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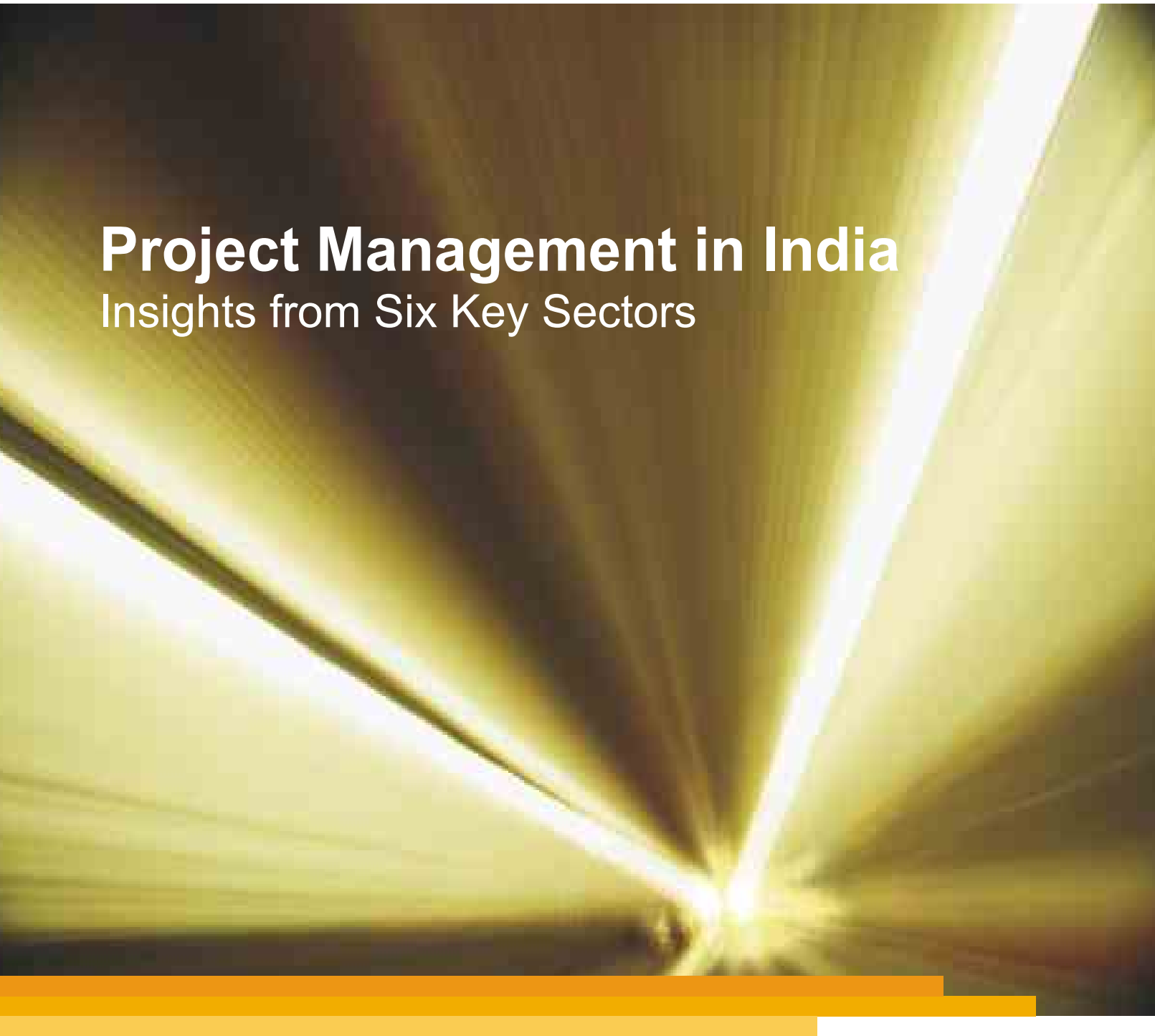

Project Management in India

Insights from Six Key Sectors

I Automobile I Defence I Energy I Infrastructure I IT-ITES I Real Estate I

Foreword

Projects are new beginnings in many ways. Whether it is the launch of a new car or development of a new software, it needs planning, design, execution, and monitoring before the final product is delivered. Project management is the science and art of sequencing and stringing all these activities together into a coherent whole to ensure that the final delivery meets the desired specifications. Every complex project comes with its own problems and challenges, and good project management practices help overcome them.

"It must be considered that there is nothing more difficult to carry out nor more doubtful of success nor more dangerous to handle than to initiate a new order of things."

- Machiavelli
1446-1507, Italian statesman and philosopher

Project management is like juggling three balls simultaneously as it involves maintaining a fine balance between delivering on time, within budget while ensuring quality. Examples of large and complex projects being delivered on all three parameters are few and far between. In India, for example, construction of the Delhi Metro Rail is considered to be one of the more successful ventures. However, in general, the problem of time and cost over-runs remains a common pain area in both public and private sector projects in India. Very few studies have investigated the relationship between application of good project management practices and successful project delivery, especially through comparisons across sectors and domains.

This study aims to fill the void in comparative studies on project management. By comparing project management practices across six key sectors, viz. automobile, defence, energy, infrastructure, IT-ITES and real estate, it seeks to determine whether there is a case for introducing improved project management practices in certain sectors more rigorously than in others, and draws implications for practitioners and policy-makers. The methodology adopted for this study is a combination of primary and secondary research followed by expert interviews and a final consultative meet to discuss and validate the findings. The study has been conducted by Federation of Indian Chambers of Commerce and Industry (FICCI) with technical assistance from Tata Consultancy Services Ltd (TCS) for the Project Management Institute (PMI).

We appreciate and thank all participants for their valuable contributions to the study.

Key questions addressed

Project delivery... To what extent do organizations in India deliver on project commitments?

Challenges and constraints ... What are the reasons behind not meeting commitments?

Project management trends and practices ... To what extent are best practices adopted?

Project management capability... To what extent is skilled man-power available?

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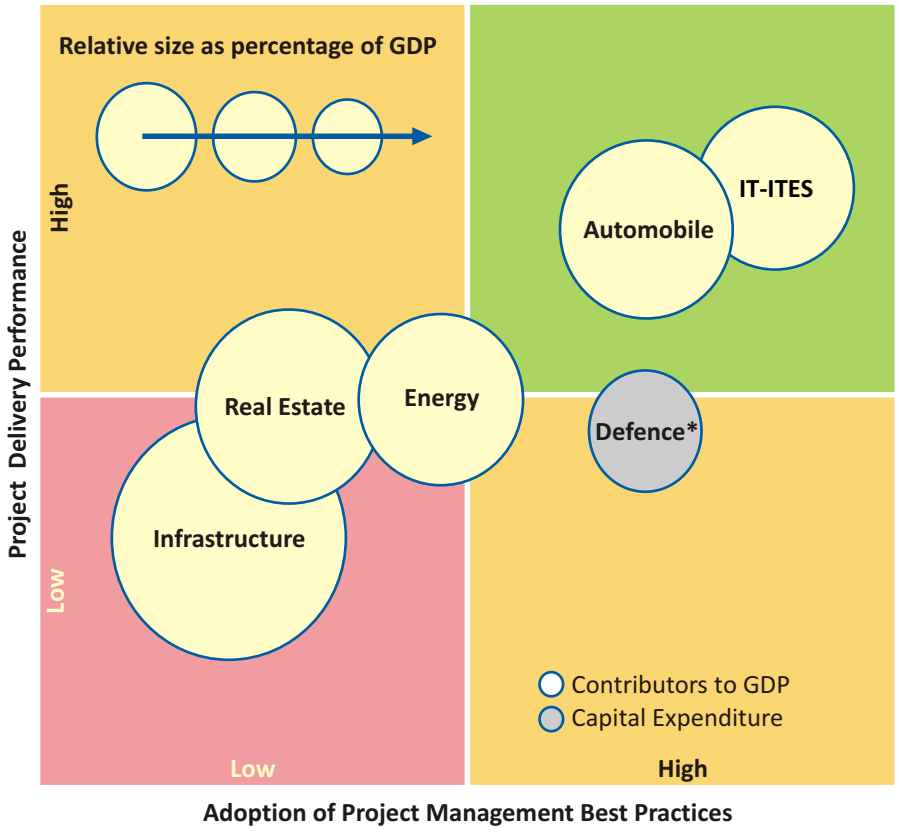
Executive Summary

Executive Summary

Modern project management process is a powerful transformational management methodology that has undeniably shown to help individuals and organizations successfully plan and accomplish many difficult objectives and projects around the world. Project management has grown, matured and spread around the world to include a robust set of theories, principles, methodologies, practices, activities, professionals and organizations. Adoption of systematic project management practices in key sectors, such as automobile, defence, energy, infrastructure, IT-ITES and real estate not only help attain project objectives but also provide a scope for national savings by lowering project execution costs.

The findings from this study may be summarized as given in the figure, which positions the six key sectors on two dimensions - 'Adoption Level of Project Management Best Practices' and 'Project Delivery Performance'. This figure captures the perception of industry experts and project practitioners.



It is perceived that IT-ITES and the automobile sector have a high level of adoption and performance. Infrastructure sector is the highest contributor to Gross Domestic Product (GDP) among the six sectors studied; however, project management practices are yet to realize benefits in this sector. Defence is an investment sector from a national perspective, resulting in capital expenditure of about 3% of the GDP.

Key Project Management Issues

- **Automobile:** New Product Development (NPD), time to market, innovations, varied product families are considerations for project management in the Indian Automobile sector. Both Original Equipment Manufacturers (OEMs) as well as the component industry is highly competitive, demanding rigorous project management practices.
- **Defence:** The desire to achieve self-reliance and technology enhancements through long-duration research programmes offers specific challenges in defence project management. Strategic procurement aligned to technological advances and managing multiple international as well as national vendors are key requirements for defence project management.
- **Energy:** The energy sector is challenged to bridge supply-demand gap in keeping with national requirements. Delivery of energy at cost effective means and development of capacity for future growth, to meet the national requirements require adoption of benchmarks and project management best practices.
- **Infrastructure:** Inherent complexity of infrastructure projects involves multiplicity of stakeholders, compliance to regulations and clearances, implementations through public private partnerships (PPP). Effective project management in this sector offers potential scope for national savings by enhancing capital expenditure efficiencies.
- **IT-ITES:** Two important drivers leading to the growth of Indian IT-ITES sector are capability enhancement in large program governance and process maturity. These define the path from labor arbitrage mode to strategic partnerships for most Indian IT-ITES organizations. Managing projects in various geographies, time-zones, operating with stakeholders from multiple cultures and handling new technology offer distinct challenges.

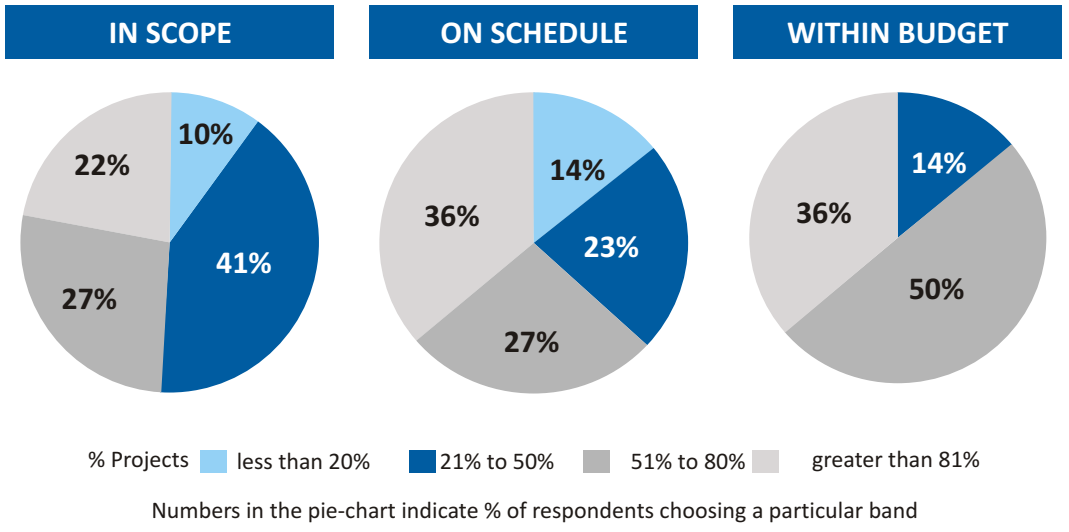
- **Real Estate:** The Indian real estate sector is still largely unorganized and dominated by small and mid-sized players; with few corporate or large players having national presence. Commitment to capability development through project management advocacy, awareness and adoption will improve the project delivery scenario in this sector.

Assessing Project Delivery

Delivery Scenario: in initial SCOPE	Delivery Scenario: on initial SCHEDULE	Delivery Scenario: within initial BUDGET
Automobile: 60% projects are in scope across OEM and component manufacturers	**Automobile**: New Product Development is a key imperative for the sector driving more than 60% projects on schedule.	**Automobile:** More than 80% of projects are within budget. OEM as well as the component industry is highly competitive; Budget monitoring is a rigorous practice
Defence: Difficult to ascertain definite scope at project initiation phase leading to concurrent planning and execution	**Defence:** Delays recorded in defence projects caused due to strategic procurements, technology obsolescence and research projects	**Defence:** About 60% projects within initial budget. Difficult to set initial budgets for R&D projects as scope and schedule varies over the project life.
Energy: 2 out of 5 organizations are able to complete 80% projects in scope	**Energy:** Delays in more than 60% of the projects	**Energy:** More than 22% of the projects experience cost over-run
Infrastructure: 75% agree scope creep is a major cause behind project cost over-run	**Infrastructure:** More than 80% of infrastructure projects have time over-runs	**Infrastructure:** More than 33% of the projects are experiencing cost over-run.
IT-ITES: 3 out of 5 organizations complete only about 50% projects in scope. Software being an intangible product; estimation of project scope in initiation phase is a distinct challenge.	**IT-ITES:** 3 out of 5 organizations complete 80% projects on time. Effective time management is always a client requirement in the IT-ITES sector.	**IT-ITES:** 3 out of 5 organizations deliver 80% projects within initial budgets. IT projects undergo change in initial scope therefore budget revisions are necessary.
Real Estate: Almost 80% in scope as project output is well-defined	**Real Estate:** 54% to 88% of projects in various metro cities suffer from delays of average 7 months	**Real Estate:** Delays lead to cost escalations

It is observed that a higher number of Indian projects are within initial budget as compared to meeting initial scope and schedule.

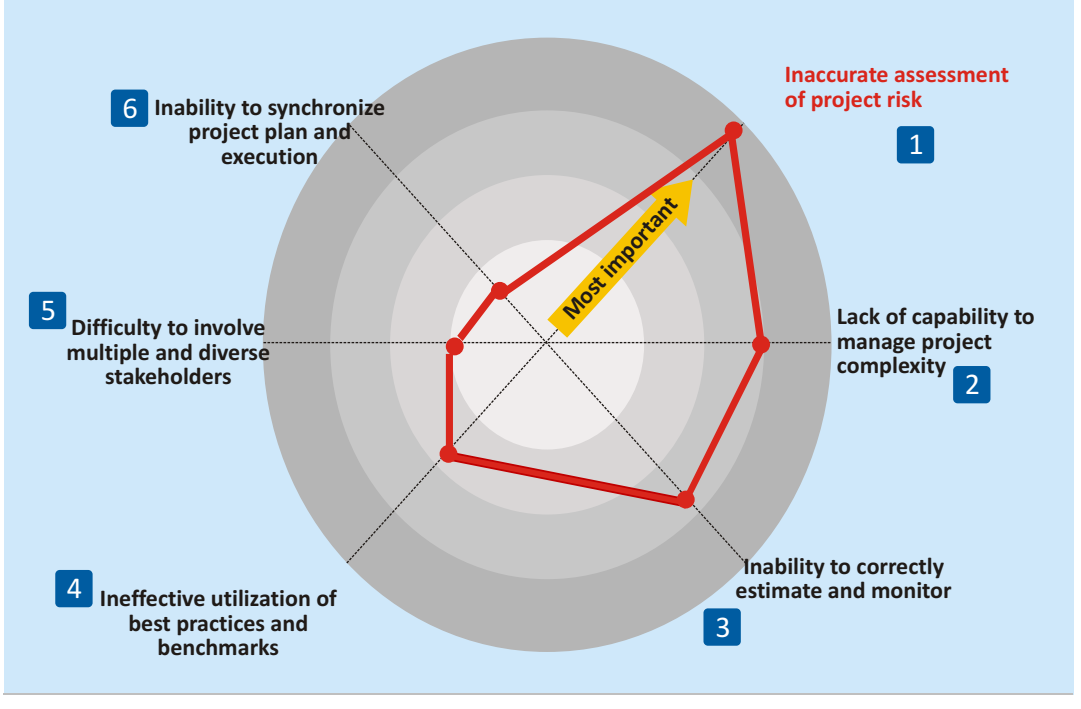
- 86% perceive that more than 50% of the projects are within initial budget
- 63% perceive that more than 50% of the projects are on initial schedule
- 49% perceive that more than 50% of the projects are in initial scope



Numbers in the pie-chart indicate % of respondents choosing a particular band

Challenges and Constraints

Critical concerns revealed through the research provide focus areas for intervention. The following figure indicates the perception map and ranking of these critical concerns.



