Evaluation of IS project success in InfSysMakers: an exploratory case study

Research-in-Progress

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Abstract

Evaluating the success of information systems projects is a key process in project management. Even though many studies found in literature focus on various aspects of project success like, for example, the success factors, there are few studies that address the evaluation process and that present practical cases. In order to help fill this gap, this paper presents an exploratory case study of a company called InfSysMakers (anonymized company name), aiming to get answers to the following questions "How is the process for evaluating the success of projects defined?"; "What criteria are used to evaluate the project success?"; "When does the evaluation actions take place to measure success?"; "Who are the stakeholders that participate in the evaluation?" Based on the obtained results, we propose a preliminary model for assessing the success of projects. The results are useful for researchers and practitioners interested in improving the project success evaluation process.

Keywords: Information Systems, IS, Information Technology, IT, project, success, evaluation, process, case study

Introduction

Information Systems (IS) and Information Technology (IT) play a central role in contemporary organizations, since they are present in almost every aspect of business (Varajão et al. 2009a; Varajão et al. 2009b). In fact, in a rapidly changing technological and business environment, the ability to develop and deploy new systems is an important aspect that can differentiate one organization from another (Patnayakuni et al. 2010). Moreover, organizations must continuously innovate in terms of product, process, market and business model in order to remain sustainable (O'Sullivan et al. 2010) and without IT/IS that is almost impossible.

The sustainable success of any organization is strongly associated with the success of the IS projects (Colomo-Palacios et al. 2014). However, the success of IS projects is far from the desirable and the establishment of effective and efficient project management practices still remains a challenge (Liberato et al. 2015). On the one hand, it has been recognized over the last decades that project management is an efficient tool to handle novel or complex activities (Munns et al. 1996). On the other hand, practice shows that IT/IS projects continue to not achieve the expected results (Varajão et al. 2014a).

Although there are many studies that focus on various aspects of project success as, for example, the success factors (e.g., (Belassi et al. 1996; Procaccino et al. 2002; Sumner 1999)) or the success criteria (e.g., (Müller et al. 2007; Paiva et al. 2011; Wateridge 1998)), there are only few studies (e.g., (Varajão 2016)) that focus

on the evaluation process and that present case studies. In other words, there is a great concern in trying to understand what contributes to the success of a project, or the criteria that are (or should be) used; however, there are several topics that have not been addressed such as: "Should the evaluation process be the same for all projects, or should it be defined for each project?"; "How should the evaluation process be structured?"; "When should the evaluation process be defined?"; "Who should take part in this process?"; "When should the evaluation actions take place?"; "What criteria should be used?"; "Should the evaluation criteria be the same for all projects or should it be differentiated?"; "How should the information for evaluation be collected?"; among many other relevant questions. A limited view on project success or the lack of well-defined processes for the assessment of success can turn projects to be managed according to a misfit and incomplete set of success objectives, later causing stakeholders' dissatisfaction (Varajão 2016). Answering the aforementioned questions can help organizations to overcome some of the difficulties experienced in project management.

This study, which is part of a research project that is currently underway, aims to get first answers to these questions. This paper presents the case study of InfSysMakers (for confidentiality reasons, the company studied - InfSysMakers - was anonymized), with regard to its process for evaluating information systems project success. This exploratory case study seeks to be a first step to provide a better understanding of this topic, as well as to provide information for further confirmatory studies.

This paper is organized as follows. The following section summarizes the literature on project management and success evaluation. The research method is described next. Then, the key findings and results are presented. Finally, we conclude with a discussion of results and final remarks.

Background

Project Management is essential in the context of the development of successful projects, being transversal and having applications in many industries, as it is the case of information systems. This is particularly true in large projects, where the need of a competent project management structure becomes more evident and truly indubitable due the complexity involved (Varajão et al. 2013).

Nevertheless, despite the attention that in recent years has been devoted to project management, in many cases the projects are still not providing the desired success: Information Systems (IS) projects should enhance firm performance (Gonzálvez-Gallego et al. 2014), but evaluations frequently reveal that organizations are failing to achieve the intended benefits from their IS investments (Coombs 2015; Petter et al. 2008).

