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Article

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Managing success criteria and success factors in a BPM project: an approach using PRINCE2 and Success Management on the public sector

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ABSTRACT

The public sector has many challenges when improving business processes. One of those challenges is managing the projects' success by considering the context and constraints of public management and business process management (BPM). Moreover, the importance of the elements that will drive success can be different depending on the stakeholder and the stage of the project (e.g. initiation, executing, closing), which adds another ingredient of complexity to project management. Aiming to give project management the capacity to manage success criteria and success factors in BPM projects, this research used action research to develop an integrated model of a project management methodology (PRINCE2) and Success Management. A government-to-government BPM project was conducted as a case study to evaluate the model developed. In addition to the integrated model, another contribution of this work is the proposal of two general lists of success criteria and success factors from the perspectives of the client and project team.

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1. Introduction

Many public sectors have questioned efficiency and effectiveness due to the high number of steps required in their operations, i.e., due to excessive bureaucracy (Frâncu, 2014). Public administration, in general, has many challenges, whether related to meeting the demand in operations or the difficulty of changes and improvements in organizational processes. Business process management (BPM) is one area that can help tackle these challenges. BPM research in the public sector is conducted in many different contexts, such as in education (Gabryelczyk, 2020; Moura et al., 2021), agriculture (Gabryelczyk, 2020) and healthcare (Manfreda et al., 2014). Another area that can help public administration is project management. Project management in the public sector has also been the subject of research related to several issues, such as project manager competencies (Escobar et al., 2022; Irfan et al., 2021), risk management (Chen & Chang, 2019; Rybníček et al., 2020) and stakeholders perspective (Osei-Kyei & Chan, 2018).

BPM project management focuses on achieving success with, for example, increased organizational efficiency. However, managing project success is not trivial (Takagi & Varajão, 2019). Success Management is another area in which several research projects have been conducted and aims to help evaluate and

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improve the success of projects (Varajão et al., 2022). According to the literature, the elements of success focus on two aspects. One of the aspects is related to the success criteria, which are elements that help to measure the project's success. Some examples of project success criteria are meeting functional performance (Atkinson, 1999; Shenhar et al., 2001; Turner, 2014) and operational cost reduction (Atkinson, 1999; Osei-Kyei & Chan, 2018). Another aspect of success is related to success factors, which are elements that can impact project success. Examples of success factors are, for instance, realistic and clear objectives (Banihashemi et al., 2017; Murphy et al., 1974) and top management support (Belassi & Tukel, 1996; Varajão et al., 2014).

Despite the evolution of techniques, tools and management standards and guides, achieving success in public sector BPM projects is still challenging. Project managers continue to manage the elements of success through informal or *ad hoc* processes (Pereira et al., 2022; Takagi & Varajão, 2019; Varajão & Carvalho, 2018). For example, PRINCE2 is a widely used project management method (AXELOS, 2017). However, it does not have explicit activities for Success Management, even though, as expected, it shows concern for achieving success and managing successful projects in several sections. PRINCE2 has a section describing success as 'more than managing deadlines, budget and quality'; it also states that projects should be measured by key performance indicators (KPIs). Additionally, it suggests that the number of KPIs should be balanced to create only necessary and sufficient information. Success management helps to leverage project management performance (Varajão et al., 2022), but PRINCE2 currently does not fully cover its principles and processes. Two major possible improvements stand out by considering Success Management together with this methodology. The first concerns formalizing activities to define and evaluate success, including defining and managing success criteria and KPIs. Note that success criteria can change in importance throughout the project (Takagi et al., 2024). The second issue is linked to the management of success factors, which is also currently not formalized in the activities or processes of the methodology.

This article describes how Success Management can be performed in project management based on the PRINCE2 methodology. Therefore, the objective is to present a success management model integrated with the PRINCE2 methodology (AXELOS, 2017). Besides the integrated model, we present two general lists of success criteria and success factors from the perspectives of the client and project team in the context of BPM projects in the public sector.

This article is organized as follows. The second section presents the background and briefly describes the BPM, Success Management process and PRINCE2 methodology. The third section presents the research method. The fourth section presents the results. The fifth section discusses the research results. Finally, the last section closes this work with conclusions, limitations and guidelines for further work.

2. Background

2.1. BPM projects and Success Management process

BPM is an approach to managing automated (and non-automated) business processes to achieve results aligned with an organization's strategic objectives (ABPMP, 2019). Research on BPM has been carried out, for example, to evaluate the association with Lean management (Ferreira et al., 2018; Maldonado et al., 2020), assess team capability (Moura et al., 2021), analyze work distribution in business processes (Pereira et al., 2022) or even describe the implications for public management (Gulledge & Sommer, 2002).

The BPM life cycle proposed by the CBOK (ABPMP, 2019) describes five phases, as shown in Figure 1: align strategy and goals, architect changes, develop initiatives, implement changes and measure success.

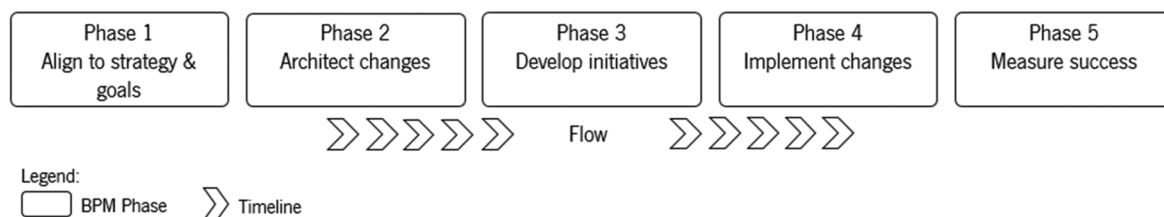


Figure 1. Phases of BPM life cycle. Based on ABPMP (2019).

The measure success phase includes measuring the benefits, comparing the projected benefits plan and benefits realization. This phase also includes continuously measuring and monitoring business processes and technology (implementing the governance model). In other words, success needs to be managed in the BPM life cycle and BPM projects.

Success Management (Varajão, 2016, 2018; Varajão et al., 2022) is related to several areas as, for example, management models in projects (Baccarini, 1999; Varajão, 2018; Westerveld, 2003), integration with knowledge management processes (Takagi et al., 2019; Todorović et al., 2015) or even in the public sector (Osei-Kyei et al., 2017a, 2017b). Several works define dimensions of project success, such as whether the project was carried out efficiently or even whether the project contributed to preparing the organization for future challenges (Shenhav et al., 1997; 2001).

Among the models to drive the project to success, Varajão (2018) presents a Success Management process that can be used in project management with a waterfall or agile approach. The model presents activities that address success management from the planning to the closure of the project. According to Figure 2, two activities are related to the project as a whole (plan project success management and validate and report project success); three are related to the project phases (plan phase success management, identify success factors, and define performance and result indicators, and validate and report phase success) and four to the iterations performed within the phases (perform success evaluation, validate and report success, perform preventive and corrective actions, and review success management).

The Success Management model by Varajão (2018) has been integrated into several project management standards and guides. Some examples are related to the PM² methodology (project management methodology) by the European Union (Takagi et al., 2019), the PMBOK guide (project management body of knowledge) by the PMI (project management institute) (Takagi et al., 2024; Takagi & Varajão, 2020a; Varajão, 2016), the Scrum (Takagi & Varajão, 2021) and the international project management standard ISO 21500/2 (Takagi & Varajão, 2022). Another example is the integration of DeLone and McLean (1992, 2003, 2016)'s information systems success model with Success Management proposed by Varshosaz et al. (2021). A primary subject of Success Management concerns defining success criteria and success factors.

