

Managing Programs in Ambiguous Environments ¹

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Abstract

The purpose of this article is to discuss the challenges of managing a project in a research organization, with a focus on the role of the Technical Program Manager (TPM) in navigating ambiguity. The article outlines the key challenges of dealing with uncertainty and ambiguity in research work and explains how a skilled TPM can provide direction and guidance to the team, stay adaptable and flexible, and act as a liaison between the research team and other stakeholders.

Keywords: Research Program Management, Ambiguous Environment, Effective TPM, Product Development

Challenges in Research Organizations

Research organizations are complex and dynamic entities that often operate in a state of ambiguity. This ambiguity can stem from a variety of sources, such as unclear goals or objectives, a lack of funding or resources, or a lack of consensus among members of the organization. This ambiguity can make it difficult for research organizations to effectively carry out their work and can lead to inefficiency and confusion. Additionally, it can also create challenges for researchers within the organization, who may struggle to navigate the uncertain landscape and make decisions about their work. Despite these challenges, many research organizations are able to thrive and produce valuable contributions to their fields by embracing ambiguity and using it as an opportunity for creativity and innovation.

Managing a project in a research organization can be a challenging task, particularly due to the inherent ambiguity that often comes with research and development work. In order to successfully navigate these challenges, it is important to have a skilled Technical Program Manager (TPM) at the helm. Having spent the last 5 years in R&D organizations of Amazon Robotics and Meta Reality labs I wanted to generalize and share my experiences to allow others to learn from my experiences.

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One of the key challenges of managing a project in a research organization is dealing with the uncertainty and ambiguity that can arise during the research and development process. Research work is often exploratory in nature, and as such, it is not always clear what the best course of action should be. This can lead to delays and setbacks, which can ultimately impact the success of the project.

Advantages of Technical Program Managers

A skilled TPM can help navigate these challenges by providing clear direction and guidance to the team. This can involve setting specific goals and milestones for the project, as well as establishing a clear timeline for completing the work. By breaking the project down into smaller, more manageable tasks, the TPM can help keep the team on track and ensure that progress is being made. Even identifying and aligning on what not to work on is progress in a research environment and can often help focus the team in the right direction.

In addition to providing direction and guidance, a TPM can also help manage the ambiguity of a research project by staying adaptable and flexible. Research often leads to unexpected results and unanticipated challenges, and a TPM who is able to quickly adapt to changing circumstances can help the team navigate these challenges and move forward. One key aspect of a TPM's role in managing a research project is to provide support and guidance to the research team. This can involve helping team members to develop their skills and knowledge, as well as providing resources and tools that can assist with the research process. One of the most unique observations I had was the gap of operational and tactical thinking that existed amongst talented researchers which could at times prevent them from delivering impactful work in a timely manner or put them in an analysis paralysis mode. A TPM plays a crucial role in filing this tactical gap and ensuring progress is being made.

A TPM can also help to foster collaboration and communication within the team, which can be crucial for successful research work. A TPM may manage an ambiguous situation in a research environment in a number of ways. For example, if the team encounters unexpected results during their research, the TPM may facilitate a discussion among team members to brainstorm possible explanations and next steps. The TPM may also reach out to experts in the field for their input and advice on how to proceed. In addition, the TPM may adjust the project's timeline and goals to account for the unexpected developments, and work with the team to develop a revised plan for moving forward

In addition to supporting the research team, a TPM can also help to ensure that the project stays on budget and on schedule. This can involve monitoring progress and identifying potential issues

or risks, and then working with the team to develop strategies for addressing these challenges. By staying on top of the project's budget and timeline, a TPM can help to prevent delays and ensure that the project stays on track.

Another important role for a TPM in managing a research project is to act as a liaison between the research team and other stakeholders. This can include communicating updates and progress to upper management, as well as coordinating with other departments and teams that may be involved in the project. By serving as a central point of contact, the TPM can help ensure that everyone is on the same page and working towards the same goals.

Product Managers are the other cross functional leaders that work side by side with a TPM. A TPM and a Product Manager have some similarities in their roles, but they also have some key differences. Both TPMs and Product Managers are responsible for overseeing the development and implementation of a product or project, and both may work closely with a team of developers, designers, and other stakeholders.

Conclusion

One key difference between TPMs and Product Managers is the focus of their work. TPMs are typically focused on the technical and tactical aspects of a project, such as the development of new technologies or processes and their relevant schedules and execution. They may work with a team of engineers and scientists, and their primary goal is to ensure that the technical aspects of the project are completed on time and to a high standard.

In contrast, Product Managers are typically focused on the business aspects of a project. They may work with a team of designers, marketers, and other stakeholders to develop a product that meets the needs of the market. Product Managers are responsible for ensuring that the product is profitable and meets the goals of the organization. And although the roles have their similarities and differences, in order to successfully navigate the ambiguous maze of research both have to work together in sync to ensure the strategy stays in line with the execution and vice versa.

Overall, managing a project in a research organization can be a challenging task, but with the help of a skilled TPM, it is possible to navigate the ambiguity and uncertainty of research work. By providing clear direction, staying adaptable and flexible, and acting as a liaison between the research team and other stakeholders, a TPM can help ensure the success of the project.

About the Author



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Vatsal Mehta is a seasoned Technical Program Management leader with a wealth of experience in demanding and high-visibility positions at tech giants like Amazon and Meta. He has a proven track record of success in leading the deployment of multiple global programs and bringing products from conception to market readiness on numerous occasions solidifying his reputation as a key leader in the industry. Vatsal is also responsible for rolling out the flagship Magic Leap 2 Early Access Program and is currently working on research initiatives for next generation hardware devices for the Metaverse at Meta Reality labs. He holds several patents for warehouse automation solutions with the publication of a research paper for haptics pending. He can be contacted at vatmehta@outlook.com