Chapter 7- Conclusions

7.1 Overview

Chapter 6 highlighted a detailed presentation of findings and discussions of the results of the data, how the data were analysed and the results of the analysis. It also discussed how the findings from the current study align or diverge from findings of previous research studies in the literature review. Here, the proposed model was tested and proved, for its reliability based upon the results of the measurement instrument. Further, it presented the results of the findings and discussions/interviews with the senior/delivery managers.

The purpose of this chapter is to present answers to the research questions generated through literature review. It throws light on the applicability of the proposed model and limitations of this research. Research implications for leadership in organizations and research implications for project management in organizations are also discussed in this chapter. It also reflects recommendations for action for software organisations, recommendations for future research and final conclusion.

This chapter begins with an overview of the chapter in Section 7.1. Section 7.2, Section 7.3, Section 7.4, Section 7.5 and Section 7.6, discusses answers to research question 1, research question 2, research question 3, research question 4 and research question 5. Answers to research question 6, research question 7, research question 8 and research question 9 are reflected in Section 7.7, Section 7.8, Section 7.9 and Section 7.10. Summary of enlightenments and applicability of the proposed model are highlighted in Section 7.11 and Section 7.12 while limitations of this research are reflected in Section 7.13. Section 7.14 discusses contribution to the body of knowledge. Recommendations for action for software organisations are presented in Section 7.15 while recommendations for future research are shown in Section 7.16. This is followed by a summary of the chapter in Section 7.17.

The diagrammatic presentation of Chapter Seven is shown in figure 7.1.

Figure 7.1: Structure of Chapter 7
7.14 Contribution to the Body of Knowledge

7.15 Recommendations for Action for Software Organisations
7.2 Answer to Research Question 1

Research Question 1: Is there a difference in the leadership styles (Transformational, Transactional, Passive/Avoidant and Technical) of the project managers (both self-perceived and subordinates-perceived) with respect to successful projects?

This research question can be answered based upon the research result which indicates that both the project team members and project managers of successful projects supported, that in their projects, the display of transformational leadership is more. They both believed that technical leadership is also important like transformational leadership followed by transactional and passive/avoidant leadership behaviours. For passive/avoidant leadership both, project team members as well as project managers, believed that management by exception (passive) is more than laissez faire leadership behaviour and a small proportion of management by exception (passive) can be implemented by the project managers to achieve desirable results.

Therefore, it can be concluded that Transformational leadership is the dominant leadership style for successful projects.

7.3 Answer to Research Question 2

Research Question 2: Is there a difference in the leadership styles (Transformational, Transactional, Passive/Avoidant and Technical) of the project managers (both self-perceived and subordinates-perceived) with respect to challenged projects?

This research question can be answered based upon the research result which indicates that both the project team members and project managers of challenged projects supported, that in their projects the display of transformational leadership is more but lower as compared to successful projects (in the opinion of project managers it is same due to hyped figures). According to project team members this is followed by transactional leadership, technical leadership and
passive/avoidant leadership while in the opinion of the project managers, transformational leadership is followed by technical leadership, transactional and passive/avoidant leadership behaviour. For passive/avoidant leadership the project team members, felt that laissez faire leadership behaviour is more than management by exception (passive) while in the opinion of the project managers, management by exception (passive) leadership behaviour is more than laissez faire leadership behaviour.

Therefore, it can be concluded that **Transformational leadership is again the dominant leadership style for challenged projects.**

### 7.4 Answer to Research Question 3

**Research Question 3:** Is there a difference in the leadership styles (Transformational, Transactional, Passive/Avoidant and Technical) of the project managers (both self-perceived and subordinates-perceived) with respect to failed projects?

This research question can be answered based on the research result which indicates that the project team members of failed projects perceived that in their projects, the display of passive/avoidant leadership (laissez faire greater than management by exception-passive) is more, followed by transactional, transformational and technical leadership behaviours, while in the opinion of the project managers, they display more transformational leadership behaviour followed by transactional, technical and passive/avoidant leadership behaviour. Since, the opinion of the project team members and project managers differ so much the opinion of the project team members is considered to be accounted for.

Therefore, it can be concluded that **Passive/Avoidant leadership is the dominant leadership style for failed projects.**

### 7.5 Answer to Research Question 4

**Research Question 4:** Is there a significant relationship between (both self-perceived and subordinates-perceived) integrated leadership styles (Transformational, Transactional, Passive/Avoidant and Technical) of project manager and combined project leadership outcomes
(project team member’s willingness to exert extra effort, project manager’s effectiveness and satisfaction with the project manager) in successful, challenged and failed projects?