The success criteria are related to how the stakeholders will evaluate the success. Some of the recurrent success criteria in the literature are meeting the project schedule and budget (Iriarte & Bayona, 2021; Osei-Kyei & Chan, 2018; Pankratz & Basten, 2022; Pereira et al., 2022; Serrador & Turner, 2015), achieving the specified quality of the requirements (Atkinson, 1999; Baccarini, 1999; Ribeiro et al., 2013; Shenhav et al., 2001) and client satisfaction with the project outcome (Delone & McLean, 2003; Osei-Kyei & Chan, 2018; Pereira et al., 2022; Shenhav et al., 1997).

The success factors are related to aspects that may impact the project's success. Among the recurring success factors in the literature, some examples are a project team with expertise in the areas required for the project (Tam et al., 2020; Tsoy & Staples, 2020; Westerveld, 2003), support from top management (Belassi & Tukul, 1996; Iriarte & Bayona, 2021; Pinto & Prescott, 1988) and clear and realistic project objectives (de Wit, 1988; Wateridge, 1995).

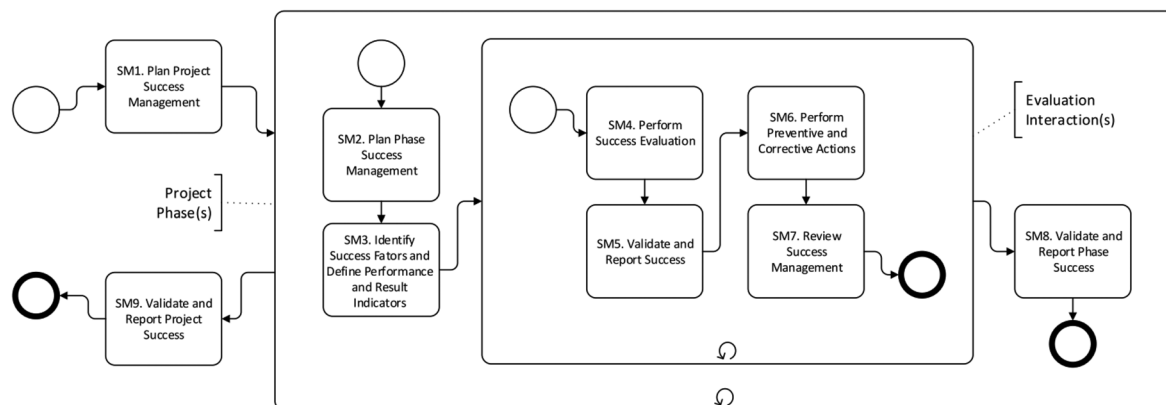


Figure 2. Success Management process. Source Varajão (2018).

Project success is contingent. For example, the criteria for evaluating success depend on the project area (Albert et al., 2017). However, managing success is essential to achieve better results (Takagi & Varajão, 2019). For example, managing project stakeholders involves understanding how success will be assessed and what can influence it (PMI, 2021). Thus, including Success Management in the project management standards and guides, such as PRINCE2 – PProjects IN Controlled Environments (AXELOS, 2017), can help to increase the projects' success level (Takagi & Varajão, 2019).

2.2. PRINCE2 methodology

PRINCE2 (AXELOS, 2017) is a project management methodology that integrates principles, themes, processes and project environment. PRINCE2 has been the subject of research, for example, combining concepts with risk management (Esteki et al., 2020; Mousaei & Gandomani, 2018; Tomanek & Juricek, 2015), assessing the influence on client satisfaction (Wang et al., 2020) and the connection with project management maturity models (Lianying et al., 2012).

The first foundation of the PRINCE2 methodology is related to its underlying principles. The principles are not prescriptive and are intended to guide the behavior of the people involved in the projects (PMI, 2021). In PRINCE2 (AXELOS, 2017), the principles are *continued business justification, learn from experience, defined roles and responsibilities, manage by stages, manage by exception, focus on products and tailor to suit the project*.

The second foundation of the PRINCE2 methodology regards themes. The themes describe aspects of project management that should be addressed continuously as the project progresses in its lifecycle (AXELOS, 2017). In PRINCE2 (AXELOS, 2017), the themes are related to:

- Business case: This theme is related to the 'why' of the project. This theme helps in how to maintain the focus of the project to achieve the organizational objectives;
- Organization: This theme is related to 'whom'. It is focused on the definition of roles and responsibilities required to have a team that can carry out effective management of the project;
- Quality: This theme is related to 'what'. This theme focuses on the alignment with all stakeholders on the necessary quality attributes of the product to be developed and how the process of delivering these products will be;
- Plans: This theme complements the quality theme by describing steps needed to develop the project plans and the definition of techniques needed to apply them;
- Risk: This theme addresses 'how' project management will conduct project uncertainties;
- Change: During project development, issues that were not anticipated in the project planning baseline may arise. This theme assesses the impact of change requests to maintain focus on developing the project deliverables efficiently;
- Progress: This theme explains the decision-making process approved in project plans and project performance monitoring. The progress theme determines whether and how the project should proceed.

The third foundation of the PRINCE2 methodology concerns processes. A process is a structured set of activities designed to accomplish a specific objective (AXELOS, 2017). The processes are:

- Starting up a project: The purpose is to ensure that the prerequisites for starting a project are in place and that the project is viable and worthwhile. The project start-up activities collect and organize elements for the decision to carry out the project;
- Initiating a project: The purpose is to provide a solid foundation for the project, enabling the organization to understand the work that needs to be done to deliver the project products before committing to a significant spend;
- Directing a project: The purpose is to enable the project committee to be responsible for the project's success, making key decisions and exercising overall control by delegating the day-to-day management of the project to the project manager;

- Managing a stage boundary: The purpose is to enable the project manager to provide the project board with sufficient information to, for example, review the success of the current management stage and approve the plan for the next stage. The process should be performed at or near the end of each management stage;
- Controlling a stage: The purpose is to assign work to be done, monitor that work, deal with problems, report progress to the project board and take corrective action to ensure that the management stage remains within tolerance;
- Managing product delivery: The purpose is to control the link between the project manager and the team manager(s), agreeing on the requirements for acceptance, execution and delivery. The role of the team manager(s) is to coordinate a work area that will deliver one or more of the project products;
- Closing a project: The purpose is to provide a fixed point at which acceptance of the project product is confirmed and to acknowledge that the objectives have been achieved (or the approved changes to the objectives have been achieved) or that the project has nothing more to contribute.

As depicted in Figure 3, the processes are related to a timeline and the stages defined for project execution (managed by stages principle). The project viability assessment is associated with the managing and directing levels and is performed before the project actually begins (pre-project). After the conclusion of the project, the outcomes and benefits that the project has contributed to the organization are reviewed.

The fourth foundation of the PRINCE2 methodology is the project environment. The project environment is related to the characteristics of the organizational culture. A consistent approach to project management needs to incorporate this organizational culture. In this regard, organizations use PRINCE2 as the basis for creating their own project management method (AXELOS, 2017).

The environments of public organizations have several processes that need to be evolved. These process improvements are typically carried out through BPM projects.

