Chapter - VI

Research Findings, Recommendations, Conclusions and Scope for further research
6.1 Research Findings

Based on the information obtained from respondents and the analysis made on the data in the previous chapter, the findings of the research have been summarized as below.

a) Organizations determine their project organization size by considering the size of the project, outcomes, its market reach and share of business. For many of these private companies the constitution of PO structure is the first step in their business strategy, they adopt customized approach toward building project specific / customer specific project organization structure which helps them to achieve synchronization with their customers during life of the projects/ business with them. But in government organization it is observed that they don't have any flexibility with PO structure as they are bounded by rules and regulations, pay and allowances of government procedures and applicable laws. Generally private companies have broad type of Span-of-control, adopt matrix structure and are program focused / project oriented organizations. This enables them to achieve empowerment through delegation of authority and decision making, have better communication with the top management, and achieve low management overhead, better operational cost and profit margin by broad basing everyone equally within the project organization structure. Traditionally government organization follows hierarchical project organization structure having narrow type of span-of-control focusing more on close supervision and direct control, have many level of management with high cost of management staff, with clarity on decision making authority and powers for all levels. Typically this PO structures have
well separated top and bottom management layers with rigid communication channels.

b) Different approaches for Project management planning are employed by various business types as observed during the survey. Organizations involved in IT product development, Product Implementation, Government ambitious projects like physical infrastructure, social infrastructure projects spend quite a lot of time on initial planning like studying the market, understanding the customer, their requirement in great depth, understanding the effects on the public due to the project etc. They spend more time on planning because they believe Good Planning is Half Job Done. In case of companies doing projects which are routine in nature and almost similar to one another like in IT services, Telecom services, Public sector projects they spend very little time on initial planning stage usually depending on standard templates. Since the projects are more dynamic in the execution phase, they save time and quickly move on to execution. Such companies adopt excellent project monitoring and controlling techniques than project planning exercises.

c) IT & telecom companies follow international standards or guidelines like CMMI, OPM3, PMI etc and various project planning methodologies like V-Model, Waterfall model. This is to ensure alignment with their international customer in various aspects of the business. Involvement of top management in project management is a essential part of such companies. They adopt participative management style with high priority to proper and timely flow of essential project communication among all the stake holders. Investment on tools is found to be limited in as they consider it to be very expensive and
playing limited role. Some of them have deployed customized tools / self-developed tools for their project monitoring and reporting systems needs.

d) Government organization follows the departmental guidelines, rules & regulations during the life of the project. Clear cut guidelines covering all aspects of the project during its life are available. Their management style is more of a supervisory & control oriented. Since government project are less are largely outsourced to contractors, their role would be to supervise their work, review the progress and arbitrate on issues, levy penalties on defaulters and drive all stake holders to completion. There is no scope for any arbitrary decisions as they are subjected to review and audit by other governmental agencies as these projects involve public money. Usage of tools for project management is very less and its usage not much appreciated in government organizations as they prefer to play supervisory and controlling role. They are dependent heavily on detailed status and action taken reports invariably prepared by vendors and vetted by the authorised personnel.

e) Though Project managers in all the sectors believe that communication in a project management is vital, not all of them are using planned ways to communicate. Depending on the sector and industry the frequency, mode and technology used for project communication vary. At the outset, in IT and Telecom companies a project charter which is a document consisting of all plans like communication, risk management, change management is released. It is a highly important document which is used to officially kick-start the project. These companies use communication plan defined in project plan document / project charter religiously as they understand the importance of flow of appropriate and timely flow of communication among all stake
holders. Many of them have integrated this plan into their project management software tool which ensures the capturing of relevant project information and also to remind project management team about the exchanging of communication from time-to-time.

f) Infrastructure companies however don’t use any automated software tool for project communication but they give much importance to project communication through review mechanisms by have meetings at various levels regularly and the communiqués are being sent by emails. Being a owner of project, government organizations does the solicitation of information on projects at regular intervals from all of its project participants which in turn they report to concerned ministry in their own predefined mechanisms, and do not using any software tools but most commonly used technology here is MS excel and file noting / internet mailings for communiqués.

g) Most commonly encountered change requirement by project managers in all these sectors is SCOPE of the project. Project managers do realize that the change in scope will affect cost & time of project, so PMs in IT & Telecom sectors chart out the clearly defined process to adopt changes and involve all stake holders to decide on change request. In infrastructure sector change management is not prevalent. All the project requirements are frozen in the initial stage itself to prevent adverse repercussions. Government organizations do not have any provisions for project change management, as the scope and span of the projects are well defined in the tender documents and any change could have legal and financial implications for all stake holders viz public, vendor and Govt. The tender documents themselves are prepared after detailed
feasibility study and numerous review meetings at various level including cabinet / PMO as may be required.

