

# Strategies for Managing Critical Success Factors of BPM Initiatives in Brazilian Public Organizations: A Qualitative Empirical Study

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**Abstract.** *Business Process Management involves theoretical and operational elements from areas such as Production Engineering, Management and Informatics. In previous studies, we identified critical success factors of BPM initiatives in Brazilian Public Organizations through two multiple case studies. In this work, we intend to investigate how to manage these factors. To achieve this goal, we conducted two focus groups. Five professionals group with experience (specialists) in BPM initiatives in the public sector attended the first focus. The second was performed in a public organization that is conducting a three-year old BPM initiative. It was evidenced that many strategies suggested by specialists are being applied by the public organization investigated in the second focus group. In addition, other strategies were cited to manage the FCS. The main contribution of this study is to investigate from a practical perspective the critical success factors for BPM initiatives in public organizations.*

## 1. Introduction

Organizational goals are perceived in the execution of activities that add value to the institution and its customers (Kotler and Armstrong, 2009). In the context of private organizations, this value generation essentially corresponds to profit, market share and brand growth. For public organizations or non-profit institutions, the leading priority is to provide citizens with services of quality excellence and that require minimum resource consumption. The constant search for achieving strategic objectives and maximizing return on investment reinforces the relevance of progressively improving business processes. The introduction of Business Process Management (BPM) practices shall pave the way for the alignment between strategic areas and functional sectors.

The constant search for achieving strategic goals demonstrates for organizations the importance of continuously improving their business processes. The introduction of BPM concepts aligns the strategic areas and the functional sectors. In addition, organizations are provided with a solid structure, which supports quicker and more

appropriate answers to changes in the external environment (Rosemann and vom Brocke, 2010).

BPM was developed from a variety of management approaches, including Toyota Production System (TPS), Total Quality Management (TQM), Business Process Reengineering (BPR) and Six Sigma. Nevertheless, there is a need for technical standards which provide a precise definition of process management, modeling notation, implementation guide, maturity model, among other aspects associated with the BPM discipline (ABPMP, 2009); (Jeston and Nelis, 2008); (Recker, et al., 2009); (Weske, 2007). The inconsistency of patterns and conceptual understandings regarding BPM may be primary causes for the large number of initiatives that failed in the past.

Since 1980, processes management has been a topic widely discussed in industry and academia, particularly in research related to IT, management and production engineering. From these studies, it is possible to perceive a globally continuous increase of BPM initiatives (Ko, Lee, & Lee, 2009); (Oracle, 2008). Nevertheless, despite the high amount of BPM initiatives and major investment, Grover identified that 7 in 10 process improvement projects failed in the past due to several factors (Grover, 1999).

These factors are often seen as barriers. However, when they are known and well managed, they can produce positive impacts at the project level and maximize the chance of success in a planned way. A well-established concept called a Critical Success Factor (CSF) treats these causes as a barrier, as well as an enabler (Jeston & Nelis, 2008). In a corporate environment, CSF is defined as a limited number of areas where satisfactory results ensure a competitive performance for the individual, department or organization (Bullen and Rockart, 1981). Similarly, Bruno and Leidecker (1984) define CSF as characteristics, conditions or variables that, when properly supported, maintained or managed, can have a significant impact on the success of a company.

In this scenario, the motivation for this work is threefold. First, we wanted to understand the reasons behind the high failure rates of BPM initiatives (Grover, 1999; Trkman, 2010). Second, we identified a short number of empirical studies about factors that may affect BPM initiatives to succeed or fail (Bandara et al. 2005). Finally, we aim to analyze the particularities of the public sector regarding the implementation of BPM initiatives (Gulledge and Sommer, 2002; Houy et al. 2010). By investigating the adoption of BPM by Brazilian public organizations, we aim to elicit factors that are critical for the success of their BPM initiatives. In addition, we intend to discuss strategies to manage these factors. For this research, 'to manage the critical success factors' refers to capability of the team or organization has to deal with these factors through strategies, techniques and/or tools in order to turning them into positive outcomes for the initiative.

Considering studies from (Aparecida da Silva et al. 2012; Paim et al. 2008), our hypothesis is that for BPM projects to thrive it is essential to appropriately manage these factors and thereby reduce failure rates. Although there are studies investigating CSF of BPM initiatives (ABPMP, 2009; Burlton, 2011; Jeston and Nelis, 2008; Trkman, 2010), these are mainly centered on private organizations. To address this research gap, we conducted an empirical research to answer the following Research Questions (RQ):

RQ1: What are the CSF of BPM initiatives identified in the literature?

RQ2: What are the CSF evidenced in BPM initiatives in the public sector?

RQ3: How to manage CSF evidenced in BPM initiatives in the public sector?

We previously discussed RQ1 and RQ2 in Santos et al. (2011). This paper focuses on analyzing RQ3, being structured as follows. Section 2 presents the background of this research. Section 3 presents the research methods used to conduct the empirical study. Section 4 describes study results. Finally, Section 5 concludes the paper and provides directions for future research.

## **2. Business Process Management**

The evolution achieved by organizations since the end of XIX century, with the emergence of new organizational models, is providing a novel collaborative way of work (Ko et al., 2009). This happens within the organization (between its unities and departments) as well as within its relationships (networked organizations). Another remarkable characteristic of this evolution is the increasing focus on the quality of the product and/or service delivered to the customer, which is constructed via approaches centered on a business process perspective.

Business processes are procedures that characterize an organization's core operation and are supported by internal processes. They result in a product or service perceived by an external staff (Jeston and Nelis, 2008). Given their importance within the organizational environment, BPM acts as a discipline that aims to manage and align the main organizational activities with its strategic goals.

The Gartner Group claims that BPM is a management approach that treats business processes as assets directly contributing to the organizational performance, leading to an operational excellence and business agility (McCoy, 2011). In its turn, the Object Management Group (OMG) considers BPM as a set of techniques focused on a continuous and interactive improvement of an organization business processes (OMG, 2010). Similarly, Jeston and Nelis (2008) claim that BPM is the accomplishment of organizational goals by improving and controlling essential business processes.

