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The many facets of information systems (+projects) success

Viewpoint

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Abstract:
It is well accepted that Information Systems (IS) are critical for the competitiveness of virtually any human organization. However, IS need constant attention to fulfill their role and to keep pace with the changes of organizations. Therefore, the success of IS projects is crucial for the success of IS and, consequently, for the success of the organizations themselves since they are closely related. Given the complex nature of the participating objects and related concepts (e.g., people, information, processes, and technology), the perspectives of success and its influencing factors can be of high complexity. This complexity comes from various aspects that need to be recognized, considered and evaluated, as well as from the multiple interactions that occur between them. This article aims to contribute with new insights and a new way of addressing the success of projects and IS, by identifying and describing various important facets of success.

Keywords:
project success; project management success; deliverables success; operations success; information systems success.

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1. Introduction

It is well accepted and somewhat consensual that information systems (IS) are critical for the development of virtually any human organization. Involving people, processes, information technology, and other organizational resources and structure, which facilitate the acquisition, storage, processing and transmission of data, information, and knowledge in an organization [1], IS require constant attention to fulfil their role adequately and to keep pace with the changes of the information and business moving needs of organizations.

Projects are the main way of structuring the activities and resources needed for improving an organizational IS. An IS project is a temporary endeavor undertaken to create a unique product, service, or result [2], and can assume many forms as the deployment of commercial-off-the-shelf applications or consultancy assignments. A main distinctive feature of IS projects is the fact of being socio-technical undertakings, carried out to improve the organization and to achieve business benefits.

Therefore, it is clear that the success of such projects is crucial for the success of IS and consequently for the success of the organizations themselves since they are closely related (an organizational IS can be seen as an abstraction of an organization, focused on the resources and activities related to information).

Given the complex nature of the participating objects and related concepts (e.g., people, information, processes, and technology), the perspectives of success and its influencing factors are also of high complexity [3]. This complexity comes from various aspects that need to be recognized, considered and evaluated, as well as from the multiple interactions that occur between them.

Concerning works related to the theme "project success", the technical-scientific literature is vast [4], which translates into a large number of available articles focused, for example, on success factors [5] or criteria for success evaluation [6]. On the other hand, it is not always clear what should be taken into account when assessing the success of projects [7] (in its various phases), of project deliverables, of IS, or of related operations.

This article aims to contribute with new insights and a new way of addressing the success of projects and information systems, by identifying various important facets of success that are explored and described next, including: project (management) initiation success; project (management) execution success; project deliverables success; project success; project related operations success; program & portfolio success; operations success; information systems success; organizational success; and business success.

2. Information Systems Project Success

Let's consider, as an example, the case of a project for the adoption of a new ERP (Enterprise Resource Planning) system. In this example, the project arises from a company's need to update an existing ERP system which no longer responds to the information requirements of the organization. Before the project is approved for execution, it is defined and assessed for its viability (EX ANTE time in Figure 1).

Figure 1. Three moments related to the lifecycle of a project

If the project is considered feasible and is formally approved, then the project is established, and it is planned, executed, monitored and controlled, and finally closed (PROJECT time in Figure 1).

In the course of the execution of the project, there are several activities which need to be carried out such as the requirements elicitation, business modeling, gap analysis, identification of software solutions on the market, selection of software, configuration of software, development of custom features, the deployment of the solution, and training of users, among others. Once the project is completed, the new ERP goes live, and it is made available to the company, thus beginning the life cycle of the deliverables (EX POST time in Figure 1).

In summary, as shown in Figure 1, we can consider three key moments related to the typical life cycle of an IS project (as it happens in many other types of projects): EX ANTE; PROJECT; EX POST.

As shown in Figure 2, the first three facets of success to consider are related to these three moments of Figure 1: project (management) initiation success; project (management) execution success; project deliverables success.