According to Bannerman (2008), the success of the project should be measured based on five aspects: (i) processes; (ii) management; (iii) products; (iv) business; and (v) strategy. There are two distinct components of project success (Baccarini 1999): project management success; and the success of the deliverables of the project. The two components are distinguished as follows: project management success focuses on the management process and mainly on the successful realization of the project regarding scope, time and cost. These three dimensions indicate the degree of the efficiency and effectiveness of project execution. The project's success results focus mainly on the effects of the deliverables in the post-project stage.

Even though the success of project management and the success of the deliverables are not dependent of each other, if project management is not successful, it may jeopardize the success of the deliverables. Therefore, the project and its resulting products and/or services cannot be seen in isolation (Marnewick 2012). Although there is this relationship (Pinkerton 2003), the cause-effect between them is weak (Van Der Westhuizen et al. 2005). For example, considering the time of execution, or the budget, projects can be a failure from the point of view of project management, but may have provided a successful product (Baccarini 1999). Cooke-Davies (2002) noted that ensuring project deliverables success is more difficult than ensuring project management success, since it involves second order control (Shokri-Ghasabeh et al. 2009).

The complexity and ambiguity surrounding this issue in terms of definition and measurement (Baccarini 1999; Fowler et al. 1999; Hyvari 2006; Ika 2009; Jugdev et al. 2005; Thomas et al. 2008) has been recognized as a problem as the understanding of success in project management has evolved (Jugdev et al. 2005). This reality has attracted the attention of the scientific community, which in recent years has focused

its research efforts to better understand the phenomenon (Agarwal et al. 2006; Cuellar 2015; Ika 2009; Lyytinen et al. 1988; Paulk et al. 1994; Pinto et al. 1988).

Some aspects of project success have been focused by numerous studies in last years. Several examples of these studies are related to: causes of project failure (e.g., (Cerpa et al. 2009; Linberg 1999; Nelson 2007; StandishGroup 1995; Yeo 2002)); concepts of project success (e.g., (Agarwal et al. 2006; Cuellar 2015; McLeod et al. 2012; Shenhar et al. 2001; Thomas et al. 2008; Van Der Westhuizen et al. 2005)); success factors (e.g., (Belassi et al. 1996; Belout et al. 2004; Biehl 2007; Clarke 1999; Cooke-Davies 2002; Hong et al. 2002; Lee et al. 2012; Milis et al. 2002; Motwani et al. 2005; Sheffield et al. 2013; Sumner 1999; Sumner et al. 2010; Varajão et al. 2014b; Westerveld 2003)); success perspectives (e.g., (McLeod et al. 2012; McLeod et al. 2010; Verner et al. 2010)); success achieved in projects (e.g., (Eveleens et al. 2010; Glass 2005; Jørgensen et al. 2006; Marnewick 2012; StandishGroup 1995)); and the criteria used in evaluation (e.g., (Agarwal et al. 2006; Atkinson 1999; Barclay et al. 2010; Khang et al. 2008; Lacerda et al. 2009; Lim et al. 1999; Paiva et al. 2011; Wateridge 1998; Westerveld 2003)).

From the literature review, it is evident the high occurrence of these topics. However, to the best of our knowledge, there are only a few academic studies that address the evaluation process (e.g., (Varajão 2016)) or the effective practice in organizations, which is the focus of this article.

Method

This research, which is focused on the process for evaluating the success of IS projects, aims at meeting the research criteria of relevance, applicability, and specificity as proposed by Cheng et al. (1983) in their work on integrating organization research and practice (Loebbecke et al. 2016). In order to describe the evaluation process at InfSysMakers, we conducted an exploratory case study (Eisenhardt 1989; Eisenhardt et al. 2007; Yin 2009). Due to the few studies on this topic, a single case study seemed to be best suitable for an in-depth analysis of qualitative data focusing on the "how" (Loebbecke et al. 2016; Yin 1981; Yin 2009).

