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Major Engineering Project Performance

Projects, sub-projects and operations

So, let me start with a definition from the 'Project management body of knowledge', 5th edition, that says: "A project is a temporary endeavour undertaken to create a unique product, service, or result." Temporary means that there is a definitive beginning and end. The opportunity or market window is usually temporary. So, if you want to make a project for the Olympic Games, you have a strict deadline. If you want to set up a project to build a certain type of power plant, you have time constraints imposed by the duration of your licence, or the market constraints. So, each project has a start and a finish. This is unique in the case of a project, and it is not the case when considering the normal operation of a company. A project like the construction of a bridge or the coding of a video game will start on a certain day, and is expected to have a clear end.

Let's think about what forms a project can take. A project can create something, which can either be a component of an item, an enhancement of an item, or an item itself. So, an example might be a scenario where you have a huge nuclear power plant with a turbine that could cost $100 million. The construction of a $100 million turbine ad hoc designed for the power plant is a project. So, a project is about uniqueness. They create something that is physically unique, for example, all bridges are different. A project is also unique because of the people and company involved. To build a bridge, a unique team of companies, contractors, and decision makers is formed. A project can also create a service or a capability to perform a service. So, for instance, the project could be the setting up of a new legal office, or the project could involve training people in order for them to do some type of job. So, probably, you have some form of project in your life. For instance, when you go on holiday, going on holiday is a project. It's a project because, unless you're super lucky, the holiday will have a beginning and an end. There is a budget associated with it, and there are some unique sets of activities, such as visiting a museum, going to the beach. And every time the holiday is different. You might also be the Project Manager for that holiday. Major projects can involve creating an infrastructure project like the construction of a nuclear power plant, high-speed railway, or a long bridge. Other types of projects might be IT projects, such as making a new version of Microsoft Office, or a video game. We might also think about pharmaceutical projects, like developing a new

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drug for cancer treatment or even major research and development projects such as the construction of the fusion reactor 'ITER' in France.

Let's think about this in more detail. So, what actually constitutes a project? Is the project to build a nuclear power plant? Or is the project just to design a nuclear power plant? Well, this is a semantic question but it's very important. It depends where your end product is. If you are thinking about a nuclear power plant, even the design of a nuclear power plant itself can easily cost hundreds of millions. And the end product is the design, ready to be certified. So, we could consider the design process a project in itself. There is a clear beginning - to get the budget to start the design project - and there is a clear end: to get the design certified and ready to be sold to a customer. For the company having a $100 million contract to build a turbine, this is a project in its own right. While for the main construction company building the overall reactor, this is just a procurement contract.

In general, we can divide a company's activities into projects and operations. So, a project describes the construction or delivery of something unique, like the construction of a chemical plant, the construction of a bridge, or like the delivery of a construction of a hospital, or the delivery of a movie. On the other hand, 'operations' describes the running of this infrastructure or project. We are talking about running the hospital or the plant, including the procurement of consumables, invoicing customers or patients, or the cleaning which has to be done every day. A famous American professor gave us a good way of thinking about projects and operations. It's like the difference between getting married and staying married. Getting married is a unique journey that starts with finding and meeting the right person, going out with him or her, meeting the parents - who are very important stakeholders - and friends, building the relationship, and ultimately, delivering the wedding day. If you're lucky, you'll do this once in your life. Staying married is like a company's operations. It refers to tasks like doing the weekly shop, the everyday cleaning of your house, and managing conflict. All of this is done, bearing in mind that you want to stay together for a long time. So, in summary, a project is different from business as usual in two key ways. Firstly, it's different because of its temporary nature, since it has a well-defined beginning and end. Secondly, it is different because of its uniqueness: both in terms of its physical product and the organisational structure needed for the delivery.

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