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# Portfolio Practices in IT Departments: A Perspective Based on IS Strategic Role. Research in progress

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## ABSTRACT

Recent literature approaches the management of IT project portfolios from a universalistic point of view, where a “one best way” of organizing is often promoted. Our research adopts a contingency approach to the management of IT project portfolios. We propose that the use of IT project portfolio management (IT PPM) practices varies by IS strategic impact (strategic grid framework). We expect that, because Portfolio Management contributes to organizational strategies and objectives, the strategic impact of future and existing IS influences the use of IT PPM practices. The results will allow the identification of the IT PPM practices used in IT departments in each quadrant of the strategic grid framework.

## Keywords

Project portfolio management, project management, IS strategy, information technologies.

## RESEARCH OBJECTIVES

Companies increasingly rely on Information Systems (IS) to achieve its business objectives (Jeffery and Leliveld 2004). IT departments use projects to put its IS in place. This increases the number of projects in organizations and creates the need for portfolio management in order to manage the multitude of simultaneous ongoing projects (Blomquist and Müller 2006).

Past research on project portfolio management (PPM) has focused on the management of new product development projects (Archer and Ghasemzadeh 1999; Archer and Ghasemzadeh 1998; Cooper et al. 2001; Wheelwright and Clark 1992). Recent studies have included insights into the management of a group of IT projects, the use of PPM practices in IT projects and the benefits of the adoption of these practices (Jeffery and Leliveld, 2004 ; Reyck et al. 2005). These articles and recent literature about PPM provide practices, guidelines (Levin and Rad 2006; Project Management Institute 2006) and maturity models (Kerzner 2001; Pennypacker 2005) for better project portfolio management under a universal approach, without distinguishing between project portfolio types, organisations or context factors.

A universal approach to PPM could lead practitioners to the misconception that all project portfolios are alike and that organisations could use the same practices and tools for all types of portfolios. In fact, these same misconceptions happened in single project management studies when trying to build “one size fits all” theories of Project Management (Shenhar 2001) or Programme Management (Lycett et al. 2004).

Any approach to PPM practices is incomplete if it does not include the effects of situational contingencies that affect its adoption (Blomquist and Müller 2006; Müller et al. 2008). The contingency approach to project management has been used to explain management styles (Shenhar 1998; Shenhar 2001; Turner and Müller 2005), success factors (Balachandra and Friar 1997; Dvir et al. 2006), risk (Barki et al. 2001), project strategy (Pich et al. 2002) ; project planning (Brandon 2006) and organisational factors (Engwall 2003).

However, despite the relatively extensive literature on PPM, there is no clear evidence of the way that PPM practices are implemented in different organizations. It is for this reason that we decided to investigate the relationship between the IS strategic role, as contingency variable, and the use of PPM practices for IT projects.

The selection of IS strategic role as a contingency variable in our work is based on the role that PPM plays in “their contribution to the organization strategies and objectives” (Project Management Institute 2006). Following this

reasoning, this work research question is based on the argument that the adoption of PPM practices for IT projects depends on the IS strategic role.

Our research question is: *How does IS strategic role determine the use of project portfolio management practices in IT departments?*

Our aim is to complement previous work where the adoption level of PPM practices were used in a universal approach to study the benefits of its adoption in IT projects (Reyck et al. 2005) and where IS strategic importance was used to study the impact on project selection criteria (Jiang and Klein 1998; Jiang and Klein 1999).

The unit of analysis in this study is the firm, assuming that there is only one specific set of PPM practices in the IT departments. We will identify the portfolio practices used for managing IT projects and analyze its relationship with the present and future importance of IS.

## THEORETICAL FOUNDATIONS

Based on the literature review it is expected that specific factors were related to the adoption of specific PPM practices. The contingent approach adopted is studied classifying organisations in four domains according to strategic impact of existing and future IS (strategic grid framework) (McFarlan, 1994). The relevance and impact of IS on these domains requires specific management tools, organisation structure and approaches.

