

# Why Is PM Important—Especially in Engineering Projects?

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ONE might ask why project management is necessary and even important. To many engineers project management seems like unnecessary overhead. However, people who appreciate and practice project management will confirm it should be used for projects regardless of the level of complexity. Why do they believe this? There are many reasons.

Project management benefits are important for any project. These benefits include: ensuring good teamwork, keeping the involved people happy, meeting the project budget and schedule, producing services, products and work of the expected quality, effectively managing project risks, ensuring that good communication occurs, and delivering results that include the full scope of the project requirements. These things result from management of a project, and they define success in any project.

A project team is generally a multidisciplinary group: the people on the team will have different backgrounds, different objectives, and different ways of thinking. This is often true in engineering projects, since the new products and services must be designed, tested, built, marketed, sold and distributed. Ensuring that a diverse group can meet specific defined requirements requires management focus, and that focus is one of the most important aspects of project management. The team will usually be temporary, composed of people who do not usually work together. Time and effort are

needed to create understanding of the team members and how to work with them. Given the multidisciplinary aspects of the project team and the fact that engineers are not generally focused on such interpersonal relations, there is a need for management to assist with this.

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Another characteristic of engineering projects is that there are usually hard limits to the budget and other resources required to implement the project. Thus there will be a need to prioritize just how and on which components the money should be spent, which is again a component of project management.

Other factors such as time constraints, procurement, management of the quality, etc are as evident in engineering projects as in others. Clear scope definition can prove difficult, at least until the technical capabilities can be fully understood. The potential for direction changes is very high in technical projects, which then increases the risk of scope change proposals. It could be possible to accommodate two or three changes or additions especially if these require little time and/or money, but when the number

of these requests grows these cannot be accommodated within the time frame and the budget. Because of the complexities of the technologies themselves, and the fact that these technologies are frequently developed, used or introduced in environments that are themselves rapidly changing, there is a greater need to manage the introduction of such requests to the projects.

The understanding and management of risks is crucial to the project manager, especially in technical projects, as the complexity is high, and there are various risks, such as technologies not working, technologies not working together, technology being offered late to the market, marketing not able to portray enough benefits from the new technologies, etc. Obviously skill in risk management is needed.

Communicating with others is critical in project management. In technology projects, many of the team members are engineers, and engineers are frequently introverts, which means that they do not enjoy communicating with others as much as they enjoy doing their own work. With the right communication, it is easier for the team to avoid known pitfalls, even for a fairly straightforward project. Thus technology projects need focus on communications even more so than many other projects.

Perhaps these needs can be illustrated using specifically the telecommunications environment which is one with many technical projects, and one that has been in a state of constant flux over the past years—as is the case with many other technology areas as well. Consider the type

of projects that typically occur in the telecom industry. They can involve huge networks, either for a provider or a large end user, or extremely complex services and equipment, with hardware, software, business and integration aspects. Teams tend to be large, from 25 to hundreds of people per project, and the technologies involved are extremely complex. Project management lends itself well to handling such size and complexity. Most significantly, in this rapidly changing industry, many companies find themselves needing to do things for the first time, and handling these situations by implementing projects is often the only practical way of accomplishing this.

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Telecommunication technologies involved in projects are usually fairly new, (and therefore not well known), and there is a requirement in many cases for interworking of many different technologies. All of this creates a requirement for significant technical knowledge on the team, and generally also significant business or marketing knowledge, making it necessary that the teams be multidisciplinary and they compete for people with scarce and valuable skills and experience. The application and interworking of new technologies ensures that telecom projects will contain a higher than average degree of risk. This unpredictability implies that there will be challenges in defining the project scope accurately, in turn making timelines and budgets hard to

nail down. All of this adds up to a need for strong and ingenious project management.

Telecom projects are planned and implemented in an environment that has been experiencing continuous, significant and rapid changes. Several aspects of the telecommunications industry are important to the application of project management in this sector, because they are all in flux simultaneously, including the technologies, services, companies in the business, regulatory environment, successful business models, internal corporate structures, the customers, the best way to market, service models and network architecture

It is clear that the skills, technical and otherwise, required to effectively complete telecom projects today are more varied than those that have been needed in the past. This is also the case in many other engineering areas. Summing up all the variables discussed in this article, we see that many things are evolving and changing simultaneously, and the sum of all these changes is a very volatile environment for projects.

Some degree of project management is needed for any project, and the more complex the project, the greater the need for the management and the more formal the processes become. By and large engineering projects are more complex by far than most other projects, and they are also generally more expensive. Both of these factors increase the need for project management in order to improve the chances for project success.