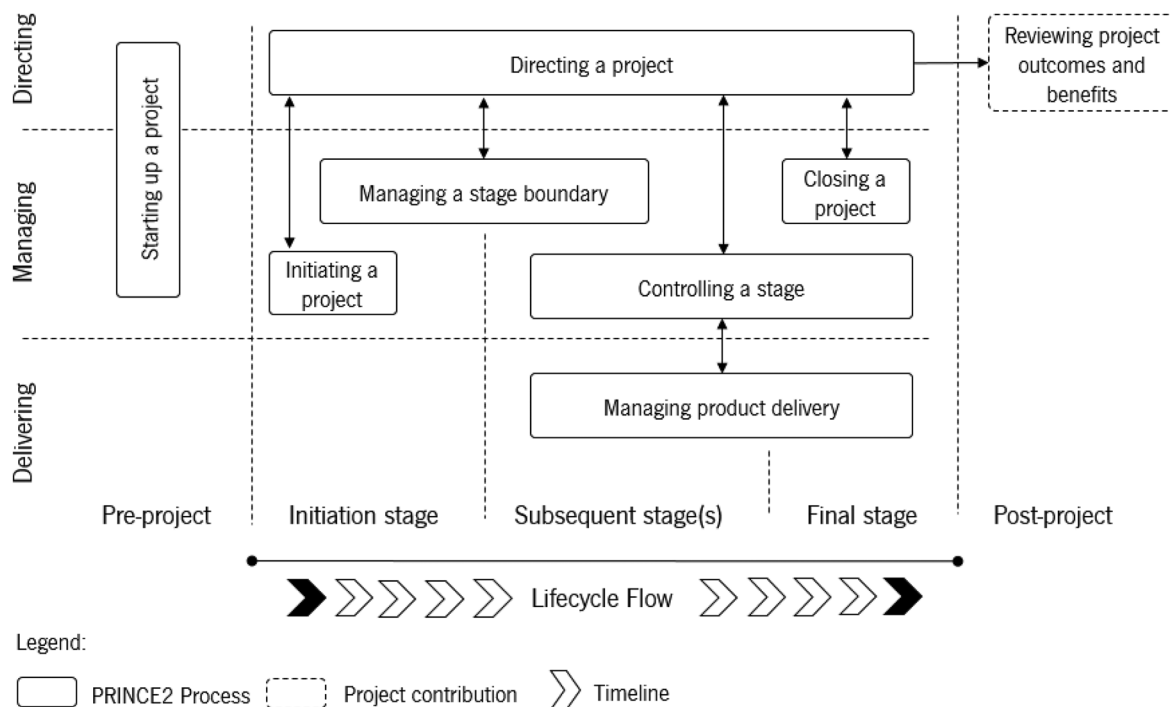


Figure 3. PRINCE2 processes. Based on AXELOS (2017).

3. Research method

This research emerged from the need to manage the elements of success in a government-to-government (G2G) BPM project. The project is a relevant case study for several reasons: (1) It is directly related to the research's topic of interest; (2) It has the required complexity due to being the first project that put together the two involved public institutions (having many variables unknown by the project teams at the start); (3) The client public organization is an important actor of the national landscape; (4) The focus on success was a requirement, given the project's significant impact on society.

With researchers involved in the project and with the project to be managed in stages, an action research method was defined (Figure 4) based on the works of Baskerville (1999) and Sein et al. (2011).

The action research included the following steps: diagnosing, action planning, action taking, evaluating, and review and formalization learning. In the first iteration, the diagnosing and action-planning steps were based on the literature review and the contracting public institution's concerns. After the second iteration, all steps of the research method considered the learning from the previous steps and iterations to evolve the research outcome.

In the project's conception phase, public institutions' main concern was to focus on achieving success. Thus, on the one hand, it was decided to implement a Success Management process since it comprises the formal definition of criteria to evaluate success in project management, the management of success factors, the evaluation of success, etc. On the other hand, the PRINCE2 project management methodology was chosen, aiming to focus the project on the product and follow a multi-phase approach. However, no processes or activities focus on Success Management in PRINCE2 (AXELOS, 2017). In other words, to the best of our knowledge, there are no models that integrate PRINCE2 and Success Management (diagnosing step). At this point, three research questions (RQs) stood out.

Projects generally have a low success rate (PMI, 2018; Ramesh & Delen, 2021). One of the causes of project failure may be the lack of formal Success Management activities in project management references (Pereira et al., 2022), which is no exception in PRINCE2. Several authors propose integrating Success Management principles and practices into project management processes (Takagi & Varajão, 2019, 2020b) and frameworks (Takagi et al., 2019; Takagi & Varajão, 2021, 2022). Integrating Success Management with the PRINCE2 methodology can help project managers understand and formalize activities to manage success, which can increase project success rates. Thus, the following research question:

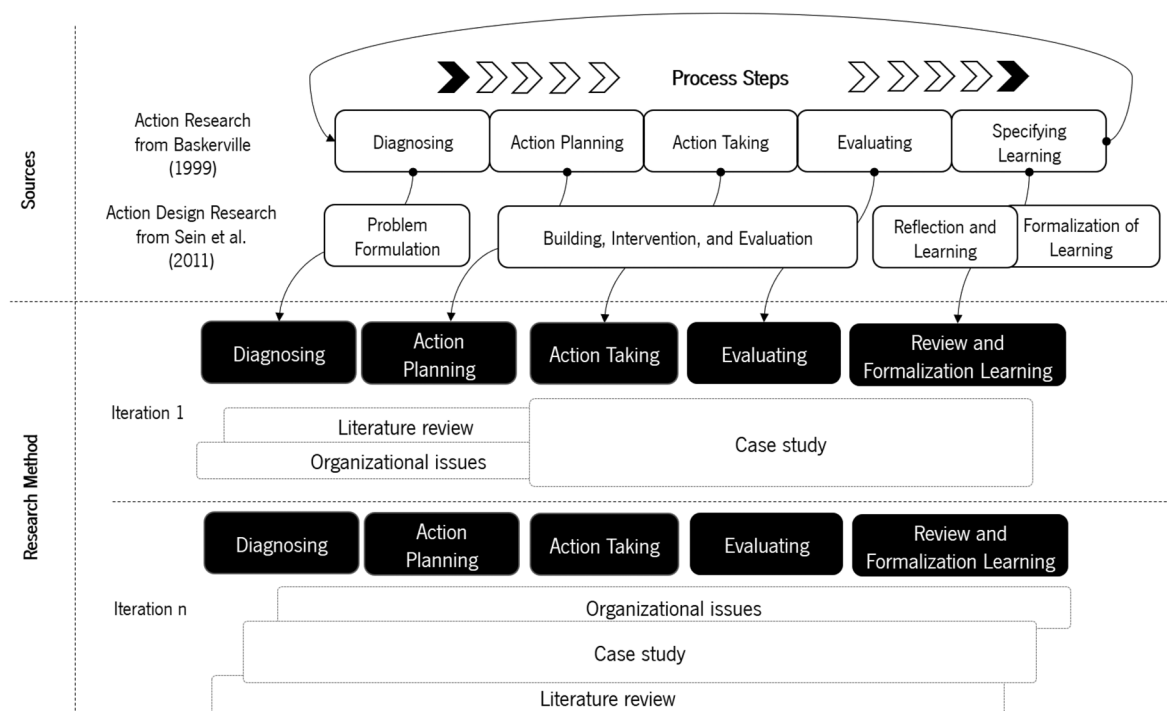


Figure 4. Research method. Based on Baskerville (1999) and Sein et al. (2011).