### Contingency approach

The contingency approach to the study of organizations was first developed in the 1950's as a response to prior theories of management that, despite their diversity, commonly emphasized "one best way" to organize (Galliers and Leidnar 2003). The contingency approach attempts to understand the interrelationship within and among organizational subsystems as well as between the organizational system as an entity and its environments. It emphasizes the multivariate nature of organizations and attempts to interpret and understand how they operate under varying conditions (Szilagyi and Wallace 1980).

The contingency approach to project management has been used to explain management styles (Shenhar 1998; Shenhar 2001; Turner and Müller 2005), success factors (Balachandra and Friar 1997; Dvir et al. 2006), risk (Barki et al. 2001), project strategy (Pich et al. 2002); project planning (Brandon 2006) and organisational factors (Engwall 2003). Recent studies have used the contingency approach in PPM to explain control mechanisms (Müller et al. 2008) and middle managers role's (Blomquist and Müller 2006).

Following this line of research, we are going to use a contingency approach in the identification of IT PPM practices.

### Strategic importance of IS

To obtain maximum competitive advantage, senior management and IT management need a clear and systematic understanding of both the current and future relevance as well as the impact of their IS before selecting management tools and approaches.

Based on existing and future strategic impact of IS, McFarlan (McFarlan 1994) proposes a framework, *strategic grid*, which classifies organisations in four domains:

- **Strategic:** IS activities are critical to existing operations and planned IS applications are critical for future success. Companies in this class are characterized by a high strategic impact of future and existing IS.
- **Turnaround:** Existing IS are functional but not critical to current operations, however new IS development are vital for reaching organisational objectives. Companies in this class are characterized by a high strategic impact of future IS and low strategic impact of existing IS.
- **Factory:** Organizations are vitally dependent on IS for their day-to-day operations, but they do not expect significant gain in strategic advantage from further development. Companies in this class are characterized by a low strategic impact of future IS and high strategic impact of existing IS

- **Support:** Organisations are neither highly dependent on IS, nor will new IS applications be critical in the future. Companies in this class are characterized by a low strategic impact of future and existing IS.

According to Ward (Ward 1990) the critical requirements for each domain are:

- Strategic IS organisations:
  - Rapid development to meet the business objective and realise benefits within the window of opportunity
  - Flexible systems that can be adapted in the future as the business evolves
  - Link to an associated business initiative to sustain commitment
- Turnaround IS organisations
  - Rapid evaluation of prototype and avoid wasting effort/resources on failures
  - Understand the potential and economics in relation to business strategy
  - Identify the best way to proceed – the next step
- Factory IS organisations:
  - High quality, long life solutions and effective data management
  - Balancing cost with benefits and business risk – identify the best solution
  - Evaluation of options available through an objective feasibility study
- Support IS organisations:
  - Low cost, long term solutions, often packaged software to satisfy most needs
  - Compromise requirements to the software available
  - Objective cost/benefits analysis to reduce financial risk then control cost carefully

There are differences in planning aspects among organizations, depending on their location in the strategic grid (Raghunathan and Raghunathan 1990) which could lead to a difference in the use of PPM practices.

This leads to the general hypothesis of the current study:

*H1 - There is a difference in the use of PPM practices across firms in different strategic grid quadrants*

### **IT Project portfolio management and practices**

During the last few years, attention from researchers and practitioners has been devoted to the management of a portfolio of projects. The second edition of “The Standard for Project Portfolio Management” has been released by the PMI (Project Management Institute 2006), literature regarding practices, guidelines (Levin and Rad 2006) and maturity models (Kerzner 2001; Pennypacker 2005) have been published and issues related to the management of portfolios of IT projects have been considered (Jeffery and Leliveld 2004; Reyck et al. 2005).

All this literature approaches PPM from a universalistic theory point of view, presenting “one best way” of performing the management of the portfolio of projects. Universalistic theories view the same approach as useful in all situations, rather than examining multiple approaches in alternatives contexts (Galliers and Leidnar 2003).

