Maturity, Benefits and Project Management Shaping Project Success

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Abstract. Organisations are under constant pressure. Externally, they face a scenario of intense competition, coupled with a changing environment which is full of uncertainty. Internally, organisations have to deal with limited resources, whilst at the same time comply with increasing requirements and strategic demands. A key to success is the successful management of organisational projects. According to worldwide studies, information systems and information technology (IS/IT) projects have a relatively low success rate. To face these various business challenges, the authors suggest that emphasis should be put on the integration of various and disperse management tools. By combining project management maturity models with benefits management approaches, we expect to reinforce support for the drive to use organisational projects to fulfill organisations' strategic plans that will enhance the control techniques of project management, whilst recognising the need for organisational change and for ensuring the interpersonal skills necessary to orchestrate the successful completion of a project.

Keywords: Project Management, Maturity Models, Benefits Management, Project Success, IS/IT investments.

1 Introduction

There is a need to work with faster and more flexible organisational structures, which force companies to operate through projects which help them to successfully achieve their objectives. Furthermore, in an increasingly competitive business market, it is necessary to ensure that the successful results of one project can be extended to future projects, through the use of standardised procedures. Project management has evolved over the last decades, as have the roles and responsibilities of the project manager [1]. Practices and techniques of project management are recognised by many organisations in various industries as being essential skills, which benefit businesses [2]. These skills are measured through the use of benchmarking and comparative models. Hillson [3] clarifies that the benchmarking process aims to diagnose strengths and weaknesses, to measure the current capacity and to identify areas for improvement. According to Kwak and Ibbs [4], most companies consider using practices and support tools which are applicable for project management processes, as

they permit them to adapt to changing business environments, yet they need a reference model for the efficient implementation of such tools.

Maturity in project management consists of developing repeatable processes and systems which lead to project success [1]. Project management maturity models emerge which provides companies with the necessary mechanisms to allow them to identify the key areas for opportunity and improvement in project management tasks. Additionally, these models serve to develop comparative indicators for the application of project management practices and techniques across organisations which operate in the same business environment or sector. Maturity has been expressed by organisations as a potential key factor for increasing performance, for achieving goals and for being successful. Organisational project management maturity and competency seem to be promising variables which are both related to project success [5], [6]. Dinsmore [7] believes that maturity shows how an organisation has progressed in relation to the incorporation of project management as a way of working, thus reflecting its effectiveness in completing projects.

Basically, the purpose of the maturity model is to provide a framework for improving an organisation's business result by assessing the organisation's project management strengths and weaknesses, by enabling comparisons with similar organisations, and by measuring the correlation between an organisation's project management level and its project performance [8], [9],[10].

There is a considerable volume of literature dealing with project success, and this tends to fall into three categories: 1) studies that deal primarily with the criteria for measuring project success; 2) studies that are primarily concerned with success factors; and, 3) studies that mix both. Judgev and Müller [11] identified four stages of project success evolution: 1) the time and cost quality constraints evaluation method; 2) the need for stakeholder satisfaction; 3) the emergence of an organisation's specific strategic view; and, 4) a more focused, strategically-oriented view, in response to increasing globalisation and the advent of IS/IT. The notion of success is one of the most controversial topics in the field of project management [12], [13]. Cleland and Ireland [14] claimed that the success or failure of a project can be perceived differently by different stakeholders of the project. Dvir et al. [15] agree that a wide range of variables can affect the success of a project. However, these authors emphasise that success factors are dependent on the type of project, thus challenging the idea of a universal set of valid factors for all projects.

This paper presents a literature review that covers diverse subjects, such as maturity models, benefits management and project management approaches. We also describe our proposal as to how these approaches can be brought together, with the perspective of delivering a useful integrative tool for managers. We comment on a small example where this integrated model has been applied, and we conclude our paper with the most relevant observations.

2 Literature review

Project management has received increasing attention in the business and academic world, as projects are important tools for change and organisational development.

Clarke [16] stressed that project management is just a tool for helping the process of change and that when used timely, it can lead to the problem solving of critical issues for an organisation. In an environment where projects are increasingly becoming the fundamental component of running a business, project management has recently been the subject of much scrutiny. Grant and Pennypacker [17] report that over the last decades, more businesses are employing project management as a way of developing a competitive advantage, but projects do not always progress as planned.