RQ1. How can Success Management be integrated into the PRINCE2 methodology?

One of the key foundations of Success Management is the definition of success criteria and factors (Varajão, 2016, 2018; Varajão et al., 2022). Having a well-defined list of success criteria and success factors is important from the start of the project, as they can influence the level of effort in the various areas of project management (Takagi & Varajão, 2022). However, the research literature focused on the BPM success factors (Ariyachandra & Frolick, 2008; Syed et al., 2018; Trkman, 2010) is still limited. Thus, the following research question:

RQ2. What success criteria and success factors are relevant in a G2G BPM project?

Once the criteria and success factors have been identified and defined, they can have different levels of importance during the project (Varajão et al., 2022). Another important issue in the public sector is that the duration of a BPM project can exceed the time of a management team. In other words, the level of importance or even the list of criteria and success factors can change during the project (Takagi et al., 2024; Varajão et al., 2022). These changing scenarios in G2G BPM projects are particular cases and require further research. Thus, the following research question:

RQ3. What might be the level of importance of the success criteria and success factors in the different stages of a G2G BPM project?

From the RQs, it was planned how the model would be developed and applied in the project (action-planning step). In the literature, some concepts and models related to Success Management were found (Baccarini, 1999; Deutsch, 1991; Lee & Lee, 2018; Shenhar et al., 1997; 2001; Todorović et al., 2015; Varajão, 2018; Westerveld, 2003). Furthermore, some integrated models with other project references have been found (Takagi et al., 2019; Takagi & Varajão, 2020a, 2021, 2022; Varajão, 2016), as well as the evaluation of the success criteria and factors at different phases of the project (Bayiley & Teklu, 2016). The results from the literature review and the assessment of issues related to the organizational culture of the public institution were considered for the development of the integrated model and the application in the project (action-taking step).

As aforementioned, the integrated model was evaluated in a case study in a G2G BPM project (evaluation step). The project execution team belonged to a public institution with expertise in BPM and included ten collaborators (project manager, researchers, analysts and trainees). The contracting public institution was responsible for the higher education segment of the country. Several contractor's processes impact thousands of public servants and millions of citizens. The project was implemented between the years 2020 and 2021.

Data collection for evaluating the integrated model and identifying and defining the success criteria and success factors was collected through individual interviews (lasting an average of 50–65 min). Interviews were conducted with the project execution team and the client at the end of the project stages. The interviews were guided by a version of the Success Management Canvas (SMC) (Varajão, 2021) adapted by the researchers. The part of the SMC used was focused on the success criteria and factors, adding, after identification, a pair-by-pair evaluation to assess the degree of importance at the end of each phase of the project. In total, 22 interviews were conducted.

The interview participants from the execution team had between 3 and 15 years of experience in BPM projects. One of them had international certification as a BPM professional, and two had already held the position of director of the process office of the contracted public organization. Their academic backgrounds were diverse and complementary to the project, with computer science, information systems, management and accounting degrees. On the client side, the main interviewee was the project manager, who had experience in digital transformation projects in the public sector. The client-side interviewee had a degree in management and a master's degree in public management.

The data collected were structured in spreadsheets and analyzed by the research team at the end of the interview rounds of each step. After data collection, a content analysis was carried out. Since discussions were structured around the main issues of success management (e.g. success criteria and success factors), it facilitated the data analysis, coding process and reporting of findings. Besides identifying the success

criteria and success factors foreseen in the activities of the integrated model, through a peer evaluation, the success criteria and success factors were prioritized according to each participant's vision (in each stage of the project). This collection and the identification of the importance of the elements helped the project management committee direct efforts in specific areas at different moments of the project management.

To avoid bias and increase validity, the results were always discussed with at least two research team members and compared to the existing literature. Regarding validating the integrated model (RQ1), the results were also discussed with all project team members in the project status meetings. The success criteria and success factors (RQ2) and the evaluation during the phases of the G2G BPM project (RQ3) findings were compared with the literature and used to guide the project management efforts.

At each iteration of the integrated model, the results were evaluated and formalized (if applicable) in the model to be implemented in the next iteration of the research method (review and formalization learning step).

4. Research results

The research findings related to the RQs are the integrated model between PRINCE2 (AXELOS, 2017) and the Success Management process (Varajão, 2018) and the success criteria and success factors arising from using the integrated model. The relative importance of the success criteria and success factors identified during the steps of the project is also presented. The following sections focus on each particular RQ.

4.1. Integrated model (RQ1)

The resulting integrated model includes all the PRINCE2 (AXELOS, 2017) processes and activities adapted from the Success Management process (Varajão, 2018). The integrated model includes seven PRINCE2 processes and six Success Management activities (Figure 5). The activities 'validate and report success'

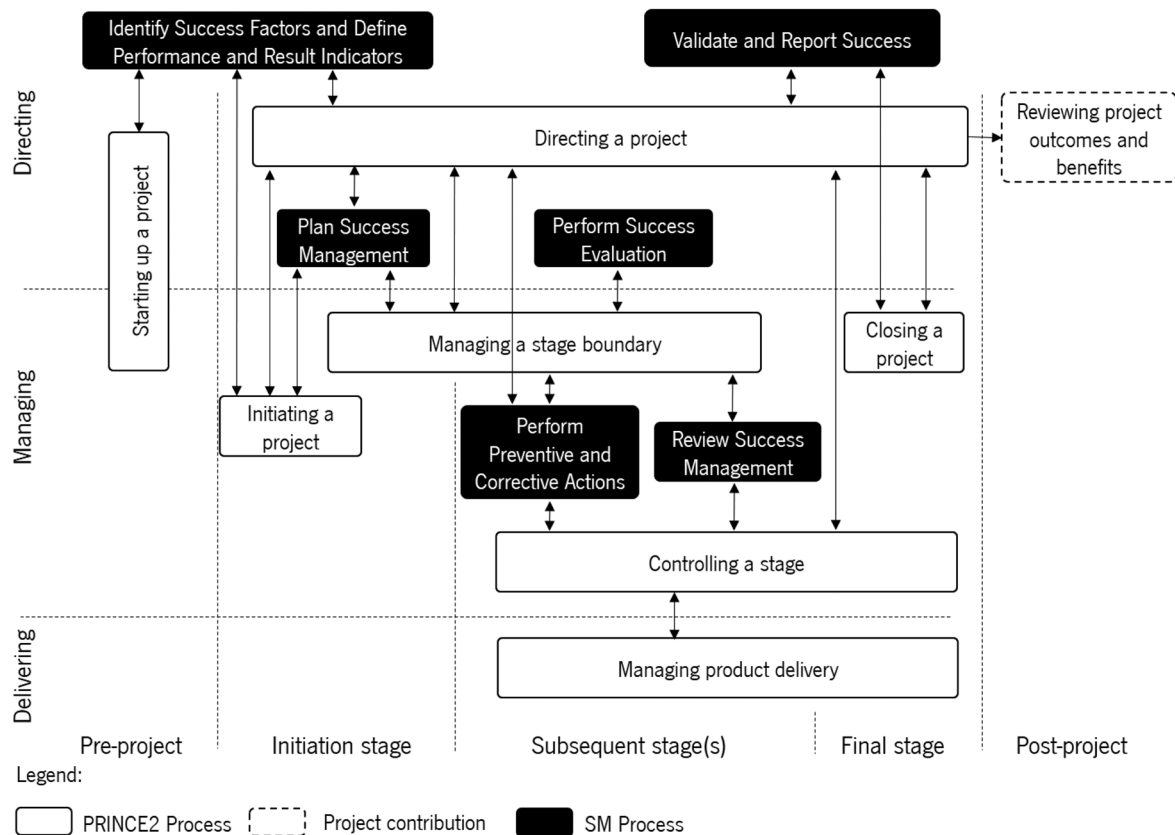


Figure 5. Integrated model between PRINCE2 (AXELOS, 2017) and Success Management (Varajão, 2018).

performed in the original model at the iteration, phase and project level are grouped into one. This activity involves the project steering committee through the PRINCE2 process 'directing a project'. The activity 'validate and report success' also has information exchange at the end of the project (by the PRINCE2 closing process 'closing a project') to communicate the final results of the Success Management efforts.

