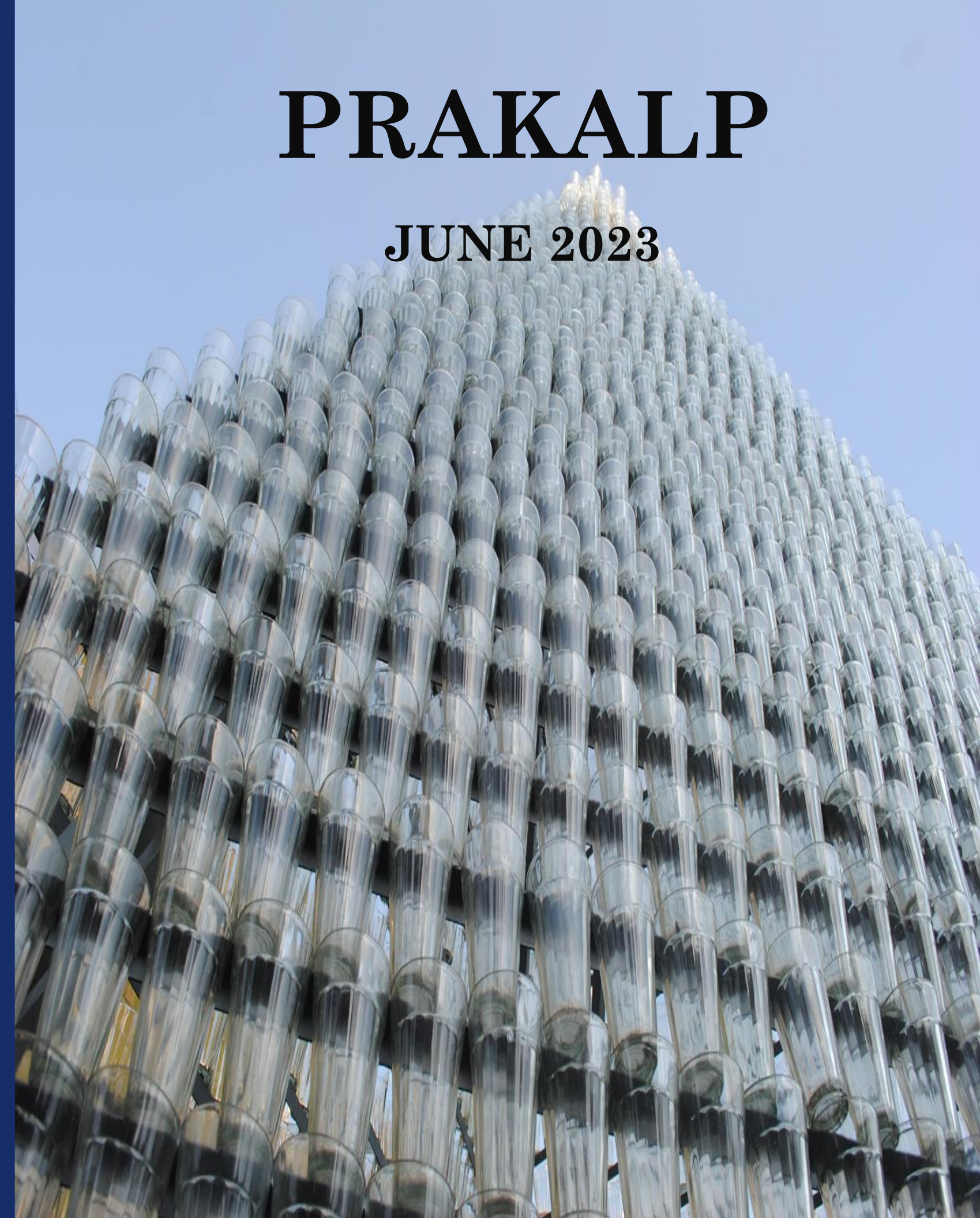


PRAKALP

JUNE 2023



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PRAKALP



Our Team

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President's Message

Dear Project Management Colleagues,

Greetings to you from the new President of the PMI Mumbai Chapter. Prakalp, our in-house magazine, has been a harbinger of news and views from the Chapter's populace ... and continues in the same vein going forward too!

The transition has been different this year. The Working Year of the Mumbai Chapter is being changed from the Financial Year (April to March) to the Calendar Year (January to December). The Chapter has embraced this change to ensure future transitions are in line with the majority of other Chapters within Region 11 to which we belong.

There has been an increase in interest in the Chapter activities in the recent past due to a dynamic team moving to make it so for the membership. Visit the Chapter pages to understand the available opportunities and participate in those areas close to your heart and gain accolades for self as well as the organization! You are all invited not only to join in as members of existing teams but also set up and lead new teams in your areas of interest and expertise! This will not only help you gain PDUs for the volunteering activity but also provide all with an opportunity to network with like-minded souls.

Programs this year will focus on more in-person interactions rather than online alone – but Hybrid is the way, so we shall swing both ways. Do enjoy the June 2023 issue that covers the accomplishment of the volunteers in its various forms – be it physical, mental or emotional! We keep growing by embracing CHANGE! Let us all make this effort to take time out to participate and collaborate to make this Chapter a glowing example for others to follow!

Some good news! The Mumbai Chapter is one of the Chapters that has pre-qualified in Category III from South Asia for the Chapter of the Year Award due to an acknowledgement of the exploits of the Chapter in the year gone by! Kudos to the team for bringing the Chapter this far! Invite all of you to carry this trend ahead by contributing your best as per your unique personal skillsets!

Mumbai Chapter has always recognized the performance of its volunteers and a couple of them have risen from being team members to AVPs to VPs within a very short span! So, Come one, Come all ... Grab your Limelight!!

Dr. Oscar Leo D'souza

President, PMI Mumbai Chapter

Trends and Challenges in VUCA Economy

By Sharad Pandey and Subrat
Kumar Bhanja



As the world continues to evolve rapidly, the global economy is becoming more **volatile, uncertain, complex, and ambiguous (VUCA)**. With this VUCA environment comes an increased need for project management professionals who can adapt to change, navigate uncertainty, and deliver results amidst challenging circumstances.

In this thought leadership article, we'll explore some of the challenges and trends that project management professionals can expect to encounter in the VUCA economy.

CHALLENGES FOR PROJECT MANAGEMENT IN VUCA ECONOMY

Uncertainty: In a VUCA economy, the future is uncertain, and project management professionals need to be prepared for the unexpected. They must anticipate and manage risks, develop contingency plans, and be flexible enough to pivot when necessary.

Complexity: Projects are becoming more complex, involving more stakeholders, technologies, and processes than ever before. Project managers must have strong analytical skills, be able to manage complexity, and communicate effectively across diverse teams.

