influence the KM and TQM. Courtesy, sportsmanship, and civic virtue does not influence operational performance significantly, however, rest of all the dimensions influence all the remaining PERF dimensions. The SEM technique has indicated that all the hypotheses stand supported except for the influence of TQM on PERF and the moderating influences of KM and TQM. The main effects of Sportsmanship, Conscientiousness, and Civic virtue on PERF are dominant. Interaction between sportsmanship and civic virtue, interaction between altruism, conscientiousness, and civic virtue and the interaction between courtesy, sportsmanship, and civic virtue has a significant influence on performance of the organization. The multiple regression model gives the mathematical equations for the PERF, KM and TQM. The SD modelling and simulation has successfully demonstrated the influence of the OCB dimensions on KM, TQM and PERF.

Based on the empirical study results implications have been drawn for the managers of the knowledge intensive service organizations so as to enhance their overall performance of the organizations. These recommendations could be of immense use for the Chief Strategic Planning Managers to enhance their organizational performance. A dedicated model for explaining the individual influence of OCB, KM and TQM on PERF has been developed.

Thus this research has contributed a tested and validated questionnaire for the survey of the data on the constructs of research interest. The research has successfully identified the direct and interaction effects of the variables of study on the organizational performance. The research has developed a mathematical model and a holistic model for
studying the influence of the various constructs on the PERF of the organization. The multiple regression method has yielded the mathematical foundation for the development of equations which relate the independent and dependent variables. The holistic model demonstrates the interrelationships between the variables. The SD modelling has studied successfully the influence of exogenous variables on the endogenous variable, namely PERF.

In this era of knowledge driven economy, looking for enablers that would provide an edge over others in business in terms of superior performance is a constant and never ending endeavour. This research has contributed a model that relates the individual constructs with each other. The empirical study has also led to the drawing of the implications to the Strategic Planning Managers in knowledge intensive service organizations so that the overall performance of the organization could improve. When the knowledge intensive service organizations are vying for excellence, the outcomes of the study would add immense value to their business. In that sense this research is timely and pertinent.

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