InfSysMakers is an IT/IS company with branches in three countries (two in Europe and one in Latin America). The headquarters are located in Europe, and currently it has business in six countries (three in Europe, one in Africa and two in Latin America). Customers are mainly from the finance, insurance, telecommunications and utilities sectors. Founded in 2007, it has about 150 employees, developing projects in diverse areas such as: software development; package implementation; system enhancement; consultancy and business analysis assignments; systems migration; infrastructure implementation; outsourcing; legacy systems; and organizational change. In the case of software development projects, one of its main business areas, it implements two types of methodologies, putting them into practice depending on the type of the project and of the customer's decision: waterfall; Agile (Scrum). It has certification ISO 9001. The number of projects carried out per year is very variable, but typically is less than 50. The same happens regarding the size of the projects, since they can vary from a few weeks and a few thousands of Euro, to several months and hundreds of thousands of Euro. The typical team size is in average of five to six members. InfSysMakers was selected for this case study because it is pointed as a reference of good project management practices in its business sector and in the last few years has shown a quick and consolidated growth.

Data collection at InfSysMakers was conducted through semi-structured interviews that took place in April 2016. During the interviews the participants were asked to provide their background information and an overview of the evaluation of success of IS projects at the company. After this, the interview was focused on each aspect of the evaluation process. The interviews were held informally face-to-face and by videoconference, being in average 90 minutes long. The participants were the portfolio manager and project managers, since they are the key people in the project management in the company (particularly the portfolio manager). The interviews were recorded and then transcribed for content analysis. Open coding was used to identify the main aspects related to the evaluation process; then, the identified aspects were grouped into categories (process stages) and described.

The informal style allowed participants to speak freely and without restriction on any one of the themes. There was also a high concern for researchers not to influence the participants' responses. The data obtained from the interviews were supplemented with information provided by the company.

Results

This section describes the evaluation of IS projects in the company InfSysMakers, focusing: the project management practices; the definition of the evaluation process; the criteria used to measure success; the evaluation of success; and the overall results of the projects. Most of these aspects are directly related to the questions underlying the research and some of them emerged from the case study.

Project Management Practices

InfSysMakers follows a "customized project management approach/methodology, which is defined internally in the company based on PMBOK (PMI 2013a) and PRINCE2 (OGC 2009)". In regards to maturity assessment, "the reference is OPM3 (PMI 2013b)". The company does not have an organizational structure dedicated to project management as, for example, a Project Management Office. Nevertheless, there is a portfolio manager, "responsible for defining the internal standards related to the project management practices (mainly in what concerns to processes, techniques and tools to be used in the projects carried out by the company)". He is also responsible for the "overall definition and monitoring of projects".

Definition of the Evaluation Process

In the context of this study, the evaluation process is defined as a set of activities (and related aspects) implemented in order to evaluate the success of a project. At InfSysMakers, "the evaluation is defined during the initial planning of the project (before the kick-off meeting); at an early stage, only part of the project management team participates in the definition; at a later stage, there is the involvement of various project stakeholders, to get their insight and to ensure their commitment; usually, everyone is involved including the project management team, the operational team, the sponsor and the customer". The participation occurs in "semi-structured meetings, beginning with a presentation of a proposal of the evaluation process, followed by a discussion to define details". External consultants do not participate in this process.

Criteria Used to Evaluate Success

There is "a main set of criteria which is always used in this company, regardless of the type or size of project; it includes the criteria *time compliance*, *budget compliance*, and *scope compliance*".

In addition to these criteria, which belong to the classic Atkinson's triangle (Atkinson 1999), "other criteria are also important in the company, even though they are not always treated formally". They include: compliance with the business goals set for the project; compliance with the client's business objectives; user satisfaction; customer satisfaction; operational team satisfaction; sponsor satisfaction; quality of resulting products/services (deliverables); use of IS solutions by the customer; contribution to the development of the organization; intangible benefits (for example, improvement of company's market image).

"The importance of each criterion is not constant in all the stages of the project. For instance, some criteria may be important when evaluating the project, but not equally relevant at the end of the project".