Project Management Practices in India

Project Initiation and Planning

- While most large organizations consider multiple parameters during planning phase, they do not consider industry best practices.
- Only about 10% of respondents adopt quantitative methods; 33% adopt qualitative subjective approach and majority (about 57%) adopt a mix of quantitative and qualitative approach for planning and estimation.
- Only 65% of the large organizations include project risk management as a planning parameter; of which 67% feel that there is an opportunity for improvement in the current approach adopted for identifying project risks.

Project Execution: Adoption of Best Practices

It is observed that in planning and execution phase, adoption of best practices is largely absent. Yet most organizations attempt to improve performance during the execution phase. Most organizations in India adopt best practices to improve performance in three specific areas:

- Strategies to arrest cost: There is a high level of focus on cost
- Strategies to ensure project delivery: Mostly, large organizations focus on project delivery
- Strategies to manage project risk: Limited adoption of risk management best practices

It is perceived that management reviews influence adoption of best practices during project execution. Further, only about 50% of major players and industry leaders adopt best practices.

Focus Ares	Measures tracked for project delivery improvement	Adoption Level	Adoption level of Best Practices across the sectors
Cost	▪ Project Cost Performance ▪ Return on Investment	**High**	
Delivery	▪ Project Schedule Performance ▪ Project Cycle-Time ▪ Staffing ▪ Strategic Business Alignment ▪ Voice of Customer ▪ Knowledge Management	**Medium**	
Risk	▪ Risk Management Capability	**Low**	

Sector	%Yes
Automobile	70
Defence	50
Energy	40
Infrastructure	20
IT-ITES	80
Real Estate	30

Project Monitoring and Control

- Standard success factors tracked include project schedule, scope, budget, quality and targeted benefits in large organizations.
- 92% perceive that senior leaders are involved in project reviews. It is further perceived that involvement of seniors leaders is a prime reason for adoption of best practices
- About 80% of industry leaders have centralized function to monitor and control project execution. However, the maturity varies across sectors.
- Mid-sized and small organizations identified weak monitoring and control as primary reason for project delays.

Project Management Office

- 82% of industry leaders perceive that PMO enables process improvement by rigorous monitoring and control.
- 78% of the PMOs are involved in monitoring and controlling projects; they prepare dashboards and facilitate high-level reporting on project performance.
- 71% of the respondents from large organization acknowledge PMO's role in project management training and organizational capability development.

Project Closure

- About 78% of large organizations have some mechanism to record project best practices, however, re-use level remains unaccounted in most cases.
- 73% of large organizations conduct a post project review on completion.
- Only about 55% of large organizations and industry leaders analyze targeted benefits from the projects.
- Small and mid-sized organizations do not follow structured project closure practices. They lack capability to track project benefits over a period of time.

Project Management Capability

- 78% of the respondents perceive that adoption of structured project management practices help meet delivery commitments.
- 75% perceive developing in-house training vis-à-vis 45% perceive collaboration with educational institutes as a more effective strategy to develop project management capability.
- About 60% have in-house project management trainings; these trainings have varied levels of effectiveness.
- Organizations lack project managers. 70% perceive that shortage of project managers influences delivery; 41% actually suffered due to lack of trained project managers.
- 68% have a structured approach to project team formation.
- Only 38% of large organizations emphasize on employing certified project managers.

Have adequate number of trained project managers?

Sector	%Yes
Automobile	50
Defence	65
Energy	40
Infrastructure	20
IT-ITES	80
Real Estate	58
Overall	51

Automobile: Around 50% stress on employing trained project managers

Defence: Most projects go through a structured approach to select and form teams. Most defence organizations have in-house programmes to train managers.

Energy: 60% stress on employing certified project managers for outsourced projects

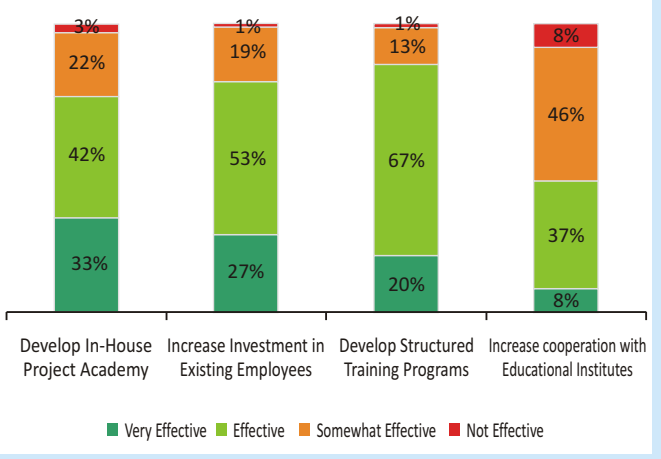
Infrastructure: Low awareness on project management capacity building

IT-ITES: Characterized by training, advocacy and certifications for project management

Real Estate: Only large organizations and industry leaders focus on building project management capability

Strategies to improve utilization of available resources

- Strong forecasting and planning
- Monitoring of resource utilization
- Benchmark resource utilization with competitors
- Monetary incentives for increasing productivity
- Structured project management training and certification



6 Introduction to Six Key Sectors

Introduction to Six Key Sectors

Each of the six sectors identified for this study i.e. automobile, defence, energy, infrastructure, IT-ITES and real estate contribute significantly to the country's GDP and are the national growth drivers. The adoption of project management practices can support the organizations in these sectors to manage their projects more efficiently and with optimal utilization of resources. However, the level of adoption of project management practices varies across the sectors. Some sectors such as IT-ITES are perceived to have more mature practices as compared to the infrastructure sector. Also, the challenges and constraints in adopting the project management practices vary across sectors and therefore require focus accordingly. This section gives an overview of the identified sectors highlighting the sector specific issues.

Automobile

The automobile industry in India is the seventh largest in the world with an annual production of over 2.6 million units in 2009. India has emerged as Asia's fourth largest exporter of automobiles, behind Japan, South Korea and Thailand. Following economic liberalization in India in 1991, this sector has demonstrated sustained growth as a result of increased competitiveness and relaxed restrictions. Several Indian automobile manufacturers expanded their domestic and international operations. India's economic growth led to high growth of the domestic automobile market thereby attracting significant India-specific investment by multinational automobile manufacturers. India is fast becoming an auto-hub, with many new projects, worldwide, being transferred to India. Along with cost effectiveness, if India can deliver the products as per expectation, few Asian countries will be able to outdo India's value proposition.

The automobile sector thrives on constant innovation in product design. New Product Development (NPD) therefore is particularly relevant to the

automobile sector, and Project Management is an accepted approach to manage NPD. NPD differs from other business activities as it needs managing the complexities of long project life cycles, product families, vendor relationships among others. NPD in the automobile sector requires technology integration of electronics and software with tough cost and quality targets in the manufacturing stage. NPD is often executed in a dynamic environment, with project contributions coming from different departments, divisions, OEMs and other component suppliers. Adoption of project management best practice is therefore expected to help the sector manage better their product innovations.

The key developments in the Indian automobile sector are summarized below:

- In 2002, the Indian government formulated an auto policy aimed at promoting an integrated, phased and self-sustained growth of the industry.
- India is on its way to become a global manufacturing hub. High levels of competence in design and processes, high productivity and low cost are the forte of Indian auto-makers.
- OEMs as well as the component industry are highly competitive. Most automotive players are present in more than one segment.
- Indian firms are increasingly partnering with foreign firms across segments adopting best practices and benchmarks.
- Indian automotive regulations are in the process of being aligned with European regulations. This calls for awareness on EURO I, II, III, IV guidelines as part of project investments and planning in India.
- Indian Automotive Mission Plan (AMP) estimates that vehicles sales in India is expected to grow to 32 million by 2015-16. This will lead to large project implementations.
- National Automotive Testing and R&D Infrastructure Project (NATRIP) is an initiative to strengthen R&D infrastructure for the sector.

Defence

The defence sector in terms of project management covers government and commercial industries involved in research, development, production, and service of military equipment and facilities. The project success also depends on the defence contractors which are business organizations or individuals that provide products or services to government and the defence production industry, which produces guns, ammunition, missiles, military aircraft, ships and their associated consumables and systems. As a consequence of industrial policy interventions, the defence sector in India today works through a large infrastructure for defence production consisting of 39 ordinance factories, 8 defence PSUs and 50 R&D labs.

Production of defence equipment has always been under the purview of government. However, for quite some time, India depended on the foreign industries for its military hardware. The desire to achieve self-reliance has always been there. Constraints of technology and resources prevented the process from fructifying to the extent desired. In the quest for self-reliance, the government has been continuing its efforts to indigenize equipment, wherever technologically feasible and economically viable. As a part of this initiative, there is a focus to locate and develop broad-based indigenous supply source for many complicated and intricate equipment both in the public sector and in civil trade. Contrary to the common perception, the private sector has been playing a significant role in the defence industry sector as sub contractors and as an ancillary industry. The private sector has been mainly involved in supply of raw materials, semi-finished products, parts and components. Defence PSUs and ordinance factories have been outsourcing their requirements to private sector in the range of 20-25%. Out of this outsourcing, about 25% requirement is met through the small-scale sector. Several hi-tech equipments have also been successfully produced by the private sector.

Procurement and vendor management is pivotal to defence sector project management. To standardize procurement management, government has taken major steps to make the arms procurement process more transparent by fine-tuning the Defence Procurement Procedure (DPP) 2006. Experts feel that the new Defence Procurement Procedure Manual would reduce delays in the procurement process, thus improving project delivery. DPP also emphasizes on a procedure that would pave the way for indigenous research. The government has emphasized the need for multi-disciplinary Integrated Project Management Teams (IPMTs) for each project that would assess the responses received from the developing agencies. A Defence Offset Facilitation Agency (DOFA) has been set up under the Department of Defence Production and will act as a single window agency to facilitate implementation of the offsets policy. It will assist in vetting of offset proposals technically and in monitoring the offset provisions. There is definitely a turnaround in the way Ministry of Defence intends to manage projects with increasing focus on concepts like Life Cycle Costing (LCC) for all the major upcoming programmes.

Energy

Renewable and nuclear energy in India are still in their early stages of development. India was probably the first country in the world to set up a separate ministry of non-conventional energy resources in early 1980s. However, renewable energy (RE) contribution to energy sector is less than 3% of India's total energy needs.

The Indian energy sector is increasingly becoming more competitive, with large private players getting into the sector of energy production. The imperatives for competition may be derived from multiple factors; some of them have been discussed

here. The primary driver for competition in the sector is perhaps the need to bridge the demand and supply gap as shown in table 3. Among other reasons, the entry of private players within the sector has given rise to competition and pricing issues.

Table 1: Demand-Supply Gap in Energy Sector.

Energy Source	Demand	Supply	Gap/ Shortage
Electricity (In Million KWh)	521872	480242	(41630)
Oil (In MMT)	128	33*	(95)
Gas (In Mscmd)	162.03	81.17	(80.86)
Coal (In MT)	415	378.6	(36.4)

Source : Ministry of Power

* Domestic Production;

KWh –kilowatt hours,
MMT –Million Metric Tonnes,
MT –Million Tonnes;
Mscmd-Million standard cubic meter /day

Other factors influencing competition in the energy sector are its pricing structure and the need for massive investment in this sector. Consumers in India pay one of the highest prices for energy in purchasing power parity terms. For instance, in the electricity sector, average tariff on purchasing power parity basis in India is 30.8 cents/kWh, while it is 7.7 in US, 15.3 in Japan and 20.6 in China.

In order to deliver a sustained GDP growth of 8% till 2031-32, the requirements include growth in primary energy supply by 3-4 times over current consumption; increase in electricity installed capacity by 6-7 times, and increase in the annual coal requirement nearly 3 times over current demand. To tide over such a competitive scenario, adoption of structured project management practices is a necessity and is being realized by most of the major energy players in India. Most of the large players are adopting strategies for cost control and risk management. However, the sector still finds it difficult to overcome project execution hurdles presented in the form

of complex policies, regulations, government and environmental clearances. The general consensus among experts seems that the outcome of energy sector projects is perhaps difficult to predict and control.

Infrastructure

The infrastructure sector in India has witnessed an unprecedented pace of growth with exponential demand, increasing technological sophistication amongst others. While this trend is expected to continue, time and cost over-runs threaten to limit this sector's potential. Of the 1035 infrastructure sector projects completed during April 1992- March 2009, 41 % faced cost over-runs and 82 % witnessed time over-runs.

Total infrastructure spending has doubled between 2005 and 2009. It is estimated that the Infrastructure sector needs to grow at a CAGR of 15% over the next five years to support the growing requirements of virtually every other sector of the Indian economy. There is a huge scope for national savings by adopting structured project management practices while dealing with investments. The investment requirement for Indian Infrastructure is shown in *table 2*.

Table 2: Investment Requirement for Indian Infrastructure (Billion USD)

Power	Railways	Highways	Ports	Aviation	Other	Total
130	66	49	11	9	55	320

Source : The Parekh Committee Report

To meet the requirements, and stimulate and mobilize increased private sector investments, either from domestic sources or foreign avenues, the government is offering various incentives. Some of these incentives are liberalization of Foreign Direct Investment (FDI), extended tax relaxations, policies enabling Public Private Partnerships (PPP). To harness private sector

efficiencies in design and construction of infrastructure projects, the planning commission envisages that at least 75% of the new investments in infrastructure will come from the private sector – some in the form of fully private ventures, others as public–private partnerships. India has made considerable progress in the past decade in attracting private investment into infrastructure; first, in telecommunications then in ports and roads, and most recently in airports and container freight. Among other reasons, the entry of private players within the sector has given rise to competition and pricing issues. However, progress in other sectors is painfully slow. In addition to the inherent complexity of infrastructure projects and multiplicity of stakeholders, the PPP model adds new dimensions and constraints to project management and delivery.

Relevant Highlights of Infrastructure Sector

- **Road:** Although India's road network is the third largest in the world, it still lags behind the networks in other countries and in terms of quality. The government has launched several projects, such as National Highway Development Program (NHDP), the Pradhan Mantri Gram Sadak Yojana (PMGSY) and the Special Accelerated Road Development Program in the North East (SARDP-NE), to improve road connectivity in the country.

- **Railways:** Major initiatives in the sector has been identification of private sector participation, construction of a dedicated freight corridor, launch of metro projects, operation of private container trains and manufacture of rolling stock, development of multimodal logistics parks and hospitality services.

- **Ports:** Government has formulated the National Maritime Development Programme (NMDP) to enhance the capacity and efficiency of Indian Ports. Under the aegis of NMDP, 276 projects were identified for major ports with an anticipated investment of ₹ 585 billion, aiming to increase the total capacity of ports to 1001.8 million tons by FY12. Private sector participation is promoted via automatic approvals and tax incentives allowing 100% FDI in special cases.

- **Aviation:** Over the past decade India has emerged as the fastest growing aviation market. The government has formulated and is in the process of implementing aggressive plans to invest ₹ 400 billion for airport development and modernization across the country. 100% FDI has been allowed for greenfield airports in Tier III cities.