h) We observed that one of the underlying constraints in project delays in India is the pressure to quickly begin working on the deliverables. This action is often accompanied by securing quick management approval for a level of budget and human resources from a friendly and often desperate sponsor. The issue with this approach is that the resultant project scope does not fit the allocation level. In turn, this causes a combination of the triple constraint set (time, budget, and scope). Project stakeholders have different interests in the outcome of the project. Some are concerned about budget; some schedule; and many others outcomes. Successful Project completion is a combination of the view and expectations of all the stakeholders. We also identified some of the critical causes and concern, generic impediments and challenges towards project success. The largest and common cause across sectors for project delays is HR issues and inaccurate assessment of project risk. The other causes of concern are

- Lack of capability to manage project complexity.
- Inability to correctly estimate and monitor project delivery.
- Ineffective utilization of best practices and benchmarks.
- Inability to synchronize project plan and execution.

One way to come out of these critical causes is to adopt best practice focusing on three major areas of project management like **Project cost management**: - Project Cost Performance, ROI etc. **Project Delivery management**: - Project Schedule performance, Project Cycle Time, Staffing, **Project Risk Management** - Strategic business alignment, knowledge Management. Table 6.1 depicts the 4 sectors on two
dimensions Project Management process in terms of maturity and Project Delivery Success in terms of planned deliveries.

**Chart 6.1: Dependence of Delivery on the maturity of process adopted in the Sector.**

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6.2 Best Practices followed by each sector

6.2.1 *Information Technology and Telecom Sector*

- Adopt Matrix Project Organisation structure which offers flexibility and allows them to focus on meeting customer / business needs. They recruit people with multiple skill sets and those who can take responsibilities accordingly.
• Charters are developed for each project. Charter contains planning data with respect to change management, communication management, Risk Management and Execution Plan. Scope of the project is clearly defined in the project charter. For each project a project schedule is defined early on. Tasks are identified down to the individual level using Work Break down structure.

• A communication plan is developed to outline what gets communicated to whom and who is responsible for the communication. Sponsor Meetings - regular meetings are established with sponsor to ensure they are briefed on the project status. Frequency is based on project size and turnaround time. As the size or complexity of the project increase the sponsor meetings get infrequent. Regular meetings are established with project team to ensure tasks completed on time. The meetings have a formal agenda together with minutes of meeting getting generated and circulated immediately after the meeting.

• Risks are identified prior to project execution. In addition detailed mitigation plans procedures and techniques on how to handle these risks are drawn up.

• A formal process is developed for change management including the estimate in cost of making the change. To avoid scope creep, any changes to scope are documented and a formal approval is obtained.

6.2.2 Infrastructure Sector

• Project Specific organization structure to ensure customer focus and quick resolution of issues. Planning activity depends on inputs from marketing department. Detailed scheduling for each phase of project is undertaken.

• Regular and detailed progress review mechanism is the characteristic of Infrastructure sector. Knowledge management team is deployed to collect and analyse the information on project progress.
• Frequent project reviews ensure the exchange of essential project communication. Point of Contacts – POCs are identified by major groups. Each POC is responsible for ensuring the groups are properly represented in the project reviews.

6.2.3 Government Sector

• Hierarchical Structure / Divisional Organization structure having multiple layers with clearly defined and drafted roles and responsibilities, ensuring no ambiguity in working environment.

• Implementing agencies appointed by government / Public sector companies does the detailed feasibility study of project and bring out the detailed project report containing all the procedures and plan needed to execute the project.

• Execution of projects is done by outsourcing to Vendors. L1 Contractors are selected through a competitive bidding process. Practice the solicitation of project information from all stake holders, consolidates all the information, reports to higher management and also to ministry as required.

• Government & Public sector companies strategically operate by transferring risks to private parties / contractors working using the tender conditions. They adopt elaborate penalty mechanisms including blacklisting that act as deterrents ensuring risk management mechanism. However they also support the vendors in the event of force majeure conditions.

The major best practices followed by various sectors as noted during the research are captured in the Table 6.2 below:
The key practices adopted by the sectors need to be considered at an organizational level rather than at a project or program level as they involve changes to the way an organization governs and manages its operation.

6.3 Commonalities between the sectors

During the course of research, identification of commonalities on the project attributes between the sectors was attempted. Below are the findings.

**Project organization:**

Across sectors, there is understanding on the importance of having a project Organization structure / Dedicated Project Management Office (PMO) appropriate to the project, focused on the key aspects of the project, involving all the stakeholders in a formal manner.

**Project Planning:**

Again there is universal agreement in the concept that Good Planning is well begun and half job done.

