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Implementing Success Management in an IT project

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Abstract

Given the high importance and complexity of the evaluation of Information Technology (IT) projects, it is essential that companies define and implement systematic processes for managing success aiming to improve project management and deliverables performance. This article presents the first stage of the implementation of a *success management* process in an IT project of a large multi-national company. Preliminary results show that, with a small increase of the management effort, this enables a precise definition of what really means success in the context of a project, a better understanding of the different perspectives of the participating stakeholders, a greater focus in what is most important for achieving the project success, the unbiased identification and definition of criteria for evaluating success, and the definition of milestones to carry out the evaluation.

Keywords: success management; process; information technology; information systems; software; success; evaluation; action research

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1. Introduction

Information Technologies (IT) are critical for the sustainability and development of virtually any human organization. However, IT require constant attention to fulfill their role adequately and to keep pace with organizations changes, being projects a primary way of structuring the activities and resources needed for developing, supporting, and improving IT.

An IT project can be defined as a temporary endeavor undertaken to create a unique product, service, or result [1], such as the development of a software application, the migration of a database, the enhancement of an IT infrastructure, among others.

As the sustainable success of any organization is strongly associated with the success of projects [2], evaluating the success of IT projects should be a fundamental process of Project Management (PMg) [3].

Although there are many studies that focus on various aspects of project success as, for example, the success factors (v.g., [4]) or the success criteria (v.g., [5]), there are only a few studies (v.g., [6, 7]) that focus on the evaluation process and present practical cases.

There are also many studies that report problems on Information Systems (IS) and IT projects (v.g. [8, 9]) but do not give the proper attention to the evaluation process. In other words, they refer to the success of the projects considering several criteria (defined by the studies' authors) but do not describe how that success is in fact assessed in practice by companies.

Given the undeniable importance of the evaluation of projects' success [10] and the gap in the literature, the purpose of this research-in-progress article is to describe the first stage of the implementation of a *success management* process in an IT project of a large multi-national company, as well as to present the preliminary results.

This paper is organized as follows. Section 2 presents a brief literature review of project success and *success management*. Then, in Section 3 it is presented the research method. In section 4 the main results and the discussion are presented. Finally, we conclude with the main contributions and highlights for further research.

2. Project Success and Success Management

2.1. Project Success

The subject of success in the context of projects is intricate due to the diverse perceptions on success (which depend on the stakeholders, for example), to the characteristics of the project (for example, project size), to the circumstantial factors of the projects (for example, outsourcing), and to many other aspects that need to be managed throughout the project lifecycle [6].

Several aspects of project success have been the focus of numerous studies over the last years, for instance, related to: concepts of project success (v.g. [11]); success achieved in projects (v.g. [12]); causes of project failure (v.g. [13]); success factors (v.g. [14]); success perspectives (v.g. [15]); and the criteria used in evaluation (v.g. [16]).

From the literature, it is evident that there is a significant concern in trying to understand what contributes to the success of a project. However, the evaluation process is not addressed in depth. Guides and standards of good practices, such as PMBoK [17] and PRINCE2 [18], are not exceptions to this fact since they do not address in a systematic way the processes required for success evaluation. By analyzing the various project management guides, it is possible to identify many references to project success, which is not surprising, since the main objective of the guides is indeed to improve success in PMg. Yet, that concern is not translated into systematic processes. In other words, even though the primary concern is success, we cannot find processes directly related to *success management* in the guides (for instance, "define success criteria"), in the same way as it happens in the case of processes of areas such as communication, risk, stakeholders, etc., denoting an area that needs more contributions [7].

2.2. Process for success management

Varajão in his article "Success Management as a PM knowledge area – work-in-progress" [6] proposes the Success Management as a new PMg area of knowledge. Later he presents a process model for managing success [7], which was adopted in this research. Next is presented the model (Figure 1) and a brief description of its activities.