According to the literature, organisational growth in respect of the use of IS/IT is described in terms of clearly defined stages of maturity [18]. Various stages of growth models have been presented by researchers to describe the evolution of organisational information systems [18], [19]. The use of maturity models provides an approach for continuous improvement in many areas of business. They drive strategically-linked continuous improvement and require a prior thorough understanding of an organisation's current position and an idea of where it aims to be in the future. Maturity models aim to integrate, assess and improve project management practices. The concept of process maturity was born out of Total Quality Management, where the application of statistical process control techniques showed that improving the maturity of any technical process leads to a reduction of the inherent variability in the process and to an improvement in the mean performance of the process [20]. Identifying the maturity model in the change domain suggests that many of the ideas developed to address broader business change are applicable to the project management environment. Conversely, McKenna [21] suggests that the project management framework is a good choice for guiding the implementation of a change initiative in a business. In the area of IS/IT project management, Lee and Anderson [22] used a Delphi study to research factors not covered by maturity models, which influence project management capability. Ibbs and Kwak [4] demonstrated no statistically significant correlation between project management maturity and project success, based on cost and schedule performance, whereas Jugdev and Thomas [23] could not find a correlation between process capability and project success for many maturity models.

There has been a trend for rising expenditure in IS/IT over the last two decades, which corresponds to the plethora of IS/IT products now available in the market. Well-managed IS/IT investments, which have been carefully selected and which are focused on meeting business needs, can have a positive impact on an organisation's performance. Essentially, the purpose of investment in IS/IT is to improve the operational efficiency of an organisation, so as to reduce costs and improve levels of profit. Thus many traditional appraisal techniques are used to evaluate tangible benefits, which are based on direct project costs. Firms in almost every industry rely on investments in IS/IT to realise benefits after their successful implementation. However, many IS/IT projects fail to deliver the desired benefits [24]. Although organisations continue to make substantial investments in IS/IT, the successful realisation of value, namely, in the form of benefits from such investments, has consistently been reported as a major organisational challenge.

To respond to the constraints of the new business environment, successful organisations have basically developed three important strategies [25]:

1. Training employees in the use of IS/IT, in order to provide organisations with the knowledge and capacity to respond to the pressures to change;

2. Participating in collaborative platforms which involve all relevant stakeholders in the business process;
3. Finding ways of obtaining superior performance by using frameworks that assist management processes.

Research on benefits management as a comprehensive approach began in the mid-1990s, with an empirical study on industry practices in the UK [26]. This study found that many organisations were not satisfied with the results of their IS/IT investments. The basic assumption in benefits management literature is that benefits can be realised if they are managed appropriately. Other studies have attempted to develop models and frameworks to manage the entire benefits management process, which includes those of: the Cranfield Model [26]; Active Benefit Realisation [27] and the Model of Benefits Identification [28]. A recent survey of benefits management practices reports that only a minority of responding organisations had adopted a comprehensive approach to managing benefits from their IS/IT investments [29]. Ashurst et al. [30] used the example of benefits realisation to highlight the frequent gap between management theory and practice. Benefits management follows several phases, namely:

1. Identifying and structure the process: the identification of the correct benefits and classification according to their nature, i.e. in practical terms, the identification of the realistic benefits which are achievable through a project is critical to their actual realisation;
2. Planning: the ability to effectively identify the parties responsible for each identified benefit and change. The need to establish the ownership of the benefits and to identify the changes required and the corresponding implications for stakeholders. The tool used in cause-effect logic to connect all the defined activities, interdependencies, timings and responsibilities, is known as the Benefits Dependency Network (BDN) [31];
3. Execution: The management of change programmes and the review of progress versus the benefits plan [32];
4. Measurement and review: the ability to develop suitable measures for each identified change [24]. Organisations need to implement effective and ongoing monitorisation and evaluation of their project results, in order to ensure that benefits are being realised as planned [31];
5. Further benefits: organisations will only deliver value from IT projects if they can design and execute the organisational change programmes needed to realise all the benefits as planned [30]. Also important is the identification of additional improvements through business changes, the subsequent initiation of action and the identification of additional benefits originating from further IT investment.