Another merged activity is 'plan success management'. In the original model, the activity was split into planning the project's success as a whole and at the beginning of each phase. The concept remains similar; however, it is presented only once connected to the PRINCE2 processes 'directing a project', 'initiating a project' and 'managing a stage boundary'. The connection with the 'directing a project' process is one of its objectives: aligning expectations with the project's steering committee. The link with the 'Initiating a project' process aims to define how the identified criteria and success factors will be managed during the project. This management defines tools and techniques to collect data and the periodicity of these collections. The connection with the 'managing a stage boundary' process is similar to the planning of success carried out at each stage of the project.

The activity 'identify success factors and define perform and result indicators' is connected to PRINCE2 processes 'starting up a project', 'directing a project' and 'initiating a project'. The definition of success criteria and success factors even before the project starts (pre-project), connected to the process 'starting up a project', helps management to decide on which themes of PRINCE2 management should be focused on. The prior identification of the success criteria and success factors also assists in customizing the project management method (PRINCE2 principle 'tailor to suit the project'). Identifying success criteria and success factors provides elements of success and aligns expectations with the project steering committee through the interaction with the 'directing a project' process. The relationship to the process 'initiating a project' is intended to include the success criteria and success factors in the project's basis of understanding, for example, refining the business case and preparing the risk management approach.

The activity 'review success management' is connected to the processes 'managing a stage boundary' and 'controlling a stage'. During the execution of the project, the success criteria and factors may change: some may lose importance or even be disregarded. On the other hand, others may emerge. This review is carried out in this activity and arising from the PRINCE2 processes 'managing a stage boundary' and 'controlling a stage'.

The activity 'perform preventive and corrective actions' is related to the execution stages of the project ('subsequent stage(s)' timeline) and connected to the PRINCE2 processes 'directing a project', 'managing a stage boundary' and 'controlling a stage'. Depending on the changes derived from the performance of the 'review success management' activity, preventive or corrective actions may be required in Success Management. The connection with the 'directing a project' process allows the project steering committee to perform these corrective or preventive actions.

Finally, the 'perform success evaluation' activity is connected to the PRINCE2 process 'managing a stage boundary'. This activity executes what is planned for success management, such as performing data collection using the techniques and at the frequency defined.

4.2. Success criteria identified and their level of importance during the project (RQ2)

The implementation of the integrated model led to the definition of 21 success criteria, which were identified by the project stakeholders (in the project, the client and the project team). As shown in [Figure 6](#) (the larger the size of the bar, the greater the criterion importance), seven criteria were identified only by the client, three only by the project execution team and 11 criteria by both. The top three success criteria are strategic goals achieved, project execution efficiency and performance improvement (individual and organizational).

From the client's perspective, the top five project success criteria are *performance improvement (individual and organizational)*, the *impact of the result on the public* (impact on the internal environment and the external community), *strategic goals achieved, the client is using the product* and *project execution efficiency*. The criterion 'performance improvement (individual and organizational)' remained important at all moments of the project. However, the criterion 'the client is using the product' showed importance during the project, not being relevant to the client's perception at the beginning

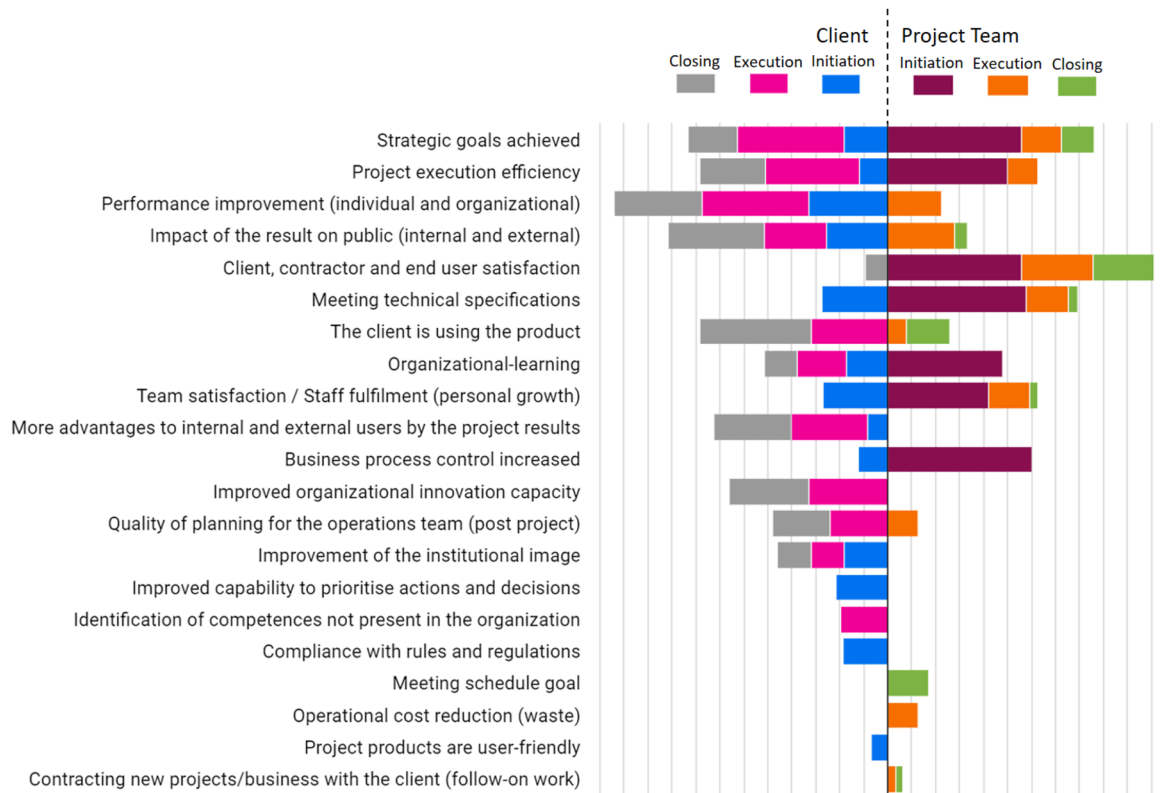


Figure 6. Relative importance of the success criteria during the project lifecycle.

of the project as expected. The criteria 'improved organizational innovation capacity' and 'quality of planning for the operations team (post-project)' only showed importance after the start of the project. Some criteria were identified at the beginning of the project and were no longer mentioned by the client in the later moments of the project. These success criteria are *meeting technical specifications*, *team satisfaction/staff fulfillment (personal growth)*, *improved capability to prioritize actions and decisions*, *compliance with rules and regulations*, *business process control increased* and *project products are user-friendly*. The success criterion 'identification of competencies not present in the organization' was identified by the client only in the execution phase of the project. The client mentioned the success criterion 'client, contractor and end-user satisfaction' only at the project's closing phase and with low importance.