IT-ITES

The Indian IT-ITES industry indicates revenues of $71.7 billion in FY2009-2010, with the IT software and services industry accounting for USD 60 billion of revenues. During this period, direct employment reached nearly 2.23 million, while indirect job creation is estimated to have touched 8 million. As a proportion of national GDP, the sector revenues have grown from 1.2% in FY1998 to an estimated 5.8% in FY2009. The sector's share of total Indian exports (merchandise plus services) has increased from less than 4% in 1998 to almost 16% in 2008. The Export revenues are estimated to gross $ 47.3 billion in FY2009, accounting for 66% of the total IT-ITES industry revenues. While the US with a 60% share remains the largest export market for Indian IT-ITES services, incremental growth is being driven by the European market, with UK and Continental Europe growing by a CAGR of 41.4 % and 51.4 % in the period FY2005-FY2009. The IT-ITES industry caters to a vertical market mix and is well balanced across several mature and emerging sectors. While the Banking, Financial Services and Insurance segment (BFSI) remains the biggest domain for IT-ITES intervention with over 41% of total revenues, verticals such as Hi-tech /Telecom, Manufacturing and Retail are increasing.

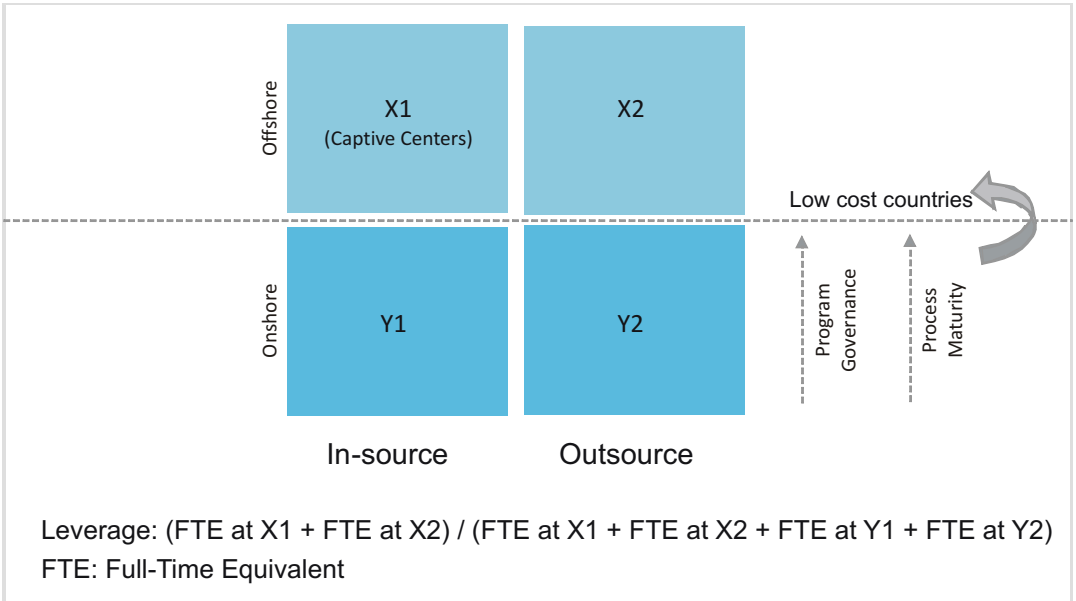
The industry is dominated by large integrated full-service and product players consisting of both Indian and international origin. It is observed that the demand for off-shoring is driven by specialized skill sets and not just labor arbitrage. The Indian IT-ITES industry clients are now seeking more than just cost savings. They are looking at the country's service providers as

transformation partners, innovating and developing customized solutions to address their needs. As a result, Indian companies are now trying to adopt a culture that encourages innovation, embraces new trends such as Green IT, and delivers solutions that are focused on re-engineering and transformation. Proactive capability building through focused investments across domains, programme governance, processes capability, and technology expertise, coupled with added flexibility and scalability, deliver an India value proposition. Companies are increasingly looking inwards and focusing on process benchmarking, enhanced utilization of infrastructure and talent, increasing productivity and greater customer engagement. India enjoys an average cost advantage of around 60-70% as compared to source markets. Additional productivity improvements and the development of tier II and III cities as future delivery centers are expected to enhance India's cost competitiveness. To develop India as a trusted sourcing destination, Indian IT-ITES companies have put in place world class security and project management standards, to ensure high levels of quality and service delivery.

In addition, the government's focus on education has helped create the large talent base from where the industry draws its workforce. Establishment of Software Technology Parks of India (STPI) stands out as a seminal policy action, specifically targeted towards encouraging, promoting and boosting the export of software and services from India. Public and private enterprises have contributed by building the required capacities of key business infrastructure, enabling this sector to enjoy world-class facilities and services. The government's proactive approach towards the IT-ITES sector is highlighted through actions such as the IT Act Amendment, extension of tax incentives, and introduction of progressive policies among others.

Within the IT-ITES sector, adherence and compliance to standards such as ISO 27001, EU directives, SOX, PCI, HIPAA, PMBOK® Guide, CMMi and GLBA, and certification such as PMP ensure the establishment of a proper risk and governance management framework buttressed by monitoring, testing and authorization. It is perceived by most IT-ITES project managers that the two most important drivers of off-shoring and outsourcing, leading to the growth of Indian IT-ITES sector, are capability enhancement and gaining credibility in large program governance and process maturity as shown in *figure 1*.

Figure 1: Offshore Drivers- Program Governance and Process Maturity



Note: Outsourcing may happen locally or to India (offshore). At the same time, captive centers in India may be a part of the organization or it may be an outsourced to a vendor operating from India. By offshore leverage we mean proportion of people operating from offshore location irrespective of whether the people are part of the same organization or not.

Real Estate

The Indian Real Estate sector plays a significant role in the country's economy. The Real Estate sector is second only to agriculture in terms of employment generation and contributes heavily towards the gross domestic product (GDP). The housing sector contributes almost 5 % of the country's GDP. In the next five years, this contribution to the GDP is expected to rise to 6 %. Developments in the Real Estate sector are being influenced by the developments in the retail, hospitality and entertainment (for example,

hotels, resorts, cinema theatres) industries, economic services (for example, hospitals or schools) and information technology (IT)-enabled services (like call centers) and so on and vice versa.

The IT-ITES sector alone is estimated to require 150 million sq ft of office space across urban India by 2010. Organized retail is also responsible for the growth in commercial office space requirement. The organized retail industry is likely to require an additional 220 million sq ft by 2010. Moreover, growth is not restricted to a few towns and cities but is pan-India, covering nearly all Tier-I, Tier-II and Tier III cities.

The Indian Real Estate sector is still largely unorganized and dominated by quite a number of small and mid-sized players, with very few corporate or large players having national presence. Supply of urban land is largely controlled by state-owned development bodies, such as the Delhi Development Authority (DDA), and Housing Boards .The Indian Real Estate sector, as compared to the other more developed Asian and Western markets is characterized by smaller size, lower availability of good quality space and higher prices when compared in purchasing power parity.

The Real Estate scenario in major projects across India will disappoint many buyers, as the number of delayed projects has increased multi-fold. Bangalore has the highest number of delayed projects. In Bangalore alone, 309 of the 575 projects are delayed, with the average duration of delay being about nine months. In Pune out of 665 projects studied, 305 are delayed, with the average duration of delay being about eight months. Similar trends emerge in National Capital Region (NCR), underscoring the need to adopt a structured project management approach. While in the real estate sector almost 80% are in scope and as project output is well-defined, controlling projects in schedule and avoiding cost over-runs is a very big challenge.

Assessing Project Delivery

Assessing Project Delivery

Project delays and cost over-runs have significant implications from the national economic perspective. Services provided by projects of a particular sector serve as input for other sectors of the economy. For example, successful project completion in the Infrastructure sector has direct relationship with the growth of IT-ITES sector. Cost over-runs in projects lead to an increase in the capital-output-ratio for the entire economy. Simply put, delays and cost over-runs reduce the efficiency of economic resources and capital expenditure; limiting growth potential of the entire economy.

The project delivery performance of various sectors is difficult to assess as they have different operating conditions. There is always a risk that inaccurate perceptions will take over and misguide the future actions and policy interventions. For instance, the perception that the public sector is incapable of delivering projects in time and on cost, may lead to excessive public private partnership.

This section attempts to assess the project delivery capability, for the identified six key sectors, on three pivotal dimensions of a project namely scope, schedule and budget as shown in *figure 2*. The assessment of present or completed projects vis-à-vis initially planned scope, schedule and budget can to some extent bring out if organizations in India are delivering to the initial commitments.

Figure 2: Assessing 3 Key Aspects of Project Delivery

3 Key Aspects for assessing project delivery-Scope, Schedule and Budget

- What % of the projects running/completed are within the initial scope?
- What % of the projects running/completed are within initial schedule?
- What % of the projects running/completed are within initial budget?

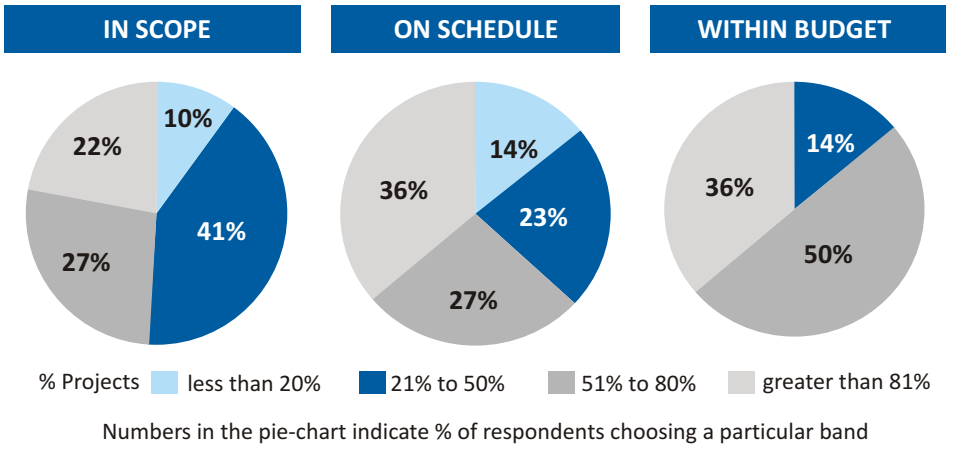
Project Management: 3 Key Aspects

To what extent do organizations in India deliver project commitments?

Our primary research, a high number of Indian projects are within initial budget as compared to being in initial scope and schedule as indicated in *figure 3.*

- 86% perceive that more than 50% of the projects are within initial budget
- 63% perceive that more than 50% of the projects are on initial schedule
- 49% perceive that more than 50% of the projects are in initial scope

Figure 3: Overall Project Delivery Scenario with regard to Scope, Schedule and Budget



The delivery scenario varies across the six sectors as indicated in *table 3.*

Table 3: Project Delivery Scenario across Sectors

Delivery Scenario: in initial SCOPE	Delivery Scenario: on initial SCHEDULE	Delivery Scenario: within initial BUDGET
Automobile: 60% projects are in scope across OEM and component manufacturers	**Automobile**: New Product Development is a key imperative for the sector driving more than 60% projects on schedule.	**Automobile:** More than 80% of projects are within budget. OEM as well as the component industry is highly competitive; Budget monitoring is a rigorous practice
Defence: Difficult to ascertain definite scope at project initiation phase leading to concurrent planning and execution	**Defence:** Delays recorded in defence projects caused due to strategic procurements, technology obsolescence and research projects	**Defence:** About 60% projects within initial budget. Difficult to set initial budgets for R&D projects as scope and schedule varies over the project life.
Energy: 2 out of 5 organizations are able to complete 80% projects in scope	**Energy:** Delays in more than 60% of the projects	**Energy:** More than 22% of the projects experience cost over-run
Infrastructure: 75% agree scope creep is a major cause behind project cost over-run	**Infrastructure:** More than 80% of infrastructure projects have time over-runs	**Infrastructure:** More than 33% of the projects are experiencing cost over-run.
IT-ITES: 3 out of 5 organizations complete only about 50% projects in scope. Software being an intangible product; estimation of project scope in initiation phase is a distinct challenge.	**IT-ITES:** 3 out of 5 organizations complete 80% projects on time. Effective time management is always a client requirement in the IT-ITES sector.	**IT-ITES:** 3 out of 5 organizations deliver 80% projects within initial budgets. IT projects undergo change in initial scope therefore budget revisions are necessary.
Real Estate: Almost 80% in scope as project output is well-defined	**Real Estate:** 54% to 88% of projects in various metro cities suffer from delays of average 7 months	**Real Estate:** Delays lead to cost escalations

Source: FICCI Analysis

Automobile Sector: Delivery Scenario

Indian automobile firms have continued to defy the global slowdown and registered quantum leap on both exports and domestic sales. The automobile industry in India is seen to adopt structured approach to project management, especially in the domain of New Product Development (NPD). The industry is experiencing healthy investment in both independent enhancement projects as well as manufacturing plant development underscoring the point that the global majors are discovering confidence in India. Recent foreign investments in automobile projects are outlined in *table 4.* Adoption of best practices and benchmarks will ensure greater investments and better project commitment delivery in this sector.

Table 4: Foreign Investments for New Automobile Plant Development in India

Company	Investment * (USD million)	Capacity (Cars/ year)
Fiat-Tata	1000	200000
Ford	500	100000
General Motors	325	140000
Honda Siel	250	200000
Mahindra-Renault- Nissan	1125	400000
Toyota- Kirloskar	350	100000
Volkswagen	937	NA
Total	**4487**	**1140000**

*Investments partially realized and partially planned

Source: Industry Estimates

The typical delivery priorities perceived for this sector are as listed:

- Lower time to market aligned with customer preference and buying behavior;
- Innovations to satisfy technology requirements of the consumer;
- Maintaining inventory at the right level and at the optimum mix;
- Maintaining distribution channels for delivering the outputs;
- Managing component manufacturers and other suppliers

Automobile industry experts perceive from a project management view that these priorities translate to varied capabilities such as brand management, customer relationship management, core competency management, technology management, quality management, product development management and expansion management.

Defence Sector: Delivery Scenario

A number of projects are coming up in the defence sector and project management has become an integral part to manage the various projects. The availability of budget for acquisition of new equipment during the last few years is shown in *table 5*. There is an indication that during 2004-05 there was a spurt in capital spending. Since then there has been a steady increase in the annual budget available for capital acquisitions. With the entry of the private sector, large resources in terms of latest technologies, management and scientific skills, and its ability to raise large sums of money have brought defence production to the center stage. India is likely to reach an annual budget of $40 billion by the end of the 11th defence plan (2011-2012). Of this, about $16-17 billion would be available for capital expenditure. An analysis of major purchases during the last 5-6 years shows that major contracts have been signed for the Air Force and Navy. Defence observers feel that this trend is likely to continue.

Table 5: Capital Investments Defence India

Year	Annual Budget ($ Billion)
2002-2003	3.3
2003-2004	3.8
2004-2005	7.3
2005-2006	7.3
2006-2007	7.7
2007-2008	8.6
2008-2009	11

Source: Industry Estimates

Large inductions of four types of 155 mm guns, dry and wet bridges, bi-modular charge systems, specialist vehicles, Air Defence gun and missile system, night vision devices are among a host of requirements, needed urgently.

Defence project managers require specialized capabilities to manage:

- Funding issues to obtain equipments of latest technology. They may face delays in financial approvals as a lot of considerations go into defence procurements.
- Strategic procurement by managing advanced contracts and key suppliers.
- Capabilities to conduct technical evaluation so that projects, procurements and equipments do not suffer from technological obsolescence.
- Manage complex R&D projects spanning over long durations typically in the range of 5-10 years

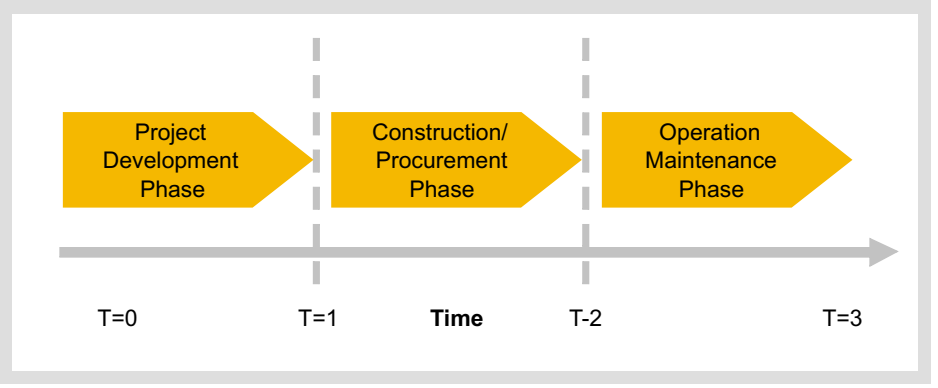
The defence sector is increasingly buying into the idea of appointing national or international consultants to manage projects. This initiative brings a lot of best practices within the purview of defence project execution.