It has been argued that this lack of alignment between IS/IT and business is the reason why incorrect unrealistic benefits are identified, or not identified at all, and also why the operationalisation of measures is incorrectly specified, activities and resources are improperly planned, and required organisational changes are not carried out [33]. Traditional appraisal techniques are often unable to capture many of the qualitative benefits that are brought about by IS/IT [34], [35], [26], [36]. These techniques also ignore the impact that the system may have in human and organisational terms. Some studies suggest that IS/IT investments produce negligible

benefits [37], while others reports a positive relationship between the performance of organisations and IS/IT expenditure [38]. Lin et al. [39] support the argument of a generalised inappropriate, or ineffective use of IS/IT methodologies in most organisations. According to Willcocks and Lester [40], management and financial controllers' attitudes have changed towards IS/IT investment criteria, in the sense that IS/IT is now seen more as a support function, rather than a strategic tool; executives are unsure about how IS/IT may be effectively implemented; most view IS/IT from a technical point of view, rather than from a business approach.

In the past, evaluating a project was largely based on the criteria of the achievement of time, cost and quality. Recently it was realised that success cannot be effectively evaluated by these three criteria alone and many researchers tried to improve the situation by adding new dimensions to these criteria. Success is far more complex than the factors just addressed by these criteria. Projects vary, depending on the subject, and criteria must be developed to evaluate a project's outcome that is specific for each project. Over time, various attempts have been made to either add more dimensions to the basic criteria, or to reduce them to less dimensions [41]. Although not strongly supported by empirical research, many papers exist which address the issue of project success criteria. These papers tend to agree that there is a lack of agreement concerning the criteria by which success is judged [12], [42], [43], [44]. A review of the literature reveals that there is, in fact, some degree of agreement with the definition provided by Baker et al. [45], which states that project success is a matter of perception and that a project will be most likely to be perceived as an "overall success". Baker et al. [45] gave a definition of success which includes several major issues, the most important being technical performance and satisfaction amongst the various key people involved with the project. What is important is the recognition that all people involved need to be satisfied with the outcome of a project. While the achievement of objectives is useful for evaluating the outcome of a project, this is not enough to evaluate a project's success. The criteria used for measuring project success must be established at the beginning of the project, otherwise team members and the project leader will find that they are heading in different directions and the result of the project will not be successfully determined, owing to differences in perception, emphasis and objectives [44]. Baccarini [44] agrees with the existence of success-related factors for projects, which can be divided into two groups: 1) Project Success Criteria (PSCs):– which refers to a group of principles or standards used to determine project success; 2) Critical Success Factors (CSFs):– which refers specifically to conditions and circumstances that contribute to project results.

Success factors are those elements that are required to deliver the success criteria [46], and can thus be described as the set of circumstances, facts, or influences which contribute to the result or the achievement of success criteria [47]. Collins and Baccarini [48] and Turner [49] emphasised that PSCs are used to measure success, whilst CSFs facilitate the achievement of success.

What are the influences on project success? Seeking the answer to this question resulted in research into project CSFs. The concept of success factors was introduced by Daniel [50] as: "usually three to six factors determine success; these key jobs must be done exceedingly well for a company to be successful" (p.116) [50]. This concept has been applied to project environments [51] and analysis of the literature found that most studies have focused on deriving CSFs that are applicable to a particular

industry, such as construction or IS/IT [52]. This suggests a need for further study to identify generic CSFs for projects. An outcome which is common to most studies of project CSFs, is a list of factors. It is difficult for project managers to evaluate which key factors impact on performance [53]. In response to this difficulty, Belassi and Tukel [53] proposed the development of frameworks that group CSFs. According to Ward and Griffiths [54], critical success factors enable management to use their judgment in two ways: 1) by assessing the relative importance of systems opportunities in terms of how well they support the achievement of business objectives; and, 2) by identifying the information required to manage and plan the information needs of business executives.

3 Linking approaches and suggestions

The P3M3® maturity model gives an opportunity for organisations to use self-assessment to obtain an up-to-date evaluation of the maturity of their project [55]. As an example, we decided to carry out a self-assessment process in a small-medium sized company that has been operating and leading in various fields, in particular the application of technological solutions for the supply of specialised cartographic products, geographical databases and geo-referenced information. The main goal was to collect the information needed to get the correct "picture" of the organisation.

The organisation under study was assessed in order to answer the following two questions: *"Where are we now?", and "Where do we want to be?"*. This self-assessment was crucial for providing the data for the strategic analysis needed to endorse the organisation's choice of drivers for investment, as well as the identification and structure of benefits beyond those of the objectives.