Ambiguity: In a VUCA economy, information is often incomplete or unclear, making it difficult to make decisions. Project managers need to be comfortable with ambiguity, able to navigate through it, and make decisions with incomplete information.

Volatility: The VUCA economy is characterized by rapid changes that can disrupt projects at any time. Project managers must be able to adapt to change quickly, and be prepared to make adjustments to project plans, budgets, and timelines at short notice.

TRENDS FOR PROJECT MANAGEMENT IN VUCA ECONOMY

Agile Project Management: The Agile project management approach has gained popularity in recent years, as it offers a flexible and iterative approach that allows teams to respond quickly to change. Agile methodologies emphasize collaboration, continuous improvement, and adaptive planning, making it an excellent fit for VUCA projects.

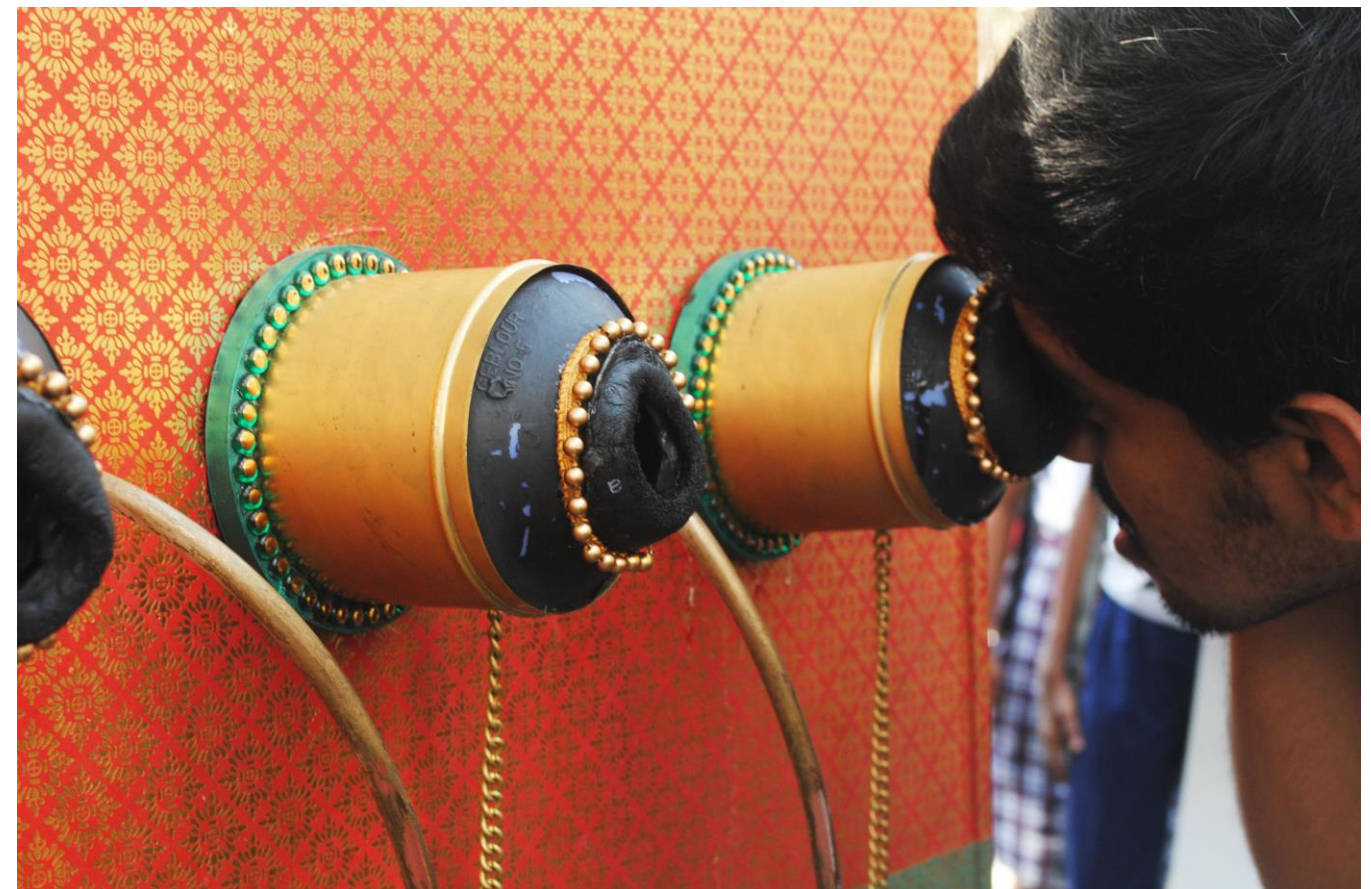
Digital Project Management: The digital transformation has changed the way projects are managed, with the use of digital tools and technologies such as cloud-based project management software, collaboration tools, and AI-powered project management platforms. These digital tools enable project managers to manage projects more efficiently, track progress in real-time, and collaborate with teams across geographies.

Strategic Project Management: Project management is no longer just about delivering a project on time and within budget. Project managers must also align projects with strategic objectives, ensure that they deliver value to the organization, and measure the impact of the project on business outcomes.

Human-Centered Project Management: Project management is not just about managing processes, but also managing people. Human-centered project management puts people at the center of the project, focusing on building relationships, fostering collaboration, and creating a positive project culture. This approach recognizes that project success depends on the people involved, and that their well-being and engagement are critical to achieving project outcomes.

CONCLUSION

The VUCA economy presents both challenges and opportunities for project management professionals. To succeed in this environment, project managers must be adaptable, flexible, and able to navigate uncertainty and change. They must also keep up with the latest trends in project management, including Agile, digital, strategic, and human-centered project management. By leveraging these trends and best practices, project managers can deliver successful projects that drive business outcomes and deliver value to their organizations.



Risk based schedule modelling of
LSTK Offshore Brownfield Oil and
Gas Projects using Project
Management tools & methodologies

By Karishma Laskar and Kangkan
Thakuria, Offshore Project Group,
ONGC



BACKGROUND

Energy requirement has been tremendously increasing with per capita consumption of the country on rise. Oil and Gas Industry is one of the major contributors of socio-economic growth of India. As per 2030 projections, India's oil demand is set to rise at a faster pace and reach 10 million barrels per day and gas by 12.2% CAGR (IBEF, 2022). Since economic growth is linked to energy demand, therefore the need for oil and gas will rapidly grow making the industry conducive for investment. To achieve the energy targets, a lot of capital-intensive projects of high risk-high reward nature is carried out particularly offshore. These projects are for creating new offshore facilities such as pipelines, production platforms for processing of the oil and gas, trunklines etc. and revamping of old structures for production enhancement through Lump sum turnkey contracts.

