

# Chapter 62

## Strategic Software Project Governance and Learning through Project Portfolio Management

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### **ABSTRACT**

*The management of multi-project situations is a challenge for many software companies. Often, techniques are missing to prioritize, classify, or categorize software projects. Sometimes, no standardized project feasibility evaluations are performed before their start. As a consequence, organizations may have to allocate more resources than available to their projects. In turn, projects are accepted despite existing resource shortages. In such cases, actual dependencies between projects are not visible and handled properly. When conflicts between projects are not transparent, redundancies cannot be avoided and strategic synergies cannot be generated. Due to the special nature of software projects, these issues become exacerbated within complex software project landscapes. In addition, it is important to enhance the quality of future strategic decisions by learning from consequences of earlier ones. In order to address these challenges, this chapter presents a comprehensive approach for Strategic Software Project Portfolio Management (SSPPM), enhanced by institutionalized organizational learning.*

### **INTRODUCTION**

In general, it is a challenge for software companies to execute their projects successfully. Methodologies for software project management aim to address this challenge, but in a multi-project setting a perspective on individual projects is not sufficient (Elonen & Artto, 2003). As soon as a company is running more than one project at the same time where the projects are competing for resources, there need to

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be cross-project or multi-project coordination and management on a level beyond the individual project (Buchwald & Urbach, 2012). There, the management of dependencies between individual projects, business related project priorities, and the allocation of organizational resources to projects takes place. If there is no such management instance, the general complexity to handle various projects in an organization can rise in an exponential way, leading to an even further increase of resource need and hence, less effectiveness. Software projects provide additional challenges because of the software product itself: it is abstract, its technology and also its customer requirements are changing in a rapid way, and even the development of small software products can become a complex venture with thousand lines of code which are in relation to each other. While the underlying technology develops over time, there is nothing to indicate that these managerial challenges will become a lesser issue for software companies in the future. Hence, it appears useful to institutionalize organizational learning on a strategic level, in order to have past consequences and experiences inform future strategic decisions about managing the software project landscape.

Here, strategic software project portfolio management (SSPPM) allows the management of software companies to structure their software project landscape and create an optimized project portfolio which consists of projects with maximum profitability, allows an optimized resource allocation, and thus, contributes to the success of the company (Levine, 2005). Project portfolio management is complementary to project management and fills the aforementioned management gap between individual projects in the context of an organization. Thus, it allows strategic project governance in the sense to start projects, terminate them, or place them on hold, based on a structured and transparent decision process, involving all relevant stakeholders. However, the emphasis in the literature is on the decision and governance processes in the present. The future perspective – which is addressed through organizational learning – receives less attention. Against this backdrop, this chapter proposes a comprehensive approach for project portfolio management for strategic governance of a multitude of software projects, enhanced by the integration of institutionalized organizational learning. While the approach may be applicable to project portfolio management in general, software projects are chosen as the scope for three reasons. First, according to the regular CHAOS reports (The Standish Group, 2013), IT and software project management today is still facing many challenges and may thus especially benefit from a strategic learning perspective. Second, as shown below, software projects are often of a high complexity and volatility, and thus offer rich grounds for organizational learning. And third, a deliberate limitation to a specific application context allows a focused evaluation later on.

In the first section, the dependency between software projects, programs, and project portfolios are described in greater detail. Afterwards the challenges of managing a complex landscape of software projects are highlighted and how project portfolio management on a strategic level and specifically tailored to software projects can remedy them. Then, based on these foundations, a methodology for strategic software project portfolio management (SSPPM) for software projects is proposed. The different stages of SSPPM are visualized at first and described from a process-related perspective. Afterwards, the organizational perspective of SSPPM in form of roles and responsibilities is discussed. In the next section it is shown that SSPPM in its current form lacks mechanisms that foster organizational learning and enhancements of the SSPPM methodology are proposed. The second-to-last section gives an outlook towards further research in terms of the application of the proposed methodology. The final section summarizes the SSPPM approach presented.

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