



Creative Thinking in Project Management

Adopting latest advances in the field of creative thinking for effective project management.

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Technical Paper

Theme: Strategic & innovative practices portfolio, programs & project (PPP) management for redefining India

Key Words: System Thinking, Lateral Thinking, Design Thinking, Project Management

Abstract

Albert Einstein once correctly said “We cannot solve our problems with the same thinking we used when we created them”. To drive the “make in India” goal, project managers have to go beyond standard project management practices and unleash creative thinking to spur a culture of innovation in projects.

This article elaborates how latest advances in the field of creative thinking, namely ‘System Thinking’, ‘Lateral Thinking’ and ‘Design Thinking’ can help project managers to create innovative practices. For example, System Thinking provides a reliable methodology for project managers to analyze how people, process and technology in projects influence each other and how to bring the best out of them. Likewise, Lateral Thinking which focuses on finding creative solution through indirect means will enable project managers to find new innovative solutions through unconventional ways. Design Thinking on the other hand offers solutions to move into a solution focused mindset from a problem focused one by leveraging the power of analysis and imagination.



The main discussion point of the article includes

- The various project management life cycle phases and the corresponding challenges where innovation and creativity is required
- New advances in the field of creative thinking and how it can be used to find solution to the above challenges
- Skill development framework for project managers to practice creative thinking

The article takes examples from real life case studies and provides implementable recommendations for today's project managers.

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Introduction

From disruptive technology landscape to new market economy challenges, projects today across all sectors from government, manufacturing to IT are becoming more complex and challenging. Project managers have a daunting task to manage hard factors of scope, schedule and budget in the face of ever increasing risks and uncertainties. With the limitations of traditional project management practices in solving these challenges, the need for creative and innovative practices in project management has been growing day by day. With the Honorable Prime Minister of India, launching the Make in India initiative, it is all the more necessary to build project management capabilities for higher level of innovation, creativity, repeatability and predictability.

Quality is important and project managers today are indeed seeking quality everywhere. The problem is they have missed to seek quality in the most important area - the quality of thinking. Project managers need better thinking methods in order to make full use of their available intelligence and experience in solving day to day challenges. The latest advances in the field of creative thinking namely 'System Thinking', 'Lateral Thinking' and 'Design Thinking' can help project managers to create innovative practices and drive successful projects. Though there are many other creative thinking methodologies available, based on our practical experience and research we understood that these are the three key ones, which are easy to learn and implement, and can bring quick results.

Need for Creative Thinking in Project Management

Limitation of Logic

Project management field is highly dependent on the use of logic and structure, starting from making task lists to managing project dependencies. Most of project management best practices like Gantt charts, risk management techniques, contingency planning, etc. are built around the concept of logic and structure. However the use of logic and structure has proven limitations when it comes to innovation and creativity.

It has been mathematically proved by some of the greatest minds of the last century like Kurt Godel (Godel's Incompleteness Theorem¹) and Alan Turing (Turing's Halting Problem²) that there will always be certain problems which can never be solved within the boundaries of logic. Worse still when we start with such a problem we will never know beforehand if it can be solved eventually by logic or not. The important message here for project managers is that there will always be certain challenges which they cannot solve using existing project management practices bounded by logic and they will have to go beyond logic (and this is where the three creative thinking methodologies fit in) to come up with innovative solutions.

Need for Creative Thinking



We conducted a small survey across project managers in Tata Consultancy Services (TCS), India's largest IT firm. The survey, in the form of questionnaire, tried to capture the awareness, importance and usage of creative thinking practices in project management. An outstanding 100 percent of the respondents (Figure 1) agreed that there is a need for creative thinking in project management.