Hence, it is of utmost importance to have a data driven time and a precise risk-based time estimation methodology in context of operational requirements.

PROBLEM DEFINITION

The major challenges of Lump Sum Turnkey offshore oil and gas projects lie in executing brownfield project scope within time and budget under challenging offshore environment constraints. Schedule modelling of Lump sum turnkey projects that have brownfield scope are carried out considering two to three construction seasons based on historical data of similar complexity project scope and expert judgement. However, a lot of variables come into picture depending on barge mobilization, scope of work, financial muscle of contractor, uncertainties at site, environmental constraints, multiple stakeholder involvement, statutory clearances, and execution methodology of contractors. The outcome of stretched timelines or delays leads to cash flow issues of bidder after award of work, schedule delays leading to costs overrun and change orders, litigation issues, less mobilization of resources (manpower, barges etc.) and low participation of bidders in other tenders. These delays can lead to a loss of revenue and delayed operations impacting the company's financials.

RESEARCH DESIGN & METHODS

A sample project of life extension of existing platforms scope has been considered for the purpose of this study to estimate the expected time using Monte Carlo and PERT. The DPRs of past similar nature projects with similar complexities were studied along with planning package to estimate the number of days for each project phase by using advanced work package or WBS. The daily progress reports of these last two projects were studied to estimate activities such as survey, procurement, fabrication and offshore execution. This research investigated the possible risks and developed a comprehensive list of 38 validated risks with likelihood and impact for each event. The risk ranking and likelihood is obtained based on the risk ranking matrix. Regarding this study, a questionnaire is developed, and interviews are conducted to identify the potential risks and its likelihood and impact. Data has been collected from expert project management professionals such as Project Managers of the company and EPC contractors having extensive experience of handling offshore projects and stakeholders associated with offshore projects.

Excel with @risk add on has been used for simulation and modelling of the project duration. Probability and probability category has been assigned based on the values obtained in the risk scoring matrix. The risks identified per activity such as pre-engineering survey, design engineering, procurement, fabrication and offshore execution-installation and hook up activities are grouped, and a weightage has been assigned based on average or weighted average of each risk for each phase. The risks that have an impact on schedule are only considered for assigning weightage factors. Accordingly, this numerical value which gives the risk rank is integrated into the schedule. For low uncertainty of risk rank 2, risk range of 90%-115% is considered. For medium uncertainty of risk rank 3, 95%-115% risk range is considered. For high uncertainty of risk rank 4, risk range of 95%-125% is considered. Time estimation of three activities is calculated – Pre-engineering survey, Design/Procurement/Fabrication and Offshore Execution. Design engineering and procurement, procurement and fabrication are parallel activities.

The score of the risk against pre-engineering survey, design/procurement/fabrication and offshore execution has been mapped into the schedule and a three-point estimation is obtained. The most likely value is obtained by taking mean of the days taken from the past two projects of a similar nature. The probability distribution for the activities is considered as PERT for design & survey and triangular for offshore execution. The probability distribution and risk range for these activities is in Table-1. The expected time is calculated for most likely, optimistic, and pessimistic scenarios. The detailed time estimation for offshore execution is also in Table-1.

After feeding all data, Monte Carlo simulation is performed with 1000 iterations to generate the most probable time. The simulated duration is then compared to practical duration to find possible deviations, which can be mitigated by risk mitigation measures.

The barge days for installation is dependent on certain factors such as piping inch dia, equipment installed, tonnage data etc. Therefore, DPRs were also studied to find out correlation of these parameters.

Table 1

Activities	Optimistic	Most likely	Pessimistic	Risk Rank	Risk Category	Distribution
Pre egg. survey	58.5	65	74.75	2	Low (90% - 115%)	PERT
Design, Proc, Fabrication	365.75	385	442.75	3	Medium (95% - 115%)	PERT
Offshore Execution	420.85	443	553.75	4	High (95% - 125%)	Triangular
Total Estimated days	845.1	893	1071.25			Triangular

The methodology can be broken down into following steps:

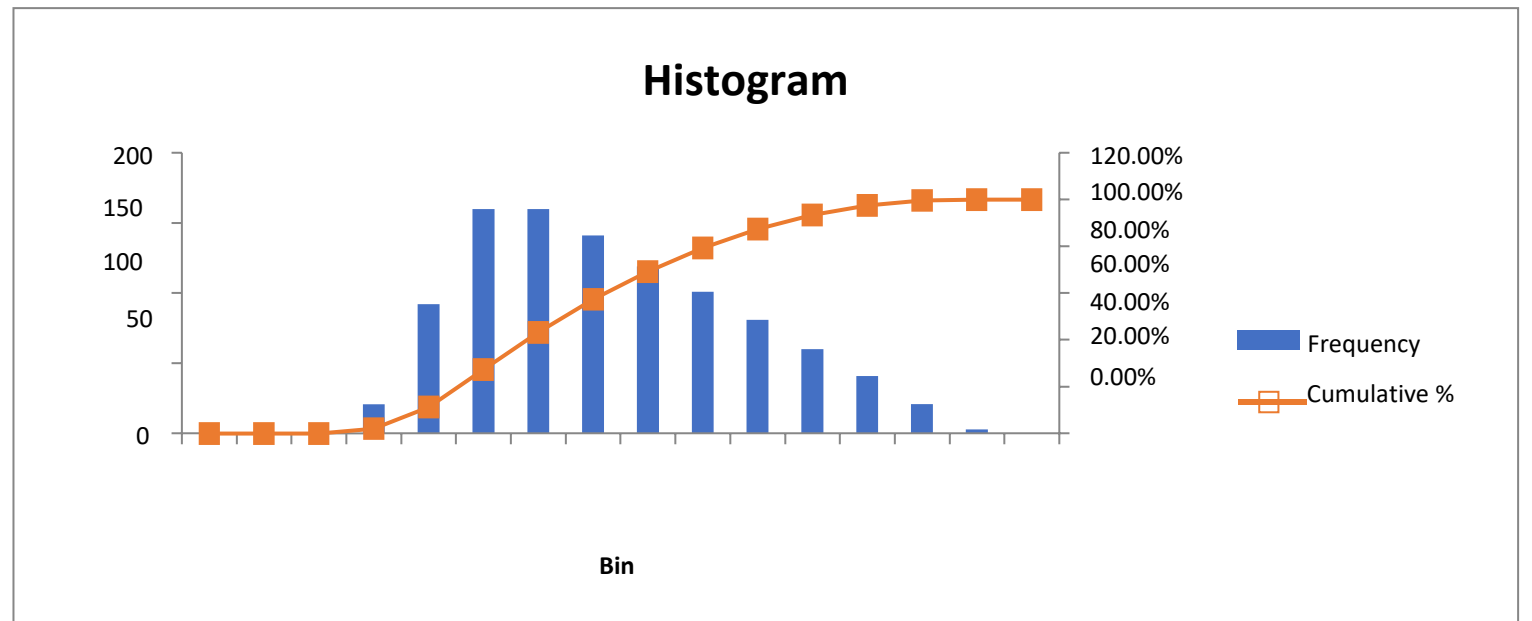
1. Defining activities/project phases
2. Preparing the risk register
3. Quantitative Risk assessment
4. Risk Mitigation Plan
5. Integrating risks into schedule
6. PERT and Monte Carlo