This research question can be answered based on the research result which indicates that there is a similarity in the opinion of the project team members and project managers of successful projects. Both believed that, there is no perfect leadership style to make a project successful, but a combination of leadership styles are required to achieve desired outcomes. By carefully observing the successful projects, it can be learnt that, to make a project successful there should be at least a moderate/strong presence of Transformational leadership followed by moderate/strong - Technical, weak- Transactional and very weak- Passive/Avoidant Leadership. Any change in this combination would surely lead to undesired results as can be seen in challenged (Technical leadership-moderate followed by very weak- Transformational, weak- Transactional and moderate- Passive/Avoidant Leadership) and failed projects (Technical leadership- very weak followed by very weak- Transformational, very weak- Transactional and strong- Passive/Avoidant Leadership).

The project managers of challenged and failed projects, believed that the combinations of leadership styles that they display in their projects are almost similar to successful projects, but as there is a vast difference in the opinion of the project team members and project managers, therefore the combinations shown by project managers in challenged and failed projects is whether actually being displayed by project managers is doubtful.

Therefore, it can be concluded that, there is certainly a relationship between integrated leadership styles (Transformational, Transactional, Passive/Avoidant and Technical) of project manager and combined project leadership outcomes, which is seen to be stronger, significant and perfect in terms of proportion in successful projects.

7.6 Answer to Research Question 5

Research Question 5: Is there an improvement in the predictive ability of the model (Transactional, Passive/Avoidant and Technical leadership predicting all three project leadership outcomes: project team member’s willingness to exert extra effort, effectiveness of the
project manager and satisfaction with the project manager) for successful, challenged and failed projects after Transformational leadership is added to the model?

This research question can be answered based on the research result which indicates that augmentation effect due to transformational leadership is seen mostly in successful projects as there is a strong presence of transformational leadership style for all the three project leadership outcomes. It is also observed that here, the effect of all the other leadership styles were suppressed once transformational leadership is added to the model and the augmentation in the outcomes scale is solely due to the presence of high transformational leadership, which significantly contribute towards achieving project success.

For challenged projects, only subordinate’s willingness to exert extra effort could be predicted, in which it was seen that there was higher technical leadership followed with passive/avoidant leadership and medium transformational leadership, therefore augmentation was not as high as seen in successful projects. For the outcomes like: project manager’s effectiveness and satisfaction with the project manager, the p values became greater than level of significance (0.05) and the models became insignificant, hence, the models were not able to predict the change in the effectiveness of the project manager and satisfaction with the project manager after adding transformational leadership to the model.

For failed projects, it is observed that technical leadership style is prominent as the β value is high in the absence and even in the presence of transformational leadership. Here, it is interesting to note that though augmentation in output is seen in failed projects, but as the presence of transformational leadership is very less in such projects therefore, the output is not as desired; whereby all project team members are not willing to exert extra effort to meet deadlines, they do not find their project managers to be effective and are not satisfied with him. Here, it is interesting to note that, though transformational leadership is very low, but still it is positive, significant in the outcome-project manager’s effectiveness. It is further noted that, adding a small proportion of transformational leadership is also bringing changes (increase) in the output scale, therefore the proportion of transformational leadership in such projects need to be increased which could definitely contribute towards better outcomes.
Therefore, it can be concluded that, there is an improvement in the predictive ability of the model (transactional, passive/avoidant and technical leadership predicting all three project leadership outcomes: project team member’s willingness to exert extra effort, effectiveness of the project manager and satisfaction with the project manager) for successful and failed projects after transformational leadership is added to the model. For challenged projects, improvement in the predictive ability of the model (transactional, passive/avoidant and technical leadership) after transformational leadership is added cannot be seen in outcomes: project manager’s effectiveness and satisfaction with the project manager, since the models became insignificant.

7.7 Answer to Research Question 6

Research Question 6: Do Project Managers who scored higher on Transformational leadership style get better/extra outcomes from their project team members in comparison to those who scored lower on Transformational leadership style?

This research question can be answered based on the research result which indicates that mean values of project leadership outcomes (project team members’ willingness to exert extra effort, project manager’s effectiveness and satisfaction with the project manager) differ across high, medium and low transformational leadership. Mean values of all the three leadership outcomes, in projects having high transformational leadership is more followed, by projects with medium transformational leadership and then low transformational leadership.