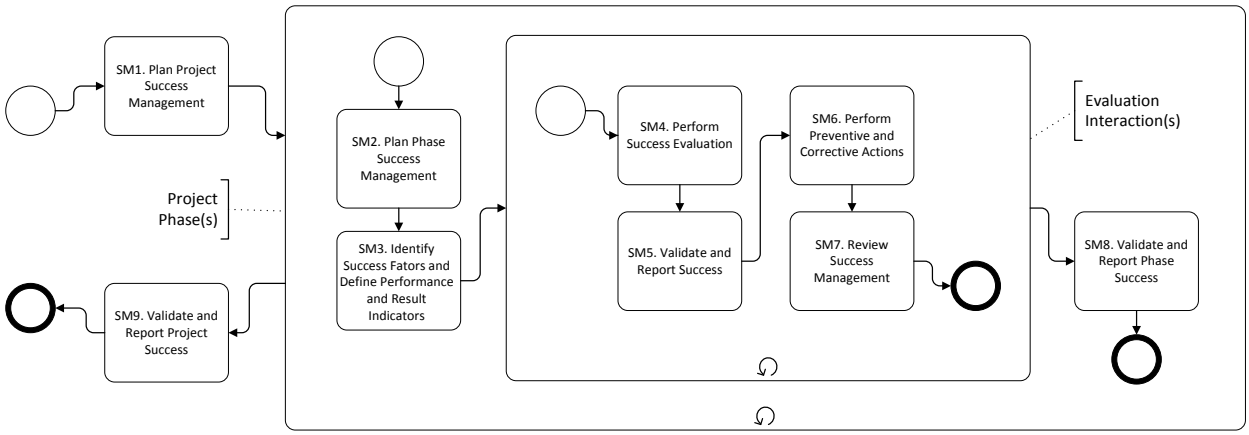

Fig. 1. Process model for Success Management [7].

SM1. Plan Project Success Management is the task responsible for defining the various aspects of PMg related to the assessment, monitoring, and reporting of project success.

SM2. Plan Phase Success Management is similar to SM1 but focused on a project phase.

SM3. Identify Success Factors and Define Performance and Result Indicators is the task responsible for the identification and description of the project's success factors, performance indicators, and result indicators.

SM4. Perform Success Evaluation is responsible for collecting and analyzing the information for success assessment.

SM5. Validate and Report Success is the task where the indicators measured in SM4 are reviewed and reported to the different stakeholders.

SM4 and SM5 tasks' results will many times show deviations from the originally planned. Based on that results, task *SM6. Perform Preventive and Corrective Actions* will be responsible not only for correcting the identified deviations but also for preventing expected future deviations.

As in the case of other PMg areas, Success Management should not be seen as a static effort. In other words, during the project, the *success management* aspects (mostly defined in tasks SM1, SM2 and SM3), should be scrutinized aiming to identify continuous improvement opportunities. *SM7. Review Success Management* is the task responsible for it.

SM8. Validate and Report Phase Success is responsible for reviewing the different aspects of the project's success for the project phase evaluation, as well as for reporting the success to the different stakeholders.

SM9. Validate and Report Project Success is similar to SM8, but focused on the project as a whole.

3. Method

Taking into account the objectives of our study an action-research process was adopted, following the five steps presented in Figure 2 as proposed by Baskerville [19].

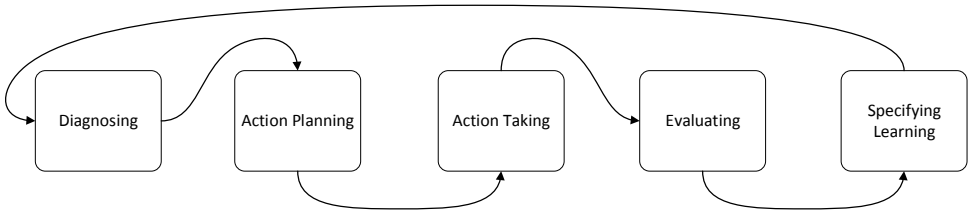

Fig. 2. Action Research Cycle [19].

The study took place in a project of Robert Bosch S.A. which is a company that develops solutions in four different business areas, namely mobility solutions, consumer goods, and energy and building technology. The company is composed of seven divisions: Car Multimedia, Car Accessories, Electric Tools, Heating and Hot Water, Home Appliances, Security Systems, and Service Solutions. It has about 400500 employees worldwide, with 440 subsidiaries in about 60 countries. Preliminary data for 2017 estimate a turnover of around 78 billion Euros. Over the same period about EUR 7.5 billion was spent on research and development. Having started in 1886 in Stuttgart, Germany, Bosch is a company with a significant social component. Through a charitable foundation, it uses part of the profits for the benefit of society, the environment, and future generations.