FINDINGS OF THE STUDY

1. The barge days at offshore is collected from DPRs for 20 platform installations and found that actual average days for 1 platform to complete is 133 days with one barge, total barge days is 1861 days & total tonnage replacement is 2625.22 MT. This data is considered for calculating the most likely offshore execution days.
2. The installation rate per day is 1.4 MT.
3. For 10 platforms, considering 195 working days at offshore gives total barge seasons as 7(1330/195). As per calculation, barges required considering 3 construction seasons is 2.3 and with 2 construction seasons comes around 3.4. Hence, considering 3 barges and 1330 as total barge days, the number of offshore days for completing 10 platforms is 443(1330/3) offshore days.
4. The simulation output which is a frequency distribution is shown in **Figure 1**
5. The mean value after simulation is 936 days.
6. After simulation, the probability of 10%, 50%, and 90% are 877, 930, and 1007 days. Probability of 50% value gives a value closer to mean.

1007 days at 90% probability over 99% is considered as already higher margin is considered over and above 433 days for offshore execution. However, on a practical scenario, it takes 100-120 days per platform for completing works with one barge.

Figure 1

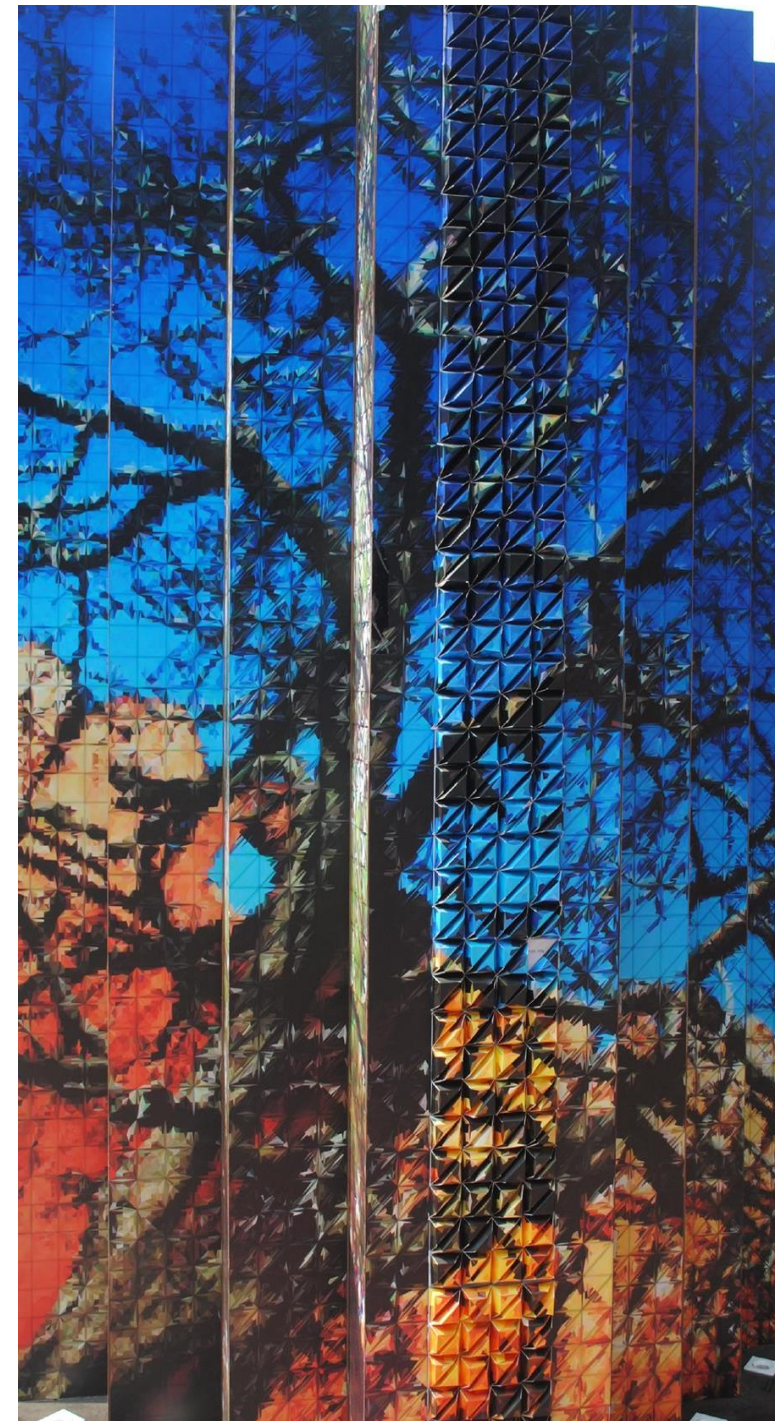


7. This implies that the highest estimate that the project can be completed is 1007 days at probability of 90% with no risk mitigation applied. So, 114 days is the probable delay (considering worst case) that can incur from the most likely estimate of 893 days which was obtained based on past project experience.
8. With appropriate risk mitigation measures in place, the expected duration can be brought down.

RECOMMENDATIONS

In order to avoid delay in projects and stretched timelines, it is necessary that risks are managed well with actionable mitigation measures. It is recommended that stochastic method of time estimation (Monte Carlo simulation) is used during project planning using collaborative workflows rather than traditional approach of expert judgement as market scenarios may be different and contingencies have to be accounted. To determine the criticality index and perform sensitivity analysis, software such as Risky Project professional, @Risk etc. can be used.

Project planning tools such as **Primavera** can be used to plan duration of project, create look ahead look schedule and create shared workspace for stakeholders to have better monitoring & control. A standard template can be created taking parameters such as barge days, tonnage, piping inch dia, etc. and collected from contractors/digital DPRs to have a data pool of time taken for all equipment/replacement jobs. The same can be used as an input for time calculation for future projects.



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Prototype to Product

By Husaina Petiwala, ITM,
Kharghar



INTRODUCTION

The world has been on the path of progress since the innovation of machines. We have adopted the best practices and made the changes in our products and services as per the need of the hour. Prototype to product is about establishing a plan of action to implement applications to improve service, cost, agility, and control of product and service. And consistently implementing changes that use these technologies to drive operational excellence.

