

A framework for the life cycle management of information technology projects: *ProjectIT*

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Abstract

As international competition continues to intensify, significant numbers of organisations are investing large amounts of resources into information and communication technologies as they seek to gain competitive advantage. Information Technology (IT) is increasingly being implemented for strategic reasons, so as to enable improved efficiency and to improve the control and productivity of internal processes. However, the failure of realising expected IT-induced benefits has led to a growing number of senior executives to question the value of IT investments. This research study was inspired by the perceived lack of a structured framework for the life cycle management of innovative IT projects (*ProjectIT*). Such a framework consists of three modules representing each phase of the IT project life cycle, namely, IT project selection (*SelectIT*), strategic IT implementation (*ImplementIT*) and IT performance evaluation (*EvaluateIT*). Moreover, industry practitioners require a user-friendly software tool to assist them to undertake this arduous task. This paper provides a description of each module of the *ProjectIT* framework and the current progress towards the development of the companion software package. *ProjectIT* should assist firms to rapidly select IT projects based on a range of monetary and non-monetary benefits and risks, implement these projects in a well-planned strategic manner and evaluate the short- and long-term value generated from them.
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1. Introduction

Leading organisations use selection, implementation and evaluation processes uniformly at an enterprise level and within each business unit of their organisation. By contrast, there is very little or no uniformity in how risks, benefits, and costs of various IT projects are evaluated [1–3]. Moreover, many organisations appear to approach the whole management of IT in an unstructured or *ad hoc* manner throughout its life cycle [4,5]. Such approaches have evolved due to a limited understanding of the relationship between IT project implementation and traditional business performance metrics [6,7]. This relationship has been described as the ‘productivity paradox’ by some researchers in the field of IT project manage-

ment [8]. The effective management of IT needs to be viewed as a structured iterative business process, which offers organisational learning from each phase of the IT project life cycle [5]. Undoubtedly, such an IT project life cycle framework (*ProjectIT*) should comprise three essential phases or modules: (1) IT project selection (*SelectIT*); (2) strategic IT implementation and monitoring (*ImplementIT*); and (3) IT performance evaluation (*EvaluateIT*). However, each phase should not be viewed as a separate step. Rather, each is conducted as part of a continual, interdependent management effort. Information gained from one phase is used to support activities in each of the other two phases. Fig. 1 illustrates the three phases, or modules, of the proposed IT project life cycle management process (*ProjectIT*).

It should be noted that the research foundations underpinning each module of the presented *ProjectIT* framework and companion software package, have been previously

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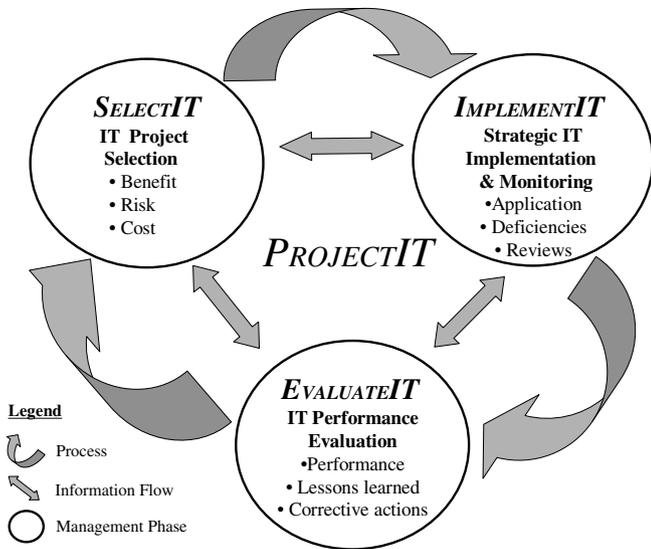


Fig. 1. IT project life cycle management process (*ProjectIT*).

developed by the author, through a series of empirical or case study based research investigations and subsequently reported in the literature [5,7,9–14]. These previously developed module frameworks were originally applied to IT-based project information management platforms implemented in the construction industry. However, they have subsequently been modified to enable their generic application across all industry sectors. Therefore, the primary purpose of this paper is to present a whole-of-life IT project management framework which accumulates this existing body of knowledge but in an integrated and cohesive fashion. The following sections briefly describe each phase, or module, of the IT project life cycle framework (*ProjectIT*) and how they integrate with the next to provide a continual management process.