P3M3 Self-Assessment Model

	Questions / levels	1	2	3	4	5	level
1	How our organisation can be characterised	√					1
2	How our management control is best described		√				2
3	How our benefits management is best described	√					1
4	How our financial management is best described		√				2
5	How our risk management is best described			√			3
6	How our approach to stakeholder management is best described		√				2
7	How our organisational governance is best described	√					1
8	How our resource management is best described			√			3
9	How does the organisation go about programme/project management		√				2

Fig. 1. Example of P3M3 self-assessment answers

The result of this self-assessment identifies the maturity stage of the organisation in question (Fig. 1). It should be noted that the overall assessed maturity level is equal to the lowest score for the process perspectives. In our example, the level attributed to the organisation is 1. To stabilise maturity at level 2, it is advisable for top managers, business managers, IS/IT specialists and others relevant stakeholders to agree on an improvement plan which includes the major issues, namely: new processes or the redesign of the old ones; new skills and responsibilities; new methodologies and approaches; organisational changes and technological tools. Maturity level 2 is characterised by basic management practices, such as: tracking expenditure or scheduling resources. Key individuals should be trained and need to demonstrate a successful track record, as it is through them that the organisation becomes capable of repeating success. Initiatives are performed and managed according to their documented plans and delivery should be visible to management at defined points. To ensure that the benefits from the investments actually materialise, the following two questions need to be answered: *"What benefits are we seeking?",* and *"How will achieve them?"*. The majority of value from IS/IT investments come from the business changes that enable an organisation to carry out some of the following actions [32]: 1) Adoption of new or redefined processes; 2) New roles and responsibilities; 3) Operation of new teams, groups or divisions; 4) New governance arrangements; 5) Use of new measures and metrics; 6) Use of new appraisal and reward schemes; 7) New practices for managing and sharing information.

The achievement of benefits obviously depends on the effective implementation of technology, however evidence from project successes and failures suggests that it is an organisations' inability to accommodate and exploit the capabilities of technology that usually causes a poor return from many investments. While business changes may be considered as being the way that an organisation intends to work 'for ever more', it is recognised that organisation will also carry out other investments and changes [32]. Our linking process intends to use benefits management not only as a contained process area, but also as a process that crosses all the process areas. In accordance with the benefits management approach, two internal workshops were organised to facilitate further discussion and the sharing of knowledge and expertise [32], [56]. The ability of all stakeholders to commit the required time and resources for the project must also be ensured. The outputs from the workshops will form the basis of the business case and benefits plan, and should become integral components of the overall project plan. The final objective of the workshops is to build a consensus in order to identify the main objectives and their related benefits, as well as the CSFs and PSCs that could enhance the probability of a project's success. Through the identification of CSFs and PSCs, organisations learn to identify what they need to change to improve their ultimate chances for success. The resulting business plan should provide answers to two different sets of questions:

1. Benefits achievement: Why must we improve and what improvements are necessary or possible? What benefits will be realised by each stakeholder if the investment objectives are to be achieved? How will each benefit be measured? Who owns each benefit, and who will be accountable for its delivery? What changes are needed to achieve each benefit, and who will be responsible for ensuring that each change is successfully made? How and when can the identified changes be made? [32];

2. Projects strategic alignment: Are all investors' interests taken into account? Are strategic goals chosen by taking into account the customers' needs? Is the process perspective directed at objectives related to internal processes? Does the potential perspective refer to the constant improvement of employees' qualifications? [57].

Benefits management proactively encourages stakeholders to explore the multitude of relationships that exist between technology, organisational change and benefits, whilst keeping benefits very firmly on the agenda, facilitating a benefit-oriented communications amongst all the system's stakeholders [56]. The BDN is the central technique of this approach and it is designed to ensure that investment objectives and benefits are linked to the business in a structured way (Fig. 2).