Energy and Infrastructure: Delivery Scenario

The performance of energy and infrastructure projects in India may be studied together because of their commonalities in implementation and delivery. Both these sectors are observed to manage high-value projects, the life and gestation period for the projects span over many years and involve multiple public and private stakeholders, execution is regulated through government policies, guidelines and clearances. As a part of this study, the energy sector is represented by atomic energy, coal, petroleum & natural gas and power. The infrastructure sector is represented by railways, road transport and highways, shipping and ports and steel. Typically, projects in infrastructure and energy sectors are highly technical, involving complex estimation and planning. Broadly put, these projects are observed to have three phases: development, construction, and operation and maintenance as shown in *figure 4.* In the beginning of the development phase, the organization sponsoring the project prepares estimates of time and cost (funds) needed to complete the project.

However, such estimates cannot be taken as sacrosanct as they are observed to undergo major revisions over the entire project life. An expected date of completion is generally announced for large infrastructure and energy projects. The actual date of completion is invariably different from the

Figure 4: Three Phases of Energy and Infrastructure Projects



expected date. The 'implementation phase' or 'implementation period' is the duration in which a project is planned to be completed, that is, the duration between the date of approval of the project and its expected date of completion. This phase is typically followed by an operation and maintenance phase in most infrastructure and energy projects. The operation and maintenance phase may be treated as a different project or as an extension to the main project.

Table 6 gives a summarized view of projects completed in the Energy and Infrastructure sector during April 1992-March 2009. Most of these projects are funded and managed by the public sector; however, a few of them are public private partnerships. These are typically large or mid-sized projects, each worth at least ₹. 20 crore.

Table 6: Performance of Project- Energy and Infrastructure Sector

Energy			
Industry	Number of Projects	% Projects with Cost Over-run	% Projects with Time Over-run
Atomic Energy	12	**25**	**92**
Coal	95	**22**	**61**
Petrochemicals	3	**33**	**100**
Power	107	**47**	**61**

Infrastructure			
Industry	**Number of Projects**	**% Projects with Cost Over-run**	**% Projects with Time Over-run**
Railways	122	**83**	**98**
Road transport and Highways	154	**54**	**85**
Shipping and Ports	61	**31**	**95**
Steel	43	**19**	**81**

Source : MoSPI Report

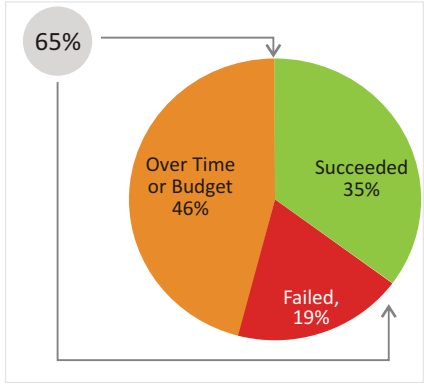
According to the MOSPI report, as on March 31, 2009, more than one-third of the ongoing projects are experiencing cost over-runs. Collectively, cost over-runs for these projects are at ₹ 73791.51 crores; which is 54.75% of their original cost and 13.45% of the cost of all projects. From another perspective, the cost over-runs in the ongoing projects are larger than the three consecutive fiscal packages announced during 2008-09. Similarly, delays are too frequent and, at times, intolerably long. Out of 925 ongoing projects, 445 have already experienced delays.

IT-ITES: Delivery Scenario

Fundamentally, project management is a continuous process feedback loop by which IT-ITES organizations prioritize demands of each project. Organizations allocate funds and resources as per investment initiatives and manage governance-orientated collaboration with the business stakeholders. Thereby IT-ITES sector is able to deliver expected results from

the IT investments. 81% of IT investments by global organizations in India are perceived to be successful. However, 46% of them are perceived to be over time or budget as indicated in *figure 5.*

Figure 5: Performance of IT Projects



Source: FICCI Analysis

Consolidated project planning and execution is increasing with more and more organizations adopting project management practices in both private and government sectors. Project management related investment in IT-ITES sector amounts to about 18% of the overall IT project spend. The distinct execution focus areas for IT-ITES organizations are perceived to be working across multiple geographies and culture, technology and innovation, process improvement, resource and knowledge retention and building domain expertise.

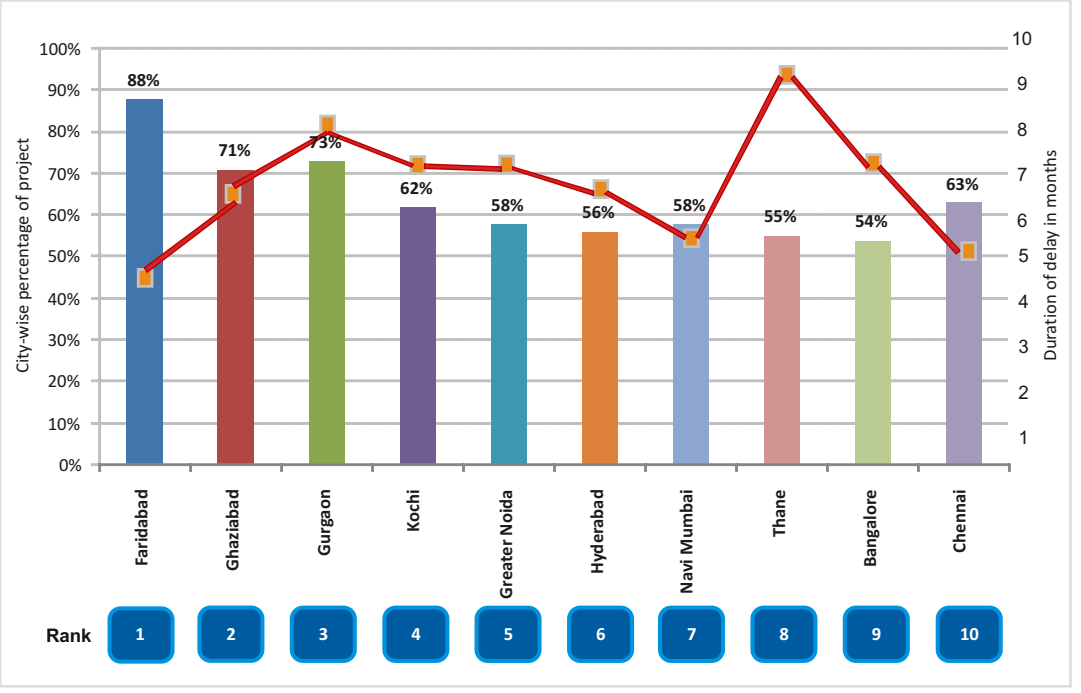
IT-ITES Project Governance in India includes components such as corporate governance and risk management. The rising interest in IT governance in India may partly be attributed to required compliance to various global initiatives, for instance Sarbanes-Oxley in the USA and Basel II in Europe; and to the fact that most global clients stress on programme management and governance capability before off-shoring or outsourcing to India.

Real Estate: Delivery Scenario

Almost 80 % of India real estate is residential space; the rest comprises offices, shopping malls, hotels and hospitals. According to the Tenth Five Year Plan,

there is a shortage of 22.4 million dwelling units. Thus, over the next 10 to 15 years, 80 to 90 million dwelling units need to be constructed with a majority of them catering to middle- and lower-income groups. In this context, it is a matter of great concern that this sector is plagued in delivering and living up to its promises. Figure 6 shows ranking of cities on the basis of real estate sector projects getting delayed. Project delays in most cases lead to cost over-runs.

Figure 6: City Ranks on the basis of Real Estate Projects Delayed



Faridabad, Ghaziabad and Gurgaon, the satellite towns in the National Capital Region (NCR), led, in terms of the highest proportion of property projects delayed in the country, which were scheduled for completion in 2008 and onwards. These suburbs have more than 70 % of projects delayed, as against the total number of projects scheduled for completion in 2008 and onwards. Ghaziabad had 84 projects delayed out of 118 and Gurgaon had 78 of 110. In absolute terms, Bangalore, the country's IT hub, witnessed the highest number of delays among projects scheduled for completion in 2008 and onwards, while Pune came second. In Bangalore, 309 of the 575 projects were delayed and the average delay in these projects was seven months. In Pune,

305 of 665 projects were delayed, with an average of eight months. Mumbai is third in terms of absolute number of projects, with 233 of 501 projects with average delay of 6 months.

A lot of developers are diverting funds meant for a project to other projects; hence, cash flow has become an issue. In past instances, their order books were more than what they could actually execute. Many smaller developers jumped into the property sector and they could not complete the projects, resulting in delays. In terms of unsold properties in the 10 cities, Pune, Mumbai and Hyderabad came first, second and third, respectively. Pune, Mumbai and Hyderabad had 36,435 units, 32,120, and 31,536 units unsold in June 2009 respectively. In terms of regions, the East had 5 % of properties unsold between January to June 2009, and the North, West and South had 23 %, 40 % and 31 % of properties unsold respectively in the period.

Thane, Mumbai and Gurgaon ranked first, second and third, respectively, in terms of percentage price drop in apartments in the country, as economic downturn and dwindling incomes of home buyers impacted property sales and led to a drop in prices. Between May of 2008 and 2009, Thane (a far eastern suburb of Mumbai), Mumbai and Gurgaon witnessed a drop of 22 %, 20 % and 19 %, respectively. But in terms of absorption of projects during January-June 2009, Mumbai came the highest with 17,689 units, while Pune and Noida came second and third with 13,899 and 6,808, respectively. These cities had a lot of new launches and witnessed high absorption. Mumbai is driven by end-users, while Pune had a mix of end-users and investors. Absorption might improve and unsold portions may come down as developers increasingly launch affordable projects. Delays are continuing, as execution is becoming a challenge for developers who are finding it difficult to arrange finances. Experts perceive the solution to these maladies inflicting real estate sector in India may lie in adoption of a systematic structured approach to project management.

Challenges and Constraints

Challenges and Constraints

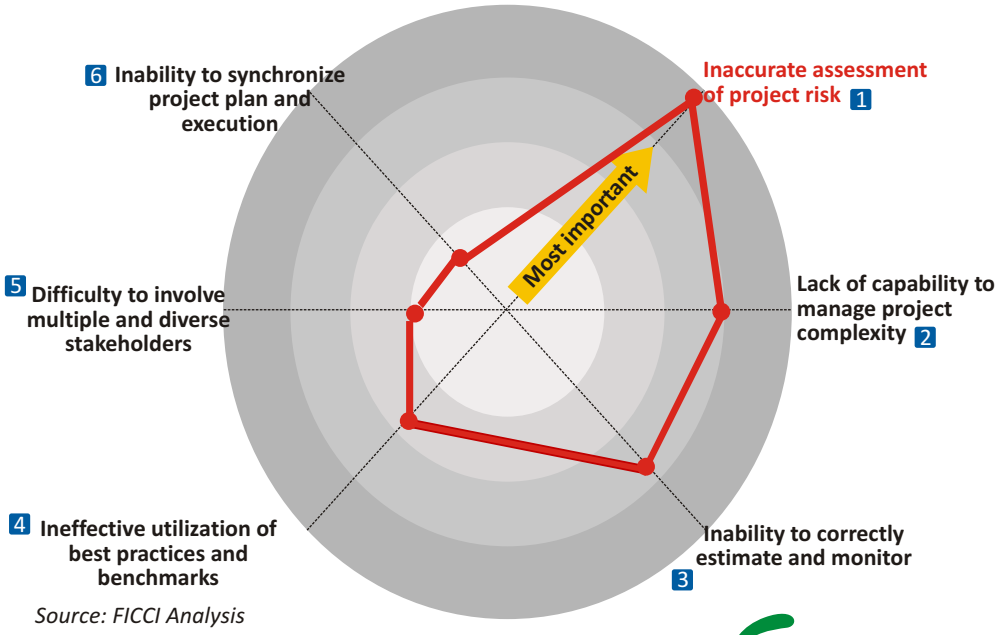
Any organization, irrespective of the sector it might be operating in, undertakes a project only when it is critical to its business operations. In this section, we identify some of the critical causes of concern, generic impediments and challenges towards project success, also highlighting important sector-specific issues. *Figure 7* shows a perception map and ranks of some **critical causes of why projects in India are not able to deliver project commitments?**

Most respondents feel inaccurate assessment of project risks is a primary cause of concerns. The other causes of concerns are:

- Lack of capability to manage project complexity
- Inability to correctly estimate and monitor project delivery
- Ineffective utilization of best practices and benchmarks
- Difficulty to involve multiple and diverse stakeholders
- Inability to synchronize project plan and execution

The components contributing to each of the concern areas are as indicated in a tabular format along with *figure 7.*

Figure 7: Perception Map and Rank of Critical Causes of Concern



Source: FICCI Analysis

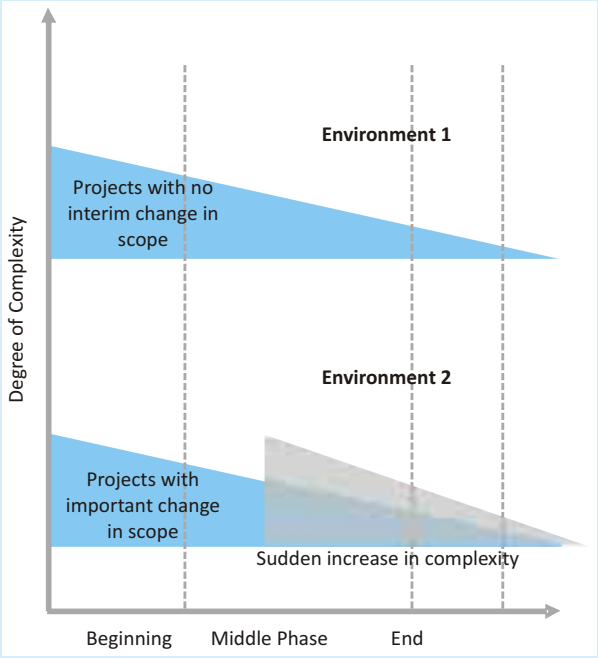
Inaccurate assessment of project risks	Lack of capability to manage project complexity	Inability to corr ectly estimate and monitor	Ineffective utilization of best practices and benchmarks	Difficulty to involve multiple and diverse stakeholders	Inability to synchronize project plan and execution
External Factors Policies and Regulations Health, Safety, Environment	Scope creep Expectation Management R&D Innovations Strategic procurement	Schedule and Budget Risk Review Mechanism	Resources optimization Adoption of Best Practices and Benchmarks	Organizational Support Communication Vendor Management	Day-to-day review & project management Fund and Resource Mobilization

Inaccurate assessment of project risks: Experts perceive that, commonly, lack of effective risk sensing and risk management causes project failure. Organizations in India face difficulty in establishing a culture where the project team members are like reporters on the ground who continuously sense and report risk without fear of being blamed for the risk.

Assessing risk is the key to any project's success, especially in the Automobile sector, where new product development is important. Ability to successfully address and mitigate risk, lowers time to market and provides innovators' advantage. Projects in infrastructure and energy involve compliance to multiple regulations involving health, safety and environmental risks.

Lack of capability to manage project complexity: Project Management operates in a management environment of chaos and complexity. There is definite lack of experienced project managers in India. What characterizes project complexity and how this changes in the course of a project is shown in *figure 8.* Experts perceive awareness of project complexity will help Indian managers.

Figure 8: Varied Degree of Project Complexity across Project Life



In large projects, everything is in disorder in the beginning; the management staff , the partners - all want to see their views implemented; the design is in preliminary stage . Many decisions are required, all tasks seem of highest importance and interlinked, and the consequences cannot easily be foreseen.