**Project Execution process:**

While there is opinion on the requirement of flexibility, empowerment at the working level, there is unanimity on a well established execution process to be followed to ensure the completion of the project within the triple set constraints (time, scope & Budget).

**Project Communication:**

There is universal agreement that project managers are spending maximum time in project communication to keep all stakeholders informed and to ensure synchronisation amongst all team members.
**Risk Management:**

There is no standard methodology for Risk management assessment and mitigation plan as it varies with the sectors and organization.

**Change management:**

There is complete agreement on the fact that irrespective of the industry projects scope change is most commonly encountered which needs to be managed.

**Reasons for deficient deliveries:**

Most common underlying issues in project delays in all these sectors are related to HR issues, inaccurate assessment of risk, wrong estimation and unavoidable circumstances.

6.4 Uniqueness observed among sectors on the attributes was as follows.

**Project organization:**

Matrix Organization is favoured by IT and Telecom Sectors. Infrastructure sector believe they would like to have a customised project organization created for each project. In case of Govt sector, Hierarchical organizations with clear line of command, together with span of control and detailed list of powers along with authorities defined as per the manual so that there are no ambiguities during execution.

**Project Planning:**

International standards like CMMI, PMBOK, Agile etc are favoured by IT and Telecom so that the project teams can work together alongside other global teams. Infrastructure sector do not follow any specific process, but take detailed customer inputs during planning phase so that deficiencies in delivery do not occur. Govt sector
conduct detailed feasibility studies involving all experts covering all aspects over significant periods of time resulting in Detailed Project report (DPR).

**Project Execution process:**

IT and Telecom sector adopt rigorous real time monitoring and control process using software tools and trackers and PM software like MS project, Primavera. Infrastructure sector adopt periodic reviews held mostly on site and deploy detailed monitoring mechanisms such as variance analysis, Excel sheet tracking systems during project Execution. Govt Sector use predetermined and mile stone based review mechanism for tracking the execution progress. Reports are submitted by the vendor for review by the Project manager.

**Project Communication:**

IT/ Telecom Sector use a well-defined communication plan in the project charter. Many times PM software consists of automated periodic reports and issue trackers. Infrastructure sector uses emails and excel sheets with detailed analysis on project performance for communicating project progress. Govt sector has predefined reports that are submitted by vendor, reviewed by project manager and the orders issued are part of the official communication between various arms of the Govt and Vendor.

**Risk Management:**

IT/ Telecom sector uses Root Cause Analysis, Risk Probability Assessment, Delphi Method, and Brainstorming to arrive at project risks. At Infrastructure sector, Risks are majorly identified in Project Appraisal Report and handled time-to-time. In Government sector All risks are identified and avoided in project feasibility report, any issues like corruption, accidents are handled by relevant government authorities.
Change management:

IT and Telecom Sectors have clearly defined process to tackle project change requirements. Infrastructure sector try to avoid change request as it is not easy task and incurs additional project cost. In Government Sector, no concept of Project change management available except ISRO.

Reasons for deficient deliveries:

In IT and Telecom sector, HR issues like motivation, sense of belonging, facilities, man power handling, time management, aligning of individual goals with organizational/team goals largely result in deficient deliveries. In Infrastructure sector, ROW problems, Local issues, HR issues, Lack of support from related govt authorities are the chief causes. At Government sector, Political intervention, HR issues, procurement delays, frequent changing in authorities are the key challenges that need to be surmounted.

The commonalities and uniqueness observed between each sector is summarized in Table 6.3 below.
A big part of achieving (or not achieving) project success rests with the organization's ability to maximize the full potential of its project investments in the form of man power & PM tools. The collective thoughts emerging across industries for extracting maximum value from project investments are summarized above. These key practices need to be considered at an organizational level rather than at a project or program level as governance plays a key role in successful project management.

6.5 Recommended Practices

a) Establish a Governance framework: - This helps organizations manage project complexity.
   (As brought out in case study on ISRO)

b) Prioritize Projects: - This brings in better risk management practices and ensures that project fund mobilization is synchronized with project delivery.
   (As brought out in case study on ISRO)

c) Align Project Initiatives with Overall Organizational Objectives: - This ensures that there is a common understanding of projects and organizational objectives among all stakeholders and everyone may work towards a common goal.
   (As brought out in case study on Infosys Technologies Ltd.)

d) Involve Multiple Stakeholders: - This is useful in involving multiple and varied stakeholders and ensure there is a common buy-in on project objectives.
   (As brought out in case study on Infosys Technologies Ltd.)

e) Estimate and Control Leakages: - This will enhance organizations ability to clearly estimate and track projects and ensure that the intended project benefits are being realized.
f) Invest in Capacity Building: - Store project best practices and reuse lessons learned through project execution.