According to project portfolio definition (Project Management Institute 2006) the management of a project portfolio contributes to organizational strategies and objectives, so the management of a portfolio of IT projects contributes to the IS strategy and objectives. Adopting a contingency approach in our work, instead of a universal approach, the management of a portfolio of IT project varies from one company to another depending on the IS strategy role which results in a better fit and contribution.

In earlier research, a variety of PPM practices from different fields have been associated with different portfolio performance measures:

- Cooper et al (Cooper et al. 2004a; Cooper et al. 2004b; Cooper et al. 2004c; Cooper et al. 2001) show that certain types of practices are more typical to high-performing firms than low-performing firms
- Archer and Ghasemzadeh (Archer and Ghasemzadeh 1999) developed a portfolio framework with specific PPM techniques
- Fricke and Shenhar (Fricke and Shenhar 2000) found that at least clear goals, management support, ownership, resource allocations, and prioritization could be considered as success factors in a multiproject environment
- Müller et al (Müller et al. 2008) found that different portfolio control mechanisms are associated with different performance measures
- Blomquist and Müller (Blomquist and Müller 2006) show that high performing organizations apply dedicated PPM processes and tools and use associated roles of middle managers to address the complexity of the organization's environment and the types of projects executed
- Arto & Dietrich (Arto and Dietrich 2007) define a framework of managerial practices for strategic business management through multiple projects
- Jeffery and Leliveld (Jeffery and Leliveld, 2004 ) define an IT PPM maturity model that segments organizations according to the PPM practices they use
- Reyck et al (Reyck et al. 2005) found a strong correlation between the adoption of IT PPM processes and a reduction in project related problems, and between IT PPM adoption and project performance

Due to space restrictions we have not listed all the PPM practices extracted from the previous articles.

Organizations where existing IS have a significant impact have been managing projects for its existing IS and, as a consequence, have experienced the need for single and multi-project management and are expected to have a more mature project and portfolio management system (Jeffery and Leliveld 2004 ; Reyck et al. 2005).

That forms hypothesis 2:

*H2. Strategic impact of existing IS is directly related with the use of portfolio management practices*

The following categories of IT PPM practices, derived from Jeffery and Leliveld (Jeffery and Leliveld 2004) and Reyck et al (Reyck et al. 2005), are going to be used in this study to assess the adoption level of PPM practices:

1. Standardization
2. Financial analysis
3. Risk analysis
4. Demand management
5. Resource optimisation
6. Accountability and governance
7. Overall analysis
8. Optimisation

Some examples of PPM practices used in the research and that fit in the previous categorization are:

- Have an inventory of current and proposed significant projects (Standardization)
- Use NPV in prioritizing (Financial Analysis)
- Evaluate complexity of the project, including technology risks (Risk Analysis)
- Well-defined scheme for screening, categorizing and prioritizing projects (Demand Management)
- Evaluation of staff capabilities to implement projects (Resource optimization)
- Align the project portfolio with organizations strategy and with organization's IT architecture (Accountability and governance)
- Management of risk vs. reward analysis of project portfolio (Overall analysis)
- Comparison of outcome of projects with their original targets (Optimisation)

Strategic IS organizations need rapid development, flexible systems and accountability (Ward 1990), which could lead to the use of Accountability and governance, Optimization, and Overall analysis related practices more than other organizations.

That led to our hypothesis 3:

*H3. The use of **Accountability and governance, Optimization, and Overall analysis related practices** for portfolio management in Strategic IS organizations is more important than those in other firms*

A critical requirement for Turnaround IS organizations (Ward 1990) is related to the evaluation of future options and the selection of the best way to proceed, that could lead to a greater use of Risk analysis and Financial analysis related practices.