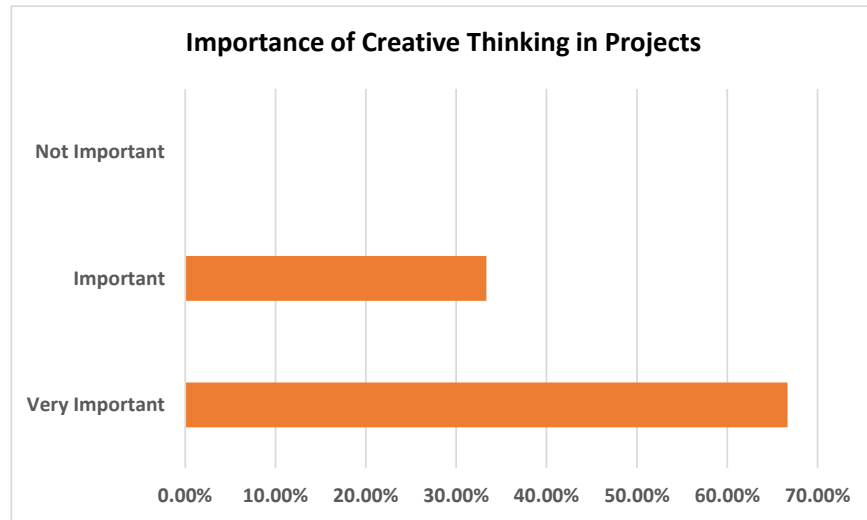


Figure 1: Survey Results – How important do you think is the role of innovation and creative thinking in various phases of project management

Also, interestingly 67 percent of the respondents (Figure 2) said that there exists some level of support in their current project management structure for practicing creative thinking. It reiterates the fact that project managers are waking up to the importance of creative thinking.

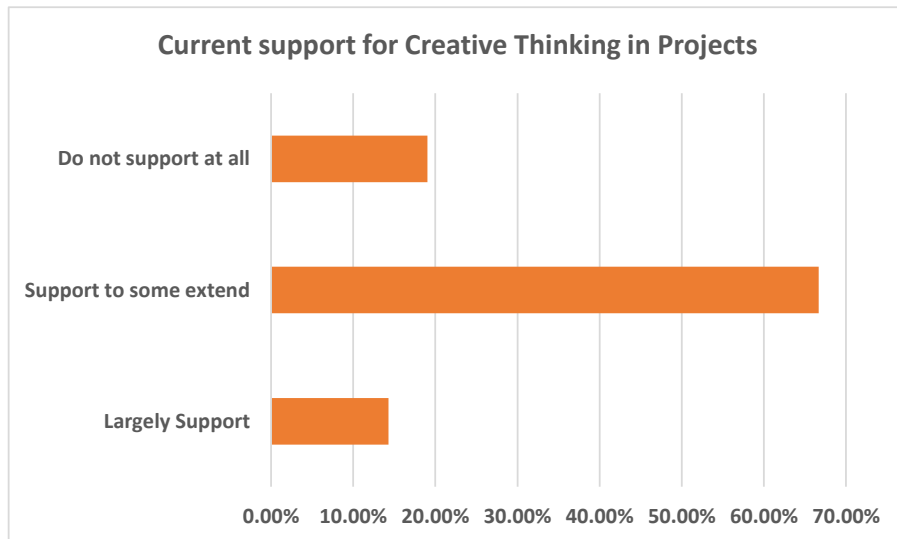


Figure 2: Survey Results - To what extent do the current project management structures like framework, metrics etc. being used in your projects support innovation and creativity?

Latest Advances in the Field of Creative Thinking

The ability of project managers to innovate and come up with creative solution depends on both internal and external factors. Internal factors would include demography, psychology etc. whereas external factors include organizational support for project managers to take risk etc. For example:

- Age Distribution: Studies indicate³ that brain's white matter (that contributes to creativity) peaks at around the age of 40. Most of the Nobel prizes have been won by people at around this age. Does this imply that project managers who are at their 40s can bring in more innovation compared to their counterparts in 30s or 50s?
- Psychology: When it comes to innovation even while same information is made available to different people only few gain the insight and make the discovery. Scientist Gary Klein calls it "Insight Stance"⁴. Will a project manager who has higher "Insight Stance" be more creative and innovative than his peers?

There are many researches available on these internal and external factors of creativity. Due to current limitation we have kept these topics outside the scope of this paper. The point we would like to highlight here is that most of these factors are outside the control of the project environment as the project managers and team are fixed



beforehand. Given this constraint and restrictions the three creative thinking methodologies discussed below will help boost innovative practices in projects.

A. System Thinking

Systems thinking has been defined as an *“approach to problem solving, by viewing “problems” as part of an overall system, rather than reacting to specific parts, outcomes or events, and thereby potentially contributing to further development of unintended consequences”*⁵. In project management, systems can consist of people, structures, and processes that work together to make the organization.