The adoption of BPM practices involves activities such as identifying, modeling, executing, measuring, monitoring and improving business processes, achieving all organizational levels. According to Sentanin et al. (2008), identifying and managing the CSF associated with BPM initiatives can increase their chances of success. These factors may vary among organizations and business segments. Given that, researchers and consultants have tried to list groups of CSF, which generally figure out in BPM initiatives.

While examining the literature in the field, we observed the short number of studies addressing critical success factors of BPM projects. Besides, factors with a similar meaning are named differently by these studies. To facilitate our discussion, we attempted to synthesize these aspects and propose a generic classification.

As discussed in Santos et al. (2011), Table 1 presents the CSF of BPM initiatives evidenced in literature, classified by frequency of occurrence in the studies (RQ1). Given the higher number of citations, it was not possible to ensure that a given factor is more critical than another. This criticality may vary among organizations,

departments, roles and professionals. The references in “Literature evidence” column refer to the following studies: [1= (ABPMP, 2009), 2= (DAVIDSON e HOLT, 2008), 3= (FNQ, 2005), 4= (JESTON e NELIS, 2008), 5= (LOCK, 2008), 6= (PRITCHARD e ARMISTEAD, 1999), 7= (SMITH e FURT, 2009), 8= (TRKMAN, 2010), 9= (MIERS, 2006), 10= (BURLTON, 2011)]. These compose the conceptual ground of this work with respect to CSF of BPM initiatives.

**Table 1: CSF evidenced by Literature**

Critical Success Factors	Literature evidence
Support from senior management	[1], [4], [6], [7], [8], [9], [10]
Structured implementation approach	[1], [4], [6], [8], [9], [10]
Control of organizational changes	[1], [2], [4], [5], [6], [8]
Competences of the BPM team (knowledge, experiences and abilities)	[2], [3], [4], [6], [7], [8]
Designation of roles and responsibilities to those involved with the BPM initiative	[2], [3], [4], [6], [8], [9]
Alignment of the business strategy	[1], [4], [6], [8], [9], [10]
Human and IT resources appropriate for process automation	[1], [4], [6], [7], [8], [9]
Familiarity of organizational staff regarding BPM concepts	[2], [3], [4], [5], [8], [9]
Measurement and monitoring of the BPM initiative	[1], [4], [7], [8], [10]

After examining Table 1, we conclude that only Jeston and Nelis (2010) mentioned all the factors present in the final list of CSF of BPM initiatives. We also highlight that *Support from senior management* is considered a top priority because of its high frequency of occurrence in the studies. Jeston and Nelis (2008) also described best practices to obtain success in BPM initiatives. The authors dedicated a chapter of their book to discuss the most common CSF in BPM projects. They state that BPM initiatives must cross-departmental borders and even organizational limits, reaching customers, suppliers and partners. This fact considerably increases the factors that lead the initiatives to a complete failure. It is worth noting that each initiative is unique and may have its own critical factors.

Focused on an industry perspective, Smith and Furt (2009) listed ten CSF of BPM initiatives. This set was defined through an analysis of the most common causes of failures of BPM projects, originated from their experience as consultants. According to the authors, leaders of BPM initiatives should be aware of these factors to avoid common errors. As an example, they mentioned that it is essential to avoid selecting projects without sufficient benefit, since a process can be defined and executed exactly as planned but still be a failure if the ROI is negative.

As part of the best practices guide for BPM (ABPMP, 2009), the Association of Business Process Management Professionals (ABPMP) argues that the efforts towards

the success of a BPM initiative must consider a set of factors. This list encompasses organizational, process management and technology practices. This reference describes ten aspects that must be managed along the BPM initiative.

Another example can be found in the work of Trkman (2010). While conducting a case study in a banking company, the author acted as one of the mentors of the BPM initiative. He could then extract diverse CSF from this experience, which were classified according to three theories: the *contingency theory*, the *dynamic capabilities* and *task-technology fit theory*.

Davidson and Holt (2008) detailed the reasons behind the failure of BPM projects. The absence of a strategic view, low impact projects and change management figure as the main causes of a bad performance. The National Quality Foundation emphasizes that, in addition to management strategies and plans to improve products quality, people are the key factor for the success of BPM initiatives (FNQ, 2005). The study also mentions that incentive programs shall be established, fostering a greater participation and collaboration within organizational environment.