On the side of the project execution team, the following criteria are highlighted *client, contractor and end-user satisfaction*, *team satisfaction/staff fulfillment (personal growth)*, *strategic goals achieved*, *meeting technical specifications* and *project execution efficiency*. The success criteria 'organizational learning' and 'business process control increased' were highlighted by the project execution team only at the initiating phase of the project. Other criteria were important to the project execution team during and at the end of the project. These success criteria are *performance improvement (individual and organizational)*, *impact of the result on the public*, *the client is using the product*, *quality of planning for the operations team (post-project)*, *meeting schedule goal*, *operational cost reduction (waste)* and *contracting new projects/business with the client (follow-on work)*.

Of the 21 success criteria identified in the project, seven were only concerns from the client side. These success criteria are *more advantages to internal and external users by the project results*, *improved organizational innovation capacity*, *improvement of the institutional image*, *improved capability to prioritize actions and decisions*, *identification of competencies not present in the organization*, *compliance with rules and regulations* and *project products are user-friendly*. Three success criteria were indicated by the project execution team solely: *meeting schedule goal*, *operational cost reduction (waste)* and *contracting new projects/business with the client (follow-on-work)*.

4.3. Success factors identified and their level of importance during the project (RQ3)

Regarding success factors impacting the project's success, 36 were identified. Sixteen success factors were identified by both stakeholders (client and project team). The client indicated 12 factors, while eight factors were indicated only by the project execution team. The success factors and respective life-cycle stage they were identified as relevant for the project can be seen in Figure 7. Overall, the top five success factors are *commitment and engagement of the client with the project*, *commitment/motivation of the project team with the project's objectives*, *top management support*, *project team with expertise in the areas required for the project (problem-solving capacity)* and *administrative, human and technical competence of the project manager*.

The most important success factors from the client's perspective are *top management support*, *defining a project team with the appropriate size and organizational structure*, *developing backup strategies and systems anticipating possible problems (risk management)*, *administrative, human and technical competence of the project manager*; and *commitment and engagement of the client with the project*. Among the 28 factors indicated by the client, more than 40% were important only at the initiating phase of the project. These success factors are *periodic understanding of the importance of budget, schedule and the achievement of technical objectives*, *choice of the right tools to manage the project and develop the product*, *development of a communication channel between top management and project manager*, *client organizational environment open to change*, *establish an adequate support structure to ensure problem-solving*, *increased client demand, which may decrease the availability for the project*, *suitable knowledge about the business processes (client)*, *alignment of the project with the goals of the federal public administration*, *monitoring indicators to assess if the goals and objectives are being met*, *prior analysis of existing or previous products* and *aligning projects with organizational programs*. Seven success factors emerged during the execution or closing phase of the project: *project team with expertise in the areas required for the project (problem-solving capacity)*, *commitment of the project manager to the goals of the project*, *detailed and realistic project schedule*, *authority, influence and power appropriate to the project manager*, *improve the project's image with stakeholders*, *create an atmosphere that encourages healthy relationships* and *change in client priority during the project*.

From the project execution team's side, the success factors highlighted are the *commitment and engagement of the client with the project*, *commitment/motivation of the project team with the project's objectives*, *the good relationship between the team, the project manager and the client*, *project team with expertise in the areas required for the project (problem-solving capacity)* and *realistic and clear goals*. Almost

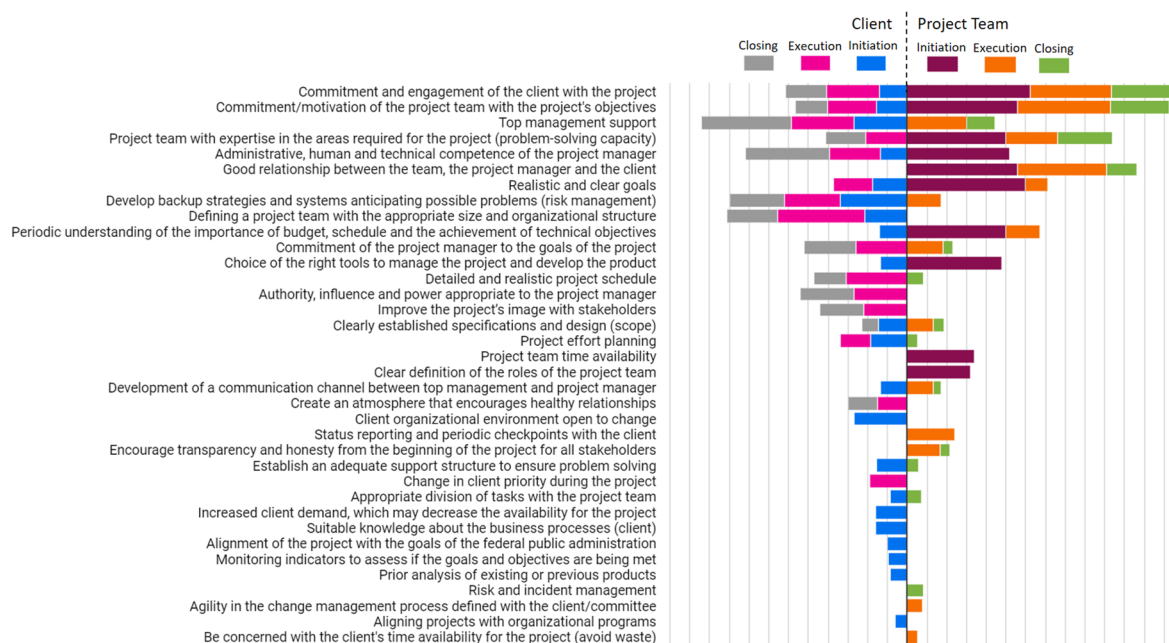


Figure 7. Relative importance of the success factors during the project lifecycle.

60% of the factors indicated by the project execution team were identified during and at the end of the project. These success factors are *top management support, develop backup strategies and systems anticipating possible problems (risk management), commitment of the project manager to the goals of the project, detailed and realistic project schedule, clearly established specifications and design (scope), project effort planning, development of a communication channel between top management and project manager, status reporting and periodic checkpoints with the client, encourage transparency and honesty from the beginning of the project for all stakeholders, establish an adequate support structure to ensure problem-solving, appropriate division of tasks with the project team, risk and incident management, agility in the change management process defined with the client/committee and be concerned with the client's time availability for the project (avoid waste).*

Of the success factors indicated only on the client side, the success factor 'defining a project team with the appropriate size and organizational structure' was mentioned during all moments of the project. From the success factors which were a concern only on the side of the project execution team, 'good relationship between the team, the project manager and the client' stands out as it was present during the project lifecycle.

5. Discussion

The proposed integrated model was evaluated in a case study of a G2G BPM project. However, as the Success Management activities and the PRINCE2 methodology can be used in any type of project, this model can be generalized to other types of public sector and projects. Among the other findings, it can also be noted that some of the success criteria and factors may be similar to other public-sector projects. Others are more specific to BPM projects, regardless of the sector. The findings and the generalization across different types of public-sector organizations and projects are discussed in detail in the next subsections.