B. Lateral Thinking

The term “lateral thinking” was coined by UK psychologist Dr. Edward de Bono. Lateral thinking is *“solving problems through an indirect and creative approach, using reasoning that is not immediately obvious and involving ideas that may not be obtainable by using only traditional step-by-step logic”*⁶.

In project management, lateral thinking techniques have been found very helpful in stimulating out of the box thinking in group sessions. Some popular lateral thinking techniques that project managers can leverage include Free Association, Reversal, Distortion, Lateralization and Factoring.

C. Design Thinking

Design Thinking⁷ draws upon logic, imagination, intuition, and systemic reasoning, to explore possibilities of what could be, and to create desired outcomes that benefit the end user. It involves both analysis (logic) and imagination (intuition). A project manager who has a design thinking mindset eventually moves from traditional problem-focused mindset to a solution focused one with action orientation.

As per design thinking Professor Jeanne Liedtka⁸, the best technique to apply design thinking for a challenge is by asking four key questions: What Is? What If? What Wows? What Works?

Our survey tried to gauge the maturity of adoption of these creative thinking concepts in the Indian Project Management context. Only 10% responded that they use these concepts regularly.



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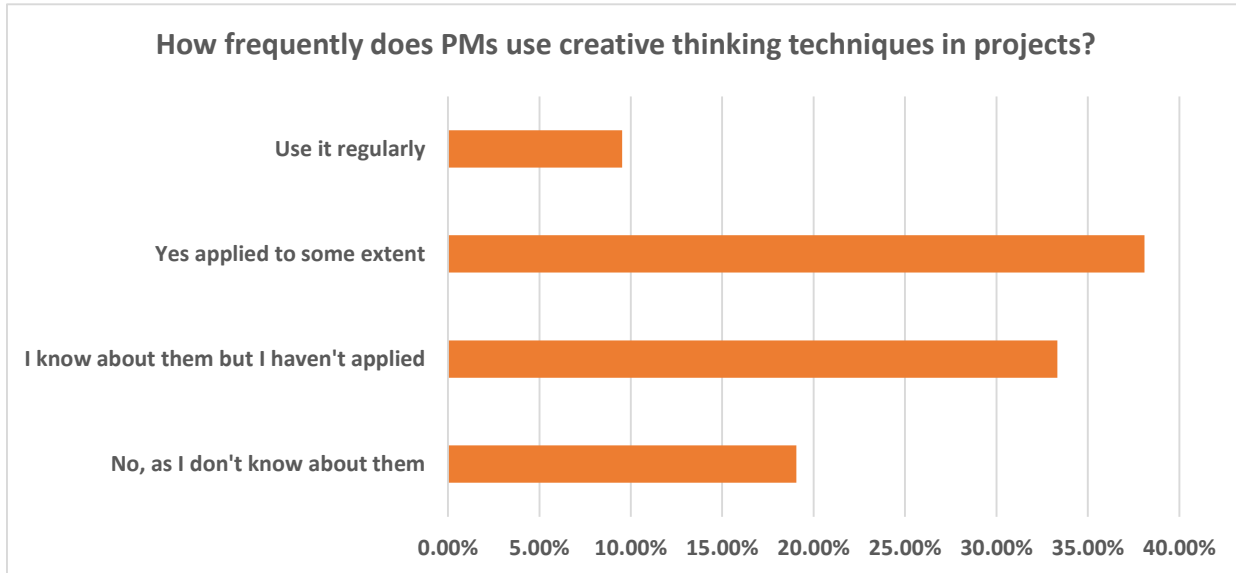


Figure 3: Survey Results - Have you ever applied System, Lateral and Design thinking in your project management practices?

Framework for Applying Creative Thinking Techniques in Project Management

The key question now is to determine when a project manager should adopt a given approach (out of the three). For a given challenge should the project manager approach it with System, Lateral or Design thinking techniques? Though the three approaches complement each other, however based on our experience and scholarly research we have come up with this framework through which project managers should pass a challenge to decide which technique is best suited for tackling their challenge.