Dr. Apurva Joshi spoke on this subject at an event hosted by ITM Business School, Kharghar. Our learnings from this session are summarized in this article.

What are cooperative control algorithms?

Formation flights: A human pilot commands one robot, and the autonomous robots hold formation and follow

Coverage and search: A team of robots follow a coverage pattern and search for specific targets

FROM ALGORITHMS TO MISSIONS

Beyond line-of-sight delivery mission: A team of robots cooperate on a BVLOS delivery mission. An intermediate agent acts as a communications relay between the ground station and the payload delivery vehicle.

1. Take-off
2. Coverage missions
3. Object detection algorithms
4. Return to base
5. Formation algorithms

Coverage and search mission: The team of agents' take-off from a base station and flock to a designated area, which they optimally sweep. Each agent is "trained" to detect targets of interest. Once the target is found, the agents' rendezvous at the target, ready to engage.

Types of tech demos and prototypes

1. Precise payload delivery
2. Real time onboard object detection
3. Prototype delivery drone

Deployment

1. In-service Sigma 25 and Sigma 75
2. Deployed for crowd monitoring and disaster management at Gangasagor 2022

LEARNINGS

- Start by solving smaller problems first. Explore and experience your domain and subject in detail.
- Use the first principle approach i.e., break down the problem into small parts and tackle them one by one
- Mostly you fail, but it is not really failure as you learn through it. Take feedback, work on the shortcomings and improve your prototype.
- Every time you do a task some value must be added to your prototype. So before doing a task ask what value it will be adding to your product.
- With respect to customers, question whether they are ready to pay for the solution you are working for and what does it take to get them to pay.
- Test your prototype again and again, starting with one small unit to integrating it each step. Test the prototype at each integrating stage until it is ready to be launched as a product



Igniting Innovation with Personal
Entrepreneurship

By Ankita Sarowa



We, the students of the P.G. Department of Computer Science, SNDT Women's University had the privilege to attend a seminar conducted by PMI Mumbai Chapter on Igniting Innovation with Personal Entrepreneurship.

The speaker, Mr. Kunal Bhat, shared with us informative and encouraging thoughts on how to inculcate and bring about innovative ideas from our day-to-day activities and then develop these ideas into entrepreneurship models.

I would like to share my views on what innovative entrepreneurship is and review what skills can make an entrepreneur innovative.

Innovative entrepreneurs are individuals who have the capability of creating and bringing innovative products to the market. Innovative entrepreneurship can help professionals develop ideas to successfully manage businesses. Innovative entrepreneurship is the practice of establishing, creating new business ideas intending to generate profit, assist their community and accomplish company goals. Innovation helps an individual entrepreneur or a group of entrepreneurs to improve or replace a particular product, process or service.

An entrepreneur requires various skills in order to become a successful innovative entrepreneur. An innovative entrepreneur may require a good understanding of the industry to determine the nature of the business environment. This can help them to understand how the market can affect the performance of the company. Innovative entrepreneurs can use their knowledge about the market trends to understand the working strategies their competitors are using.

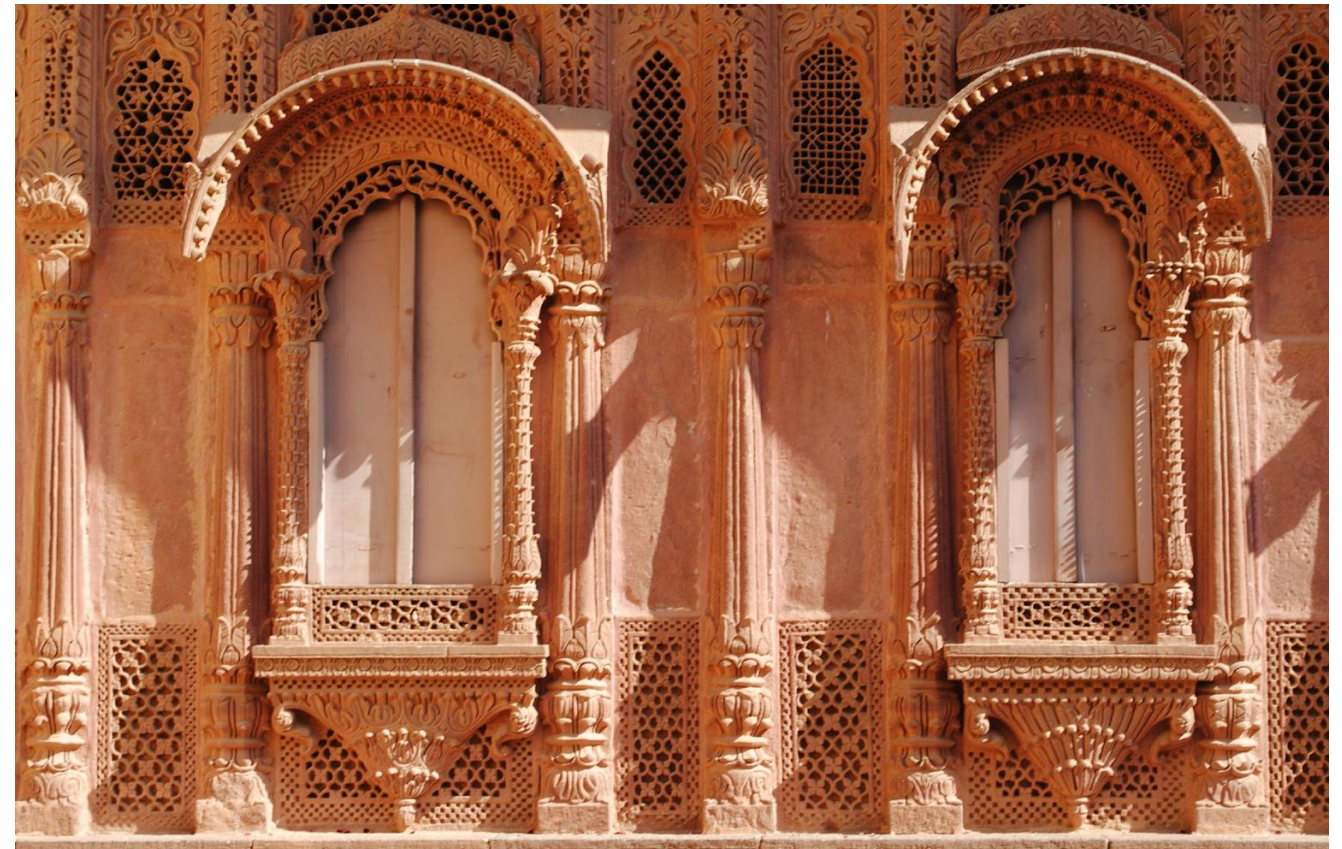
With excellent communication skills, innovative entrepreneurs can build strong relationships with other professionals. This can help to effectively communicate with team members and find solutions that can help in improving the productivity of the business. While communicating with people, an entrepreneur should focus on listening more than speaking. Active listening can provide a clear understanding of different tasks. Great communication skills can also improve the image of innovative entrepreneurs by making them empathetic and trustworthy.