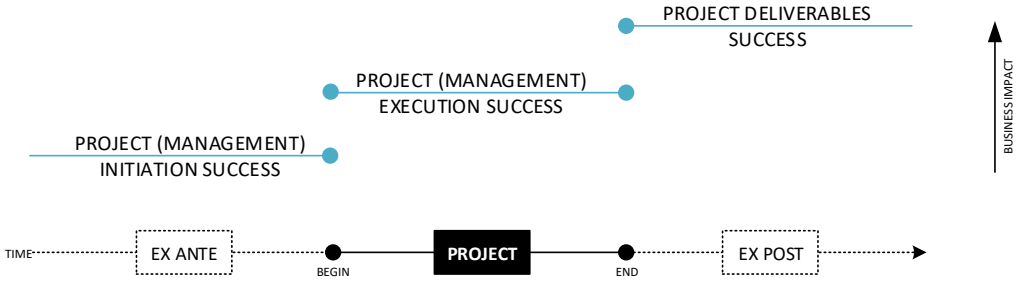

Figure 2. Project (management) initiation success, project (management) execution success and project deliverables success

Taking our example, the ERP project will be carried out if the evaluation of the idea and its feasibility is favorable. In other words, it will be executed if there is success in the project initiation phase (project (management) initiation success). One of the most important results of the project initiation (which is comprised of several project management processes) is a project charter. This is a document that after being approved, formally establishes a project and may constitute the benchmark for the evaluation of success at EX ANTE time.

For the execution of the project, targets can be set regarding scope and quality, cost, time and customer satisfaction, thus being part of the project management plan. The fulfillment of these targets can be used to evaluate the success of the execution of the project (project (management) execution success).

After executing the project, a new ERP system will be available to the organization. To assess the success of the resulting products and services (project deliverables success) can be considered the obtained business benefits (e.g., related to productivity improvement, information quality improvement, performance improvement, etc.).

However, this is a simplified representation since the deliverables of many projects are made available to the customer not only at the end of the project but also during the project (the blue dotted line represents this in Figure 3). This implies that the project deliverables success evaluation might start before the closing of the project.

Going back to our example, the ERP system can go into production in a phased way (phased rollout instead of big bang), starting, for instance, with the implementation of an accounting module, followed by a production module, then a sales module, a human resources module, and so on. In this case, the evaluation of the success of deliverables can begin upon the availability of each deliverable (in this example each ERP module) and not just at the closing phase of the project.

Many of these facets of success influence and are influenced by each other. For example, the way how stakeholders are involved and the available resources are considered at the project initiation phase (EX ANTE) may have a significant influence on the execution of the project (PROJECT). In turn, the way how end-users are involved throughout the project may also significantly influence the success of deliverables (EX POST).

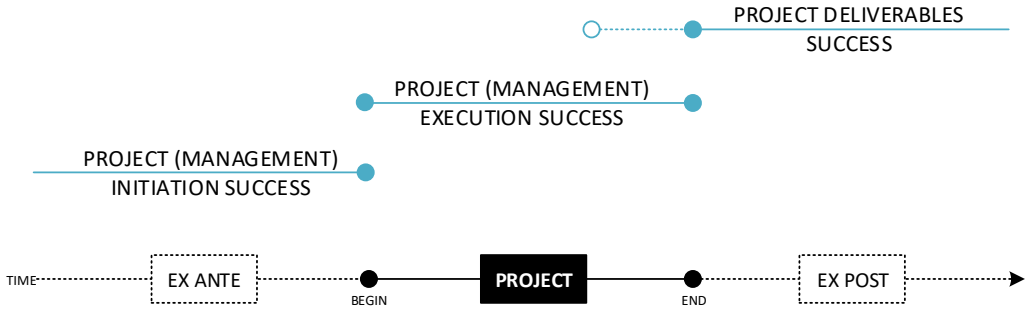

Figure 3. Project deliverables success starting before the project end date

Regarding project success, it can be defined as the project management success together with deliverables success [8]. In Figure 4, it is represented by a green line. It is important to note that was intentional to identify an end in the line. On the one hand, as the project success includes the project deliverables success, both lines should end at the same point. On the other hand, since the project deliverables may not have a finalization date set (i.e., the product lifecycle end date), it is important to define begin and end dates for project success so that a formal evaluation is possible within a given timeframe.