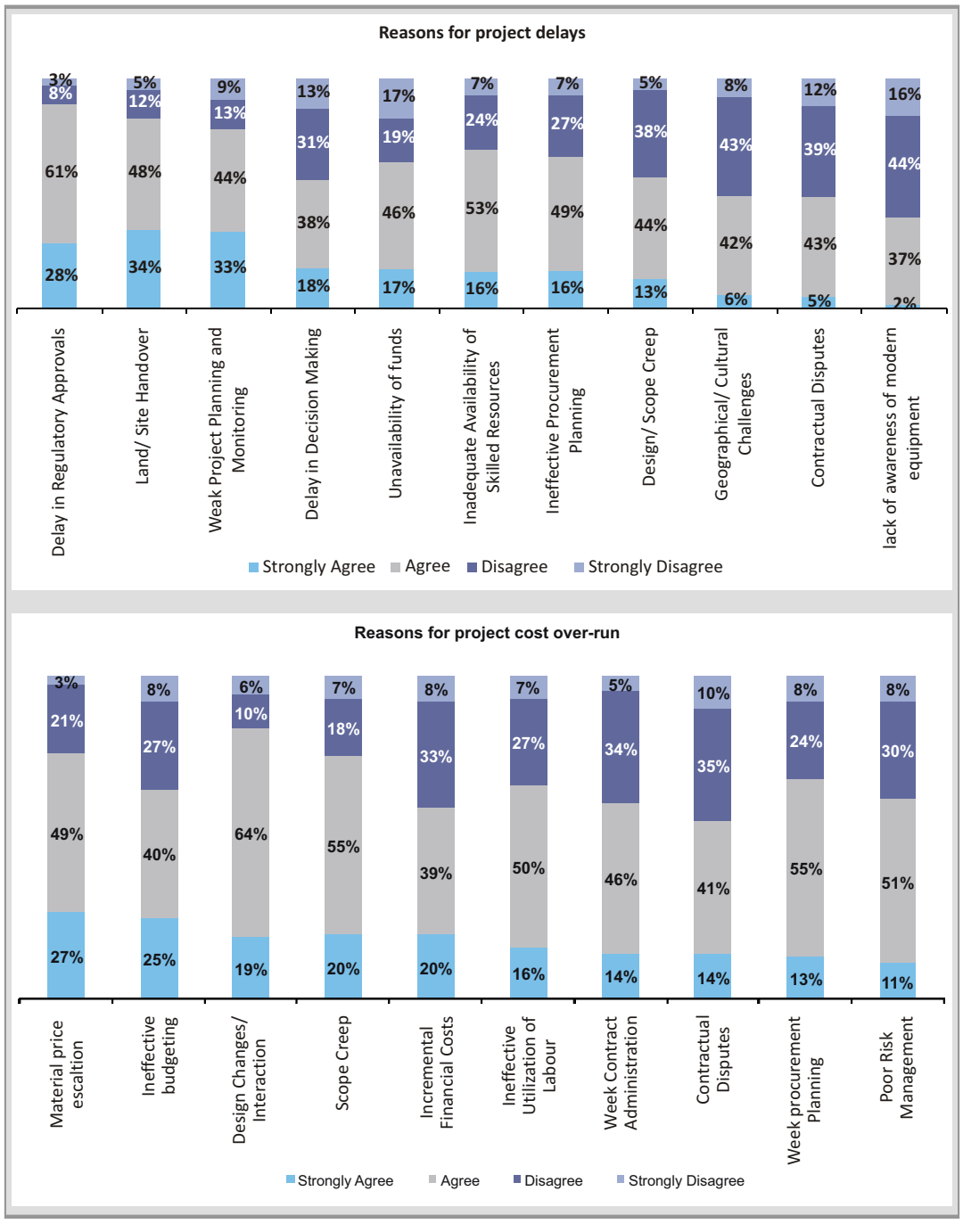
The middle phase is characterized by regularizing of the work. Generally, complexity is of low level in this phase. However, environmental influences or any other type of disorder (such as mistakes), social and cultural diversity may lead to disruptions.

During the end phase, the complexity picks up again as new tasks such as scope validation, impact analysis and contract closure need to be performed.

Figure 8 brings out two indicative levels of complexity in two different environmental conditions experienced in India. The first one environment 1 is for a smooth running project, the second one environment 2 is for a project with sudden scope change resulting in sudden increase of complexity.

Inability to correctly estimate and monitor: The inability to correctly estimate and monitor is the prime reason behind project delays and cost over-runs in India. While there are other related reasons for time and cost over-run as perceived by project managers indicated in *figure 9*. Nearly half of the project managers have experienced at least one project failure recently due to time or cost over-run. 77% perceive that the project delays could have been avoided by rigorous project planning, estimation and monitoring. In more than 70% of projects the time delays have led to cost over-run.

Figure 9: Reasons for Project Delays and Cost Over-run



Ineffective utilization of best practices and benchmarks: Driving excellence and achieving best practices in terms of cost management, time management, change management and quality management during project execution is yet to become a focus area in Indian project management practices. In most cases, project teams in India are fire-fighting to ensure projects don't run into cost or time over-runs. While most organizations from the IT-ITES and automobile sector and some of the large organizations are emphasizing to record project best practices, re-use level remains unaccounted at large. Project managers in India rarely invest time to list down lessons learned from previous engagements. 78% of such organizations perceive that best practices are recorded at the closure of projects while it should be a continuous activity.

Difficulty in involving multiple and diverse stakeholders: Overcoming the challenge to create a shared vision of the project is necessary for its success. 80% perceive that ownership of projects at the senior leadership level defines success for a project. Further, clearly defined and understood project goals and objectives, costs, and measures of success are of particular importance in establishing a common understanding across varied stakeholders. This helps to protect projects against excessive scope creep (evolving changes in the requirements after project initiation).

Projects in Infrastructure and Energy sectors are seen to have multiple vague ownerships; thereby, critical decision-making is impacted and projects get delayed leading to time and cost over-runs. However, defence projects in India are observed to have committed ownerships.

Inability to synchronize project plan and execution: Projects are marked by constant changes in user requirements and this tends to alter the scope of projects. The Project Execution Plan (PEP) that lays the foundation for planning, controlling and managing of any project, is a dynamic document. Organizations fail to regularly update and communicate revisions to PEP. 41% projects in India suffer as funds and resources are not available aligned to the dynamic needs of project execution.

IT projects have a peculiarity - users tend to uncover more 'needs' after commencing the use of the systems. Thus, the IT projects are more vulnerable to scope creeps. In addition, unforeseen statutory and market changes force at least 10-15% of the change requests in large IT projects. The need to synchronize project plan has driven IT organizations in India to follow a rigorous process of maintaining updated project plans.

Table 7 indicates sector-specific challenges and causes of concern typically manifested through project delays and cost.

Table 7: Sector Specific- Project Delivery Concerns

Sector	Project Delivery Concerns
Automobile	• Scope and assumptions are not well documented. Designs are primary references • Inadequate risk planning and lack of periodic risk reviews • Heaviliy dependent on component manufacturers • Inability to correctly understand consumers requirements especially true for automobile organizations in India
Defence	• Planning, production and even design are highly repetitive processes leading to concurrent planning, design and execution • Technology obsolescence • Strategic procurement is a challenge and leads to delays • Limited data available for estimation • Long project duration spanning over 5-10 years
Energy, and Infrastructure	• Projects involve multiple clearances and high level of complexity in terms of regulations and government policies • Land acquisition, capacity enhancement, and fund mobilization cause delays • Poor project management capability of vendors, suppliers, and contractors • Very long negotiation time to establish contracts • Shortage of skilled manpower and at times unsafe work practices • Delay in customer payments resulting in negative cash flow • Re-work due to improper quality assurance management and design issues • Long waiting period for tests conducted for performance assurance
IT-ITES	• Delay in administrative clearances • Lack of business user and domain expert inputs • Changing and incomplete requirements and specifications from client. Change request well after planning phase: No clarity on trade off between cost - time - scope and quality • Incorrect estimations and wrong planning • Unavailability of skilled resources and employee attrition • Varying standards across organizations • Different projects follow different processes • Working across multiple geography, cultures, technology and business domains • Inadequate knowledge management and reuse • Vendor and procurement management
Real Estate	• Material and resource acquisitions • Material cost escalations • Statutory clearances and compliance to regulations • Delay in execution • Lack of awareness of project management practices • Largely un-organized sector leading to limited use of standards and guidelines • Cash flow issue-Developers divert funds meant for one project to other projects

Source: FICCI Analysis

Project Management Practices in India

Project Management Practices in India

Project Initiation and Planning

Experts observe that one of the underlying constraints in project confusion 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 hurried sponsor. The problem that often occurs with this approach is that the resulting project scope does not fit the allocation level. In turn, this approach causes a combination of the triple constraint set (time, budget, and functionality). Project stakeholders have different interests in the outcome of the project. Some are concerned about budget; some schedule; and many others, functionality. Project satisfaction is a compromise between these various point of views.

While most of the respondents perceive that they adopt a structured approach to project planning and initiation, the parameters adopted during planning and initiation phase vary across sectors. Typical considerations factored in during project planning and initiation include scoping, budgeting, scheduling, resourcing, project execution planning, benefit articulation, risk identification among other things. The consideration of these aspects across Indian industries is varied as shown in *figure10*. While most large organizations consider multiple parameters during planning phase, the maturity and capability of the existing processes remain unaccounted. Only about 10% of respondents adopt quantitative methods; 33% adopt qualitative approach and 57% adopt a mix of quantitative and qualitative approach for planning and estimation. Small and mid-sized organizations attribute lack of awareness to inadequate planning.

Only 65% of the large organizations include project risk management as a planning parameter. 67% feel that there is opportunity for improvement in the current approach adopted for identifying project risks. Respondents also indicate “inaccurate project risk assessment” as the most critical cause of concern for project execution in India.

The project initiation and planning phase typically creates a project charter that contains a description of business needs, the desired deliverables, and a formal approval to proceed by appropriate management. An integrated plan outlines in greater detail the various activities, resource aspects and proposed effort.

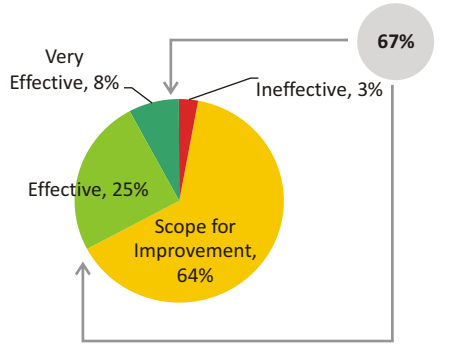
Figure 10: Adoption Level-Project Planning Parameters

Planning parameters considered

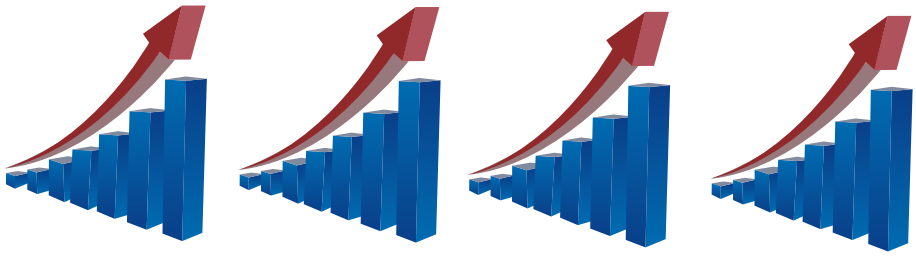
Project Planning Parameters	% Yes
Project Scope	100
Project Budget	100
Project Delivery Schedule	95
Project Management Plan	90
Project Delivery Team	80
Project Target Benefits	85
Project Quality Parameters	80
Project Risk Management	65

Source: FICCI Analysis

Current approach to project risk management?



Project Execution: Adoption of Best Practices



To what extent do organizations in India adopt best practices? The primary driver behind adoption of best practices is improvement. In India, project effectiveness is typically a measurement of how projects are progressing in terms of cost, time and quality. While these are very worthwhile, metrics are often the only focus of many measurement processes within most public and private organizations. All too often, the effectiveness and relevance of the processes around the projects are not reviewed against the type and scale of

the project. Further to this, a measure of process maturity which will indicate the level of consistency and control is yet to evolve. Some of the primary measures being tracked by organizations in India to improve project execution may be grouped under 3 focus areas as represented in *table 10*. While there is a high adoption-level of the cost and delivery measures, very few organizations focus on risks. Nevertheless project risk management is a widely acknowledge area of concern. The general adoption level of best practices and benchmarks is low across sectors shown as a part of *table 8*. 80% of the respondents perceive lack of information as the primary reason for low adoption of best practices and bench marks. In addition, 79% perceive lack of technology, another 55% attribute lack of trained man-power for low level of adoption.

Table 8: Three Focus Areas for Project Delivery Improvement

Focus Ares	Measures tracked for project delivery improvement	Adoption Level	Adoption level of Best Practices across the sectors
Cost	▪ Project Cost Performance ▪ Return on Investment	**High**	
Delivery	▪ Project Schedule Performance ▪ Project Cycle-Time ▪ Staffing ▪ Strategic Business Alignment ▪ Voice of Customer ▪ Knowledge Management	**Medium**	
Risk	▪ Risk Management Capability	**Low**	

Sector	%Yes
Automobile	70
Defence	50
Energy	40
Infrastructure	20
IT & ITES	80
Real Estate	30

Source: FICCI Analysis

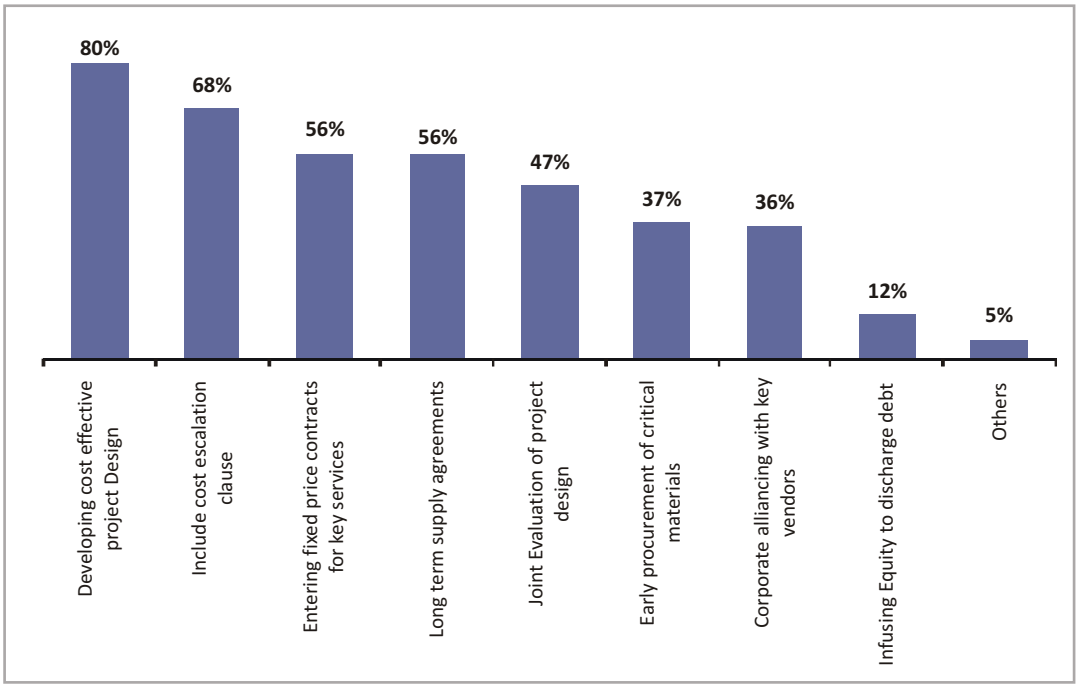
Focus Area: Cost

Project Cost Performance: The Cost Performance Index (CPI) is calculated as part of the Earned Value Management (EVM) process. It identifies whether a project is under or over budget. This is applied to individual project tasks as well as the project as a whole.

Return on Investment (ROI): The value that a project brings to the organization is popular among most organizations in India and is tracked. It has been defined as the calculation of the return that undertaking a project will give over a specific period of time.

It is perceived that organizations in India are very conscious about the implications of cost and are trying to adopt many best-practices to keep the cost within limits. *Figure 11* indicates some of the strategies that are being adopted by organizations in India to keep cost under control. 86% perceive that more than 50% of the projects running/completed are within initial budget.

Figure 11: Strategies and Best-Practices adopted to Control Cost



Focus Area: Delivery

Project Schedule Performance: The Schedule Performance Index (SPI) indicates whether the project is ahead or behind schedule. The Standard Deviation of SPI indicates ability to schedule effectively and accurately.

Project Cycle Time: Most Indian organizations assign an end-date to the projects and criteria that define a project as complete. However, they are compromised throughout project life-cycle. A variant to this measure is the life-cycle costing which is being followed by Indian Defence sector.