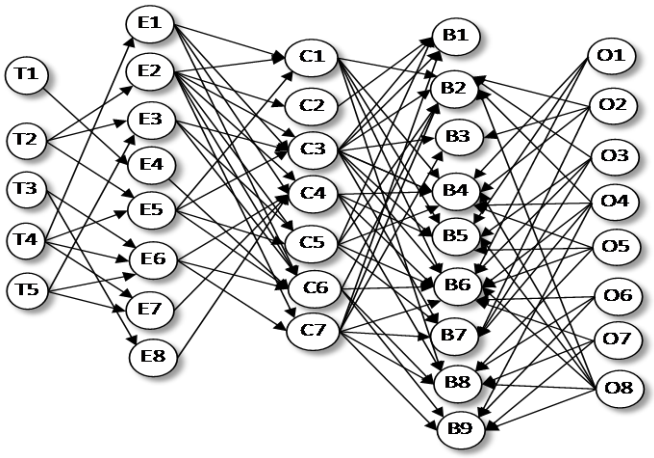

Fig. 2. Example of a Benefits Dependency Network

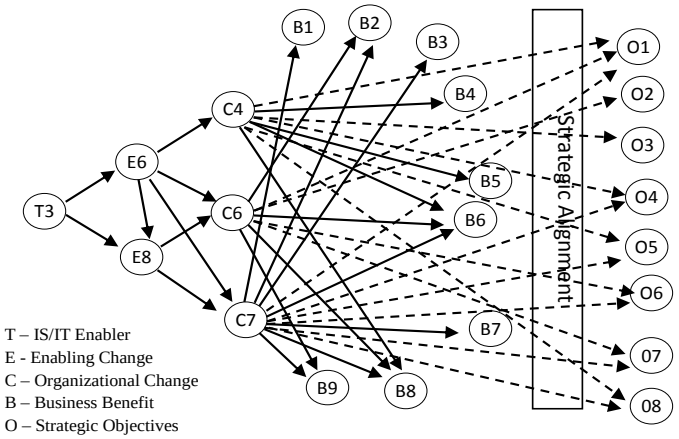

Fig. 3. Example of benefits stream extracted from the BDN

Building the BDN is recognised as being an important first step towards ensuring that the initiative maintains a clear focus on the delivery of value [32], [56]. The network depicted in Fig. 3 provides a framework which explicitly links investment objectives with the required benefits enabled by organisational changes and investments in IS/IT initiatives. BDN has the purpose of processing those business activities that are required to deliver the expected benefits and the IS/IT skills and facilities that enhance these changes. CSFs can be defined as a small number of easily identifiable operational goals, which are shaped by different levels and elements such as the industry, the firm, the managers, and the broader environment. Accordingly CSFs are mostly intended to be used to ensure the success of an organisation.

By implementing the benefits management cycle and by designing the BDN from within the organisation's core, the achievement of CSFs can be enhanced, performing a cause-effect set of transformations which is leveraged by the change enablers and by the technological assets used (Fig. 4).

Fig. 4. Example of Project Success Criteria through Benefits Management cycle

Several studies based on the analysis of project management skills have shown that the issue discussed can somehow influence the success of a project [58], [59], [60]. Managers are trained to focus on the fulfillment of short-term criteria, i.e., to comply with time, cost and quality. In general, these constraints are imposed by the

organisation's top management, and are opposed to the long-term criteria, which typically are more related to the satisfaction of stakeholders' expectations (e.g. better products and/or more efficient services). The major challenge is to deliver an outcome which targets not only the project management objectives and the business improvements, but also promotes an adequate level of organisational change, benefits realisation, and, ultimately, the satisfaction of all stakeholders involved in the project, namely: customers, partners, suppliers, project teams and users.

4. Conclusions

Projects are powerful assets which allow companies to translate strategy into results, namely: new products, innovative services, and/or business performance improvements.

Projects often possess a specialised set of critical success factors which, if correctly addressed, will improve the likelihood of their successful implementation. Furthermore, if these factors are not taken seriously, this may lead to a failure of the project management and/or the project itself. Organisations thus need to align their project management practices to the organisation's strategy, in order to increase their sustainability and the probability of success.

The general perception that IS/IT projects continually fail, has forced organisations to seek new ways and approaches to achieve a higher probability of success. To make organisations more profitable, it became necessary to add more value to the business through projects and initiatives that incorporate changes in ways of performing work, as well as changes to support processes and the alignment of skills, or even the acquisition of the right mix of resources.

The benefits management approach promotes the utilisation of effective organisational change management capability for the management of all the other factors which are necessary to make effective use of the assets created by projects. These include training and operational support to facilitate the necessary cultural changes within the organisation.

By linking maturity, benefits and project management methodologies, we provide a more complete and integrated answer to internal stakeholders' expectations and to the demands of the external market. This combination of approaches allows organisations to assess the strengths of each method and to build a response to the challenging business environments, whilst at the same time keeping the focus on the organisation's objectives and benefits, on aligning initiatives with strategy, and on operating faster and more efficiently.

The resulting framework described in this paper can be a useful management tool which is aimed at helping managers and organisations deal more effectively with today´s dynamic business environments.

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