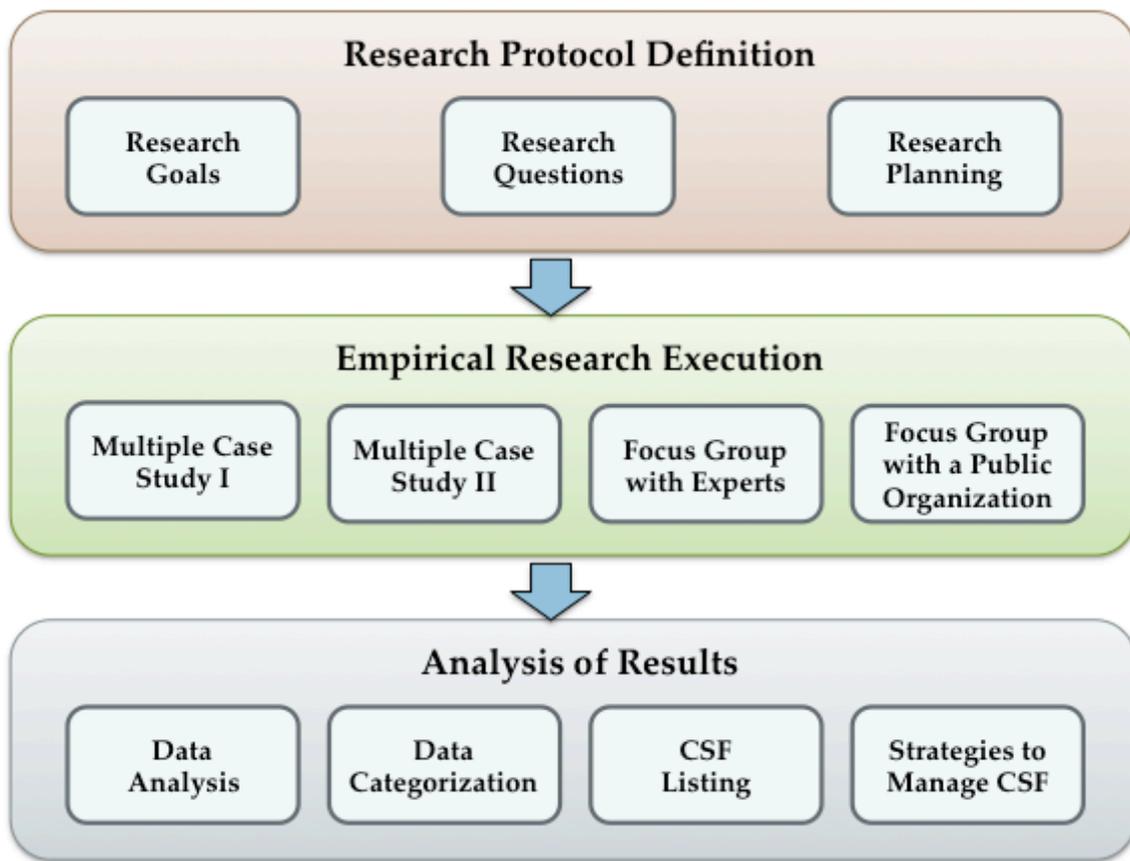
Lock (2008) presents a research report about BPM initiatives in 232 organizations describing best practices and aspects to watch out. The study lists the alignment between IT and business processes, the support of senior management and the investment on human resources as critical factors. In its turn, Pritchard and Armistead (1999) approached European organizations to investigate the relevance of BPM for managers, the degree of understanding about BPM and the way European organizations introduced BPM practices. A set of factors could then be obtained, such as aligning BPM to strategic programs and building a knowledge base by training people in business processes concepts.

The work of Miers (2011) described a recipe for organizational success through the introduction of BPM practices. In addition, the author describes pitfalls to avoid while executing BPM projects. Finally, Burlton (2011) presented lessons learned from his 2-year international experience with the conduction of BPM initiatives.

This literature review enabled us to map the main CSF for BPM initiatives. This result was the main input for answering RQ1 and also fostered the analysis of CSF in the public sector. We observed that the studies examined CSF in general, focusing on private organizations. Therefore, we perceived the need for empirical evidence about CSF for BPM projects within the public sector.

### **3. Research Method**

The methods that supported the execution of this study are presented as follows (Figure 1). This structure may be a basis for researchers that aim to investigate the same phenomenon within similar contexts. The strategies for data assembling and analysis present in the research protocol were defined as a means to answer the research questions addressed by this study.



**Figure 1. Research Phases**

Given the short number of studies addressing CSF of BPM initiatives within public sector as well as the lack of guidelines about how these factors should be managed, we proposed the investigation of three research questions. Two of them have an exploratory purpose, while the third one is characterized as a descriptive question. The exploratory and descriptive nature of our inquiry classifies this study as a qualitative research.

The qualitative approach allows the acquisition of novel knowledge and insights from empirical data. We adopted a non-probabilistic and purposeful sample selection strategy to define organizations and participants, as recommended by (Merriam, 2009). We considered the richness of the cases as our main selection criteria and adopted a chain strategy (Merriam, 2009; Runeson and Höst, 2008) to allow participants to suggest interesting cases and subjects.

According Rothbauer (2008), there are four types of triangulation: methodological triangulation, researcher triangulation, theory triangulation and data source triangulation. The methodological triangulation approach was adopted in this research to reduce the effects of interpretation from a single source as well as increasing the quality of research and reduce the threats to their validity.

As discussed in Section 2, RQ1 was answered through a literature review (Santos et al., 2011). This synthesis employed an ad-hoc search and analysis, which considered books, academic papers and practitioners' whitepapers.

This initial literature survey was complemented by an initial case study (Multiple Case Study I – MCS I), with the premise that there were specific CSF for

BPM initiatives in the public sector. We identified barriers and facilitators experienced by four governmental organizations. Altogether, 20 practitioners participated in this case study, which employed semi-structured interviews and focus groups as techniques for data gathering.

To obtain richer and more reliable answers to RQ2, we carried out an additional case study (Multiple Case Study II – MCS II). This second study considered that there could be factors beyond those already provided by the initial case study. Eleven people from three public organizations took part in MCS II. Table 2 presents the organizations that participated in the two multiple case studies.

**Table 2. Organizational Data**

Organization ID	Domain	Participants	Research Phase
Org. A	Manages human resources, acquisitions and contracts of a Federative State in Brazil.	One chief of IT department (who acted as a leader), two external consultants (who acted as process analysts), one Human Resources functional manager and one head of departmental chief (considered as a sponsor).	Multiple Case Study I and Multiple-Case Study II
Org. B	Supports educational services and policies. Its main staff are teenager students.	One chief of IT department (who acted as a leader), two external consultants (who acted as process analysts), one Human Resources functional manager and one head of departmental chief (considered as a sponsor).	Multiple Case Study I
Org. C	Acts on social services and human rights policies.	Two process analysts (one of them being an IT consultant who acted as part-time process analyst), one Human Resources functional manager (who acted as a BPM staff) and one departmental IT services chief (who acted as a sponsor).	Multiple Case Study I
Org. D	Acts on tourism policies and services development.	Two process analysts, one planning director (who acted as a sponsor) and two legal advisors from a legal department (who acted as BPM staff).	Multiple Case Study I
Org. E	Responsible for the public administration of a city. It has the population as its staff.	One executive officer (who acted as a BPM sponsor), one technical advisor (who acted as a leader), one external consultant (who acted as a process analyst) and one financial director (who acted as a BPM staff).	Multiple Case Study II
Org. F	IT Services provider public organization, with its headquarter in Brasilia and regional offices in 11 states.	One leader of the BPM Office (who acts as a sponsor), one department head (who acted as a BPM leader), one process analyst and one project manager (who acted as a BPM staff).	Multiple Case Study II

According to Yin (2009), MCS I and MCS II can be classified as holistic study of multiple-cases. This type of case study has a single unit of analysis and investigates

several cases. In our research, the units of analysis were the BPM initiatives, with public organizations as our cases. The protocol used in both case studies was carefully planned considering guidelines from (Yin, 2009).