5.1. Success Management activities of the integrated model

Understanding the stakeholders' views on key criteria and success factors in public management projects is a basis for project success (Osei-Kyei et al., 2017b). Therefore, success criteria and success factors are widely presented and discussed in the literature (Atkinson, 1999; Castro et al., 2020; de Wit, 1988; Escobar et al., 2022; Iriarte & Bayona, 2021; Osei-Kyei & Chan, 2018; Varajão & Trigo, 2016; Westerveld, 2003). In this work, the success criteria and success factors identified in the pre-project stage influenced the whole project. Identifying the success criteria and factors was the first activity performed in the project, clearly impacting the project planning phase. For example, in this case, stakeholders do not cite meeting schedule goals as a relevant success criterion at the beginning of the project. Knowing what will be assessed and what will impact the project's success helps the project management team tailor methodologies, for instance, focusing the planning effort on specific PRINCE2 themes. This direction of focused effort to achieve project success decreases management waste and increases the chances of success (Takagi & Varajão, 2022).

According to the PRINCE2 methodology, the steering committee makes the main decisions. The responsibility of the project manager focuses on conducting the project management routines. For this reason, three Success Management activities are directly connected to the steering committee. This concept is different from what is found in the integrated model with standard ISO 21500 and Success Management (Takagi & Varajão, 2022), in which success management activities provide the inputs for the project manager.

Implementing the integrated model provided a better perspective of the importance of the success criteria and success factors during the project. With similar concepts but different results, Bayiley and Teklu (2016) present critical success factors (CSFs) during the phases of the project (i.e. conceptualizing, planning, implementing, closing) or in the project as a whole. With Success Management integrated into PRINCE2, in addition to the CSFs, the most important success criteria at the beginning, during and at the end of the project were also identified. Additionally, care was taken to distinguish the success criteria

and success factors identified by the client and the project execution team to contribute to a mutual understanding of different stakeholders' views. The follow-up during the project through the Success Management activities (e.g. 'review success management', 'perform preventive and corrective actions', 'perform success evaluation' and 'validate and report success') helps to understand, at each moment of the project, the focus of attention of the project stakeholders.

In the proposed model, Success Management activities are carried out in all project phases and integrated with almost all of the processes established in PRINCE2. The execution of Success Management activities along the project lifecycle is aligned with other studies, such as the integration of Success Management with Scrum (Takagi & Varajão, 2021) and the integration with PM² (Takagi et al., 2019). In the context of G2G projects, Takagi et al. (2024) discuss the integration of Success Management with PMBOK (PMI, 2017) and process groups (PMI, 2022). Unlike the proposed model for integrating Success Management with PRINCE2, that study focuses on the planning, monitoring and controlling, and closing phases.

To sum up, Success Management integration models depend on the project management approach, guide, methodology or framework. Despite initial resistance to including Success Management activities in project management because they can be seen as more bureaucracy, the low effort of these activities and their significant contribution to creating a shared vision of the project's most important aspects by the stakeholders and increasing the level of success is totally justified (Varajão et al., 2022).

5.2. Success criteria highlights

Success criteria can be related to different organizational objectives. For example, Shenhar et al. (1997) present four dimensions of project success: *project efficiency*, *impact on the customer*, *business success* and *preparing for the future*. An interesting aspect of the findings is that the four success criteria identified as having greater importance in BPM projects cover all of those dimensions. The criterion signaled as the most important ('strategic goals achieved') is related to the dimension *business success*. The second most important criterion ('project execution efficiency') is related to the dimension *project efficiency*. The third most important criterion ('performance improvement (individual and organizational)') is associated with the dimension *preparing for the future*. The fourth most important success criterion ('impact of the result on the public') is related to the dimension *impact on the customer*. Analyzing whether the success criteria are balanced across the dimensions of success can be a further element of analysis to assess whether the project is indeed contributing to organizational evolution.

In assessing success criteria in projects in the public sector, Osei-Kyei and Chan (2018) identify the following main success criteria: *satisfying the need for public facility/service*, *meeting output specifications* and *adherence to time schedule*. Among the top six success criteria in this work, there are similarities with the criteria *satisfying the public need* (e.g. 'client satisfaction' and 'impact of the result on public') and *meeting the defined specifications* (e.g. 'meeting technical specifications'). However, among the 21 success criteria identified, 'meeting the schedule' was ranked at the 18th position, and the client did not even mention it as a success criterion to evaluate.

Al Amri and Marey-Perez (2021) describe some of the causes of delays in public-sector projects: the limited availability of experienced workers in the labor market and problems in the contract between the parties when they are public-private projects. In our work (focused on BPM public projects), the low importance of schedule compliance may be related to these causes since they were not a concern for the project. First, the project execution team had high expertise in project development. Second, in G2G projects, there is normally more trust between the client and the contractor (Marvel & Marvel, 2008).

Some success criteria identified in this work are directly related to BPM. For example, the 'quality of planning for the operations team' and 'operational cost reduction' are success criteria that address the concern with the post-project, the moment in which the project product will actually be used. Stakeholders mentioned these success criteria during and at the end of the project. Both criteria are explored extensively in the literature (Atkinson, 1999; Deutsch, 1991; Griffin & Page, 1996; Osei-Kyei & Chan, 2018; Shenhar et al., 2001; Turner, 2014; Xiang et al., 2014). The success criteria 'business process control increased' is in line with the principles of good BPM (Vom Brocke et al., 2014) – one of the principles suggests that BPM should

develop organizational capabilities (not be limited to firefighting). Improving the control of business processes is related to better monitoring and better decision-making of the public institution.

Among other findings of this work, the absence of some success criteria that are recurrently cited in the literature in private or public–private projects must be noted. For example, budget compliance (Atkinson, 1999; Baccarini, 1999; Belassi & Tukel, 1996; de Wit, 1988; Iriarte & Bayona, 2021; Osei-Kyei & Chan, 2018; Pereira et al., 2022; Shenhar et al., 2001; Westerveld, 2003) and the project generates profit/profitability (Atkinson, 1999; Baccarini, 1999; Griffin & Page, 1996; Osei-Kyei & Chan, 2018; Shenhar et al., 2001; Turner, 2014; Xiang et al., 2014). One of the reasons why the budget is not a success criterion for a G2G project may be related to the limited flexibility of the project budget once public institutions have approved it. With no possibility of major changes, the criterion's importance decreases. The low (or no) importance also happens with the criterion of generating profit since public institutions focus on offering a better service/product to society (and not profit).

5.3. Success factors highlights and the relation with PRINCE2 themes

The six most important success factors are related to project stakeholder management (client, project team, top management and project manager). The commitment and engagement of the client with the project is the target of several pieces of research (Banihashemi et al., 2017; Murphy et al., 1974; Tam et al., 2020; Tsoy & Staples, 2020; Turner, 2014; Varajão et al., 2014; Wateridge, 1995). For example, Tam et al. (2020) present the connection that the client's involvement has on the success of agile projects. The motivation, technical and behavioral capacity of project teams is also the subject of research (Ashley et al., 1987; Belassi & Tukel, 1996; Chua et al., 1999; de Wit, 1988; Gomes & Romão, 2016; Munns & Bjeirmi, 1996; Murphy et al., 1974; Ribeiro et al., 2013; Sampaio et al., 2021; Tam et al., 2020; Varajão et al., 2014). In research on measuring success, de Wit (1988) presents the project manager and the project team as factors that directly impact project success. In public administration management, team performance is also a constant target for research (Kindarto et al., 2020; MacDonald et al., 2020; Min & Oh, 2020; Potipiroon & Faerman, 2020). Finally, top management and project success are directly related. In a systematic literature review, Iriarte and Bayona (2021) present top management support and involvement as one of the most cited success factors in the literature.