Staffing: Morale within the project team is a critical aspect contributing to project success. The use of a Weighted Employee Satisfaction Survey (WESS) is a measure being adopted by some of the private organizations in India. There are instances where such measures are being monitored at project level as well. A WESS is a mix of hard and soft measures weighted to support their importance as a predictor of employee satisfaction. A typical WESS among large Indian organizations in weight on corporate climate (pay, growth, supervisor competence)

- 25% weight on stress index and work life balance
- 15% weight on voluntary turnover rate and employee attrition
- 10% weight on focus group results and work place diversity
- 5% weight on grievance rate
- 5% weight on absenteeism and transfer rate

The recognition of project management as a valued service within the organization is also increased when human resources function co-ordinates the allocation of project resources.

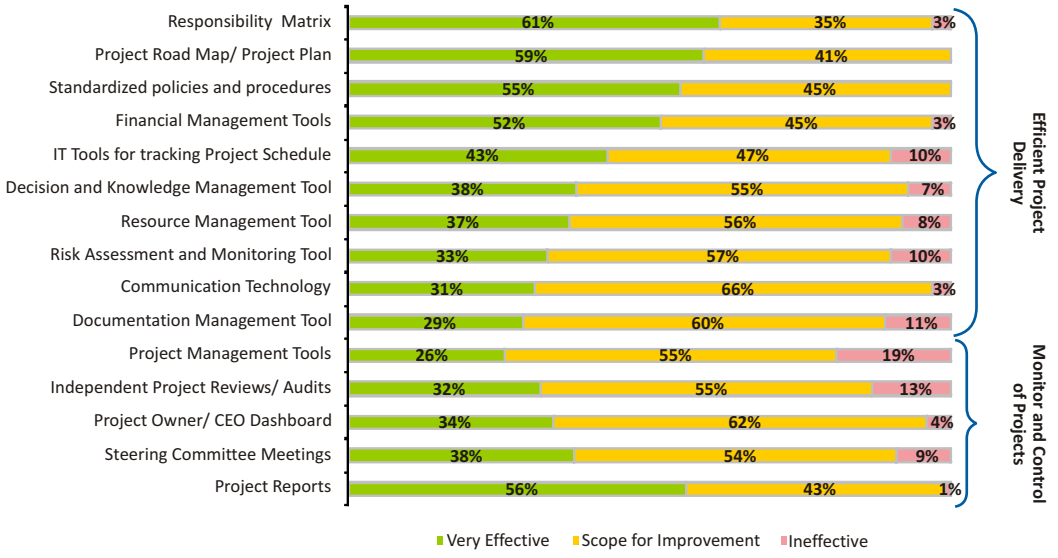
Strategic Business Alignment: Much of the typical measures focus on the effectiveness of project management within a project, but few focus on the identification of the correct projects to work on, which are aligned to corporate strategic goals. A systematic approach of scoring projects to prioritize them is being adopted by governing planning division to undertake large infrastructure projects. This gives an indication that the projects being worked upon are aligned and integrated with overall national objectives.

Voice of Customer: The private organizations in the automobile, IT-ITES and real estate sector ask customers about their satisfaction level with the project performance. The government of India has also developed a service delivery framework 'Sevottam-Excellence in Service Delivery' which seeks the voice of citizens on their experiences while availing government services. However, no such initiatives have been developed for non-citizen facing services like delivery of infrastructure projects.

Knowledge Management: Organizations in India can build capability through post-project harnessing of lessons learned. Such mature practices are visible only in the IT-ITES and automobile sector in India.

While most organizations in India track the financial measures through annual reports, there is limited focus on the delivery measures/benchmarks. With a few exceptions, most Indian organizations do not have a centralized source to refer and adhere to specific delivery benchmarks and best practices as discussed. Benchmarks are not employed as standard targets in project execution; rather they are referred for an intuitive understanding of the project performance. Continuous improvement through adoption of benchmarks is rarely observed with the exception of IT-ITES and automobile sector. *Figure 12* indicates the adoption level of various tools to improve delivery. It is perceived that real-time automated tools can be adopted to improve delivery scenario.

Figure 12: Perception towards Tools to Improve Project Delivery



Source: FICCI Analysis

These tools have some level of awareness across all the six sectors. However, the adoption level remains varied. Typically organizations choose the suitability of these tools. Thereon the applicable tools, methodologies and practices are adopted. *Table 9* indicates various considerations that Indian organizations stress on to ensure improved delivery. These considerations may be adopted at a certain phase of the project or throughout the project life depending on its relevance.

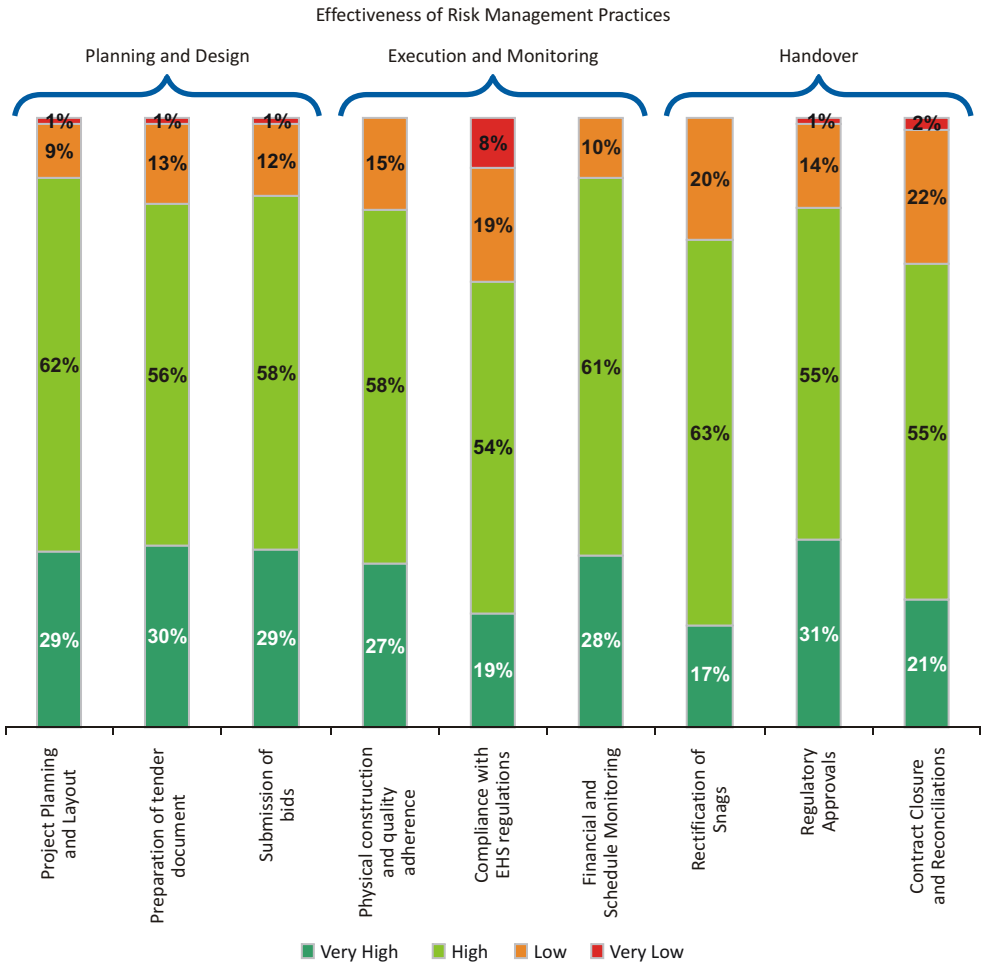
Table 9: Adoption of Best Practices

Focus Area	Considerations, Tools and Methodologies used by Indian Organizations
Scope	Scope Statement, Change Request, Requirement Analysis, Work Breakdown Structure, Statement of Work, Activity List, Baseline Plan, Re-Baselining, Product Breakdown Structure, Value Analysis
Schedule	Project Management software for Task Scheduling and Monitoring, Multi-project Scheduling/Leveling, Gantt Chart, Milestone Planning, Critical Path Method, Network Diagram, Learning Curve, Critical Chain Method and Analysis
Communication	Progress Report, Kick-Off Meeting, Communication Plan, Work Authorization, Project Website, Earned Value, Trend Chart or S Curve
Learning	Lessons from closed project, Customer Satisfaction Survey, Historical Database of Lessons Learned
Quality	Client Acceptance Form, Quality Inspection, Quality Plan, Control Charts, Cause and Effect Diagram, Pareto Diagram
Integration	Project Charter, Responsibility Assignment Matrix, Financial Measurement Tools, Feasibility Study, Configuration Review, Stakeholder Analysis, Quality Function Deployment
HR	PM Software for Resource Scheduling, Team Member Performance Appraisal, Team Building, Focus and Motivation, Resources Leveling
Cost	Top-Down Estimation, Cost Benefit Analysis, Bottom-Up Estimation, Project Management Software for Monitoring Cost , Parametric Estimation, Life Cycle Cost
Risk	Risk Management Documents, Contingency Plans, Ranking Risk, PERT Analysis, Decision Tree, Probabilistic duration Estimates (PERT), Simulation like Monte-Carlo Analysis and so on
Procurement	Bid Documents, Bid Seller Evaluation, Bidders Conference, Database of contractual commitment data

Focus Area: Risk

Risk Management: Inadequate risk management is a primary cause of concern indicated by most organizations in India. To be in a position to have fully identified all risks associated with a project and have a response plan for each; that is clearly a benchmark most organizations acknowledge, nevertheless, do little about it. Risk management by its very nature is flawed because it only identifies the things project managers know; it fails to appreciate the "unknown unknowns", the "un-controllable". That said, the more risks identified and planned for, the better position the project team is in to deliver a successful project. Risk Management has been identified as a best practice by most respondents. Moreover, there is a growing concern among organizations about inaccurate risk identification. Respondents indicate a varied degree of risk management effectiveness in their organizations as indicated in *figure 13.* The effectiveness is seen to vary over the project life-cycle.

Figure 13: Effectiveness of Risk Management across the Project Life



Project Monitoring and Control

The maturity level of project monitoring and control is clearly divided among Indian organizations. Organizations having a defined governance framework take up various initiatives. The functions carried out by the large organizations are periodic audits, regular status reports, spot checks, accountability reports, exception handling systems among others. Nevertheless monitoring and control is an ad-hoc activity for small and mid-sized organizations partly due to lack of awareness and partly because it is viewed as an overhead cost and unnecessary.

The most common and universal criteria attributed to project management and its success in India is whether the project is on time, within the budget, has delivered targeted benefits, and/or it has met quality standards with limited change in project scope. Most organizations do not have a structured approach to assess project success by grouping the criteria into categories namely internal project objectives (efficiency during the project accounting for its time and cost), benefit to customer (effectiveness in terms of expected quality and objectives) and its benefits over short, medium and long term. Mid-sized and small organizations in India have lack of awareness and identified weak monitoring and control as primary reason for project delays.

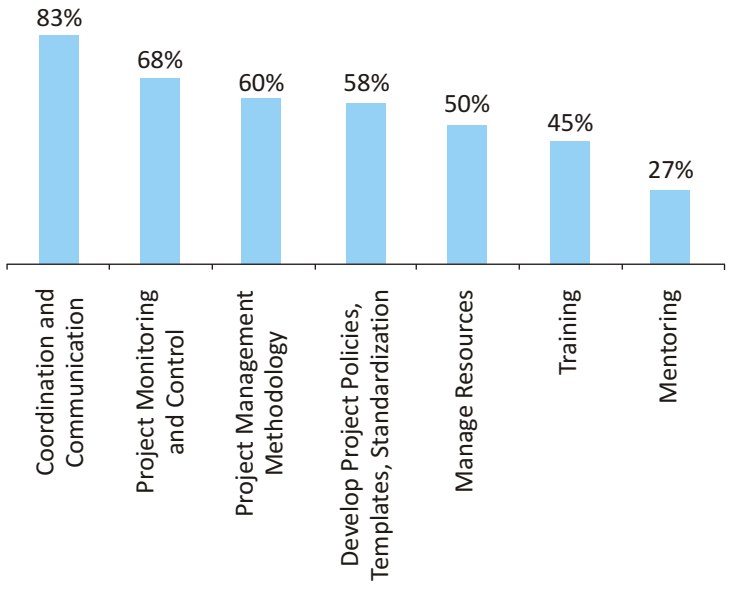
The involvement of senior management in project reviews enables effective monitoring and control. Their involvement is however varied across the sectors as shown in *figure 14*. It is perceived that reviews involving senior managers influence adoption of best practices. It is also observed the involvement of senior leaders have developed a centralized function for monitoring and control in most organizations. The typical expectations of senior leaders from a centralized governance function are also indicated in *figure 14*.

Figure 14: Senior Leaders Influence Adoption of Centralized Governance Function

Involvement Level of Senior Leaders in Project Reviews

Sector	%Yes
Automobile	100
Defence	100
Energy	80
Infrastructure	60
IT-ITES	100
Real Estate	75
Overall	92

Expectations form a Centralized Governance Function



Source: FICCI Research

Program Management Office (PMO) in India

PMO as a distinct function operates in most large organizations in India. PMO function is perceived as an overhead cost by most small and mid-sized organizations. The scope of functions being performed by the PMO investigated and studied indicated 38 common functions in five specific categories. The responses indicate that PMOs are diverse in their overall scope of services as indicated in *table 10*.

Table 10: Scope of PMO Services

Work and Resource Management	%
Program/ Portfolio Management	85
PM Training and Development	71
Scope Management	56
Issue Management	55
Internal Consulting	54
Risk Management	53
Staffing/ Organizational Capacity Mgmt.	50
Centralized Demand Management	33
Strategic Management	**%**
Facilitate Strategic Planning	68
Administrate Business Planning	40
Benefit Management Realization	34
Undertake Investment Portfolio Analysis	32
Form Board Steering Committee	29
Process Management	**%**
Process Improvement	82
Process Metrics	65
Process Ownership	54
Business Process Design	46
Process Automation	45
Process Audits	42

Service Management	%
Change Management	55
IT Service Portfolio Management	49
Application Portfolio Management	49
Problem Management	36
Release Management	33
Enterprise Standards	23
Vendor management	21
Asset Management	12
General Business Management	**%**
Dashboard/ High Level Reporting	78
Knowledge Management	47
Budgeting	40
Business Liaison	40
NPD/ Product Life-Cycle Management	37
Staff Development	36
Financial Management	32
Business Performance Analytics	27
Contract Management	26
Collaboration	23
Cost Recovery	17

About 80% of industry leaders have centralized function to monitor and control project execution. However, the maturity and capability of governance varies across sectors.

82% perceive that PMO enables process improvement by rigorous monitoring and control.

78% of the PMOs are involved in monitoring and control of projects, they prepare dashboard and facilitate high-level reporting on project performance.

71% of the respondents acknowledge PMO's role in project management training and organizational capability development.

Project Closure

Projects in India usually have a clearly defined last stage - a bridge opens for public use, a product launches, and new software rolls-out, or a defence weapon is procured. The steps needed to formalize the project's acceptance are sometimes called the project closure process. This process evaluates whether the project has delivered the required outcome, and that the stakeholder expectations have been met. Project closure has many different elements, and the best way to carry out a closure is to plan for it from the start. This way, there is an opportunity to decide which criteria will be used to show that the project is actually completed. The adoption level of some of the closure practices across various sectors in India is as shown in *figure 16.*

Figure 16: Adoption Level of Some of the Closure Practices

	Analyzing target benefits	Best Practices Recorded Re-use	Review on project completion
Sector	**% Yes**	**% Yes**	**% Yes**
Automobile	50	50	100
Defence	80	100	100
Energy	60	95	70
Infrastructure	20	60	40
IT-ITES	40	100	100
Real Estate	70	70	80
Overall	55	78	73

About 78% of large organizations have some mechanism to record project best practices. However, re-use level remains unaccounted in most cases.

73% of large organizations conduct a post project review on completion

Only about 55% of large organizations and industry leaders analyze targeted benefits from the project. Small and mid-sized organizations lack capability to track project benefits.