By interviewing sponsors, leaders, process analysts, consultants and internal staff of BPM initiatives, we could create a list of CSF of BPM initiatives in the public sector. This was the main input for a focus group (FG I) performed with BPM experts to identify ways of managing the identified factors, as a means. The session lasted for 1h48min and involved five professionals with experience in BPM initiatives in the public sector. FG I enabled us to answer RQ3. The group was formed by the following participants:

*Expert 1* – IT consultant responsible for BPM projects in Brazilian Government. He has a master's degree in Computer Science and an MBA in Teaching in Higher Education. He has relevant experience in certification programs (ISO and CMM) and quality of software processes. He also taught several courses in BPM.

*Expert 2* – he has about 20 years of professional experience in IT, organizational consulting and process management. He has a master's degree in Computer Science and he is currently undertaking a PhD research in BPM Governance. He has PMP (Project Management Professional) and CBPP (Certified Business Process Professional) certifications.

*Expert 3* – he works for a Federal Public Organization that provides IT services for Brazilian Government. He was involved in the creation of the “BPM Platform”, an initiative in partnership with the Brazilian Ministry of Planning. He was responsible for conceiving the “Process Modeling Methodology”, the "Model of Management and Governance of the Processes Platform", among others. He has a master's degree in Computer Science, in the BPM area.

*Expert 4* – he works since 1986 in a state public organization that provides IT services. He participated in the definition of business performance indicators, a project that later became focused on processes automation. He is currently involved in the implementation of a BPMS solution in a public organization.

*Expert 5* – he has five years of experience as project manager, being involved with BPM automation projects in diverse companies. He is currently acting as a BPM consultant, providing services for several public institutions.

We started the focus group by presenting research goals to participants. Then, we displayed the question for discussion: *What strategies can be performed to manage the identified CSF to promote the success of BPM initiatives in the Public Sector?* The data obtained was compiled and analyzed to determine key strategies to manage CSF of BPM initiatives. However, the suggestions were derived from the memory of the participants, who all have skills in IT field. Thus, we identified the need to investigate these strategies in a public organization that does not have the Information Technology as core business.

Subsequently, we performed FG II to verify the general applicability (i.e. relevance, suitability, etc.) of the strategies obtained in FG I and to collect new strategies to manage the CSF. This second session lasted for 1h16min and involved three members of the BPMS from an additional public institution (Organization G). It is a state public organization with administrative and financial autonomy on the Three

Powers (Legislative, Executive and Judiciary). It is to examine the legality, legitimacy, economic efficiency and reasonableness from any administrative act resulting in revenue or expense.

In this context, the studied organization is conducting a three-year old BPM initiative that is rapidly evolving due to a partnership with academia. In addition to the three public servants, eight researchers from a federal university participate in the BPMO as permanent consultants. The following participants formed the FG II:

*Participant 1* – she has about 20 years of professional experience in software development and quality, IT management, business process and project management. She is a master's degree candidate in BPM and organizational culture. She has PMP (Project Management Professional), CSM (Certified Scrum Master) and CBPP (Certified Business Process Professional) certifications. She acts as a process analyst in the BPM initiative of Organization G.

*Participant 2* – she is an undergraduate student of Computer Science and a trainee at Organization G, supporting process analysts in the BPM initiative.

*Participant 3* – she is graduated and has a master's degree on Law. She is the leader of the BPM initiative at Organization G since 2012, being responsible for the BPMO. She negotiates, controls and actively participates in process improvement projects performed within the BPM initiative. For exchange experiences and acquiring specific knowledge on BPM, she continuously participates of well-recognized BPM training sessions.

As a strategy for data analysis in qualitative research, Flick (2009) suggests the use of specific procedures and techniques for text interpretation. We transcribed and examined all interviews through a qualitative analysis of their content. They were then classified according to the following aspects: business domains of studied organizations, goals of BPM initiatives, methodological standards and, barriers and facilitators experienced along BPM initiatives execution. These categories supported data analysis and guided us to the results presented in Section 4.

## 4. Results

In this section, we report the results to answer *RQ3 – How to manage the critical success factors evidenced in BPM initiatives in the Public Sector?* Initially, a set of strategies for managing CSF is presented. This list was obtained with BPM experts from five public organizations (FG I). We then present the analysis of each strategy in light of a mature BPM initiative conducted at another public organization (FG II).

### 4.1. Eliciting Strategies for Managing CSF for BPM initiatives (FG I)

We conducted this focus group based on the set of CSF identified in MCS I and II. Each factor was presented and explained to the participants. They were then asked to provide solutions for managing each factor. While one researcher was responsible to take notes and carefully observe the interaction among the participants, another researcher mediated the discussion. When divergent opinions emerged, participants were allowed to complement their initial proposal, as a means to reconcile their points of view. The strategies obtained during this session are detailed as follows.

**CSF1 – Awareness of the benefits and challenges of BPM** - participants reported that, despite the growing number of BPM initiatives, management practices in public organizations are still incipient. Internal staff often is unaware of what a business process is. They generally associate this notion to that of a legal process. Once public servants do not recognize the real benefits and requirements encompassed by BPM discipline, there is little incentive to BPM projects. To address such issue, participants proposed the following strategies:

- *S1 – Conducting trainings, seminars and informal conversations before starting a BPM initiative:* such efforts are means to provide a better understanding of BPM goals and relevance, so that public servants engage in the project.
- *S2 – Describing the general impacts of BPM practices within the organization:* detailing the changes that shall occur in organizational structure and the work procedures of each internal staff.