Therefore, it can be concluded that the project managers who display high transformational leadership, his project team members will be further willing to exert extra effort, will find their project manager’s to be more effective and are more satisfied with their project managers.

7.8 Answer to Research Question 7

Research Question 7: Is there a difference in the effectiveness (both self-perceived and subordinates-perceived) of the leadership styles (Transformational, Transactional, Passive/Avoidant and Technical) of the project manager at various phases (initiation, planning, execution, monitoring & control and closure) of the project life cycle?
This research question can be answered based on the research result which indicates that both the project team members and project managers believed that, leadership styles (Transformational, Transactional, Passive/Avoidant and Technical) of the project manager differ in effectiveness at various phases (initiation, planning, execution, monitoring & control and closure) of the project life cycle and also have similar opinion about the most effective leadership style at various phases of the project life cycle.

Therefore, based upon the results, it can be concluded that the most effective leadership style at the Initiation phase of the project life cycle is Passive/Avoidant Leadership and at the Planning phase is Technical Leadership. Transformational Leadership is most effective at the Execution phase while Transactional Leadership emerged as the most effective leadership style at the Monitoring and Control phase. At the Closure phase again Technical Leadership is considered to be the most effective leadership style.

7.9 Answer to Research Question 8

Research Question 8: Is there a difference in the criticality (both self-perceived and subordinate-perceived) of the success factors of the Project Implementation Profile (PIP) at various phases (initiation, planning, execution, monitoring & control and closure) of the project life cycle?

This research question can be answered based on the research result which indicates that both, the project team members and the project managers believed that, success factors of the Project Implementation Profile (PIP) differ in criticality at various phases (initiation, planning, execution, monitoring & control and closure) of the project life cycle and also have similar opinion about the most critical success factors of the Project Implementation Profile (PIP) at various phases of the project life cycle.

Therefore, based upon the results, it can be concluded that, in the Initiation Phase of the project life cycle, the top three critical success factors are Project Mission, Client Consultation and Communication and in the Planning Phase: Project Mission, Top Management Support and Client Acceptance are the top three critical success factors. Project Mission, Personnel (High touch leadership & Management) and Trouble Shooting are most important at the Execution
Phase while Monitoring and Feedback, Technical Tasks and Project Mission are considered highly important at the Monitoring and Control Phase. In the Closure Phase, Technical Tasks, Project Mission and Client Consultation are considered to be the top three critical success factors.

7.10 Answer to Research Question 9

Research Question 9: Do successful projects exhibit robust presence of the composite ten critical success factors of the Project Implementation Profile (PIP) in comparison to challenged and failed projects?

This research question can be answered based on the research result which indicates that mean values of composite critical success factors in successful projects differ from the other two projects and showed that there is a robust presence of critical success factors in successful projects in comparison to challenged and failed projects.

Therefore, it can be concluded that in successful projects, there is better clarity of project mission, top management is more supportive, a well-laid-out and detailed specification of the individual action plan is available, client consultation is considered important throughout the project, better management of personnel through high touch leadership and management, enhanced availability of technical resources, boosted client acceptance and satisfaction, enriched monitoring and feedback and communication throughout the project and availability of contingency plans in the form of trouble shooting mechanism in order to handle unexpected crises and deviations from plan.

7.11 Summary of Enlightenments

Thus, the enlightenments can be summarized as that, in software development projects there is no one leadership style that is always fully effective to handle the complexity of projects or to achieve desired level of output. Project managers who exhibit typically passive/avoidant leadership tend to produce less than desirable results, lower follower motivation and are seen by followers as ineffective project managers; as projected in failed projects. Other, group of project managers who exhibit mostly transactional and technical leadership tend to produce average
results like: projects are completed but they do not meet their specific time, quality or cost requirements; as commonly seen in challenged projects.

It is righteously observed that transformational leadership style emerged as the best suited leadership style towards proper execution of software projects, as the proficient IT workforce expect their project managers to be charismatic and a role model for the entire team engaged. He should be a great motivator, an influencer- who knows how to make things happen, a guide and a stimulator of the project team members’ need for self-actualisation; as only money is sometimes not only the motivator, to make people perform beyond expectations. He should understand how to work in a team himself, show empathy and how to align individual goals with organizational goals; as observed in successful projects, where strong display of transformational leadership style by the project manager is responsible to attain better leadership outcomes.