This research study represents a comprehensive analysis of project management practices in different but important sectors. Practitioners could understand how project management practices are being practiced in other areas and derive learning's for their own benefit. This study provides insights of critical areas of project management and could help them to improve their own processes or practices. This study can also be useful to young students and professionals aspiring to work in project management domain.

This study gives realistic insights of project management practices in four different sectors to research students involved in HR/ Operations/ Project/ Program Management. Being an exploratory study this research work can provide secondary data for their own research work and serve as a reference material for literature review. They could also consider conducting further research on areas suggested. This research finding includes real-world case studies in project management reinforcing the concepts and learning's associated with traditional pedagogy.

The study of project management process and implementation issues contributes to the understanding of the multi sectors, different organizational culture in which projects are being implemented. It can be crucial to develop an appropriate project design and project management strategy. Knowledge body can benefit from studying the experiences of different project management approaches among various sectors.
6.6 Conclusions

This Research study has established that commonalities exist between all sectors. Best practices with appropriate modifications could be made to suit the requirements of the particular sector. The study of attributes like project organization, process followed, tools adopted, Review mechanisms, Risk Management techniques, Communication plans and change management leads to body of knowledge that could be used by various sectors for ensuring higher rate of success in project execution. Exchange of Information on reasons for project delays and failures provide valuable insights to the knowledge body that could be used by various sectors.

It is clear that project Organization needs to be appropriate for the nature of business and is heavily influenced by the scope, size and local conditions. For any successful project organization, the organizational design should encourage communication and cooperation between the project participants. We need to identify the customers and stakeholders in the organization very early and during the design phase. Project organization also needs to ensure accountability, responsibility and job descriptions are clearly defined.

As project management process mature it is necessary for all organizations to embrace international standards for project planning purposes encompassing identification of customer requirements, key events, critical path, WBS and planning tool.

Project Outsourcing is an established practice adopted by all organizations primarily driven by need for cost reduction and flexibility in execution. While adopting outsourcing it is desirable for following RFP or e-tendering practices so that transparency can be ensured. Project reviews need to be done on periodic basis depending on the volatility of variables in the project and the level of review. Hence
daily, weekly, monthly, quarterly or annual reviews could be planned as appropriate
to the project.

Project planning process requires clear communication plan strategy.
Communication plan includes communicating project review progress, action items,
changes in project variables amongst all members of the projects and other necessary
stake holders.

Project Organizations need to adopt proper risk management and change
management mechanisms as part of the project planning & execution process. Risk
management is a highly evolved practice in IT & Telecom companies. Risk
assessment includes probability, impact estimation and generation of mitigation plans.
Periodic Risk reviews and triggering timely mitigation plans ensure avoidance of
project failures. Change management is a necessary practice that needs to be adopted
by project managers to ensure all stake holders are aware and brace themselves up for
the changes.

It has been observed and noted that most project delays or failures across all
sectors happen because of HR issues. Proper HR management practices by the line
managers, functional managers and top management are crucial for ensuring the
success of project. Techniques for analysis of failures like RCA & lessons Learned
are valuable so that future projects don’t fail for the same reasons and hence need to
be adopted by all project organizations.

Project financing including the availability of cash and its timely availability
for all vendors and suppliers during execution of the project is of paramount
importance. The absence of this requirement has a multiplier issue impacting
deliveries on time and quality factors leading to customer dissatisfaction and loss of
business in the long run. At an organization level it leads to de-motivation and frustration amongst the team leading to attrition of experienced personnel.

Finally, researcher is of the opinion that, project management has been an art practiced by mankind as he evolved to ensure his creation / requirements are implemented as envisaged by him. This ability was perfected and became a differentiator between artists and planners in creating master pieces for posterity to admire. As creation and plan grew in complexity he started using developments in science and engineering. The art of project management started using mathematics, statistics, IT, communication and a host of other technologies to help manage the implementation with finesse and accuracy. Currently project managers are required to be proficient in both the aspects of Project management. However as the study brings out the challenges of HR remains one of the key factors to ensure project management success.

6.6 Scope for further research

The research survey conducted has resulted in learning and conclusions on project management practices and implementation in different sectors. There is a scope for further research on the following lines.

a) A similar study could be undertaken at other business centres in India.

b) A Similar study could be undertaken in other sectors e.g. Manufacturing, Health, Transport, Pharmaceutical etc.

c) Since HR issues have been identified as the major challenge during project execution a deeper study of the same could throw light on the reasons and possible solutions.
d) A study of Project Evaluation techniques by various sectors could be undertaken for developing common method across sectors.

e) A study of Risk Management Techniques followed by various sectors could be undertaken to adopt risk mitigation, which could go a long way in ensuring project success.

f) A study of project financing methods adopted in various sectors, issues impacting the choice and the linkage between finance and project success could throw light on this key area.