Impediments to Effective Management of Project Interdependencies: A Study of IT/IS Project Portfolios

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ABSTRACT

Interdependencies between projects have come to play a more active role in the decision on IT/IS portfolios and their constituent projects. However, managing these interdependencies can be a complex task, especially when the number and degree of interdependencies among projects are high. In times of uncertainty, unexpected challenges can seriously disrupt projects and, consequently, their interdependencies. This may threaten the project portfolio from achieving its final goal. The study aims to investigate the difficulties associated with managing project interdependence along the development cycle of the project portfolio. The study was conducted using a qualitative approach and semi-structured interviews with managers from four leading organizations in Saudi Arabia. The findings reveal three main categories of factors that increased the difficulty of managing project interdependencies in large IT/IS project portfolios: insufficient understanding of human responsibilities in the whole portfolio, unpredictability of the environment, and technology barriers and constraints.

KEYWORDS

Complexity, IT Projects, Multi-Project Management, Project Interdependence Management, Project Portfolio Management

INTRODUCTION

Although there is much research addressing how to capitalize on project interdependencies, there are still many questions to be solved concerning how to handle these interdependencies. A stream of studies on project portfolio management (e.g. Kundisch & Meier, 2011; Heinrich et al., 2014) has stressed the role and contribution of project interactions in arriving at greater benefits than if a number of projects were managed independently. As an example of benefits, sharing the same pool of resources among various projects in the portfolio can lead to a considerable cost saving in each of these projects and, hence, a cost reduction at the portfolio level. Several authors have suggested that maintaining a complete view of project interdependencies can determine how well a...
A project portfolio is managed (Bardhan, Kauffman, & Naranpanawe, 2006; Dahlgren & Soderlund, 2010; Dwivedi et al., 2015; Killen & Kjaer, 2012; Müller, Meier, Kundisch, & Zimmermann, 2015; Zapata, Varma, & Reklaitis, 2008). However, managing projects and their interdependencies within IT/IS portfolio contexts is not trouble-free; it entails coping with various kinds of uncertainties (Martinsuo, Korhonen, & Laine, 2014) such as availability of resources, increased pressure to cut cost, and rapidly changing business priorities and environments. This, in turn, may lead to frequent reprioritization of the projects in the portfolio and thus forcing their interdependencies to change. For example, dealing with an unexpected change in the IT security policy of the organization probably will lead to changes in part of the on-going projects in the portfolio and/or may create a demand for new projects. In effect, project interdependencies may need to be extensively modified, inserted or deleted, leaving the management team with various kind of challenges to deal with. This is not well documented in the literature about interdependencies. Although many studies have paid attention to project interdependence management, only a few studies have highlighted the managerial challenges associated with handling these interdependencies when the uncertainty level is high. For example, one study found that lacking proper inter-project learning and absence of specialized methods can create difficulties in managing project interdependencies (Killen & Kjaer, 2012). Another study (Patanakul & Milosevic, 2009) found that ineffective inter-project processes and incompetent multi-project management can lead to poor treatment of project interdependencies.

In this study, we set out to investigate the managerial difficulties associated with handling project interdependencies in large IT/IS project portfolios. The research questions addressing this problem are: what factors could increase the managerial difficulties of handling project interdependencies in IT/IS project portfolios, and how can the difficulties be overcome?

Next, in section 2, the research method for the study is discussed, followed by a brief literature overview in section 3. The results from the study is presented in section 4 and discussed in section 5. Conclusions are presented in section 6, and, finally, in section 7, future research work is outlined.

**RESEARCH METHOD**

The objective of the study is to understand the difficulties associated with managing project interdependencies in IT/IS project portfolios environments and pinpoint the drivers for these difficulties. The nature of this study is qualitative. It aims to capture people’s views and experiences on complexity issues and factors that led to bottlenecks in handling project interdependencies. The qualitative research approach helps to understand problems’ real contexts and settings through people who have experienced these problems (Creswell 2012). How this can be done is described in Yin (2011). In qualitative research, interviews are rich sources of information and most preferred technique for collecting in-depth information in the informants’ own words. Semi-structured approach for conducting the interviews is found to be appropriate for the data collection since it gives freedom for emerging questions during the interview (Myers 2009). To undertake the semi-structured interviews with more efficient measures, we formulated multiple themes of questions as follows:

- **Perceived utility of project interdependencies:**
  - What makes you believe that project interdependencies are important?
  - What are the benefits that you have come by through project interdependencies?
- **About project interdependencies’ types and forms of interaction:**
  - Describe the structure of these interdependencies;
  - How usually do the interactions between projects/ subprojects/ tasks take place?
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