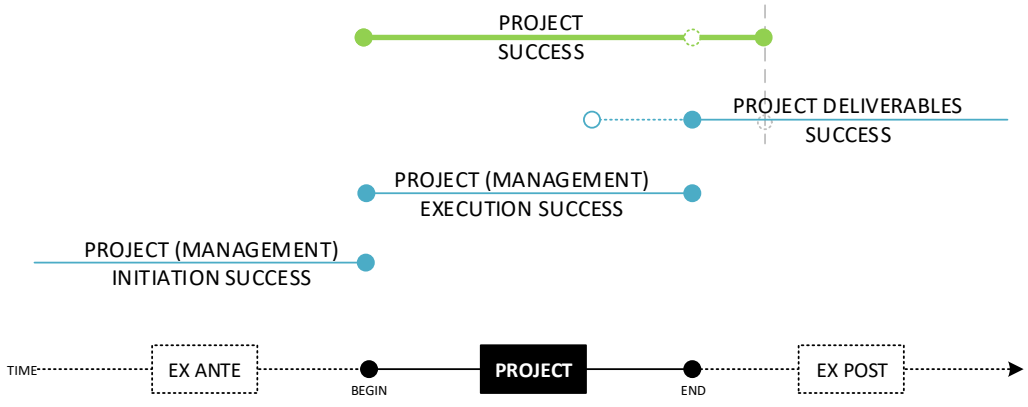

Figure 4. Project success

In the case of IS projects, the deliverables of the project are not only what determines the success of the project, but also the operations/services that will support the use of the various resulting technologies and processes made available to users. As such, a new facet of success should be taken into account: the success of the operations.

In Figure 5, the project related operations success is represented by a yellow line. As it occurs with the project deliverables success, the evaluation of operations success can start before the project ends (yellow dotted line). In the example of a new ERP system adoption, before the implementation of the first module, it may be necessary to change the existing infrastructure and to create a new helpdesk service (which may be out of the scope of the project). This ensures that a fully functional end-users support service is established when the first module goes live. If this is not taken into account, there is the risk of a project fail due to external factors to project.

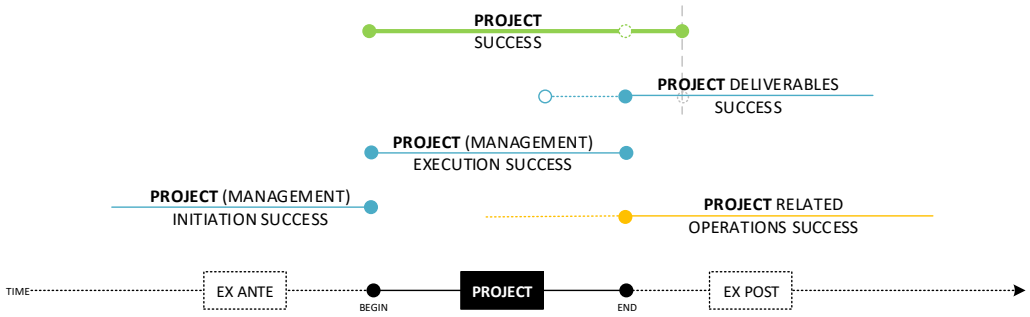

Figure 5. Project related operations success

3. Information Systems Success and Other Facets of Success

Changing the focus of attention, as shown in Figure 6, the evaluation of the success of the project-related information system should begin to be measured from the time applications and operations become available to the organization for its use. In the ERP example, this success can be measured considering the quality of the new software system, of the information and the new IT-enabled business processes, as well as the quality of the related service (operations).

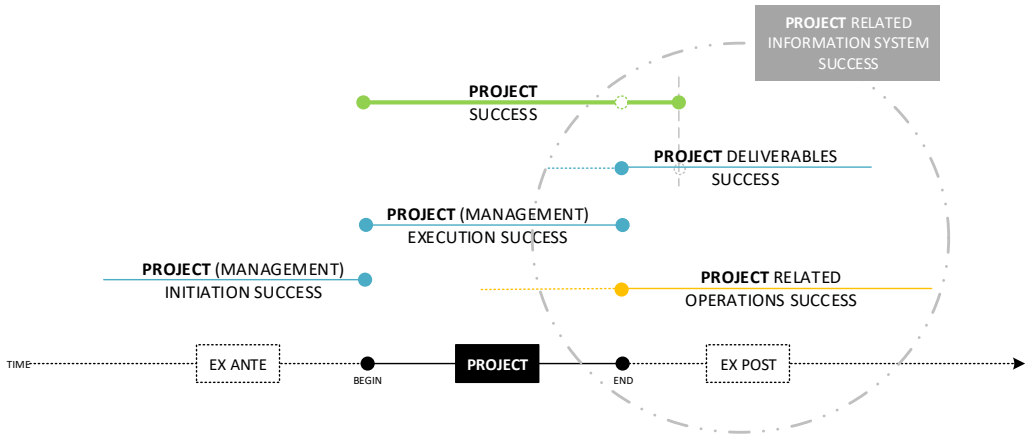

Figure 6. Project related information system success

So far, the discussion of the various facets of success has been made from the project's point of view; however, projects are not isolated in time and space. They are performed in a given organizational environment and conjuncture that influences and is also influenced by these various facets of success.