**CSF2 – BPM team composed by internal staff:** this factor highlights that internal staff prefer that people from the organization itself conduct BPM initiatives. The following strategies were suggested by participants to consider such factor:

- *S1 – Defining an internal core to support the BPM initiative:* structuring a unit such as a Business Processes Management Office (BPMO) or a committee composed by members of strategic areas of the organization. This unit needs to establish and promote key goals of the BPM initiative. It must guarantee that these objectives are available and understood by internal staff.
- *S2 – Identifying people interested and/or skilled on BPM:* the BPM team must gather employees who demonstrate their intention to participate in the project. More importantly, it must identify people with background on BPM practices or experienced in improvement projects. The sponsor of the initiative shall ensure appropriate training to involved staff.

**CSF3 – Bureaucracy and culture of the public sector:** the Brazilian public sector is known for its slow and bureaucratic processes. Business processes must be reviewed to simplify the procedures and reduce the stiffness of public organizations. Given this context, the following strategies were proposed by experts:

- *S1 – Promoting BPM initiatives:* people involved in BPM efforts shall communicate the benefits and importance of BPM initiatives for internal staff, so that they can become allies to achieve the expected success.
- *S2 - Avoiding enforced changes:* it is not beneficial to impose changes on the work of internal staff, who should be naturally involved in the initiative.
- *S3 – Promoting horizontal interactions:* to persuade people from different sectors about the relevance of actively interacting to reduce the time imposed by bureaucracy.
- *S4 – Scrutinizing the instruments that govern the process:* to clearly understand the laws that govern the process, finding legal alternatives to improve its performance.

**CSF4 – Communication between BPM team and internal staff:** the way that BPM team communicates and keeps internal staff informed about the initiative directly

influences the success of BPM efforts. Effective communication motivates and engages people in the initiative. Participants proposed the following strategies to improve such communication:

- *S1 – Using digital media to promote the initiative:* the main achievements of the BPM initiative can be continuously diffused, together with methodologies and general tools on an internal website (e.g. BPMPortal). This requires a complementary strategy to promote this instrument (i.e. motivate internal staff to access it) and involve members from the BPM team to monitor its content. In addition, a BPM newsletter could be sent by e-mail or published in folders or bulletins.
- *S2 – Promoting moments of discussion and interaction with the BPM team:* to conduct periodic internal workshops to disseminate the current results and communicate next steps and challenges. In addition, it is important to organize meetings and informal chats about BPM within the organization. In addition, it is interesting to promote frequent meetings and informal conversations to transform the Process Management in a natural topic in the organization.
- *S3 – Aligning the communication of BPM concepts and techniques to the reality of internal staff:* those involved in the initiative must understand how the BPM framework fits to their reality. It is important, for instance, to adopt a common vocabulary to communicate the concepts: Experts mentioned, as an example, that many internal staff understand process as documents that must be signed and forwarded to another sector (i.e. internal staff understand the process as a legal process). It is then essential that all participants share the same understanding of the terms.

**CSF5 – Competences of the BPM team:** the BPM team is responsible for conducting and institutionalizing the BPM initiative within the organization. Besides the technical expertise, the BPM team must have good communication and articulation skills to disseminate BPM culture. Participants from FG I recommended the following strategies regarding competences of the BPM team:

- *S1 – Conducting training sessions:* by regularly conducting training sessions on BPM, it is possible to create disseminators of the initiative. After each session, the participants should have their performance assessed in order to perceive their level of understanding of the subjects presented.
- *S2 – Performing a benchmark of BPM skills considered relevant by other public organizations:* this will enable the BPM team, for instance, to define the minimum set of competencies and skills that its members must obtain to properly carry out the BPM initiative. In addition, it can promote the exchange of lessons learned with other institutions.

**CSF6 – Involvement of internal staff with the BPM initiative:** to attract internal staff to add value to the BPM initiative, experts suggested the following strategies:

- *S1 – Establishing a rewarding mechanism:* internal staff shall feel rewarded or charged in accordance with the goals outlined in the strategic plan and/or in their functional areas;

- *S2 – Informing management priorities:* internal staff must be aware of the management priorities so that they can engage in projects that support such goals. Similarly, the processes that will be automated must be aligned with the organizational priorities.

**CSF7 – Internal staff experience on IT tools:** our research evidenced that staff from public organizations is frequently unprepared to deal with IT tools. Furthermore, internal customers generally neglect the relevance of new technologies for their activities. Hence, their ability to handle novel technologies may be a barrier to achieve the outcomes of the initiative. To manage this aspect, participants proposed:

- *S1 – Promoting the use of IT tools:* through adequate training, internal staff shall be aware of technologies that will facilitate their work, such as collaboration tools from Google or traditional desktop applications from Microsoft. The goal here is to reduce the resistance of people to adopt novel tools, which is the basis of a BPM initiative (e.g. modeling tools such as Bizagi or a full BPMS, covering the full BPM cycle).

**CSF8 – Impact of Government change due to elections:** The political aspect must be, as much as possible, an ally. It will press process to generate results and to win more votes. However, some public organizations face disruptions of projects due to political elections. In some cases, this triggers internal changes, which may involve a priority reduction of BPM projects or even the discontinuity of such efforts. To manage the impact caused by this factor, BPM experts provided the following suggestions:

- *S1 – Getting closer to managers:* engaging managers with roles and responsibilities clearly defined in the initiative, since directors and secretaries often change after elections;
- *S2 – Establishing short-term milestones:* determining project milestones for each government to reduce the impact of this change. When the project exceeds the government period, it is challenging to keep it with the same priority.

**CSF9 – Impact of laws or internal rules:** this CSF has been treated as a barrier in the studied organizations because sometimes prevent improvements. The interviewees agree that the laws must exist and must be complied obligatorily. However, it was evident that many laws and regulations have not kept pace with technological developments and must be transformed to provide better services to citizens. In order to deal with this factor, the experts suggest:

- *S1 – Approximating the BPM team and the legal departments:* it was reported by the experts that the legal departments are generally composed of people with conservative mindset, which hinders changes in laws and internal rules. Therefore, the relationship between the BPM team and the legal department is paramount for projects to perform quickly and avoid unnecessary delays.
- *S2 – Identifying norms that affect business processes:* processes are governed by legal guidelines, which must be clearly identified in a plan in the beginning of the process improvement project. Sometimes these guidelines will have to be adjusted to support the new version of the process. Hence, the project sponsor must persuade the legal sector, which is generally more conservative.