It is further noted that transformational leadership behaviour does not substitute other leadership behaviours but rather complements them. All the leadership behaviours should be exhibited by the project managers in appropriate proportion to make a project successful. By carefully observing the successful projects, it can be learnt that, there should be at least a moderate/strong presence of transformational leadership followed by moderate/strong - technical, weak-transactional and very weak-passive/avoidant leadership and any change in this combination would surely lead to undesired results as seen in challenged and failed projects. This perfect combination of leadership styles as seen in successful projects has an augmented effect on the outcomes and workforce is motivated to perform beyond expectations and yield extraordinary outputs.

It is realized that at different phases of the project life cycle different leadership styles are effective and should be exhibited by the project manager. Based upon the results, the most effective leadership style at the initiation phase of the project life cycle is passive/avoidant leadership and at the planning phase is technical leadership. Transformational leadership is most effective at the execution phase while transactional leadership emerged as the most effective leadership style at the monitoring and control phase. At the closure phase again technical leadership is considered to be the most effective leadership style.
Also it is perceived that different critical success factors of the Project Implementation Profile (PIP) are dominant at different phases of the project life cycle. Based upon the results, it can be observed that in the initiation phase of the project life cycle, the top three critical success factors are project mission, client consultation and communication and in the planning phase: project mission, top management support and client acceptance are the top three critical success factors. Project mission, personnel (high touch leadership & management) and trouble shooting are most important at the execution phase while monitoring and feedback, technical tasks and project mission are considered highly important at the monitoring and control phase. In the closure phase, technical tasks, project mission and client consultation are considered to be the top three critical success factors.

Also there is robust presence of composite critical success factors of the Project Implementation Profile (PIP) in successful projects rather than challenged and failed projects which again provides successful projects an edge over the other two projects.

Thus, if all these enlightenments are concentrated by the project manager while leading a software development project can definitely lead to achievement of better project performance outcomes and can increase the chances of project success.

7.12 Applicability of the Model
The researcher’s model was based upon five factors: the difference in leadership style in successful, challenged and failed projects, the augmentation effect of transformational leadership style over other leadership styles (transactional, passive/avoidant and technical), most effective leadership style at various phases of the project life cycle, most dominant critical success factors of the Project Implementation Profile (PIP) at various phases of the project life cycle and the robust presence of critical success factors of Project Implementation Profile (PIP) in successful projects rather than challenged and failed projects.

The foundation of this model is the total nine hypotheses and sub-hypotheses that were formulated. If the researcher can prove the alternate hypotheses and sub-hypotheses to be true, the model can be generalized to information technology industry of Pune. After analyzing the research result, all the null hypotheses and sub-hypotheses were rejected, which means that the alternate hypotheses and sub-hypotheses stand to be true and were accepted.
Therefore, the applicability of this model to information technology industry of Pune was well supported by the results of the study. The researcher was able to prove significant differences, between the leadership styles executed by project managers in successful, challenged and failed projects which was supported both by subordinates-ratings and self-ratings of the project managers. This would help the project managers to gain an enhanced understanding of different leadership styles; specifically transformational leadership, which is a better choice for the project managers to adopt.

The improvement in the predictive ability of the model, predicting all the three leadership outcomes after adding transformational leadership to the model was verified, along with proving that high transformational leadership leads to project team members further willing to exert extra effort, project team members finding their project managers to be more effective and increased satisfaction with their project managers.

Further, it was verified that different leadership styles are required at different phases of the project life cycle and the dominance of critical success factors of the Project Implementation Profile (PIP) differ at various phases of the project life cycle; therefore when reaching a particular phase of the project life cycle, the project managers can now focus on a specific leadership style along with the specific critical success factors. This was again well supported both by subordinates-ratings and self-ratings of the project managers. Finally, it was also proved that there is a robust presence of critical success factors in successful projects rather than challenged and failed projects.

Thus, the applicability of the model to middle level project managers of software development projects of Information Technology industry of Pune was proved and well supported by the results.

7.13 Limitations of this Research
According to (Creswell, 2009 and Simon, 2006), many researchers agree that research studies inherently contain limitations, based on the design and overall approach of the researcher.
Although results of this study might be helpful to the project managers of software development projects working in information technology industry of Pune, to understand their project team members better and generate better outcomes, as they now know the leadership styles that are
most suitable in the IT project environment and should be applied at various phases of the project life cycle along with the critical success factors of the Project Implementation Profile (PIP), that should be focused distinctly during various phases of the project life cycle, still it should be understood that limitations do apply.