As mentioned by one of the participants in the study: "Other criteria that could be used for evaluating the success are, for example, the satisfaction of the participating vendors, the personal development of team members, the public recognition of the project, or the social, economic and environmental impacts of the project, but these are not considered at InfSysMakers".

The criteria are defined for each project, without a particular structure. There is a "pre-defined list of criteria which is used by the project's management team as a basis for initial setting". This initial setting is further discussed and enriched together with other stakeholders, including the operational team as well as the sponsor and the customer. There is also the definition of Key Performance Indicators (KPI) related to various aspects of the project.

As mentioned by the portfolio manager, "if I had to highlight a criterion, creating value for the organization would be the most important".

Success Evaluation

The success evaluation is held at different times of the project and post-project.

The evaluation in project context (assessment of project management) typically occurs at project closure. Nevertheless, "during the project the feedback from various stakeholders is also obtained, both formally and informally (mainly from the end-users (key users) of the IT/IS solutions)". This evaluation could also occur at some milestones (for example, at products deployment).

In the post-project, typically the evaluation of success takes place "three, six or twelve months after the end of the project, depending on the type of project and on the customer's decision". This assessment is important because it complements the evaluation of the success of project management, with the success of the project deliverables. The assessment in the post-project is only performed if the customer accepts it.

Information about success is collected in several ways: workshops; joint meetings; surveys; collecting testimonials from stakeholders; analysis of deliverables; and analysis of project management reports (in this case, particularly information related to time, cost and scope compliance).

Not all information is obtained directly and formally. For example, in the case of customer satisfaction, at the end of the project a testimonial is usually requested. "This serves not only to assess the customer level of satisfaction, but also to obtain information that can be used as the company's promotional material (if the customer authorizes it)".

Overall Results of Projects

Regarding the overall results obtained, the company states that about 70% of their projects are successful. This percentage is based on the main set of criteria: scope compliance, time compliance, budget compliance, plus customer feedback. "Considering that some of the deviations from the initially planned is justified by changes in the scope (negotiated with the client and reflected in the budgets and the timetables), this percentage rises to 85%". The reason cited as the main cause for deviations are changes in the scope requested by the customer or, very often, details on the requirements that are not well perceived at the initial stages of project ("the devil is in the detail").

Discussion and Conclusions

In order to contribute to a better understanding of the evaluation process used to measure the success of IS projects, an exploratory case study was carried out in the company InfSysMakers (anonymized company name). The analysis of the obtained results allows to highlight some important points:

- The evaluation process should be defined for each project, considering the project characteristics (as, for instance, the type and size of the project);
- The evaluation of the project's success should take place at various phases of the project (with a focus on project management) and post-project (focusing on the effects of the project results);
- It is important to involve the various stakeholders, both in the definition of the evaluation process, and on the effective assessment, in order to ensure their commitment;
- Although its definition is not always easy, KPIs are important to measure success and should be established in each project;
- Evaluation criteria should be defined considering the moment they are to be applied (for example, certain criteria may be relevant at the time of project closure, but could not make sense at the post-project evaluation);
- The definition of a predefined list of evaluation criteria is useful, but should be adapted to each project;
- The information for the evaluation of the project can be obtained in several ways (for instance, workshops, joint meetings, interviews, management reports, surveys, stakeholder's testimonies, among others) and must be combined to enrich the perception of success.

Figure 1 presents a preliminary model of a process for assessing IS projects' success. It has the following phases: the definition of the evaluation process; the definition of the evaluation criteria; evaluation actions during the project; and evaluation actions in the post-project. For each phase, the main questions to be

addressed are identified, as well the main activities to be carried out. This model is being developed and will be detailed in further studies to be undertaken under this research project.