**CSF10 – Resources and technological infrastructure supporting the BPM initiative:** The execution of a business process involves many resources, such as information, internal policies, laws and norms, procedures, technologies, documents, among others. In this context, the objective of the process is successfully achieved when all these resources are orchestrated by the people involved. Managing this factor is simple but requires proper attention to avoid problems during the BPM initiative. To cope with this factor, BPM experts recommended the following strategy:

- *S1 – Identifying critical resources and technologies for the initiative:* it is essential to elicit the basic resources and technologies that will enable the BPM projects to thrive. These include process-oriented systems such as process modeling and monitoring tools.

**CSF11 – Support from senior management:** ensuring the sponsorship of top management is imperative for the BPM team to properly perform process improvement projects throughout the organization. These efforts shall bring changes to daily activities of several public servants, frequently their work culture goes towards maintaining the *status quo* and avoiding innovation. In addition, the way in which the sponsor manages and provides feedback will have a great influence on the results of the initiative. To manage this factor, BPM experts provided the following suggestions:

- *S1 – Negotiating the main goals of the BPM initiative:* the BPM team must be guided by goals negotiated with the initiative sponsors. They must not only reflect expectations resultant from the strategic planning, but also consider the resources available. Once defined, these objectives will be translated in projects, with correspondent participants.
- *S2 – Periodically assessing project evolution:* the BPM team shall critically analyze the execution of project plan. As the sponsor has specific expectations regarding the results of the BPM initiative, he must be systematically informed about its progress. This is a means to maintain his support throughout the initiative.

This support may not necessarily come from a strategic level, it depends on where the initiative is being performed. If it is an operational level, the manager or director of the particular department must also provide the necessary sponsorship. The interaction among actors must be aligned to monitor the progress of the BPM initiative.

**CSF12 – Turnover of contractor staff:** in Brazil, employees of public organizations are hired by public and general examination. Hence, they often lack sufficient expertise in specific areas such as BPM. This fosters the yet common practice of hiring external consultants. In particular, there is a high turnover of contractor staff. To deal with this factor, experts proposed the following strategy:

- *S1 – Keeping an internal team focused on the goals and activities of the BPM initiative:* it is important to retain the experienced knowledge in BPM initiative to ensure that the information and lessons learned are easily transmitted to new outsourced or contracted people.
- *S2– Promote knowledge management:* part of the BPM team should be responsible for documenting and standardizing the activities, so that anyone can perform them with the expected quality. In addition, BPM knowledge must also

be shared through specific training sessions for those involved in the initiative. These are simple but effective forms of transferring knowledge to new entrants.

#### **4.2. Reviewing Strategies for Managing CSF for BPM initiatives (FG II)**

We started the focus group by presenting each CSF and asking participants to propose strategies for managing them. At this moment, we could not only obtain novel strategies but also observe that part of the suggestions had been mentioned in FG I, which implicitly highlighted their relevance.

Subsequently, we displayed the list of strategies already elicited in FG I and asked whether they were already applied in the organization. At this moment, it was possible to evaluate how some strategies were applied (e.g. strengths and weaknesses of the application) and why others were not appropriate. We discuss these results as follows.

##### **CSF1 – Awareness of the benefits and challenges of BPM,**

Participants reported that only S1 (*Conducting trainings, seminars and informal conversations before starting a BPM initiative*) is applied in the organization, with periodic training sessions. They stressed that instructors always try to avoid academicism and a too formal language. They adapt the knowledge to suit the staff needs to enable a better understanding of BPM concepts. In its turn, S2 (*Describing the general impacts of BPM practices within the organization*) was not accomplished since the “Improved process” was not yet implemented. Participants declared that potential changes are slowly described to internal staff, in a preparation process for automating the new version of the process models. A new strategy was proposed by these experts: *selecting stakeholders who are open to innovation and create a group of disseminators*. Above all, they should interact with intermediary managers, since these can easily propagate the results of the BPM initiative to both senior management and technical teams.

##### **CSF2 – BPM team composed by internal staff.**

The organization has a well-structured BPMO, which is composed by people with formal knowledge and/or practical experience on BPM. It acts as a strategic department, promoting a common understanding of the key goals of the initiative and of each improvement project. Therefore, S1 (*Defining an internal core to support the BPM initiative*) and S2 (*Identifying people interested and/or skilled on BPM*) are applied in this organization. In addition, the BPMO aims to promote a civil service examination, including several topics on BPM to form a more qualified team.

The manager from the BPMO highlighted that a differential of the external members (e.g. PhD and master students, lecturers, etc.) is their knowledge about the domain of the organization. She detailed this fact: *“what defines whether the external team will be well accepted or rejected is their knowledge of the business domain, because I heard someone praising one of the researchers for its knowledge about a business process”*. Therefore, she suggested an additional strategy: *Ensure that consultants really understand the business domain of the organization*.

##### **CSF3 – Bureaucracy and culture of the public sector**

Participants indicated that the organization communicates the benefits and importance of BPM initiatives for internal staff and emphasize that it is not beneficial to

impose changes on the work of internal staff. It therefore addresses S1 (*Promoting BPM initiatives*) and S2 (*Avoiding enforced changes*). However, there is no effective interaction among people from different departments to reduce bureaucracy and internal staff lacks a proper comprehension about the regulations and norms. This demonstrates that S3 (*Promoting horizontal interactions*) and S4 (*Scrutinizing the instruments that govern the process*) are not applied.

To address CSF3 and avoid the fear of taking risks (a typical characteristic of the public sector), participants suggested that those involved in the initiative should pursue the following strategy: *establishing intermediary milestones and achieving them in short cycles* (e.g. one semester).