Figure 7, shows other strands of success related to IS projects that need to be seen in a continuum of time. Some of these facets of success are circumstantial and context-dependent (e.g., the program & portfolio success) while others can be identified in all organizations (e.g., the information systems success).

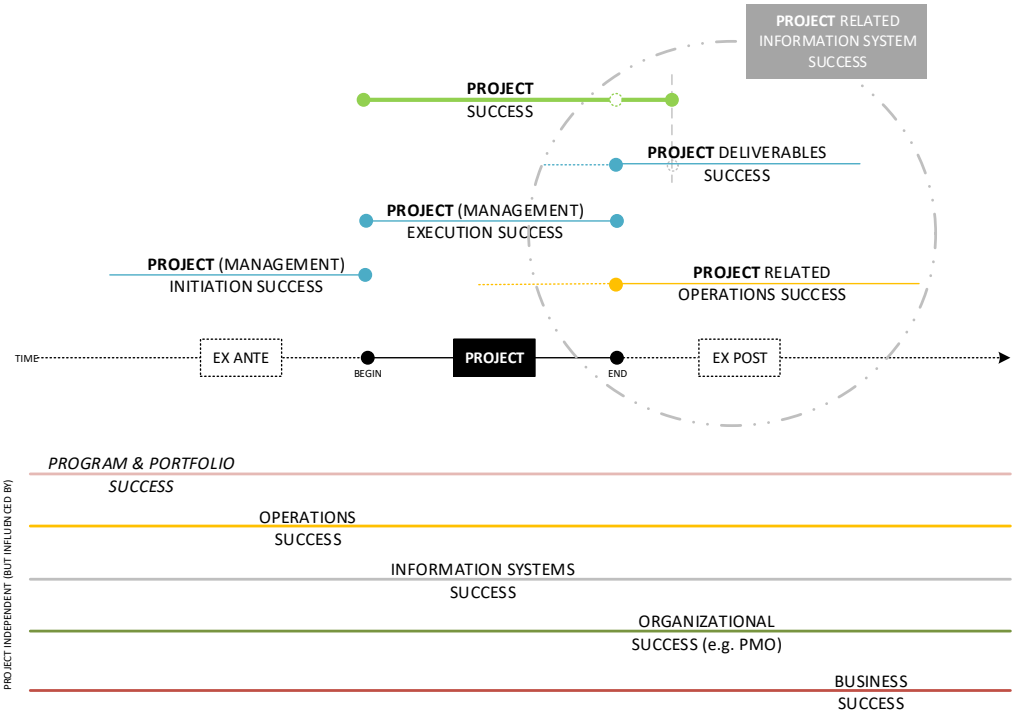

Figure 7. Program & portfolio success, operations success, information systems success, organizational success and business success

In the case of our project example, adopting a new ERP system, it can be part of a program (and/or a portfolio) that includes several related projects (one of them being the adoption of the ERP). Inevitably, if the ERP project fails (project (management) execution success and project deliverables success), this will influence the success of the program it belongs to (program & portfolio success).

As previously described in our example of the ERP project, new help desk operations will be required. If there is a help desk service in the organization beforehand, the new service related to the project may be affected either positively or negatively (project related operations success) by the existing service (operations success).

The same is true concerning to the part of the IS affected by the project (project related information system success), and to the status of the existing IS before the project (information systems success).

There may also be organizational structures whose success is directly influenced by the success of projects. This is the case, for example, of Project Management Offices (PMO), which are organizational units that support projects and

project management [9]. Ultimately, the success of a PMO will result from the success of the projects under its control. The Information Systems Function is also another good example in this case.

Finally, we can mention the business success, which is strongly influenced by the success of the projects carried out in the organization. In the case of IS, this is noticeably evident.

4. Influences of Success and Conclusion

Figure 8 aims to illustrate that in an organization there are typically several projects being carried out over a period (often simultaneously) that influence each other (and not only in the case of programmes & portfolios), and influence the success of IS and the organization. It is equally important to note the influences that occur between "program & portfolio success", "operations success", "information systems success", "organizational success" and "business success". Figure 9 presents a theoretical model that synthesizes the diverse influences observed between the several "facets" of success. Program & Portfolio success was intentionally not included to improve the readability of the model.