The target project, identified as P15 - PCB layout assessment tool, is part of the R&D Innovative Car HMI Program, a collaborative program that has the participation of Bosch and University of Minho. The project has as main goal the development of a software tool to automate the verification of layout guidelines (design and process rules) of Printed Circuit Boards (PCBs). PCBs are components used in various electronic devices such as household appliances, power tools, and vehicles. In addition to the software tool, the project deliverables include software requirements specifications, technical specifications, a rule ontology, a database, non-functional prototypes, functional prototypes, among others.

The adopted software development process was based on an agile development methodology (SCRUM), to allow flexibility in the project. Through this methodology, it was possible to promote greater adaptability of the development phases according to the needs of the company, which evolved along the project. Thus, it was possible to deal with changes to the initial plan, which were easily incorporated into the project development. In a more advanced phase of the project, the use of the SCRUM was coupled with a waterfall process since the objectives stabilized without needing a periodic update. The project team was multidisciplinary, incorporating two engineers from Bosch Car Multimedia, S.A. (Bosch division in Braga, Portugal) (SUBTEAM A - STA) and seven researchers from the University of Minho (SUBTEAM B - STB). The team has skills in software engineering, project management and in the development and creation of PCBs. On average, the team allocates a total of 1040 hours per month to the project (approximately 6.5 FTE), distributed by the different tasks of the project and according to the functions performed by each element (three of the team members are not full time in the project).

The research started by diagnosing and identifying the main reasons that justify the need for implementing a *success management* process. Following the activities required to implement the new *success management* process were planned based on Varajão [7]. After planning, the activities were carried out to produce the expected changes. Next, the obtained results were evaluated. Finally, was analyzed the pertinence and usefulness of what has been achieved. There were also identified possible ways of moving forward. It should be noted that the process is systematic and cyclical, with several iterations to correct and improve actions that did not adequately produce the expected changes and to investigate other pertinent and complementary aspects. According to Baskerville [19], the collaborative participation of the various participants, via action research, increases their competencies and, consequently, their performance. It was possible to observe this in the study.

4. Results and Discussion

The need for the implementation of a *success management* process emerged in the last phase of the project. When this phase started, it was verified that each sub-team (STA and STB) could not fully understand what was being valued by the other sub-team, namely in the establishment of the priorities and in the identification of the objectives that were more valuable to the Top Management Team. It was also important to set the performance indicators and to identify indicators related to results and objectives. Figure 3 depicts the timeline of planned and so far executed actions considering the process described in Section 2. Since this is a research-in-progress, it is only described the first interaction of the process, focusing on activities SM1, SM2, and SM3.

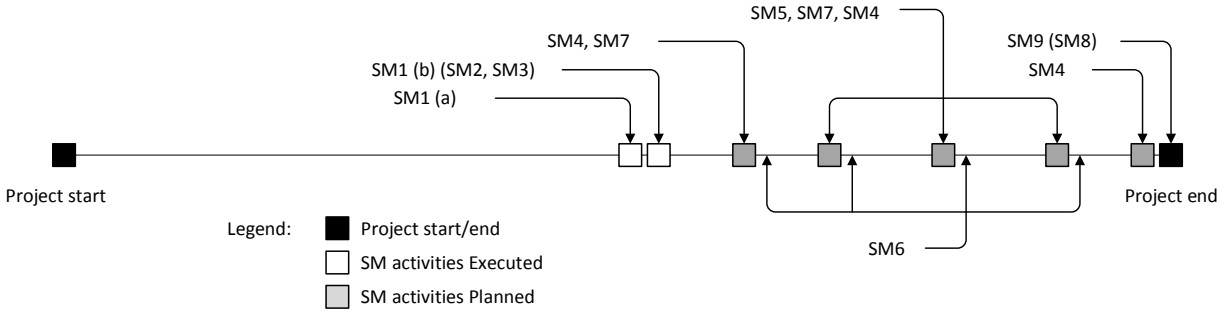

Fig. 3. Timeline defined for Success Management.