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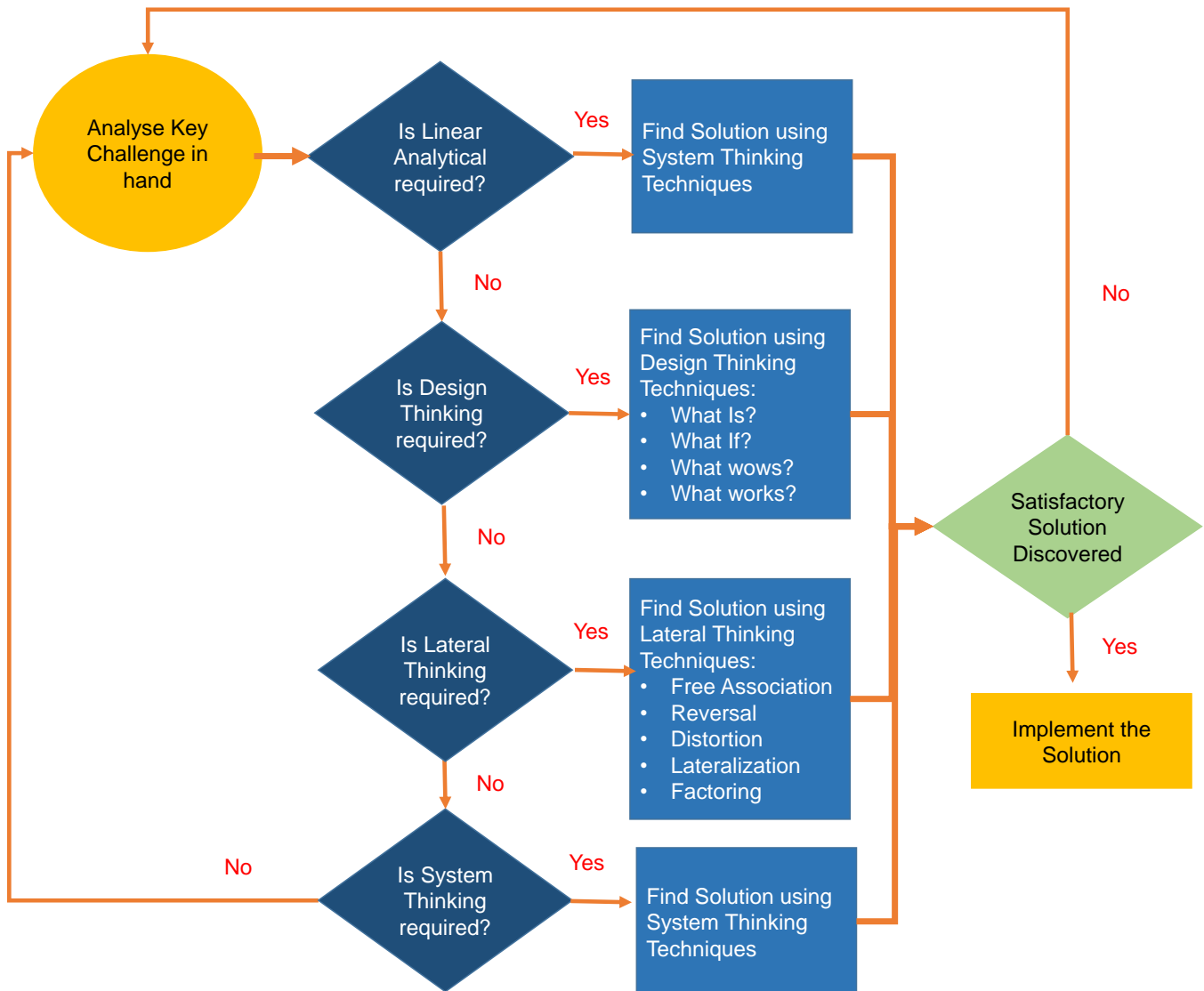


Figure 4: Framework for using creative thinking techniques in projects



Evaluation parameter to choose between linear analytical method and creative thinking methodology

Linear analytics methods may be better when the following aspects of the problem (to be solved) are true.

- There are few human beings involved in the problem or the solution (The problem is not human centric).
- There is a clear understanding of what the actual problem is
- Past data can be used for predicting future clearly
- There are several clear sources of analogous data available to start with

Evaluation parameter to choose between System, Lateral and Design Thinking methodologies

Once linear thinking is ruled out, this set of parameters will help identify whether we should go for system, lateral or design thinking approach.