1. Although care has been taken, while selecting the sample respondents of the study, so that they are representative; as the software firms chosen vary from new and small in terms of revenue, number of employees to medium and large well established firms registered with NASSCOM-Pune, with thousands of employees and billions of dollars in revenue; still it raises the question of whether the results are generalizable to all the software firms operating in Pune city (whether registered with NASSCOM- Pune or not).

2. The study was conducted in one region of India (i.e. western region), which might raise concerns about whether the findings can be generalized to project team members working on software development projects in other regions of the country.

3. The study utilized one method of data collection from the project team members as well as the project managers: a self-administered survey, this method prevented the researcher from asking follow on questions, that could clarify the respondents perceptions and help gain further insight.

4. Open ended questions were also deleted from the questionnaire on the request of the delivery managers, so that respondents do not give any comments/suggestions in writing.

5. This study relied on participants’ responses, even though followers were assured of complete confidentiality, there is a probability that respondents answer the questions in what they consider socially desirable manner, rather than recording their true perceptions.

7.14 Contribution to the Body of Knowledge

7.14.1 Contribution to the Body of Knowledge for Leadership in Organisations

This study made certain contributions to the field of leadership research. It added to the body of knowledge particularly, on transformational leadership which is still considered new and in need of further research (Yukl, 1994; Bass and Avolio, 1997). The successful attainment of organizational objectives is mainly determined by the quality of relationship that exists between
the project manager and his project team members which is proved in this research, by analysing
the results of responses, given by the respondents from three different projects- successful,
challenged and failed. It also pointed out that, though transactions in the form of contingent
reward are the base for any performance, still the people working on software development
projects wants something extra. They want their project managers to motivate them, guide them
and stimulate their need for self-actualisation, so that they can perform beyond expectations.

The usefulness of the current study is evident, as it is providing a clear understanding of adopting
an ‘optimum’ leadership model, with proactive technical, transactional leadership behaviours
and reactive passive/avoidant leadership behaviours combined with transformational
leadership behaviours, to achieve extra or performance beyond expectations.

This study also made significant contributions to research by finding out the most effective
leadership style at each phase of the project life cycle, which was hardly been explored before.
For the first time, a research studied the augmentation effect of transformational leadership style
on the outcomes considering other leadership styles as well (transactional, passive/avoidant and
technical). It revealed that that management by exception- passive leadership behaviour can also
bring positive results, if occasionally displayed by the project manager in small proportion.
However, the results are exploratory and need to be examined further in future studies. The
dominance of all the ten critical success factors of the Project Implementation Profile (PIP),
specifically in the information technology industry was not done earlier, which have been
explored through this research.

7.14.2 Contribution to the Body of Knowledge for Project Management in Organisations
This study made some contributions to the field of project management research as well.
Hauschildt et al. (2000) concluded that a project’s technical components make up only 50% of
the challenge of executing and completing a project. The researchers further claimed that the
other 50% of the challenge is involved in the organizational and human aspects of leadership and
team building. Therefore, what kind of leadership is necessary to help employees transform
themselves to demonstrate personal sacrifice for the benefit of their company and to help their
company move forward to the next level and beyond, this is a critical question for business.
In another research, Capers Jones (2004), after analysing approximately 250 large software projects between 1995 and 2004, conclude that large projects that successfully achieved their cost and schedule estimates against those that ran late, were over budget or were cancelled without completion, tended to be better than average in the following six areas. The six common areas/problems observed were: poor project planning, poor cost estimating, poor measurements, poor milestone tracking, poor change control, and poor quality control. Perhaps the most interesting aspect of these six problem areas is that all are associated with project management rather than with technical personnel. Therefore, better project management through effective project leadership can be a solution to these problems.

According to Pomfret (2008), the basic principles and methodology that defines the approach to project management are defined by the Project Management Body of Knowledge, but this body does not provide guidelines for leadership in a project environment. Thus, it proves that there is a dearth of research work conducted on effective leadership style in the project management domain.

*The results of the current study might be helpful to organizational leaders and project managers of software development firms, who now become more knowledgeable, about the causes of the failures in their projects. They now know that the reasons are not only technical, but they are managerial and can be resolved through effective people management. The software industry and the project management industry are two separate businesses, but they need to be joined together through proficiencies of the project manager.*

The project management life cycle (PMLC) and the software management life cycle (SDLC) both complement each other. Together, they harmonize to form a complete methodology for delivering high quality products to the customers that meet or exceed their expectations. They each have different roles in support of business initiatives. Throughout the life cycle both of these methods work together to achieve business goals, drive the value equation and progress organizational maturity. Though their activities differ greatly, they interrelate and harmonize to produce superior results. Hence, the skills of a project manager are very important to figure out how to structure their processes to include both SDLC and PMLC and ensure smooth transitions within each process and across processes.
Report of PMI-KPMG (2013), based on project schedules and cost overruns, briefs that shortage of skilled project managers emerges as the root cause for time and cost overruns in a project life cycle. This concern has been faced among various phases of the project life cycle. This inefficiency further leads to issues such as prolonged finalization of software design, scope and contractual disputes. Therefore, adoption of resource planning and monitoring strategies to improve efficiency and for better utilization of resources is suggested.