Strategic thinking can help an entrepreneur to position the company in the competitive market. It can also help them maintain a clear vision. With strategic thinking, entrepreneurs can bring something new and innovative to assist the company in keeping up with the latest market trends. After developing strategic plans, innovative entrepreneurs make a clear vision of where they want to go with the plan and collect all the necessary resources to avoid any possible issues that may impact the company's success.

Innovative entrepreneurs use their networking skills to connect with different professionals in the industry. Building a strong network and the ability to connect with various kinds of people can help innovative entrepreneurs to find the best possible human resources for the company. This can allow them to attract impressive talents to their team as well.

Promoting the brand can help the clients and consumers know what values and types of products or services the business can offer. Entrepreneurs can take the help of social media marketing and social media optimization to promote their company on online platforms, discover what consumers want and develop ideas to promote the brand accordingly.

In the end I would like to say that focusing on and inculcating these skills can help young and aspiring innovative entrepreneurs to be successful and have their business booming and developing in this challenging and competitive market.



Inviting article submissions

Calling all PMI/Chapter Members and credential holders to submit their original writings on the topic of project management. Earn PDUs for your published article.

Submission deadline for the next issue
– 30th July, 2023

Email your article along with your recent photograph & your LinkedIn profile and/or short profile to marketing@pmimumbaichapter.org

About the Contributors



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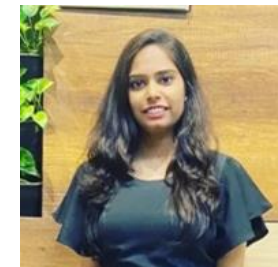
Ms. Karishma Laskar is a Senior Project Engineer at ONGC. She can be followed [here](#).



Mr. Kangkan Thakuria is a Senior Project Engineer at ONGC. He can be followed [here](#).



Ms. Husaina Petiwala is a first-year student of PGDM in operations and supply chain management at ITM, Kharghar, Navi Mumbai.



Ms. Ankita Sarowa is a student at P.G. Department of Computer Science, SNDT Women's University.

About the Prakalp Team



It took **Ms. Heena Thadani** four schools across three continents till graduation. Thanks to her entrepreneurial family, she now craves stability and discipline. Heena has worked a major portion of her life in the management consulting domain. After her move to technology services, she's had the benefit of guiding senior management teams in global organizations to achieve their change management initiatives. An accomplished techno-functional change-management professional with experience across diverse sectors - Heena can be reached at heena.thadani@gmail.com or you can follow her on LinkedIn [here](#)



Mr. Amod Pusalkar is managing the marketing portfolio for PMI Mumbai Chapter (2023-24). He has been an active volunteer for over 4 years with Mumbai Chapter. He has 14 years of experience in IT handling projects of various scale. Amod is PMP certified and has keen interest in the technologies that enhance the project management. He can be reached at marketing@pmimumbaichapter.org or you can follow him on LinkedIn [here](#).



Ms. Martina Pinto is a Marketing Communication Manager with a profound passion for photography, painting and writing. Prior to joining the corporate world, she used to freelance as a photographer. While she has undertaken several photo shoots, nothing inspires her more than travel photography. She believes travel photography is one such genre that connects you with nature and the human spirit. The vibrancy and positivity in her photographs have been featured in several corporate calendars and posters.

Team Outreach - Dnyansarita



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We are supporting the UNSDG Goal 4

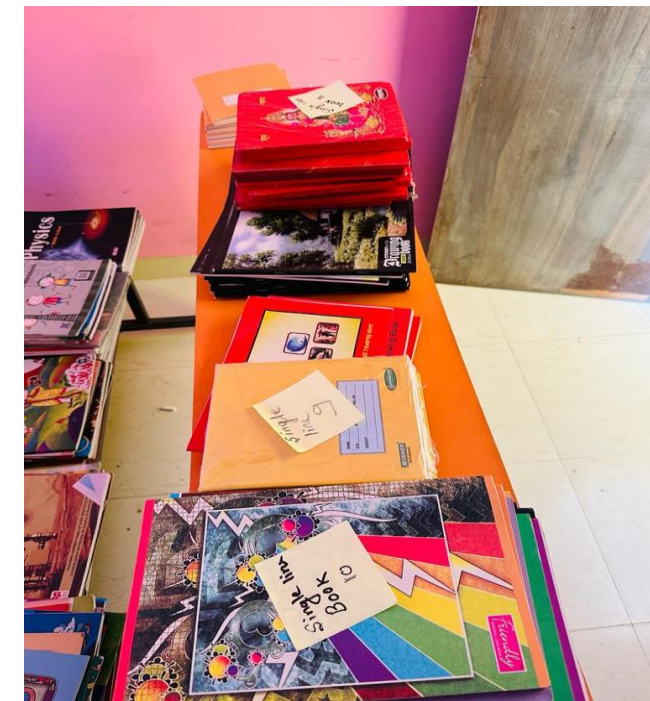
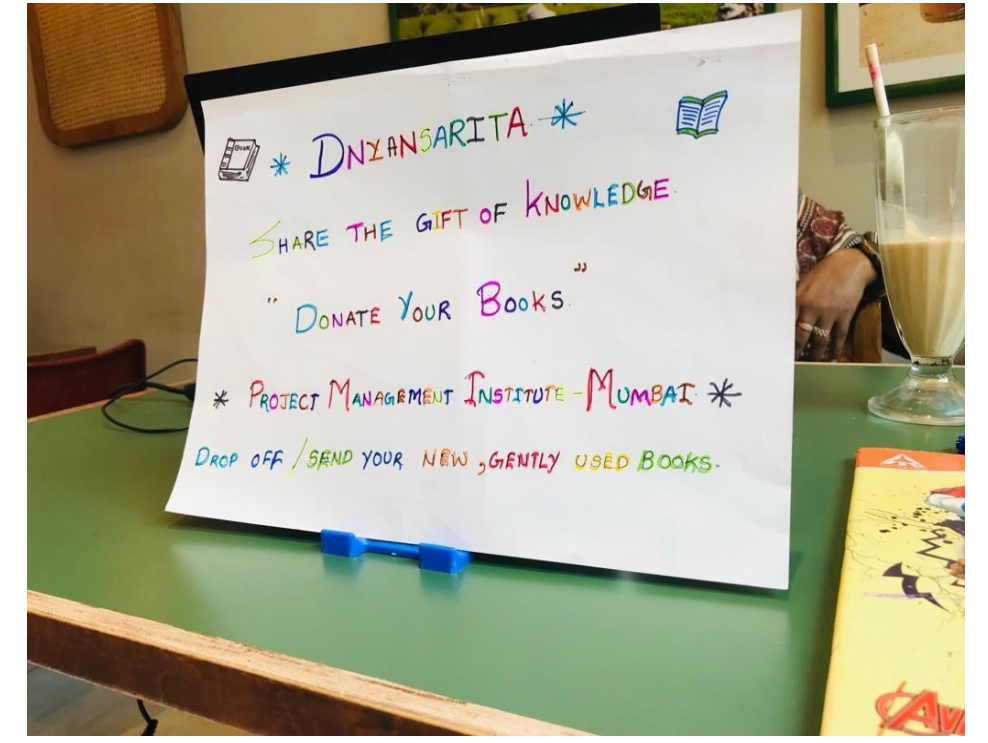
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Dnyansarita in pictures