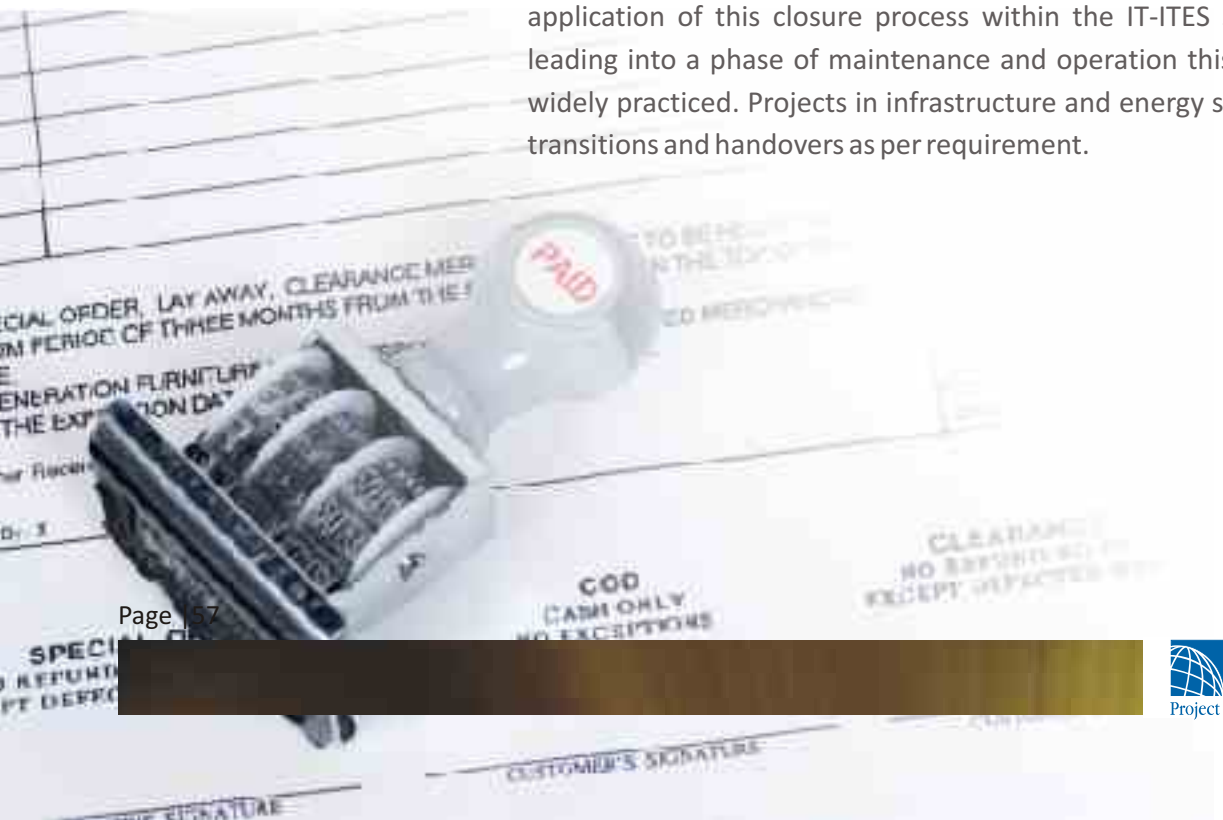
Source: FICCI Research

Listed here are some common project closure activities as being followed across sectors both in private and public organizations in India.

Administrative Closure: These activities relate to the overall management and oversight of the project. Activities here generally involve testing and review of project deliverables or outputs, analyzing unresolved issues, financial position of the project, gathering lessons learned, transferring knowledge, and archiving and communicating closure.

Contract Closure: These activities formalize the acceptance of the project outcome and deliverables. There may be an actual contract document especially when dealing with external customers. The activities here generally involve validation against pre-defined acceptance criteria, or contractual affirmation from approved and authorized stakeholders on status. During the project closure phase, the project team indicates meeting predefined criteria. If any changes have been made to the contract before project completion, the contract documents are updated. The business requirements analysis is a key input to the project closure process.

Transition or Handover of Project Results: When a project deliverable is being developed, the project team is in control. However, when the deliverable is ready to use or implement, then the end users need to know what to do. The activities here generally involve end-user education and decision on the procedure and period of handover. There is a widespread application of this closure process within the IT-ITES sector. For projects leading into a phase of maintenance and operation this closure practice is widely practiced. Projects in infrastructure and energy sector emphasize on transitions and handovers as per requirement.



Building Capability: Commitments to Develop Resources

Building Capability: Commitments to Develop Resources

India Vision 2020 is a development concept and is perhaps, one of the largest projects envisioned to transform the country into a developed nation, a concept that was first put forward by former President of India, Dr. A. P. J. Abdul Kalam. There are typical challenges and traditional disjuncture between strategy and implementation involved in realizing such initiatives, particularly in relation to the front-end factors affecting a project team's ability to clearly identify a project's requirements and its context.

India needs at least five lakh qualified project managers in future to finish 591 projects being carried out in the country, as per a research report by the Project Management Institute (PMI). As many as 591 projects, each worth more than ₹ 100 crore, are being executed in the country and it requires a large number of project managers to finish them on time, budget and quality. **Are we committed to develop project management competency at organizational and individual level?**

Building Project Management Capability and Maturity is a priority for most organizations across the six sectors as more than 90% agree on adoption of project-based approach for future engagements.

While 79% feel that adoption of structured project management practices helps meet delivery schedule and budgets; 74% perceive shortage of experienced project managers; 41% suffer from lack of trained project managers. 68% of the large organizations surveyed indicated that they have a structured approach to project team formation; and only 38% of large organizations stress on employing certified project managers. The inadequacy of trained project managers varies across sectors as indicated in *figure 18.* Experts feel that actual inadequacy may be far more as organizations typically are not able to clearly differentiate between experienced resources and project managers. In most cases, experienced resources are handling project manager roles within organizations.

Figure 18: Sector-wise Availability of Trained Project Managers

Have adequate number of trained project managers?

Sector	%Yes
Automobile	50
Defence	65
Energy	40
Infrastructure	20
IT-ITES	80
Real Estate	58
Overall	51

Automobile: Around 50% stress on employing trained project managers

Defence: Most projects go through a structured approach to select and form teams. Most defence organizations have in-house programmes to train managers.

Energy: 60% stress on employing certified project managers for outsourced projects

Infrastructure: Low awareness on project management capacity building

IT-ITES: Characterized by training, advocacy and certifications for project management

Real Estate: Only large organizations and industry leaders focus on building project management capability

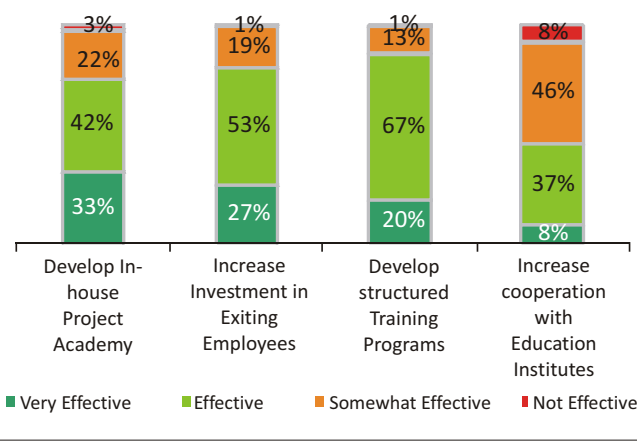
Source: FICCI Research

Even though there is a widespread acknowledgement of the fact that there is a shortage of skilled and capable resources to manage projects both in the government and corporate organizations only 68% of the large organizations have a structured programme for project management training and development. The number may be far lower in small and mid-sized organizations. The effectiveness of the in-house programmes is rarely evaluated. *Figure 19* highlights some of the strategies organizations in India are adopting to overcome resource shortage and skill deficiency.

Figure 19: Strategies to overcome resource shortages and skill set deficiency.

Strategies to improve utilization of available resources

- Strong forecasting and planning
- Monitoring of resources utilization
- Benchmark resource utilization with competitors
- Monetary incentives for increasing productivity
- Structured project management training and certification



It is interesting to note that 75% perceive developing in-house training vis-à-vis 45% perceive collaboration with educational institutes as a more effective strategy to develop project management capability. Organizations perceive developing domain knowledge coupled with project management training as a more beneficial strategy and is the primary objective for developing in-house training programmes.

There is definitely a turn-around over the last decade in the way large organizations in India perceive adoption of best-practices to improve project management. In 2008, it was observed that India has the third largest PMI membership after the United States and Canada - with seven chapters and over 11,000 PMI members. Most of these are in the IT sector though. Focus needs to be generated to spread project management to government departments and sectors, like Infrastructure, heavily contributing to national GDP. Some of the project management certification options available in India are as follows:

- Certified Associate in Project Management (CAPM®)
- Project Management Professional (PMP®)
- Program Management Professional (PgMP)®
- PMI Risk Management Professional (PMI-RMP®)
- PMI Scheduling Professional (PMI-SP®)
- IPMA 4 Level Certification (4LC) System

Recommendations

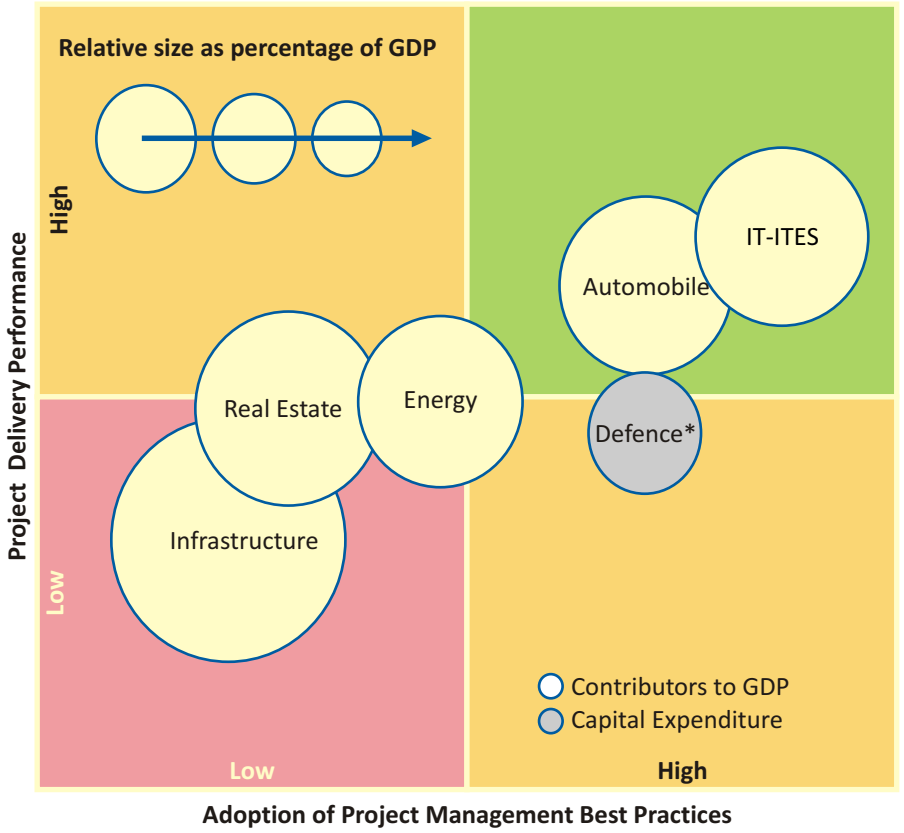
Recommendations

The recommendations presented here are at two levels the macro and the micro level. The macro- level focuses at interventions required at a national economic level; here sectors are identified for focused effort in the domain of project management. The micro-level recommends interventions required at organization level; adoption of micro-level recommendations will improve project management capabilities within an organization.

Macro-Level: Sector-Specific Recommendations

The findings from this study may be summarized as represented in *figure 20*. The figure positions the six key sectors on two dimensions: 'Adoption Level of Project Management Best Practices' and 'Project Delivery Performance'. This figure captures perception of experts and industry practitioners as identified through primary and secondary research.

Figure 20: Delivery Performance vs. Project Management Adoption Matrix



Source: FICCI Analysis

It is perceived that IT-ITES sector have both high level of adoption of project management best practices and delivery performance. Similar trends are observed within the automobile sector as well. Defence as a sector is an investment sector resulting in capital expenditure of about 3% of the GDP. The defence sector has focus on developing in-house capability in project management. Further focus on project management capability building will realize efficiencies in capital expenditure.

The three sectors namely, infrastructure, real-estate, and energy clearly come out as areas where more focused approach to build project management capability is required. The infrastructure sector has highest contribution to GDP among the six sectors studied; however, project management practices are yet to realize benefits in this sector. Infrastructure which is expected to grow to 9% of GDP attracts less than 10% of certified project managers while IT sector about 5% of GDP attracts nearly 50% of project management professionals. Some of the large organizations within the real estate sector are taking measures to manage projects better. However, the real-estate sector is primarily unorganized and project management advocacy is required for the small and mid-sized players. There is a turnaround in the way projects are being managed within the energy sector. Entry of large private players in the energy sector has improved project delivery. However, there are opportunities for improvement and the sector needs to consider benchmarks and best practices as next level intervention.

A correlation is observed as organizations mature towards high-level adoption of project management best practices. They are able to deliver better performance. Better performance in project delivery translates to cost savings through operating efficiencies which in turn contributes to national savings. *Figure 20* indicates the relative contribution to GDP for each of the sectors. Clearly the large contributors to GDP like the infrastructure, real estate and energy will benefit from project management interventions. However, such initiatives to develop project management capabilities within these sectors need to be augmented with domain and sector-specific experience. Developing project managers sans the domain expertise in infrastructure, real estate or energy sector will realize limited benefits only. **Focus needs to be driven towards developing sector-specific training and certifications for project management within framework of acknowledged and accepted project management policies or guidelines**.

Micro-Level: Recommendations at an Organizational Level

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. The collective thoughts emerging across industries for extracting maximum value from project investments are summarized in *Table 11*. These key practices need to be considered at an organizational level rather than at a project or program level as most involve changes to the way an organization governs and manages its operation.

Table 11: Key Practices to Derive Value from Project Investments

Recommended Practices	Overview
Establish a governance framework	A top-driven, end-to-end project management framework enables a consistent approach to take informed decisions. The governance framework influences each project and includes consolidated project performance reporting to the top management. The framework should enable informed decisions to be taken using a consistent approach. **This helps organizations manage project complexity.**
Prioritize Projects	A project prioritization process within the organization helps to choose the right projects for the organization and evaluates the projects objectively and continuously to help realize the maximum value from investments. Consider phased funding as part of this process, whereby project funds are released subject to successful achievement of certain performance hurdles for each milestone. The control of funding is an important governance element especially for large projects. It also enables more effective evaluation of project performance and the ability to stop projects promptly if required. **This brings in better risk management practices and ensures that project fund mobilization is synchronized with project delivery.**
Align Project Initiatives with Overall Organizational Objectives	Aim to ensure all initiatives are clearly aligned with business strategy, targeted benefits and overall organizational objective, adjust to maintain alignment, or reinvest funds elsewhere. Forcing projects to justify how they will contribute to the achievement of business goals, targeted benefits enhances alignment to organizational objectives, directs funds towards essential projects and enables more effective prioritization among projects. Continual assessment of projects, seeking to what extent the targeted benefits are met, helps investing in the right initiatives. **This ensures that there is a common understanding of projects and organizational objectives among all stakeholders and everyone may work towards a common goal.**
Involve Multiple Stakeholders	Clearly define shared accountability of all the project stakeholders for realizing benefits including integrating proposed benefits with operational plans and budgets. Communicate clearly, as part of the business case or funding phase for delivering value from project investments. Define how this will be measured; carefully scrutinize the planned benefits and also sign-off on the proposed benefits with all key stakeholders for the project. **This is useful in involving multiple and varied stakeholders and ensure there is a common buy-in on project objectives.**
Estimate and Control Leakages	Use quantitative measurement across the project life-cycle to understand proper estimates. Use these estimates during planning and initiation. Control benefits leakage by clearly defining what value is expected, how will it be realized and when; then reassess regularly throughout the project. These processes should enforce regular reporting to the executive on the status of benefits capture and measurement. **This will enhance organizations ability to clearly estimate and track projects and ensure that the intended project benefits are being realized.**
Invest in Capacity Building	Recognize project disciplines, acknowledging the link between strategy and project execution. Develop capability, capacity, and risk models to suit organizational maturity and culture. Compare the projectized nature of the organization with the capability and skill set required by the organization to deliver. Skills may be required at various levels of the organization. **Store project best practices and reuse lessons learned through project execution.** Recognize project management as a core competency and develop competency frameworks, together with project management support and infrastructure, to raise the organization's ability to deliver value from project investments.