We expect to confirm hypothesis 4:

*H4. The use of **Risk analysis and Financial analysis related practices** for portfolio management in Turnaround IS organizations is greater than the use of other practices*

Critical requirements for Factory IS organizations (Ward 1990) are related with quality, efficiency and feasibility that could lead to a greater use of Standardization, Demand Management and Resource optimization related practices

The related hypothesis follows:

*H5. The use of **Standardization, Demand Management and Resource optimizations related practices** for portfolio management in Factory IS organizations are greater than the use of other practices*

## RESEARCH METHODOLOGY

Our exploratory study assesses the relationship between IS strategic role in an organisation and the IT PPM practices they use.

The unit of analysis of our study is the firm, assuming that there is only one specific set of PPM practices in the IT organisation. As part of the study IS managers from different industries will be interviewed. However we want to exclude companies that sell IT/IS related products or technologies from our study. The companies involved in the study will be medium or large located within Spain.

As part of our research design we propose a process of six phases that will allow us to validate the construct, variables and instruments. :

1. Literature search
2. Conceptual model
3. Pilot: Interview with former IS managers
4. Field Interviews with IS managers of medium and large companies
5. Sampling and data collection
6. Data analysis

The first phase consists of the search for relevant references in IS/IT, project management and portfolio management studies and literature.

In the second phase, we will develop our model that will enable us to establish relations between different variables. To this end we will use the classification of IS strategic grid (McFarlan 1998 ) and the classification of PPM practices derived from Jeffery and Leliveld (Jeffery and Leliveld 2004 ) and Reyck et al (Reyck et al. 2005).

Operationalization for some variables of our construct have already been developed, like measures for the IS strategic grid (Ragunathan et al. 1999). The list of practices of PPM will be complemented with relevant literature and evaluated in the following phases.

The third phase will serve to undertake a preliminary validation of the model and adopted measures. We will carry out unstructured interviews with four former IS managers involved in academia. The interviews will be conducted in order to gather their point of view and opinion on the different aspects of the model and the measures. The results of these interviews will enable us to refine our model and/or the measures we will use.

The fourth phase will consist of a more comprehensive validation of the model and measures with IS managers selected from different industries. Prior to the interview, a questionnaire with the measures will be developed with Likert-type scales. The interviews will be semi-structured, respondents will fill out the questionnaire prior to the interview. During the interview process information on the importance of IS in their businesses and practices of PPM that are in use or plan to be used will be collected. The participants in this phase will be selected in a homogeneous way to avoid possible bias. The results of this phase will enable us to adjust the variables and the refinement of the survey

In the fifth phase, sampling and data collection will be carried out. The respondent will receive an e-mail where they are invited to participate in the study. The sample shall be uniformly distributed by industries. It will draw on associations of IS/IT for access to the list of potential respondents. Data collection will be conducted through an online survey questionnaire that respondents complete log into the system.

In the sixth and final phase, data will be analyzed in two phases (Jiang and Klein 1998; Jiang and Klein 1999):

- A principal components analysis in the PPM practices will allow verification of the categories and will permit the examination of differences by IS strategic role
- A MANOVA test will determine whether there is a relationship between the IS strategic role in an organisation and the PPM practices used.

#### **CURRENT STATUS OF THE PROJECT**

The first phase, literature review, and the second stage of the research are completed, initial model and hypotheses have been developed.

The third phase is almost finished, interviews with former IS managers have been undertaken and model and hypotheses has been refined according to the outcomes of interviews. Refinement of measurement criteria is under development.

The fourth phase will be closed prior to the conference. Field interviews with IS managers will be conducted, model and construct will be refined, item measures for variables adjusted and the final questionnaire developed.

#### **DESCRIPTION OF WHAT THE AUTHORS PROPOSE TO PRESENT AT THE CONFERENCE**

The schedule of our study includes the completion of the fourth phase by the date of the conference. Hence, we plan to present the outcome of this phase:

- the model with the expected relationship among IS strategic classes and the use of PPM practices with the amendments from interviews
- item measures refined for variables
- final questionnaire developed for the following phase

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