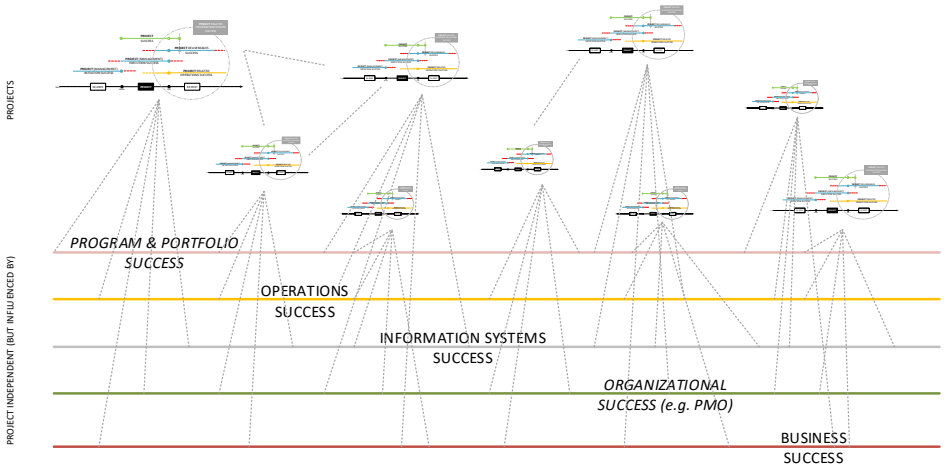

Figure 8. Influences of projects' success in program & portfolio success, operations success, information systems success, organizational success and business success

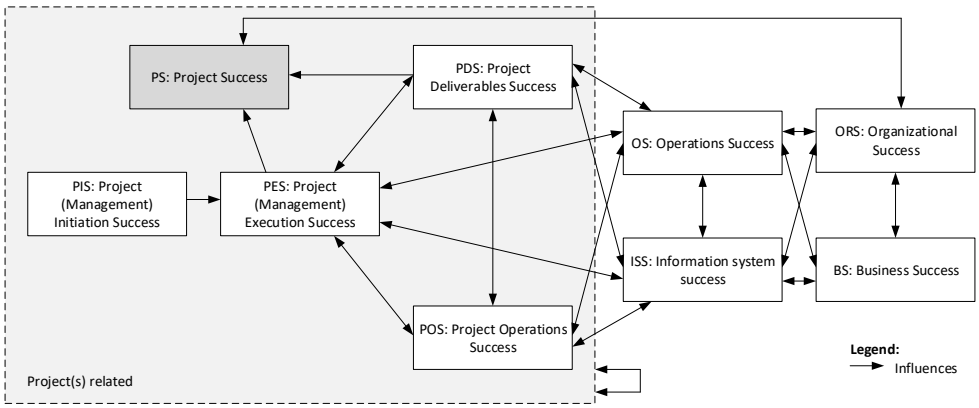

Figure 9. Theoretical model of information systems (projects) success

Therefore, we can conclude that there are several facets of success in IS that should be considered. To be aware of it is fundamental to establish systematic processes for evaluating performance and results, based on well-defined criteria and on the notion of their time frame and relative importance for the different stakeholders involved.

In fact, organizations need to define efficient and effective success management [10] processes for systematizing the definition, evaluation, and reporting of success [11]. However, the evaluation of projects success seems to be currently an informal and rudimentary process mainly focused on the success of project management and not on the success of the projects' deliverables [12].

Undoubtedly, there is the need of a continuous effort to improve performance and, without a good understanding of the different facets of success this is not possible in full extent.

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Biographical notes

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João Varajão is currently professor of information systems and project management at the *University of Minho*. He is also a researcher of the *Centro Algoritmi* at the *University of Minho*. Born and raised in Portugal, he attended the *University of Minho*, earning his Undergraduate (1995), Masters (1997) and Doctorate (2003) degrees in Technologies and Information Systems. In 2012, he received his Habilitation degree from the *University of Trás-os-Montes e Alto Douro*. His current main research interests are in Information Systems Management and Information Systems Project Management. Before joining academia, he worked as an IT/IS consultant, project manager, information systems analyst and software developer, for private companies and public institutions. He has supervised more than 100 Masters and Doctoral dissertations in the Information Systems field. He has published over 300 works, including refereed publications, authored books, edited books, as well as book chapters and communications at international conferences. He serves as editor-in-chief, associate editor and member of the editorial board for international journals and has served in numerous committees of international conferences and workshops. He is co-founder of CENTERIS – Conference on ENTERprise Information Systems and of ProjMAN – International Conference on Project MANagement.

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