The usefulness of the current study is evident, due to providing of clear understanding of the current scenario of the software development projects, phases of project life cycle and critical success factors affecting the projects. It summarizes how the leadership styles of the project managers are vital for a project. It briefs various leadership behaviours displayed by the project managers and their effect on the outcomes as perceived by their own project team members and the differences between the leadership styles displayed by the project managers of successful, challenged and failed projects.

Project management’s success depends upon the effective leadership skills of the project manager. Project manager’s leadership styles are having a direct effect on the performance of his project team members. Therefore, the decision of choosing a particular leadership style should be taken by utmost care by a project manager. It is observed that, transformational leadership style can be supplemented with other leadership styles like: transactional, passive/avoidant and technical in the project management environment to motivate project team members, so that performances beyond standard expectations are achieved.

Thus, the model developed by the researcher can act as a guideline for the software project managers to improve the efficiency of their projects leading to high project performance outcomes and increasing the chances of project success. The results of this research could lead to promote positive corporate culture within the information technology industry based in Pune, which could in turn lead to an increase in innovativeness and productivity in software development projects which would enhance competitiveness in the global market.

7.15 Recommendations for Action for Software Organisations

Technical skills and competence has often been, the only criterion in the recruitment and promotion of technical professionals to managerial positions. The findings of the current
research reflect that along with technical abilities, knowledge and skills, managerial skills are equally important, as the role of a project manager is very important and crucial in a project.

He has the task of planning, execution and closure of the project. He is the person who is responsible for attaining project objectives, building the project requirements and managing the constraints of the project management triangle, like cost, time and scope. He represents the company before the clients and bridges the gap between project team and the client. He also plays a critical link in the hierarchy between management and project team members. Therefore, to attain further promotions his managerial skills need to be polished, as that is often more required at the senior positions.

The results indicated that, in todays, changing business scenario a candidate having only technical skills is not enough. A person should understand how to work in a team, show empathy and how to give priority and importance to group goals rather than individual goals. To imbibe personnel with such skills in the organization, the firms can adopt a recruitment criteria, in which candidate having technical as well as managerial knowledge must be given preference or the firm must support the employees to pursue certain additional courses on managerial skills.

The company can also have awareness sessions of what project management is actually all about, followed by, various training and orientation sessions for its employees at senior positions. *Structured and value-added training programmes are identified as long term solution for building professional capabilities and enhancing skill sets.* Also, personnel must be encouraged for certain project management certifications apart from technical certification, so that after being given the responsibility of a project manager, they can apply a blend of technical as well as managerial competence in their job/work.

**7.16 Recommendations for Future Research**

The researcher would like to suggest several areas of interest that could serve as fertile ground for future researches and help other researchers who are focusing on leadership areas.

1. Future researchers might replicate this research in firms that are not registered with NASSCOM- Pune or are below CMMI level 5, in an attempt to improve the generalizability.
2. The data for research were gathered through self-ratings and subordinates-ratings of the project managers and his project team members. An alternate approach, could be to distribute the questionnaire to the peers and the superiors to rate the project manager’s leadership style. This could provide with different results.

3. The target for this research was project managers of software development projects, this research could be repeated for very senior position such as vice president or delivery manager level, to compare and contrast results. This would offer a more comprehensive picture of leadership styles in this industry.

4. The details of this research can be used, to compare the leadership styles and leadership behaviours of Indian software project managers and Western software project managers working in information technology industry.

5. The research could compare the difference in leadership styles of project managers of a small software firm and a large well established software firm.

6. The researcher recommended that those who are interested in the leadership area, could expand their research to other industries, including hospitals, allied health services, banks, automotive or other manufacturing industries.

7. Most of the leadership theories developed fulfil the needs of western business houses, therefore, it is important to conceptualize these theories in Indian context and environment. Future research studies could suggest modifications and extensions to the current model as well.