Annexure

Annexure

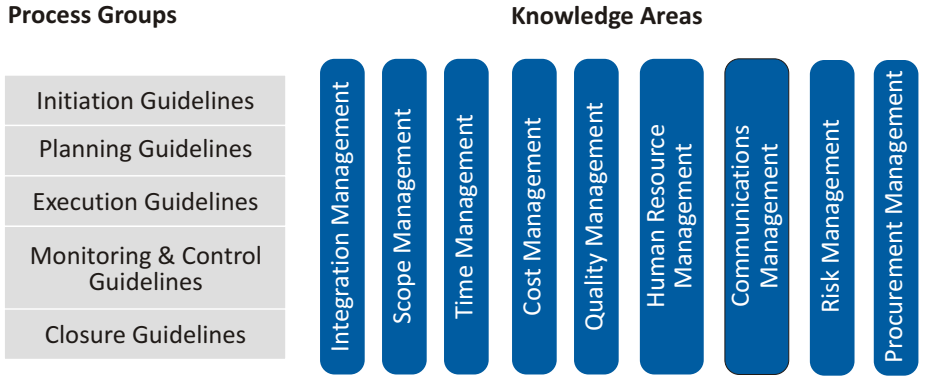
Project Management Guidelines

The project management guidelines are process-based, meaning it describes work as being accomplished by processes. This approach is consistent with other management standards such as ISO 9000. Processes overlap and interact throughout a project or its various phases. Processes are described in terms of inputs (documents, plans, designs, etc.); tools and techniques (mechanisms applied to inputs); outputs (documents, products, etc.).

Broadly recognized are 42 processes groups that fall into five basic process groups and nine knowledge areas that are typical of most projects. *Figure 21* depicts the process groups and knowledge areas and their relationships - the knowledge areas are shown to be spanning across the process areas.

- The 5 process groups for project are Initiation, Planning, Execution, Monitoring & Control and Closure.
- The 9 knowledge areas are: Project Integration Management, Project Scope Management, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, and Project Procurement Management.
- The 9 knowledge areas are relevant through the project execution. In other words they apply to all the 5 process areas.

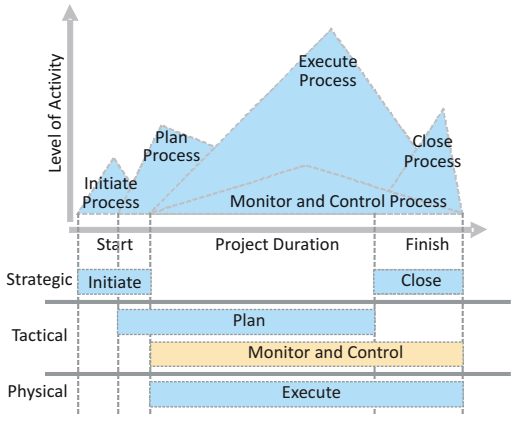
Figure 21: Project Management Processes and Knowledge Areas



Source : PMBOK® GUIDE

Typically the level of activity varies across the 5 phases of project life as shown in the *figure 22*.

Figure 22: Level of Activity along Project Phases



Initiate - the process in which it is decided that there is a need for a particular project and then the decision is taken on project commencement.

Plan - the process in which the scope of the project is developed, including documenting actions necessary to define, prepare, integrate, and coordinate all subsidiary plans into an unified project management plan.

Execute - the process in which the necessary actions are performed in order to accomplish the goals that were set in the planning stage.

Monitor and Control - the process in which the actions performed in the execute stage are supervised, in order to ensure the project is successful in meeting the predetermined goals.

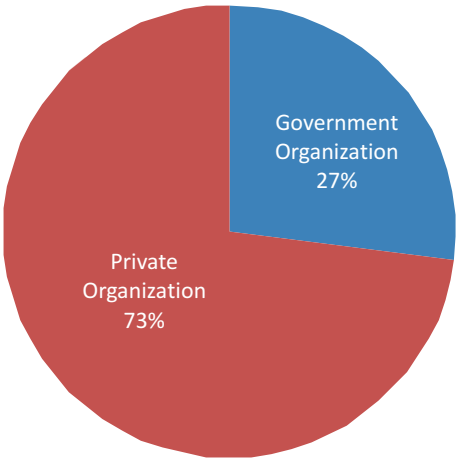
Close - the process in which the successful completion of project objective is presented.

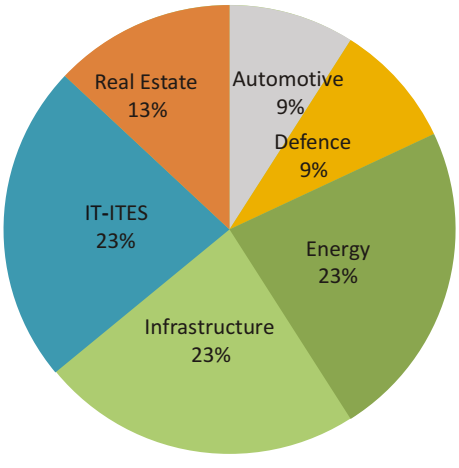
Research Methodology

Research Intent: FICCI conducted this research study for PMI, to identify and asses the project management practices and capability in India. The study focuses on the following:

- Project delivery... To what extent do organizations in India deliver project commitments?
- Challenges and constraints … What are the reasons behind not meeting commitments?
- Project management trends and practices … To what extent do we adopt best practices?
- Project management capability… To what extent is skilled man-power available?

Figure 23: Primary Research Sample





Research Methodology

- The study is compiled by the Federation of Indian Chambers of Commerce and Industry (FICCI) for the Project Management Institute (PMI). Tata Consultancy Services (TCS) Ltd. involved for research analytics.
- The study includes findings from primary research, expert interviews, consultative meet and secondary research
- Key sectors studied are Automobile, Defence, Energy, Infrastructure, IT-ITES and Real Estate. The study comprised both government and corporate organizations. The sampling scenario is as indicated in figure 22.

Limitations

- The primary research data are representative of large organizations, typically industry leaders in respective sectors. Inputs from small, mid-sized organizations and from the unorganized sectors like suppliers and contractors have not been incorporated.
- A lot had to be left to the understanding of the respondents because of the self-filling nature of the questionnaire

PMI-FICCI Survey Questionnaire

Questions
How many projects have been initiated in your organization during the last one year?
What percentage of your projects is completed/running within the time schedule fixed at the start of the project?
What percentage of your projects is completed/running within the budget fixed at the start of the project?
Which of the following factors are constraints in successful execution of the projects? (Please rank the parameters from 1-10, 1- most important and 10- least important) Unclear/ Change of Project Scope Lack of Trained Personnel Poor Project Management Process Lack of Organizational Support w.r.t. resources, coordination between departments etc. Unrealistic Deadlines Lack of Communication with stakeholders Multiple Clearances Fund/ Capital Mobilization Increased Complexity in Project Any Other, Please specify
In your opinion, which are the various factors that result in delay of projects?
In your opinion, which are the factors that result in cost escalation of the projects?
Are there any factors/constraints specific to your sector, which makes management of projects difficult or complex?
Do you have adequate number of trained/qualified personnel available in your organization to manage your present and future projects?
At present, do you have a structured programme for Project Management training and development?

Questions
Does your organization follow a structured approach while approving and planning new projects? Please specify which of the following factors is/are included during project planning? Project Scope Project Delivery Schedule Project Budget Project Implementation Team Project Management Plan Project Quality Parameters Project Target Benefits Project Risk Management
Is the Head of your organization involved directly in the regular reviews of project progress?
Is the project management methodology followed in your organization for managing projects benchmarked with global standards such as PMI's Project Management Body of Knowledge (PMBOK)?
What is the relative importance given to the following parameters while assessing the success of a project? (Please rank the parameters from 1-5, 1- most important and 5- least important) Project is on Time Project is within the Budget Project has Delivered Targeted Benefits Project Quality standards are met Project is within the scope
Are you able to achieve the global benchmarks in the project management of your sector? If no, please specify the affecting factors: Lack of information Lack of Technology Support Lack of trained manpower Any other, please specify

Questions
Do you have a centralized Project Management Office (PMO) that actively manages all the projects? If yes, please specify the activities undertaken by the PMO. Managing Resources Mentoring Developing Project Management Methodology Monitoring Compliance Developing Project Policies, templates etc Coordinating Communications Training
Do you conduct a post project completion review? If yes, please specify the process of review and the role of the top management in review.
Are the best practices developed during the implementation of a project recorded for utilization in subsequent projects?
Does your organization follow a structured approach for the selection and formation of their project teams?
Do you emphasize on deputing a certified Project Manager on each of your Projects?
Do you insist on deputing a certified Project Manager on each of your outsourced Projects?
Does your organization use an effective risk identification and mitigation process?
At what stage is the monitoring of the project closed?
What are your expectations for the role of project management, in achieving business objectives of your organization, in the coming years as compared to the present situation?
Is your organization adopting more project-based approach to deliver your future business commitments?

About PMI

Project Management Institute (PMI) is one of the world's largest professional membership associations, with half a million members and credential holders in more than 180 countries. It is a not-for-profit organization that advances the project management profession through globally recognized standards and certifications, collaborative communities, an extensive research program, and professional development opportunities.

Our worldwide advocacy makes us the global thought leader in this strategic organizational competency.

Certification

PMI offers five certifications that recognize knowledge and competency, including the Project Management Professional (PMP)® credential held by more than 370,000 practitioners worldwide. Salaries and career opportunities for credential holders show that employers recognize the value delivered by trained practitioners.

Global Standards

PMI's 12 standards for project, program and portfolio management are the most widely recognized standards in the profession - and increasingly the model for project management in business and government.

They are developed and updated by thousands of PMI volunteers with experience in every type of project, and provide a common language for project management around the world.

Chapters and Communities of Practice

Most of PMI's activity takes place in more than 250 geographic chapters and 30 industry- or interest-based communities of practice. These communities open to PMI members and led by volunteers, support the knowledge sharing and professional networking that are central to our mission.

Training and Education

PMI offers a wide range of professional development opportunities, from our SeminarsWorld® and e-learning courses to PMI global congresses and other events.

You can also turn to more than 1400 Registered Education Providers (REPs) for project management training and continuing development. For those in college, the PMI Global Accreditation Center for Project Management Education Programs has recognized more than 60 undergraduate and graduate degree programs.

Research

The PMI Research Program, the most extensive in the field, advances the science, practice and profession of project management. It expands project management's body of knowledge through research projects, symposiums and surveys, and shares it through publications, research conferences and working sessions.

Professional Awards

PMI's Professional Awards Program recognizes and celebrates the highest standard of projects, organizations and professional development products. Our esteemed Project of the Year Award is our highest honor, given to the project that demonstrates superior performance and exemplary execution.

Governance

PMI is governed by a 15-member volunteer Board of Directors. Each year PMI members elect five directors to three-year terms. Three directors elected by others on the Board serve one-year terms as officers.

Day-to-day PMI operations are guided by the Executive Management Group and professional staff at the Global Operations Center in Newtown Square, PA, USA.

Project Management Institute in India

PMI has set up its offices in India with a mandate to undertake advocacy of Project Management across organizations, academia and governments in India.

The PMI India office has been set up with the key mandate of driving advocacy of Project Management across organizations, academia and governments in India. The charter of this office is thought leadership and dissemination of information related to project management through various vehicles like roundtables, seminars, events and development programs. The India office constantly engages and interacts with professionals through direct business meetings, industry-focused and cross-industry events, partnerships with associations etc. PMI in India is represented by 7 Chapters (Delhi, Mumbai, Bangalore, Chennai, Hyderabad, Pune & Trivandrum), over 60 Registered Training Institutions and full time staff based out of PMI offices in Mumbai, New Delhi and Bangalore

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Project Management Institute

About FICCI

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence and its subsequent emergence as one of the most rapidly growing economies globally. FICCI plays a leading role in policy debates that are at the forefront of social, economic and political change. Through its 400 professionals, FICCI is active in 52 sectors of the economy. FICCI's stand on policy issues is sought out by think tanks, governments and academia. Its publications are widely read for their in-depth research and policy prescriptions. FICCI has joint business councils with about 100 countries around the world.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. FICCI has direct membership from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 83,000 companies from regional chambers of commerce.

FICCI works closely with the government on policy issues, enhancing efficiency, competitiveness and expanding business opportunities for industry through a range of specialised services and global linkages. It also provides a platform for sector specific consensus building and networking. Partnerships with countries across the world carry forward our initiatives in inclusive development, which encompass health, education, livelihood, governance, skill development, etc. FICCI serves as the first port of call for Indian industry and the international business community.

It has branch offices in major Indian cities and key regions in the world such as US, UK, Italy, France, Malaysia, China, Singapore, Thailand and Kazakhstan.

Glossary

Abbreviation	Expansion
AIPM	Australian Institute for Project Mgmt.
APM	Association for Project Management
BFSI	Banking, Financial Services and Insurance
BPO	Business Process Outsourcing
CAGR	Compounded Annual Growth Rate
CBU	Completely Built Unit
CPI	Cost Performance Index
DOFA	Defence Offset Facilitation Agency
DPP	Defence Procurement Procedure
EVM	Earned Value Management
FDI	Foreign Direct Investment
FICCI	Federation of Indian Chambers of Commerce and Industry
GDP	Gross Domestic Product
IPMA	International Project Mgmt. Association
IPMT	Integrated Project Management Teams
IT	Information Technology
ITES	IT Enabled Services
KM	Knowledge Management
LCC	Life-Cycle Cost
MOSPI	Ministry of Statistics and Programme Implementation
NPD	New Product Development
OEM	Original Equipment Manufacturer
PEP	Project Execution Plan
PERT	Program Evaluation and Review Technique
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute

Abbreviation	Expansion
PMO	Program Management Office
PPP	Public Private Partnership
RE	Renewable Energy
ROI	Return on Investment
SPI	Schedule Performance Index
STPI	Software Technology Parks of India
TCS	Tata Consultancy Services (TCS) Limited
$	United States Dollar
WBS	Work Breakdown Structure
WESS	Weighted Employee Satisfaction Survey

Reference

- http://en.wikipedia.org/wiki/Renewable_Energy_in_India
- Ministry of Power; Economic Survey 2005-06 & Planning Commission, MoPNG, Gail Infraline, Annual Report 2004-05, Ministry of Coal
- Mid Term Appraisal of the Tenth Plan
- Draft Integrated Energy Policy, Planning Commission
- The Parekh Committee Report
- The Infrastructure Sector in India, 2007- Anupam Rastogi
- NASSCOM Strategy Review 2009
- TCS-GCP Research and Analytics
- http://planningcommission.nic.in/plans/planrel/fiveyr/10th/volume2/v2_ch7_6.pdf
- www.global-innovation.net/publications/PDF/Study_Indian_Auto_Industry_Long_ march.pdf
- http://indiaDefenceonline.com/indian-Defence-industry-snapshot/
- http://www.cag.gov.in/html/reports/Defence/2009_18_DS/annexures.pdf
- Quarterly reports of the Ministry of Statistics and Programme Implementation (MOSPI)
- http://www.oracle.com/corporate/analyst/reports/ent_apps/ppm/ppm-wave-q407.pdf
- http://www.ibef.org/industry/realestate.aspx
- http://www.business-standard.com/india/news/most-property-project-delays-in-ghaziabad-gurgaon-study
- The Inherent Complexity of Large Scale Projects- Prof. Dr.-Ing., Prof. Dipl. Ing.
- http://www.watermarklearning.com/HowToCreateAClearProjectPlanExcerpt.pdf
- http://knol.google.com/k/analysis-of-project-success-criteria-and-success-factors#
- Wideman, 1996, Improving PM: Linking Success Criteria to Project Type, paper presented to the Southern Alberta Chapter, Project Management Institute, Calgary Symposium
- A Contextual Assessment of Project Management Practice: Variation by knowledge area, project type and phase; Claude Besner, Ph.D.; Brian Hobbs, Ph.D.
- 2008 PMO 2.0 SURVEY REPORT; The Continued Evolution of the Project, Program and Portfolio Management Office (PMO) PLANVIEW INC.
- http://www.pmforum.org/library/papers/2006/PDFs/12-06-Nicholson-PM_Benchmarking.pdf
- http://irmprm-global-it-pm-survey2005.pdf
- PMI-KPMG Study on drivers for success in projects 2010- Managing for change
- FICCI: 'India Infrastructure Summit Repport-2010'
- Automotive Industry: Indian Brand Equity Foundation Report, September 2009
- TCS Consulting Practice Research and Analytics Report

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