Figure 1. Process for evaluating projects' success
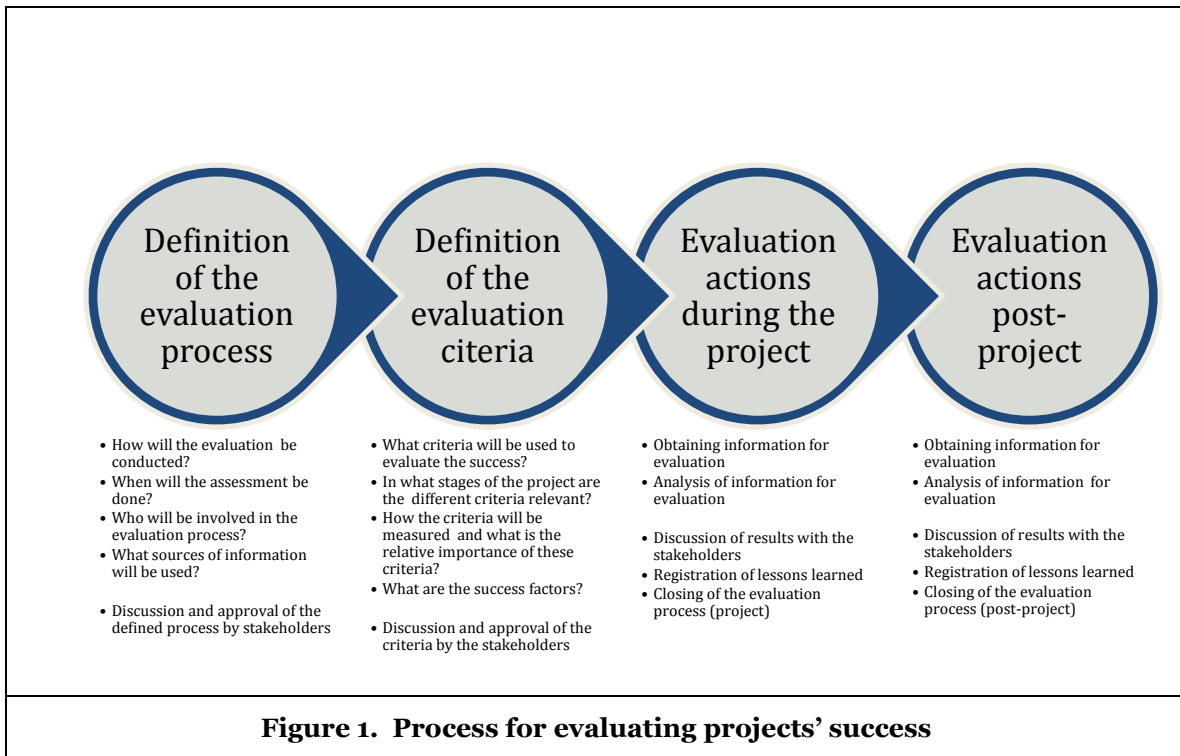
Evaluating a project is not an easy task. Firstly, resources are needed for the evaluation, from the moment in which the idea of the project comes up until the post-project (in which the effects of project implementation are at stake in terms of evaluation). As such, it is not always easy to justify to senior management that assessment, despite the associated costs, is beneficial to the organization, providing an opportunity to reflect on what happened in the project and to identify opportunities for improvement. Moreover, while some of the dimensions of success (for example, the time compliance), are straightforward and relatively easy to measure, others are of great complexity considering formal assessment (e.g., how to measure the contribution of a particular project to improve the company's market image?). As far as some criteria are concerned, a quantitative assessment is many times possible. In other cases, it is unlikely a company be able to do so, and thus a qualitative assessment is the most viable alternative.

A limited view on the success of a project - focusing only on time, cost and scope - leads the projects to be managed based on an incomplete set of goals and may subsequently lead to a feeling of dissatisfaction on the part of different stakeholders. Despite the success being currently viewed as multidimensional, with technical, economic, behavioral, business and strategic dimensions (Bannerman 2008; Cao et al. 2011; Ika 2009) in practice this is not always evident in the formal measurement of a project's success, requiring new research efforts.

The main limitation of this study, which is a single case study, relates to the generalization of the results. Since this is an exploratory study, the main objective was to bring new insights to the process of evaluation of project success. As further work, it is proposed that more (exploratory) case studies should be carried out, as well a (confirmatory) survey, focusing on this topic in order to gain a better understanding of the current practices in companies and to contribute to create a theoretical framework.

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