#### **CSF4 – Communication between BPM team and internal staff**

Although the organization developed a website on its intranet to promote the main achievements of the initiative, it is not effective to improve the communication among internal staff. Hence, S1 (*Using digital media to promote the initiative*) is partially executed. In its turn, S2 (*Promoting moments of discussion and interaction with the BPM team*) and S3 (*Aligning the communication of BPM concepts and techniques to the reality of internal staff*) are fully applied: the results of BPM projects are regularly released through e-mails and meetings with internal staff and senior management.

The participants added a strategy to address this factor: *The BPM team should conduct the initiative in a very professional form*. It means that they must rigorously organize validation meetings with internal staff, deeply study and understand the business domain and carefully select meeting participants

#### **CSF5 – Competences of the BPM team**

Strategies S1 (*Conducting training sessions*) and S2 (*Performing a benchmark of BPM skills considered relevant by other public organizations*) are implemented by the organization. Participants just remarked that the performed survey about BPM competences is not yet applied (i.e. the BPM team and members of projects are not selected in light of such benchmark). They added the following strategy to treat this CSF: *Carry out an individual competence development plan*.

#### **CSF6 – Involvement of internal staff with the BPM initiative**

The organization applies the strategies associated with this factor. In particular, (i) the rewarding mechanism consists on increasing the salary of those who participated in improvement projects in the organization, and (ii) management priorities are informed via news on organizational website, meetings and events.

#### **CSF7 – Internal staff experience on IT tools**

There is an excellent IT infrastructure to support the initiative. Training sessions and events focused on such technologies are periodically conducted in order to enhance the performance of BPM projects (i.e. qualifying human resources), which addresses S1 (*Promoting the use of IT tools*). A punctual but relevant strategy presented by participants was *Keeping legacy systems to decrease the resistance of internal staff*.

#### **CSF8 – Impact of Government change due to elections**

According to participants, this factor is not critical for the initiative, since the organization has administrative and financial autonomy regarding the three branches of Government (Legislative, Executive and Judiciary). They declared that the main impact for BPM efforts could result from the changes on organizational senior management, which occur every two years. They concluded indicating that strategies S1 (*Getting closer to managers*) and S2 (*Establishing short-term milestones*) are fully implemented.

#### **CSF9 – Impact of laws or internal rules**

Similarly to CSF9, this factor was not considered as a barrier to the evolution of the initiative. The BPM team deeply understands the laws and internal rules and keep a close the top management, which demonstrates the application of S1 (*Approximating the BPM team and the legal departments*) and S2 (*Identifying norms that affect business processes*). Any intentions of changing internal resolutions, for instance, are formally justified to the legal department.

#### **CSF10 – Resources and technological infrastructure supporting the BPM initiative**

This factor also does not represent an issue for BPM efforts in the organization. The BPM team is supported by a good IT infrastructure, such as a process automation tool recently introduced. Besides, the BPM team has the support from the IT department to discuss about technical details of the tools with software providers and help to customize the tools. Therefore, the organization implements S1 (*Identifying critical resources and technologies for the initiative*).

#### **CSF11 – Support from senior management**

The BPM team has an excellent relationship with the initiative sponsors, with a continuous alignment of expectations and well-defined roles and duties in BPM projects. This demonstrates that S1 (*Negotiating the main goals of the BPM initiative*) is fully applied. S2 (*Periodically assessing project evolution*) is also implemented: the results of the initiative are regularly communicated. The participants suggested that these *Results should not only be presented to sponsors but also to internal staff affected by the initiative*. In addition, *BPM initiative goals should be totally aligned with strategic goals*. Participants reported that the organization has all these goals aligned and managed through performance indicators.

#### **CSF12 – Turnover of contractor staff**

Participants reported that keeping the BPM team centered on BPM activities is a challenge for them. This is because the team accumulates these activities with responsibilities reminiscent from the previous structure of the unit (before it became a BPMO). Hence, they are striving to implement S1 (*Keeping an internal team focused on the goals and activities of the BPM initiative*). On the other hand, the knowledge of the BPM initiative is well documented (e.g. methodologies, manuals, best practices guides, etc.) and shared through trainings and presentations. This addresses S2 (*Promote knowledge management*). In particular, they reinforced the problem related to this factor: the turnover within the BPMO. Since most of its members are students and lecturers from a federal university, they act in the BPM projects as long as this agreement exists.

According to the review of strategies conducted in FG II to manage the CSF and covered in Santos et al. (2012), we noted that the Organization G applies most

strategies. It is also important to note that due to the maturity of the organization, it was possible to discuss other strategies that are used to manage the CSF. Table 3 demonstrates the relationship between the applicability of the strategies according to each CSF. The following labels were used: A (Applied), PA (Partially Applied) and NA (Not Applied).

**Table 3. Applicability of strategies to manage the CSF in the Organization G.**

CSF	Strategy 1	Strategy 2	Strategy 3	Strategy 4
CSF1	A	NA		
CSF2	A	A		
CSF3	A	A	NA	NA
CSF4	PA	A	A	
CSF5	A	A		
CSF6	A	A		
CSF7	A			
CSF8	A	A		
CSF9	A	A		
CSF10	A			
CSF11	A	A		
CSF12	PA	NA		

## 5. Final Remarks

### 5.1. Discussion

Although the understanding of the critical success factors of BPM initiatives is accepted as an important issue by practitioners and academics, the identification and management of CSF is a topic that received little attention in the literature so far. This becomes more evident when specific domains are investigated, such as the public sector. Due to high failure rates and an increasing investment in BPM initiatives, there is a general concern that success factors deserve special attention to achieve the goals of the initiative.

During the planning phase of the BPM initiatives, the public organizations should verify if any of the factors discovered by this research are applicable to their context. This helps defining appropriate strategies to handle each factor. Moreover, we have observed factors that were already identified by other studies, such as: lack of skilled people conducting the BPM initiative and internal staff with insufficient training

on BPM concepts. In all investigated organizations we could observe the relevance of sponsorship from senior management, by means of financial and political support the BPM initiatives. The Research Questions RQ1 e RQ2 were previously discussed in Santos et al. (2011).