Design Thinking	System Thinking	Lateral Thinking
<ul style="list-style-type: none"> • Primarily people centric problem • There is no clear understanding on what the actual problem is • There are many unknowns (large and small), and past data is unlikely to help in finding a solution • There is very few relevant existing data to analyze 	<ul style="list-style-type: none"> • Involves people, process and technology aspects together • There are multiple perspectives on just what the situation is, and how to deal with it. • A previously applied fix has created problems elsewhere • After a fix is applied the problem returns in time • The same fix is used repeatedly 	<ul style="list-style-type: none"> • Primarily process and technology centric problem • Vertical thinking provides limited solutions • There are similar processes, technologies being used in the organisation (as the one currently linked to the challenge under analysis)



Creative Thinking Solutions Applied in Project Management

We have taken five project management challenges from our experiences and shown how innovative solution can be derived in such cases using the above framework.

Case 1	Improper Impact Analysis
Challenge	The client has an IT system to support their business processes. When any enhancement was made to the IT system it was severely impacting the performance of business processes running on it. The IT team of the client was not able to tune the IT system to prevent such recurring incidents.
Technique Used	System Thinking
Rational for choosing the technique	We have taken the system thinking approach as the issue is mostly technology centric and even after fixes were applied regularly to the system, the problem was recurring
Analysis and Solution	<p>On paper the role of the project manager was to implement technology solutions to support the enhanced/new business process on the IT system. The Project Manager's focus was on the application alone e.g. programming the system, doing testing, converting the data etc.</p> <p>By using system thinking techniques various system components like the process that is being implemented, the skill set of people who are implementing it and so on, was also analysed. By doing so it was found that the project manager was focusing only on the technology component and ignoring a key aspect – are the business process being implemented correct (do they need to be revised?). After all if you are using technology for suboptimal processes, it will not accomplish the end business objectives and the application won't run as per started business needs.</p> <p>As a result, though it was a technology project the scope of the project was expanded to include process assessment and organization change management (Other system components associated with the IT system). The key focus here was to achieve the business objectives rather than merely completing a project.</p>



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Case 2	Program schedule slippage
Challenge	In a large program consisting of several projects, there was continuous slippage to the overall program schedule as individual projects under it were getting delayed. It was not sure if it was a people, process or technology issue.
Technique Used	System Thinking
Rational for choosing the technique	We have taken the system thinking approach as the initial analysis suggested that the impact might be from all the three aspects - people, process and technology.
Analysis and Solution	<p>The impacted program was facing constant slippage in terms of budget, time and resource. Initial analysis suggested that the flaw lied in the project estimation template. However on careful analysis, using system thinking techniques, it was found to be a wider issue covering people, process and technology components.</p> <ul style="list-style-type: none">• People: Each individual project team (under the program) was providing estimation based on their own approach.• Process: There was no standardized methodology for estimation, some teams were using component based estimation where as others, line of code.• Technology: There was no standardized estimation tool available across all the project teams. Some were using excel sheet based tool where as others were using open source tools. <p>As a solution a standardized estimation tool (which also helped reduce what scientists call 'Planning Fallacy⁹' error in estimation) was implemented across all the projects. Also the estimation methodology and process was streamlined across the enterprise with strong governance in place.</p>



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Case 3	Challenges faced in increasing efficiency of customer loyalty program for a leading casino chain
Challenge	The client has two line of business (LOB) – Casino and Resorts. Both LOBs had separate customer loyalty program. The client needed to improve its loyalty program in both LOBs. Further enhancement to the loyalty management IT application for each of the LOB was not bringing the desired results.
Technique Used	Lateral Thinking
Rational for choosing the technique	We have taken Lateral thinking techniques as vertical thinking was providing no new solution (all the optimal enhancements that could be done in the system were in place).
Analysis and Solution	<p>The project manager was trying to increase the capability and features in the individual loyalty program of each LOB by using the underlying IT system more efficiently (e.g., by providing features such as SMS notifications to customers and so on). He was thus relying only on vertical thinking.</p> <p>Using lateral thinking techniques an innovative solution was devised to merge the loyalty programs of both LOBs and have a single IT loyalty platform across the LOBs. As many customers were members of both loyalty programs, a merged loyalty program allowed resort customers to redeem their loyalty points in the casino, and vice versa. This strategy eventually helped the business grow its market share and improve customer satisfaction. This also helped optimize the underlying IT systems.</p>