G.R.O.W. program initiative

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ITM BUSINESS SCHOOL, KHARGHAR
IN COLLABORATION WITH PMI MUMBAI CHAPTER
PRESENTS
"G.R.O.W - YOUNG CHANGE MAKERS CONNECT"
A SESSION ON
HOW TO GO FROM PROTOTYPE TO PRODUCT?


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President, PMI, Mumbai
Chapter

 04 Feb 2023  11:00 Am - 12:30 Pm  ITM Business School, Kharghar

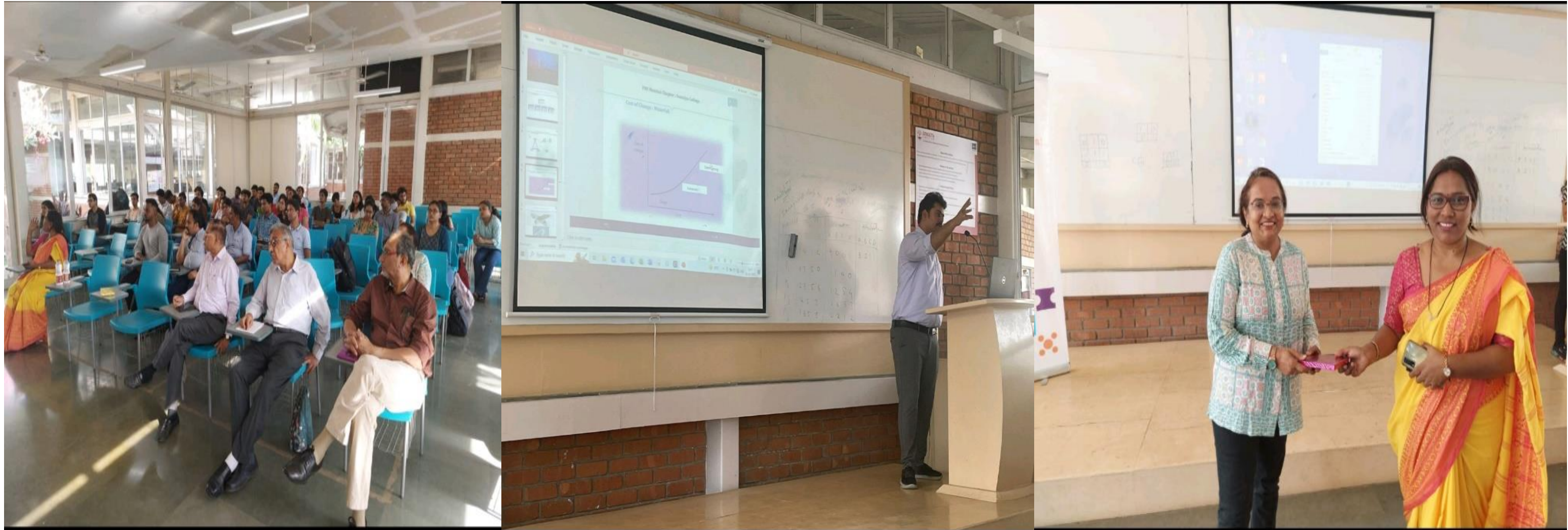


As a part of G.R.O.W. program, PMI Mumbai Chapter in collaboration with ITM Kharghar conducted an in-person event on 4th February 2023 at ITM Kharghar college Auditorium. The Theme of the event was “**How to go from Prototype to Product**”. The speaker for this event was “**Apurva Joshi**” who is a VP of the R&D division in a drone manufacturing company “Indrones”.

Outreach Saksham Samarth team has partnered with Project Mumbai (NGO) for Beach Cleanup at Mumbai