The workflow started with activity SM1. Plan Success Management. This activity was divided into two different moments (identified as SM1 (a) and SM1 (b) in Figure 3) aiming to capture the individual vision and ideas of each sub-team (STA and STB), i.e., to avoid one sub-team from inducing or influencing the ideas of the other. Thus, there were two initial individual preparatory meetings with both sub-teams, one with the STA and other with STB (identified as SM1 (a)). The goal of such meetings was to answer the following questions: "Why will the *success management* be done in the project?"; "What will be done to manage success in the project?"; "Where will the *success management* actions take place in the project?"; "Who will be involved in the *success management* in the project?"; "When will the *success management* actions occur in the project?"; "How will the success be evaluated in the project?"; "How much it will cost?". In the second meeting (SM1 (b)) both sub-teams, STA and STB, were simultaneously present and the main goal was to present and comment on the previously collected ideas of each sub-team. In this meeting, were also planned the *success management* activities. In other words, these were the activities where the *success management* was globally defined for the project.

Preceding the two initial meetings SM1 (a), there was a preparatory work to organize the agenda and to create the documentation to be used in the meetings. This work took about 2 hours and was carried out by one of the team's elements. SM1 (a) meetings took in average about 45 minutes each and had the presence of all own sub-teams' elements (in the respective meetings). The meeting's agenda included a briefing on the objectives of the session, and all of the questions above were addressed.

The second meeting (SM2 (b) (SM2, SM3)), which took approximately one and a half hour, was simultaneously attended by all elements from both sub-teams. The administrative work that followed this meeting (to process the results from both meetings) had the approximate duration of two and half hours.

The total cost of the *success management* planning for these initial activities was about 20 work hours, considering the participation of all team members.

Through these meetings, it was possible to define how *success management* would be implemented in the project. It was also created a timeline for the *success management* activities (depicted in Figure 3) and defined several aspects of success for the project, namely success factors and the criteria for evaluating the success. The main results of the previously described meetings are presented next, considering the addressed questions.

"Why will the success management be done in the project?"

The main reasons pointed out by both sub-teams for implementing a *success management* process were: have a greater control over the project, considering the criteria that are relevant for addressing the success (STA); increase the project success likelihood (STA); increase the satisfaction of the several participants (stakeholders) (STB); understand the point of view of all participants (STB); identify what is important for the different participants (STB).

"What will be done to manage success in the project?"

Several activities were defined, including: definition of performance and result indicators; identification of success factors; identification of expected benefits; evaluation actions involving the several stakeholders. Another aspect that was decided was to perform activities SM1, SM2, and SM3 as well as SM8 and SM9 just once and jointly. This decision took into consideration the state of the project since it was at the beginning of the last phase. On the other hand, and to avoid a high number of meetings, it was decided that activities SM5, SM7, and SM4 should also be done together.

"Where will the success management actions take place in the project?"

It was decided that *success management* actions would be carried out at Bosch offices, with face-to-face data gathering and reporting of the results of evaluations.

"Who will be involved in the success management in the project?"

It was decided that all elements of the team would participate in the process, including the several elements of both sub-teams, the project manager, and the coordinator(s) of each sub-team.

"When will the success management actions occur in the project?"

It was defined that the *success management* actions would have a monthly periodicity, according to the defined timeline.

"How will the success be evaluated in the project?"

The success will be evaluated considering a set of indicators that were previously defined and settled by the project team.

"How much it will cost?"

At the initial meetings, it was not possible to accurately estimate the costs of the *success management* actions since there were no previous references and it was not yet defined who will attend the meetings. Nevertheless, after the initial activities, it was possible to estimate that a total of 20 hours per month will be needed for the *success management* activities. This estimation considered the size of the team and the predicted activities, being the sum of the time spent by each team member, i.e., each element of the sub-teams would spend about 2 hours per activity. Thus, in this project, the total time necessary for the *success management* activities is less than 2% of the total monthly working hours.

"What are the performance indicators? What are the performance targets?"

This question was initially issued without giving any support or additional information to the meeting participants. Thus, the elements of the sub-teams were able to express what they considered important freely. As a result, both sub-teams had some difficulties in identifying the performance indicators which, in this initial stage of the project, tended to be restricted to the Iron Triangle criteria: Time (STA and STB); Scope – deliverables (STA); Scope – requirements (STA and STB); Budget (STA); Team learning (STB). A concern of sub-team STA was the definition of targets for the criteria, while sub-team B opted for the definition of weights.

"What are the result indicators? What are the results targets?"