Based on the list of CSF obtained in the case studies, we tried to answer RQ3 through a focus group with specialists in order to point out strategies to manage them. These strategies represent several actions that stakeholders carry out to prevent the negative consequences that the CSF generate in BPM initiatives. We highlight that the proposed strategies have many relationships to each other according to the objectives of the initiative. Thus, while we analyze the main CSF in the case studies, we must also establish the dependence and the priority of the strategies to be adopted.

For exemple, the main suggestion of the specialists to manage the CSF was to establish an internal group such as a Business Process Management Office (BPMO). Miers (2006) emphasizes that the establishment of a BPMO is a critical success factor for BPM initiatives. According to Paim et al. (2008), a BPMO can bring various benefits such as proper understanding of the processes, organizational development and improvement of communication, operation of integrated and coordinated activities.

However, the implementation of a BPMO require the adoption of several strategies, such as, conducting trainings, describing the general impacts of BPM practices, identifying people interested and/or skilled in BPM, avoiding enforced changes and so on. Another common example in BPM initiatives, which demonstrates this relationship, corresponds to change in work practices. In addition to the previously mentioned strategies, we need to promote horizontal interactions, clearly understand the laws that govern the process, find legal alternatives to improve the initiative performance, negotiate the main goals of the BPM initiative and periodically assess project evolution.

It was also conducted in this research a review of strategies in a public organization in order to check if they are applied, as well as both collect new strategies to manage the CSF. As this organization has a structured BPMO and have the support of a University, we observed that most of CSF are managed in accordance with the strategies mentioned by experts and other strategies are also taken into account to deal with these factors.

According to the FG II, we highlight that it is important to periodically demonstrate the partial results of the BPM initiative for the whole organization, not just for the sponsors. This effort promotes a positive informal conversation about Business Process Management and contributes to internal staff accept the changes and improvements performed in the processes.

## **5.2. Limitations and Threats to Validity**

Despite of the rigorous method adopted, this research has some limitations. Although case studies enable a wide analysis of variables selected within the domain of investigated organizations, this method is restricted to the particular situation analyzed. Hence, it is not possible to generalize the results obtained in this study for other organizations (Yin, 2009). Also, due to characteristics of semi-structured interviews, the analysis of results of this research is limited to what interviewees declared or remembered during interviews.

The threats to validity are discussed on the basis of three research questions, extending the evaluation presented in Santos et al. (2011). Based on Yin (2009), Table 1 presents four employed tests: case tests, recommended study tactics and also the study phase when the tactic should be applied.

**Table 4. Studies tests and tactics**

Tests	Study Tactic	Phase of the research
Construct validity	<ul style="list-style-type: none"> <li>• Use of multiple evidence sources</li> <li>• Definition of evidence chain</li> <li>• Results obtained by the researchers were reviewed by the participants</li> </ul>	<ul style="list-style-type: none"> <li>• Data collection</li> <li>• Data collection</li> <li>• Composition</li> </ul>
Internal validity	<ul style="list-style-type: none"> <li>• Not applicable to this research, since dependent variables keep no causal relationship.</li> </ul>	-----
External Validity	<ul style="list-style-type: none"> <li>• Use of multiple case studies theory</li> <li>• Use of replication logic for multiple case studies</li> <li>• Use of discussion with experts</li> <li>• Use of reviewing strategies with a public organization</li> </ul>	<ul style="list-style-type: none"> <li>• Research design</li> <li>• Research design</li> <li>• Research Execution</li> <li>• Research Execution</li> </ul>
Reliability	<ul style="list-style-type: none"> <li>• Use of a research protocol and development of a research planning</li> <li>• Development of research documentation</li> </ul>	<ul style="list-style-type: none"> <li>• Data collection</li> <li>• Data collection</li> </ul>

*Construct validity* focuses on whether the theoretical constructs are interpreted and measured correctly (Easterbrook et al. 2008). Yin (2009) indicates three tactics to increase construct validity. Following, we describe the strategies used in this study:

- Use multiple sources of evidence: interviews with sponsor and leader of the initiative, process analysts, internal staff and consultants who work or have worked in public organizations;
- Establish chain of evidence: were performed different forms of data collection, such as individual interviews, focus groups and documentation research;
- Revision of participants: After the analysis and synthesis of the results, these were reviewed by the participants. If there was any disagreement, the investigator should adjust the results again. After we defined the list of CSF, it was reviewed by some participants in order to discuss the relevance of each factor.

*Internal validity* focuses on the study design, and particularly whether the results really do follow from the data (Easterbrook, 2008). Yin (2009) states that internal validity is only a concern for causal (or explanatory) case studies. Therefore, treatment of internal validity is outside the scope of this study.

*External validity* focuses on whether claims for the generality of the results are justified (Easterbrook, 2008). The criterion for selecting participants by convenience implies loss of external validity. This research had a small sample both public organizations and experts who suggested strategies. However, it is not the purpose of this research to generalize the CSF of BPM initiatives in the public sector. Given that

these factors may vary depending on the organizational structure, business area, department, office, among others.

*Reliability* focuses on whether the study yields the same results if other researchers replicate it. Yin (2009) discusses that the emphasis should be on doing the same case over again, instead of replicating the results of one case by doing another case study. In order to increase reliability, we developed a protocol for both multiple case studies. The protocol describes the procedures, techniques and objectives adopted. We adopted the same protocol to investigate all organizations (cases). Furthermore, the case study documentation was generated by adopting all the procedures described in the protocol.

### 5.3. Future Research

This paper aimed to analyze BPM initiatives within public organizations, focusing on identifying strategies to manage factors that may promote or hamper their success.

Several research opportunities may arise from the results of this study. In particular, we propose the following directions for further research:

- Conduct additional empirical studies to evaluate the CSF identified in this research. Other research groups shall employ the same research protocol and perform a replication strategy to evaluate our findings. By comparing the results of the studies it is possible to present different CSF or to validate CSF identified in this research.
- Electronic survey in order to identify the presence and importance of CSF and strategies to deal with them.
- Investigate the applicability of the strategies suggested by specialists to manage the CSF in BPM initiatives from other public organizations.
- Develop a BPM methodology for public organizations based on the results presented in this research.

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