From the point of view of a G2G project, the success factor, 'alignment of the project with the goals of the federal public administration', is directly related to public management. This success factor demonstrates the public client institution's concern in investing effort in projects aligned with the country's development policies. From the point of view of a BPM project, the following factors stand out: 'client organizational environment open to change' and 'suitable knowledge about the business processes (client)'. As a BPM project is usually related to changes and the development of business processes, having an open mind to changes is a determining factor in the project's success. Another characteristic is that the people participating in the project must have experience with the related business processes. Appointing public servants with mastery of the processes related to the project (e.g. in the requirements collection steps) may be a decisive factor for the project's success.

The seven PRINCE2 themes describe project management aspects that must be addressed throughout the project lifecycle. The use of the themes needs to be adapted according to, for example, project scale, nature and complexity (AXELOS, 2017). In this work, 36 success factors were identified. Of these, almost half (47%) are associated with the organization theme. The plans theme comes next, being related to approximately 14% of the identified factors. The risk theme has approximately 11% of the success factors, while the business case, change and progress themes have approximately 8%. The quality theme was related to only one success factor (approximately 3%). Table 1 presents the PRINCE2 themes and the success factors identified. To give a better picture of the relative importance of the success factors, it is also presented the ranking of each factor in general and within the respective theme.

The organization theme is not only related to the largest number of success factors but also to the most important factors mentioned by the stakeholders of this research. Of the top 10 success factors, eight are related to the organization theme, one is associated with the risk theme ('develop backup strategies and systems anticipating possible problems'), and another one is to the progress theme ('periodic understanding of the importance of budget, schedule and the achievement of technical objectives').

Table 1. PRINCE2 themes and success factors related.

PRINCE2 themes	Success factor	Rank	
		General	Theme
Business case	Realistic and clear goals	7	1
	Alignment of the project with the goals of the federal public administration	30	2
Organization	Aligning projects with organizational programs	35	3
	Commitment and engagement of the client with the project	1	1
	Commitment/motivation of the project team with the project's objectives	2	2
	Top management support	3	3
	Project team with expertise in the areas required for the project (problem-solving capacity)	4	4
	Administrative, human and technical competence of the project manager	5	5
	Good relationship between the team, the project manager and the client	6	6
	Defining a project team with the appropriate size and organizational structure	9	7
	Commitment of the project manager to the goals of the project	11	8
	Authority, influence and power appropriate to the project manager	14	9
	Project team time availability	18	10
	Clear definition of the roles of the project team	19	11
	Create an atmosphere that encourages healthy relationships	21	12
	Encourage transparency and honesty from the beginning of the project for all stakeholders	24	13
	Establish an adequate support structure to ensure problem-solving	25	14
	Appropriate division of tasks with the project team	27	15
	Suitable knowledge about the business processes (client)	29	16
	Be concerned with the client's time availability for the project (avoid waste)	36	17
Quality Plans	Clearly established specifications and design (scope)	16	1
	Choice of the right tools to manage the project and develop the product	12	1
	Detailed and realistic project schedule	13	2
	Project effort planning	17	3
	Development of a communication channel between top management and project manager	20	4
Risk	Prior analysis of existing or previous products	32	5
	Develop backup strategies and systems anticipating possible problems (risk management)	8	1
	Improve the project's image with stakeholders	15	2
	Increased client operational demand, which may decrease the availability of the project	28	3
	Good risk and incident management	33	4
Change	Client organizational environment open to change	22	1
	Change in client priority during the project	26	2
	Agility in the change management process defined with the client/committee	34	3
Progress	Periodic understanding of the importance of budget, schedule and the achievement of technical objectives	10	1
	Status reporting and periodic checkpoints with the client	23	2
	Monitoring indicators to assess if the goals and objectives are being met	31	3

Some research highlights that risk management and quality management are not getting the required attention by project managers in practice, which should be a concern (Varajão et al., 2017; Varajão & Amaral, 2021). In this research, quality is associated with only one success factor ('clearly established specifications and design'), showing the low focus of the stakeholders in this theme.

6. Conclusion

BPM projects in the public sector impact the operations of public servants. Managing success in these projects can contribute to providing and improving services to citizens. This article presents an integrated model of the PRINCE2 methodology and specific activities to manage project success. The

integrated model was implemented in a G2G BPM project, assisting the management committee's decision-making throughout the project. Two important results of the implemented Success Management process were eliciting and defining success criteria and success factors.

Among the success criteria, the ones that stood out in the project were the 'strategic goals achieved', 'project execution efficiency', 'performance improvement (individual and organizational)' and 'impact of the result on the public (internal and external)'. These success criteria are aligned with all the dimensions of success proposed by Shenhar et al. (1997), which demonstrates a balancing of the project's contribution to the organization.

The success factors that stood out the most in the project are related to the stakeholders, specifically, the client, project team, top management and project manager. Eight of the top 10 success factors are directly related to these stakeholders. Despite being noted by the client and by the project execution team, the quality theme showed little concern from stakeholders, with only one factor directly related.

The literature presents integrated models of Success Management with project management standards and guides such as PMBOK (Takagi et al., 2024; Takagi & Varajão, 2020a; Varajão, 2016), Scrum (Takagi & Varajão, 2021), PM² (Takagi et al., 2019) and ISO 21500 (Takagi & Varajão, 2022). However, to the best of our knowledge, no complete models are integrated with PRINCE2 (the exception is Takagi et al. (2021), but is a research in progress), which is one of this work's theoretical contributions. Bayiley and Teklu (2016) present the stages at which success criteria and success factors may be important. This work complements this with new success criteria and factors from the perspectives of the client and the project-executing team.

PRINCE2 is a methodology widely used by project managers (AXELOS, 2017). The integrated model can help project managers understand how to perform Success Management activities together with PRINCE2 processes. The success criteria and factors presented coming from a public sector BPM project contribute to clarifying the characteristics of success in this type of project. As a practical contribution, both the integrated model and the elements of success presented can be expanded to assist project managers in managing success in other types of projects (e.g. digital transformation, big data, artificial intelligence, civil engineering).

In undergraduate courses, master business administration (MBAs), and master's and doctorate degrees that have project management curricular units, the integrated model configures an improved approach to managing success. This contribution extends to specific project management training centers or courses. In other words, the integrated model and the presented elements contribute to teaching and learning.

The case study involved two public institutions (G2G) at a national level. The success criteria and factors were collected in this context, which may be different in a regional or local public context, representing a limitation of this work. As further work, we suggest detailing the tools and techniques that can be used in each Success Management activity integrated into PRINCE2.

The findings relate to BPM projects. In addition to BPM projects, future research may focus on types of projects in emerging areas that have not yet been explored and are relevant to the scientific community and practitioners, such as digital transformation, big data and artificial intelligence. Other avenues for research include a deeper exploration of theoretical foundations using the integrated model between Success Management and PRINCE2. For example, from the lens of the theory of constraints (Goldratt, 1990) (to understand how constraints in public sector BPM projects can be managed using the integrated model), resource-based view (Barney, 1991) (to understand how internal resources, like technology and human skills, can be optimized using the integrated model) or the institutional theory (Scott, 2008) (which may offer insights into aligning BPM projects with the broader institutional framework, which is critical in government settings).

Disclosure Statement

No potential conflict of interest was reported by the author(s).

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