When asked the question related to the result indicators, it was necessary to distinguish them from the performance indicators since some doubts emerged. To avoid misunderstandings, it was useful to differentiate the project management success (which typically can be measured immediately after the project ending) from the

deliverables success (which frequently can only be measured at later stages, namely in post-project). Performance indicators were then defined as the measures used to monitor the activities/project success, and the result indicators as the measures used to evaluate the achieved final project success.

In this stage the goal was to identify the indicators, disregarding their relative importance. To assist the settlement of the performance and results indicators, it was useful to put the following questions regarding each identified indicator: Is it possible to evaluate the indicator during the project execution or only after it has been finished? Understandably, some of the indicators may be simultaneously considered as performance indicators and result indicators, according to when they are considered in the evaluation.

The result indicators identified by STA were the following: Scope – requirements; Quality – deliverables; Use of software; Business processes improvement (reduction of interactions of PCBs design); Budget; End-users satisfaction.

"What are the success factors?"

For the success factors definition, it was also necessary to clarify some concepts since there were some misconceptions and doubts regarding the factors and criteria for the success evaluation. To simplify, the success factors were introduced as "aspects that influence the likelihood of success of the project".

The STA identified four success factors while STB identified 13. The factors are: Commitment of all team elements in the development of the work (STA and STB); Availability of the technological infrastructure (STA); Detailed planning of the project's activities (STA); Work carried out by sub-teams at the Bosch offices (STA); Good communication management (STB); Fulfillment of the communication rules (STB); Good planning of meetings (STB); Knowledge management inside team (STB); Promote the teamwork over individual work, i.e., task sharing (STB); Satisfaction and motivation of the STB (STB); Team punctuality (STB); Good workplace conditions (STB); Good team relationship (STB); Team trust (STB); Technical knowledge needed for developing the solutions (STB); Availability of information necessary for the project development (STB).

"What are the expect benefits from the project?"

Regarding the expected benefits, the STA pointed out: business procedures normalization; business processes improvement (reduction of interactions in PCBs design); cost reduction; better specification of PCBs guidelines. STB was not sure about expected benefits, so at this first stage of the process did not identify any.

Other relevant questions regarding the indicators, success factors and benefits are: "In what moments of the project they are relevant?"; "What is the relative importance of each one for stakeholders?"; "How they will be measured?"; "What is each criterion's contribution when assessing the project's overall success?"; "What sources of information will be used?"; "How will they be reported?". It was decided to consider these questions in the next activities of *success management*, after processing the results of the first meetings (to improve the efficiency of the process).

It is worth to note that in the first meeting the STB took the opportunity to report some issues that the elements of such sub-team were experiencing with the execution of the project. In fact, this process revealed useful to align expectations and to focus on some issues that were not being discussed.

At meeting SM2 (b) (SM2, SM3) the results of the initial meeting (SM1 (a)) were presented. It is important to recall that the initial meeting was performed independently for each sub-team, and when presenting the results of it, both teams asked for the clarification of some aspects mentioned by the other team. This also led to the decision that the next evaluation activity, SM4, should also be performed independently for each team. In this next activity, it should also be analyzed the outcomes from the second meeting (through the conjoint execution of activity SM7).

5. Conclusion

Despite being an on-going project, it is already possible to make important first considerations about the *success management* process.

On the one hand, some difficulties emerged in the initial implementation, which included: the difficulty to define success criteria besides the obvious "Iron triangle"; the difficulty of the teams in understanding the involved

concepts; some initial suspicion from one of the teams, because team elements felt that it could be a new way of controlling their actions; and the lack of techniques and tools for supporting the new process.

On the other hand, it was realized that the total costs for implementing the process are quite low (about two monthly hours per participant) and the potential that it demonstrates to the contribution for a higher success level of the project seems to justify them fully.

Preliminary results also show that this process promotes a precise definition of success, a better understanding of the different perspectives of the participating stakeholders, a greater focus in what is most important for achieving the project success, the identification and definition of criteria for evaluating success, and definition of milestones to carry out the evaluation. At this time all stakeholders have agreed that a systematic process, promoting a continuous evaluation and accommodating the perspectives of the involved stakeholders, may contribute to better monitoring and performance of the project.

The reported research-in-progress focused on activities that were previously executed (SM1, SM2, and SM3). Further work will continue to address the process as a whole.

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