7.17 Conclusions
This research study focused on the leadership styles of project managers of software development projects working in information technology industry of Pune. This dissertation explores and evaluates eight prime objectives. First, to investigate the differences in leadership styles of project managers of successful, challenged and failed projects as perceived by themselves and their subordinates (project team members). Second, to explore the relationship between integrated leadership styles of software project managers and combined project leadership outcomes: project team members’ willingness to exert extra effort, project manager’s
effectiveness and satisfaction with the project manager, in successful, challenged and failed projects. Third, to study the augmentation effect of transformational leadership style, in all the three project leadership outcomes, over other leadership styles (transactional, passive/avoidant and technical). Fourth, to explore whether the project managers who score higher on transformational leadership style can get better/extra outcomes from their project team members. Fifth, to find out the most effective leadership style at each phase of the project life cycle. Sixth, to explore the dominant critical success factors of the Project Implementation Profile (PIP) at each phase of project life cycle. Seventh, to investigate whether there is robust presence of critical success factors of the Project Implementation Profile (PIP) in successful projects rather than challenged and failed projects. Finally, to propose a new leadership model which capture the key behaviours of transformational, transactional, passive/avoidant and technical leadership and phases of project life cycle along with critical success factors leading to positive and better outcomes quantitatively and qualitatively.

According to present literature, there are many theories of leadership available, but transformational and transactional theories are chosen for this research, because the concepts of traditional leadership theories are not adequate, to understand the relationship between leader and followers, in this fast paced dynamic international business environment. In contrast the basic focus of these leadership theories is to establish and maintain such relationship. Since, the research is executed in the information technology environment, therefore components of technical leadership are also added to the model.

Based upon the objectives, after identifying the research gaps through literature review, the researcher formulated total nine hypotheses and sub-hypotheses and created a model. The deductive approach was chosen as methodology and both quantitative and qualitative methods were used in the research study. Extended version of Multifactor Leadership Questionnaire MLQ (5X-Short Form) was used to collect data. This researcher received 185 questionnaires from project team members and 21 questionnaires from project managers working on three different software projects: successful, challenged and failed in information technology industry of Pune. Also, the researcher collected data, from interviews of 7 senior/delivery managers of seven CMMI Level-5, NASSCOM registered software development firms executing in information technology industry of Pune.
Based upon the empirical support and survey through questionnaire, the research results are formulated which are summarized as below:

The findings of the current research study indicate that, transformational leadership style is the dominant leadership style of successful projects and is perceived to be the most effective leadership style, to face new challenges and overwhelming changes in informational technology industry scenario. It is followed by technical and transactional leadership styles. For passive/avoidant leadership style, laissez faire is the least preferred leadership behaviour among IT professionals; as the project team members, do not want that their project managers, should remain absent when the need arises. They expect that their project managers should not avoid taking decisions or responding to urgent questions.

It is also observed, that small proportion of management by exception (passive) leadership behaviour is bringing positive results with combined project leadership outcomes, as can be seen in successful projects and when the proportion of this behaviour is increased it is bringing negative results, which is proved in challenged and failed projects. By analysing the demographics carefully, it is observed that the size of the project team members also plays, a significant role in achieving project success, as can be seen that majority of successful projects operate with a project team size of 11-20 members while challenged and failed projects have approximately a range between 21-30 and 31-40 team members. Therefore, it can also be noted that the shorter the team size, the better it is for the projects. It can be observed that IT industry is dominated by male professionals and maximum participants belong to the age group of 31-40 years. They are mostly post-graduates and have experience between 6-10 years.

Further, it is analysed that certainly there is a relationship between integrated leadership styles (Transformational, Transactional, Passive/Avoidant and Technical) of project manager and combined project leadership outcomes, which is seen to be stronger, significant and perfect in terms of proportion in successful projects. By carefully observing the successful projects, it can be learnt that, to make a project successful there should be at least a moderate/strong presence of Transformational leadership followed by moderate/strong - Technical, weak- Transactional and very weak -Passive/Avoidant Leadership. Any change in this combination would surely lead to undesired results as can be seen in challenged and failed projects.
It is also verified that transformational leadership is improving the predictive ability of other leadership styles (transactional, passive/avoidant and technical) and bringing necessary changes (increase) in the output. Thus, if with other leadership styles, high transformational leadership style is supplemented, it would definitely bring better or performance beyond expectations, as can be observed in the mean scores of the three outcomes in high, medium and low transformational leadership.

