

Chapter 5

Project Management

In the previous chapters, we established the process view of the organization.¹ Processes are all about repetition—we don't perform an operation once, we perform it over and over again. This process management view fits many, if not most, operations problems well. Mining and production plants, back offices of insurances or banks, hospitals, and call centers are all about repetition, and many flow units journey through the corresponding processes on a daily basis.

There are, however, a number of operations for which the repetition-based approach of process management is less appropriate. Consider, for example, a major construction project, the development of a new product, or the planning of a wedding party. In these situations, your primary concern is about planning the completion of one flow unit, and typically, you would like to see this completion to happen sooner rather than later.

Whether you care about the completion of one or many flow units often depends on which role you play in an operation. While most of us think about one wedding (at a time) and thus should think of a wedding event as a project, a wedding planner organizes numerous weddings and thus should think of weddings as flow units in a process. Similarly, a developer working on the launch of a new product or the construction worker building a new office complex are likely to think about their work as a project, while many echelons up in the organization, the vice president of product development or the owner of a real estate development company think about these projects as flow units in a big process.

We define a *project* as a temporary (and thus nonrepetitive) operation. Projects have a limited time frame, have one or more specific objectives, a temporary organizational structure, and thus often are operated in a more ad-hoc, improvised management style. In this chapter, you will learn the basics of project management, including:

- Mapping out the various activities that need to be completed as part of the project.
- Computing the completion time of the project based on the critical path.
- Accelerating a project to achieve an earlier completion time.
- Understanding the types of uncertainty a project faces and how to deal with them.

5.1 Motivating Example

Unmanned aerial vehicles (UAVs) are aircrafts that are flown without a human being on board. They are either controlled remotely or have built-in navigation intelligence to

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