

# Bridging the gap between software product management and software project management

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## ABSTRACT

This paper presents an empirical research to the relations and dependencies between the fields of software product management and software project management in product software companies. By carrying out interviews and an online survey, we answer several current business issues on the leadership roles of product and project managers within the organizational structure, and provide a definition of software products and software projects based on their dependencies.

## Keywords

Software product management, software project management, software development, product software

## 1. INTRODUCTION AND RESEARCH APPROACH

Quite few attempts have been made so far [e.g. 1, 2, 3] to distinct between software product management and software project management. Within software product companies, both fields play a vital role in the organization and coordination of their activities and processes [4, 5]. The related activities and processes do not only deal with the development of the software product but also with the overall organization of the company's market strategy, the product portfolio management, the launch preparation of the product as well as the customers' support and communication efforts before and after sales [6, 7, 8, 9].

The success of product management and project management activities is dependent on the way companies organize and coordinate software product management and software project management together [10]. Therefore, the main research question focuses on: *What is the relationship between software product management and software project management within the context of an independent software vendor?* The initial purpose is to formalize that relationship with the construction of a theoretical framework.

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The research conducted is a theory-oriented research and it consists of two main parts; a theory-building (or exploratory) research and a theory testing research [11]. The theory building methodology is qualitative in nature and is based on a literature review of previous researches as well as on six semi-structured interviews among six Dutch software product companies. During the theory testing, a quantitative analysis is performed upon data that have been gathered through an online survey among 39 respondents. The respondents were mainly project and product managers as well as product management experts.

Combining the interviews and the survey, the research uses a data triangulation approach, which refers to the data evaluation through multiple sources of information [11]. This also addresses the problems of construct validity since the multiple sources of evidence provide essential measures of the same problem domain [12].

## 2. THEORY BUILDING AND THEORY TESTING

During the theory building part, the building blocks of the research are constructed. First, the definition of the scope of a software product and a software project will enable a more concrete examination of the relationships between these two terms. In order to examine the relationship between product managers and project managers, several aspects that influence their collaboration should be taken into consideration.

A software management framework that includes the aforementioned concepts is presented in Figure 1. To define the scope of the concepts, we broke down the overall aims (or requirements) of the product and the project into a number of smaller, more closely defined goals [13]. In addition, the role-specific characteristics and role positioning of product managers and product managers are added.

### 2.1 Results

First, the participants were asked to indicate the degree of influence between the independent variables (time, quality, and cost) to the dependent variables (market success, customer satisfaction, and business goals). The overall means are summarized in Table 1. We can see that the respondents agree that quality has a higher influence on the market success of a software product and its customer satisfaction than time and budget ( $p=0.00$ ). These factors can also be described as the external

aspects of the software product and in general there seems to be a tendency in software product companies, to attribute more value on the delivered quality

**Table 1. Software product and software project results**

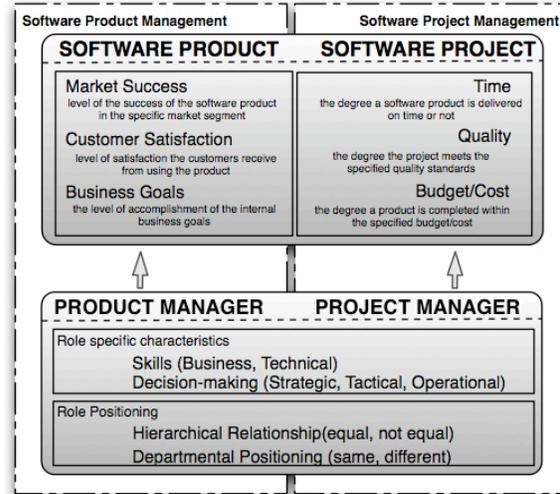
Market Success		
Time	Quality	Cost
3.77	4.18	3.88
Customer Satisfaction		
Time	Quality	Cost
3.49	4.59	3.05
Business Goals		
Time	Quality	Cost
3.79	3.56	3.72

Looking at the role-specific qualifications of product managers and project managers, we found several significant relations. First, the skills orientation of product and project managers within a software product company is related not only to the qualifications that characterize each one of the two roles but also to the communication between them. Based on the results of both the interviews and the online survey, there is a tendency for product managers to be more business oriented (focusing on managerial skills, communications and leadership qualifications) and for project managers to be more technical oriented (having a more in depth knowledge of software engineering and software programming).

Secondly, the results have also shown that the greater the gap between business and technical skills of the two roles, the less successful the communication between them within the company. This means that, despite the above skills orientation, both roles need to understand each other in order to communicate and work together in the most efficient way. Consequently, both product and project managers need to possess both business and technical skills.

In addition, the survey results showed that product managers are involved with significantly higher levels of decision-making (Strategic) whereas the project managers are more into the every day, and short-term decisions (Operational). Working together, both product and project managers are involved into the tactical decisions which concern a more mid-level spectrum of the organizational goals. This pattern seems to be perceived as a successful solution, which enables a better collaboration between product and project managers.

Finally, the departmental positioning and the hierarchical relationship were examined not only as an organizational matter but also as a factor that can influence the relationship between product and project managers. It was suggested that the further apart the two roles are positioned, that is, the more levels in between both horizontally and vertically in the organizational structure, the greater the communication gap between them.



**Figure 1. Software Management Conceptual Model**

### 3. CONCLUSION AND FURTHER RESEARCH

We answered the research question stated in Section 1 by decomposing it into two sub-problems: the relationship between product and projects and the relationship between product managers and project managers. In our survey, we identified several significant relations. However, we think a complementary and more detailed examination on the way product companies organize the internal and external activities that link their product management and project management processes is necessary.

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