Successful Management of Complex, Multinational R&D Projects

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Abstract

Fundamentals of project management are changing by globalisation of markets, mergers of international companies, and integration of managerial and business processes in global corporations. A clearly recognisable trend in multinational companies since the mid-1980s has been globalisation of R&D and competence portfolios.

Applied development is usually conducted in form of a distributed project organisation. A project team is formed across geographical, organisational, and cultural boundaries, engaging in a project with a global focus. Although a multinational project organisation has great potential in many dimensions, there is no doubt that the execution of a distributed high technological project is still a great challenge.

This paper identifies prerequisite for further improvement in the management of distributed projects with global goals. The authors have focused on the practical experiences of the execution of complex multinational dispersed projects in the area of applied system development in power industry.

1. Introduction

The project management fundamentals are changing by globalisation of markets, mergers of international companies, and integration of managerial and business processes in global corporations. Companies that develop complex systems need to enable systems to be used on a global market and create product platforms that easily can be configured to suit different customers' requirements throughout the globe. In order to create these globally applicable systems and products, the use of global teams is appropriate, providing knowledge about the different requirements on the different markets[1]. At the same time fast development of information technology opens the possibility to increase the use of global teams.

Another strong argument for use of global teams is commonly accepted persuasion that diversity of a project team contributes significantly to the innovation in product and system development, described also by Wheatley et al [1]: "Diversity has been shown to be positively related to innovation".

Various perspectives on problems can be integrated in the work process. From the R&D aspect of a project, using geographically dispersed teams creates an environment that is advantageous for successful product development [2]. Another reason for global product development is the high cost associated with development of new products, which creates a need for a large global market for the products. [3]

Clients that buy the products and systems put pressure on the suppliers to be more efficient. The result of striving for efficiency is an increased focus on core-business, which implies that the transaction between actors on the market is shifting from components to systems and services [4]. The general trend in R&D is to create more flexible products, designed in such way that make an integration into a system according to the requirements from different customers easily accomplished.

Furthermore, the complexity of systems is increasing when different systems grow together. For instance, the control systems are merging with the administrative business systems, increasing the system complexity. There is no longer a clear border between different systems. Data is expected to flow freely between the systems, and functionality is becoming more similar.

When products are integrated into a complex system, for example a substation automation system for power transmission, special skills and high-tech knowledge are required. Often this skill and knowledge is found only in one location specialised in a particular product. Therefore, finding and assigning the right competence to the projects creates a need or necessity of global development teams [5]. A system development or delivery project becomes, therefore by nature, a complex multinational project.

Global R&D teams require a project management process capable of handling the size and complexity of these organisations and the special demands created by the global distribution of the team members. To ensure progress of an R&D project there is a need of well-defined interfaces, both among products and involved organisations. The products need to meet the requirements of the total system, which increases the importance of requirement engineering and makes it the focus of the project’s initial phase. The organisational responsibility needs to be well defined among involved organisations in order to reduce conflicts.

1.1. Outline of This Paper

A theoretical framework is presented with the intention of identifying important aspects to consider in multinational R&D projects. First some important aspects needed to be considered in global project management are presented. Thereafter a description of the project case...