It is proved that passive/avoidant leadership is the most effective leadership style at the initiation phase of the project life cycle, therefore, management by exception (passive) leadership behaviour is recommended at this particular stage. At the planning phase, most effective leadership style is technical leadership. Transformational leadership is most effective at the execution phase while transactional leadership emerged as the most effective leadership style at the monitoring and control phase. At the closure phase, again technical leadership is considered to be the most effective leadership style.

It can be seen that both, the project team members and the project managers have similar opinion about the criticality of the success factors of the Project Implementation Profile (PIP) at various phases of the project life cycle. In the initiation phase of the project life cycle, the top three critical success factors are project mission, client consultation and communication and in the planning phase: project mission, top management support and client acceptance are the top three critical success factors. Project mission, personnel (high touch leadership & management) and trouble-shooting are most important at the execution phase while monitoring and feedback, technical tasks and project mission are considered highly important at the monitoring and control phase. In the closure phase, technical tasks, project mission and client consultation are considered to be the top three critical success factors. Through the mean scores of successful, challenged and failed projects, it is also proved that there is a robust presence of critical success factors in successful projects in comparison to challenged and failed projects.

**Thus, based upon the above findings, the model proposed by the researcher was proved.**

Therefore, it can be summarized, that in this dynamic business environment the role of technical leaders must been refined. There is a need that along with technical competence, the project managers should possess leadership skills so that better employer-employee relationships are
established at the workplace, which can lead to desired outcomes from the project team members. It is important that apart from informing the project team members what is expected from them or what they are going to get in return for their work, they must be intellectually stimulated to perform better. This is done only through focussing on Transformational leadership theory.

It is also important that based upon the intellect, skills and experience of the personnel incorporated in a team, working under him, the project manager should plan and change his leadership style. The researcher would like to justify, this statement by quoting an example from the ancient Hindu mythology. In Hindu mythology, there are two great epics: Ramayana and Mahabharata. The moral of both these books is ‘victory of good over evil’. In one story, Lord Ram leads his army to defeat Ravana in his land while in the other, Lord Krishna, oversees Pandavas to defeat Kauravas in the battle at Kurukshetra.

In Ramayan, Lord Ram is the best warrior of his side. He leads his army from the front, form strategies and directs people to do stuff, that will meet the objectives. His people are happy to follow orders and want to get all the appreciation for being the best executors. Ultimately, they won the war and final outcome was achieved.

On the other hand, in Mahabharata, Lord Krishna told Arjuna, that he will not fight the battle. He will not pick up any weapon; he would only be there on his chariot as a charioteer. He did what he said, did not picked up any weapon and never fought. Still, Pandavas won the war and final outcome was achieved.

So, the difference lies in their leadership styles and in the type of people, who were being lead. Lord Ram, was leading an army of ‘monkeys’ who were not skilled fighters and were looking for direction. Thus, he gave precise roles and instructions and motivated the army to fight for his cause. On other hand, Lord Krishna was leading Arjuna, who was one of the best archer of his time. While Lord Ram’s role was to show it and lead from the front, Krishna played the role of a coach, whose job was to remove cobwebs from his disciple’s mind. Krishna did not teach Arjuna archery, but he definitely helped him, see world from a very different perspective. Thus, he worked with best professionals, provided strategic clarity, allowed team members to take lead and fight for the cause of the team.
Therefore, a leader must first and foremost look at his team members and should reflect his leadership style accordingly. A leader, can keep answering or solving problems for his team members or can ask relevant questions from his team members, so that they can find their own solution. He has to think whether he is having unskilled/not trained people in his team or whether he is having the brightest experts in their area who are getting stuck with issues.

Employees of the information digital era working in this particular industry does not want, their leader to tell or show, how things are to be done, rather they want to know the significance of their task and how it makes difference in the final outcome. They are having high intellect and are already skilled (‘Arjuna’s’) who don’t necessarily seek more skill/knowledge but they need someone to clarify the doubts in their mind; and if the leader still applies Lord Ram’s style on them, they are bound to fail as a manager. On the other hand, if there are still some people in a team, who aren't skilled enough, but rely on their leader’s expertise to sail, for them Lord Ram’s style is appropriate.

Thus, there is a need that leadership research should focus more on the diverse workforce operating in any particular industry, who is ultimately contributing to achieve desired objectives of an organisation. This study is an effort in that trend as it focuses on the ‘intellectual employees of the information technology industry’, identifies gaps in the existing literature of leadership, and suggests a new model which is helpful for the project managers, towards achieving better performances.