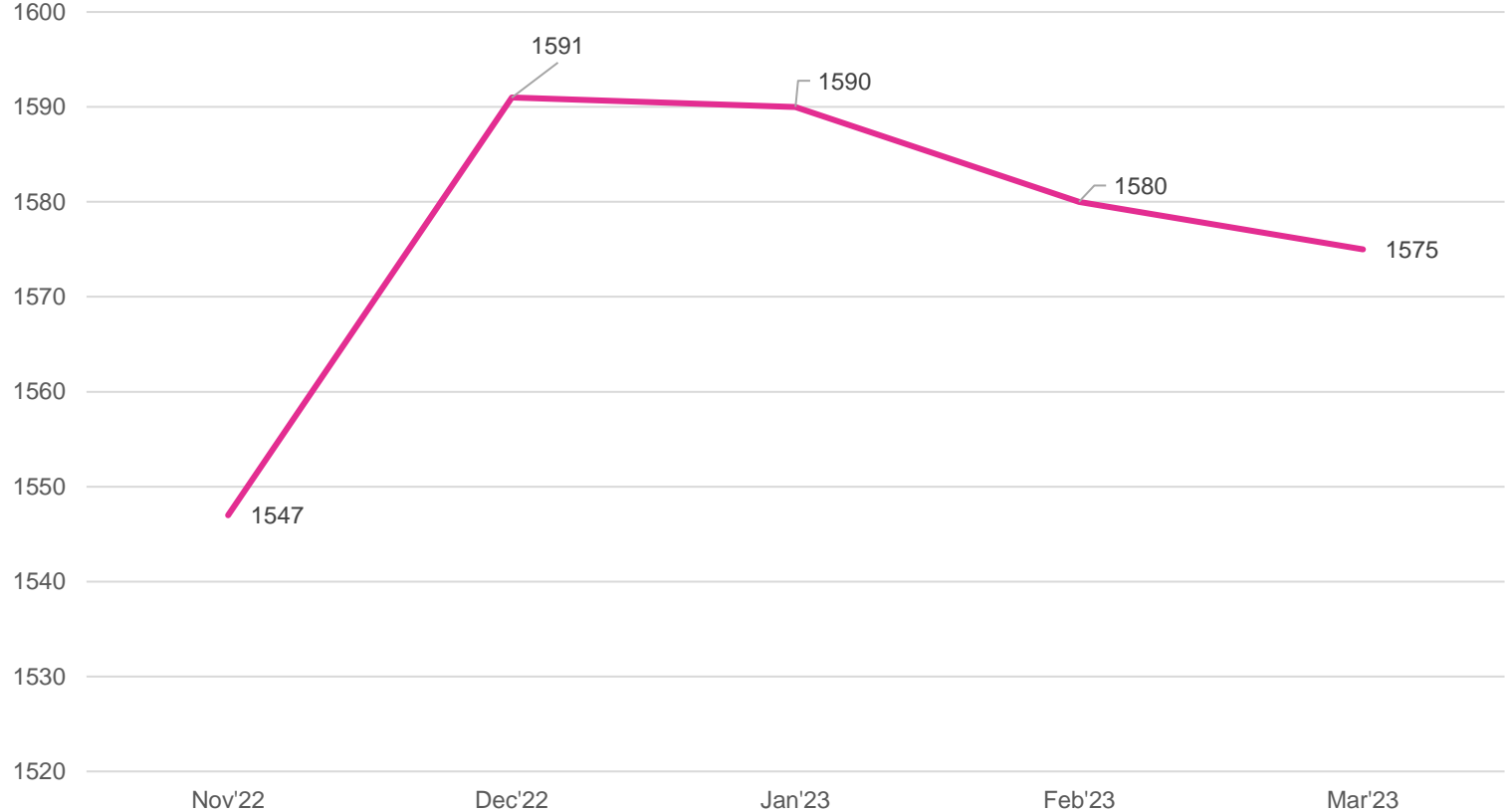
PM Forum Event at Somaiya College



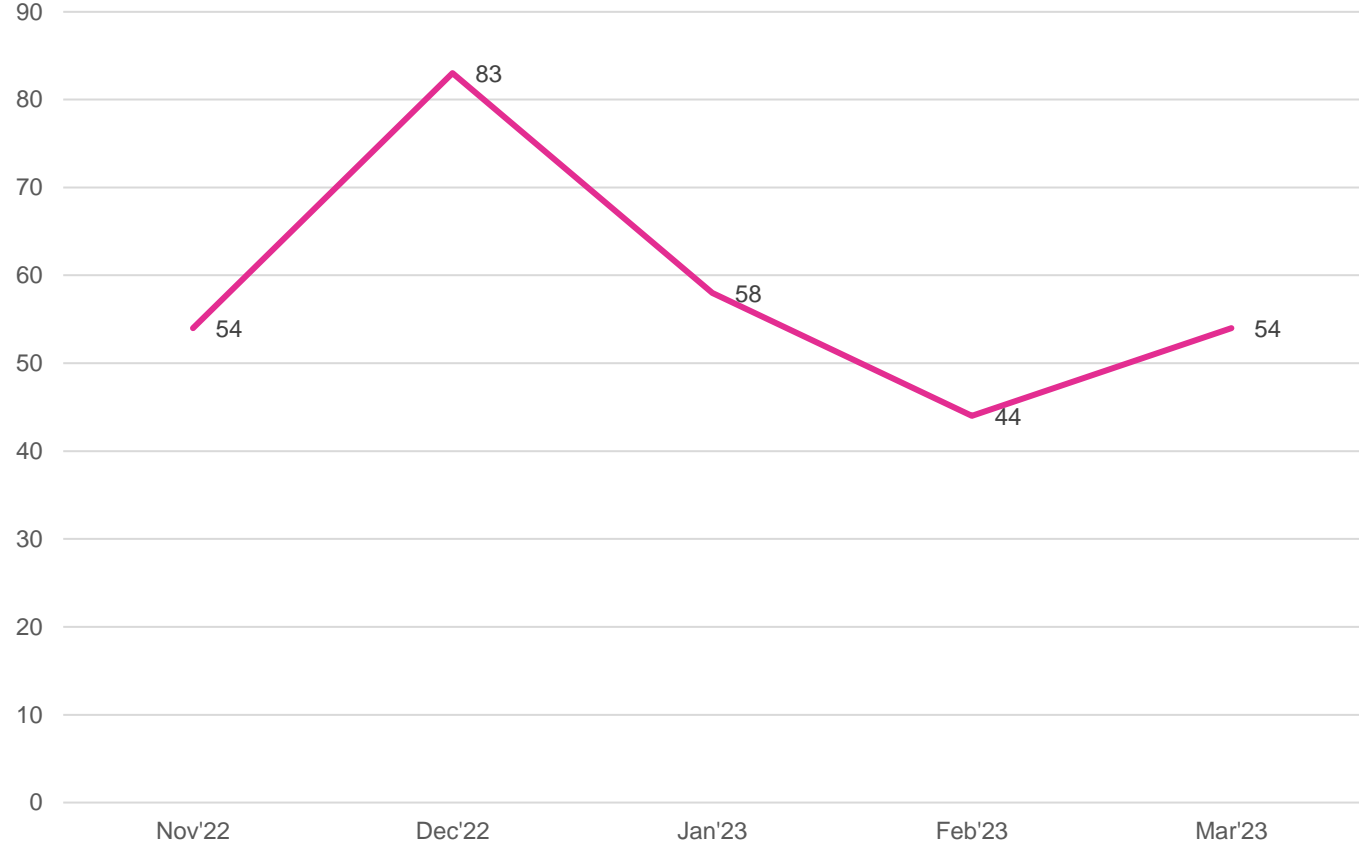
On 28th March 2023, PMI Mumbai Chapter's Team organized 1st PM Forum Event at Somaiya College, Sion. The primary audience of the event were final semester students and thus it was designed to brief the students regarding current industry practices w.r.t the topic Agile. Mr. Shiv Saurabh, member of PMI MC was the speaker and Mr. Akshat was the facilitator. Around 40 students attended and participated enthusiastically in the forum discussions and found the lecture informative and knowledgeable.

Membership

PMI Mumbai Chapter Membership Growth November 2022 to March 2023



PMI Mumbai Chapter New Members Growth November 2022 to March 2023





About Prakalp

Prakalp is the in-house magazine of PMI Mumbai Chapter and is being published since the early days of the Chapter – either in the physical or electronic form. Prakalp aims at enhancing the knowledge of our readers by publishing articles from thought leaders from varied industries and sectors. The authors share their unique perspectives on best practices, trends, new developments and news that have an implicit as well as explicit impact in the world of project management.