2. IT project selection – *SelectIT*

There have been numerous examples where IT projects have failed to meet expectations [15,16]. This is sometimes due to a lack of prior assessment of risks and returns before management commitment is made and funding approval is provided [17]. This failure to properly plan the implementation of IT investments generally results from a limited understanding of the relationship between IT investments and organisational performance [18]. Executives tend to lack the methods, skills and tools required for selecting a portfolio of IT projects and tools, which add the greatest value to their organisation [19]. A well-structured IT project selection phase helps ensure that an organisation selects those IT projects that will best support organisational needs and identifies and analyses an IT project’s risks and proposed benefits before a significant amount of funds and resources are allocated. A critical aspect of this phase is management understanding and participation and the application of a structured decision-making

process. Several methods have been proposed to help organisations make good IT project selection decisions [10,20,21]. However, many reported methods have several limitations and tend not to provide a means to combine tangible and intangible ‘business value’ and risk criteria. Others are too complex in structure and have little appeal to practitioners. To overcome the limitations of existing frameworks Stewart [5] suggest a five-step IT project selection process (*SelectIT*): Step 1: identify monetary and non-monetary factors; Step 2: define possibility distributions; Step 3: develop resultant aggregated possibility distribution; Step 4: combine resultant aggregated possibility distribution; and Step 5: rank IT projects. Fig. 2 illustrates each of these outlined steps and they are briefly described in the following sections. Size constraints of this paper limit the degree of explanation provided for each step. Readers are referred to Stewart [5] for a complete description of the *SelectIT* framework and its application in an industry setting. Moreover, readers should note that these steps are supported by the *SelectIT* module wizard of the *ProjectIT* software tool.

2.1. *SelectIT* Step 1: identify monetary and non-monetary factors

In recent years, expenditures on IT have been significant. However, organisations fail to fully acknowledge

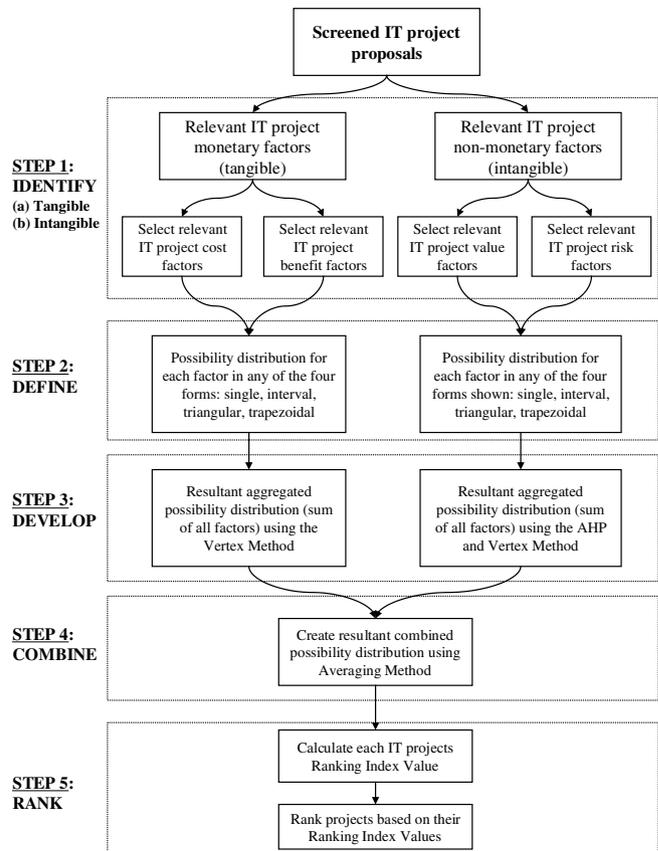


Fig. 2. IT project selection module (*SelectIT*).

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