Case 4	Improper Project Scoping
Challenge	Improper project scoping leading to stakeholder expectation mismatch
Technique Used	Design Thinking
Rational for choosing the technique	We have taken design thinking approach as it is a people (stakeholder) centric problem.
Analysis and Solution	<p>The key challenge was for project managers to identify the key stakeholders of the project and capture their actual needs from the project. Though design thinking techniques are most suited for complex end to end problems, its techniques (Like the 4 W's) can still be used for solving specific smaller challenges as in this case.</p> <ul style="list-style-type: none"> • What Is? – We started by trying to identify why the correct requirement from the



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	<p>stakeholders was not baselined? Are stakeholders not able to articulate their needs accurately or are PMs not able to capture them correctly?</p> <ul style="list-style-type: none"> • What If? – Next step is to find what might be the possible solutions to mitigate it? Should the project manager change the way they capture and validate requirement with stakeholders for e.g. instead of conveying it in text format should he create a schematic diagram of the scope and final deliverable (showing current and target state indicative changes) so as to validate the scope from stakeholder accurately? Or should the project manager install a requirement management tool to capture and maintain traceability of business requirement across the project lifecycle? • What wows? – In this step, we decide on the best possible solution. Implementing a requirement management tool, that manages requirements across the entire development life cycle, was preferred as it will benefit all stakeholders from business, IT and operation teams as all will be having a common understanding of the requirements. • What works? – In this step the requirement management tool was piloted for a small project. Once successful it was rolled over to all the IT teams.
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Case 5	Risk Management
Challenge	How to identify all potential risks in a project?
Technique Used	Design Thinking
Rational for choosing the technique	We have taken Design Thinking as there are many unknowns and past data is not sufficient to indicate all unforeseen future risks
Solution	<p>It is always hard for a project manager and his/her team to identify the potential risks of a project; there are always some unpredictable obstacles that pop up right when everything seems to be sailing smoothly. The techniques of Design Thinking enables a team, together with the customer, to identify potential risks at an early stage.</p> <p>After a project is envisaged, the characteristics of the project including but not limited to scope, budget, timeline, geographical spread, resources employed and end benefits are compared to a similar project already executed in the organizational database whose events are captured and analyzed. This data is used to predict the risks of the envisaged project with increased consistency and thus prescribe mitigation measures, in the early stages.</p>



Taking the solution to the next level, the project managers are effectively leveraging the powers of social media and gamification. This is enabling:

- All team members contribute and perform activities in risk management life cycle in a collaborative way. This is also leading to increased sense of belongingness
- Providing visibility of project risks to all project members
- Capture of project related risks in addition to project management related risks.

[Skill Development Framework for Project Managers to Practice Creative Thinking](#)

Though technical training on the tools and techniques used in each of the three creative thinking methodologies is one key aspect for skill development, project managers need to be given leadership training to develop what psychologists call a 'prepared mind'. It is a state of mind which enables project managers to think out of the box and adopt innovation as a way of life in their day to day schedule instead of a one off activity. Some key shifts in approaches to be brought into the PMs include:

- They should understand that not all innovative ideas will succeed post implementation. Venture capitalists for instance, only expect one to two of their venture funds out of ten to be successful.
- They should understand that in case an innovative idea fails, it doesn't mean they are incompetent and their career has failed. They have to move over the fear of failure and take risks
- They need to move over unnecessary data analysis. Organization are designed for stability and control and obsessed with analysis. This culture embeds into project managers also. However there is a limit to logical analysis and project manager should know when to move into intuition and creative thinking instead of endless data crunching.
- They should understand that innovation does not necessarily mean big and complex ideas. A small and simple idea can also bring powerful results.
- They need to train themselves to improve right brain abilities (Left brain is for analysis and right brain for creativity). For example, training on empathy helps in right brain development.
- Project managers should move beyond their comfort level and take up projects in different domains, technologies and environments. It has been scientifically proved that exposure to multiple different environments stimulates creativity skills.
- They should include innovation in project Key Performance Indicators(KPIs)



Unfortunately the current organization environment in most Indian companies does not support skill development for innovation and creativity in the team.

Conclusion

Project managers do not necessarily have to be geniuses to come up with creative solutions to tackle today's challenges. Neither do they have to be dependent on expensive strategy and innovation consultants each time they are stuck in a daunting challenge. System, Lateral and Design thinking techniques are easy to learn and practice and can help project managers come up with innovative and creative solutions in their day to day life. Going forward we strongly believe that project managers should be given relevant training on creative thinking techniques to help them manage projects innovatively and help India realize the 'Make in India' vision.

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