

Integrating Business Process Management with Public Sector

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Abstract

Public administration nowadays seeks to increase the effectiveness of the internal administrative processes in order to offer a higher degree of service towards the citizens. The way governments achieve this is by actually focusing on “e-government,” the use of the Internet to provide public services to citizens. E-government makes public agencies and organizations more approachable for citizens giving access to a variety of services and processes from their home. Fortunately, besides this being no easy task, governments can take a tip from the private sector and utilize Business Process Management (BPM) in order to maximize their results. Business Process Management consists of identifying and enhancing business processes in order to establish more effective, efficient and more capable of adapting to an ever-changing environment organizations. In the public sector, authorities have huge service overlaps because the ability to share knowledge about business processes is very limited resulting in a plethora of waste, costs, errors and delays when performing activities. BPM becomes the cornerstone of the rationalization of the public sector showing us that technology can be utilized in order to facilitate our interaction with government services and at the same time simplify the ways in which public processes are executed.

Keywords

Business process management, Business Process Modeling, Public Sector, Process Efficiency

1. INTRODUCTION

Today's public sector organizations increasingly try to modernize their operations (E-government implementation) and at the same time offer more consistent and personalized services to citizens. More and more public organizations need to limit their costs in order to cope with pervasive budget cuts, forcing them to find ways to do more with less. The most effective way to deal with these cuts is to eliminate services and reduce head count. However instead of gaining an economic relief, the organization may go to ruin if lost employee knowledge isn't preserved. This is where modern Business Process Management tools and techniques shine facilitating the capture of knowledge in information systems and the reduce of manual effort by automating business processes. Business process management (BPM) is a systematic approach for improving organizational performance (Smith & Fingar, 2003). BPM refers to the management of the entire business process cycle, which includes 4 main stages: Define, Manage, Execute, Control [figure 1]. More specifically process management involves:

- Documenting the process in order to understand the organization's workflow.
- Assignment of process ownership in order to establish managerial accountability.
- Managing the process in order to improve performance and use of sources.
- Improving and controlling the process to enhance quality and efficiency (Striening, 1988).

BPM processes, generally not confined to one information system, are considered as multidimensional implementations of real world activities. They are logically organized into steps that include multiple IT systems, resources, documents, and channels. They also include activities that are automated and performed by machines as well as others that are manual and performed by people (Chinosi & Trombetta, 2012). Through process analysis, BPM helps to eliminate all obstacles and boundaries between resources, information systems and people. BPM implementation for public sector organizations can therefore become a strong ally against operational challenges in order to deliver better public services with increased efficiency (Dumas, La Rosa, Mendling, & Reijers, 2013).

In contrast to conceptually similar frameworks such as Process-Chain-Network (PCN) (Sampson, 2012), BPMN enables us to represent organizational responsibilities and communications between participant, organizational departments, systems, and roles. This is why BPMN has a higher capability than PCN to add additional information about concepts when it is needed (Kazemzadeh, Milton, & Johnson, 2015).

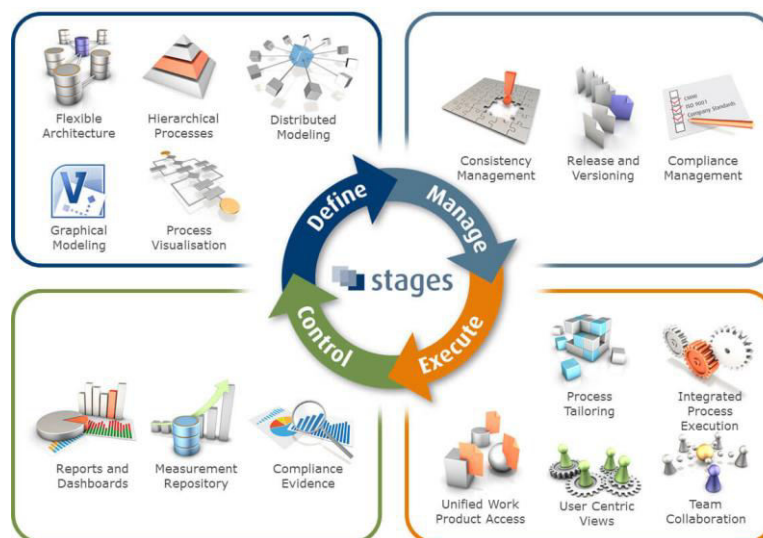


Figure 1: BPM cycle
(Dragon1, 2017)

2. PUBLIC SECTOR BPM

Public sector is driven by two main motives to implement BPM in its services. One is the desire to modernize services making them as digital as possible, while at the same time applying a lower cost business model. The other is the will to offer services with higher quality levels that are quickly executed. It's evident that both motives are strongly related and support each other (Santana, Alves, Santos, & de Lima Cavalcanti Felix, 2011). BPM has already been implemented to a large extent in the private sector. Private sector companies (ex. eBay, Amazon, Google) have managed to widely expand their operations and now offer enhanced customer service. A great example is Netflix which started as a DVD rental company and used to rent DVDs sending them by courier to subscribers in the US, but in 2007 its online steaming service was released and today has about 100 million customers worldwide (SINGH, 2017). However, public sector organizations face more obstacles, having significant differences from private companies, concerning the BPM implementation. There are nine key differences between the public sector and private sector, namely: public interest, accountability, those factors that resist change to occur, machinery of government changes, and culture (Hawrysz & Hys, 2013), (Iyamu, 2015).

Figure 2 presents a Force Field Analysis diagram of the implications for public sector process management resulting from the key differences between public and private sector organizations. The change target "Achieving successful, ongoing process based management in public sector organizations." Is displayed in the center of the diagram. The driving forces, the forces that have the power to facilitate the change, are displayed on the left side. Finally, the restraining forces, those factors that resist change to occur are displayed in the right side.

The forces driving BPM implementation for the public sector are considerable and provide strong incentives to adopt process-based approaches. They contribute to creation liable, transparent, effective and productive public organizations. Desirable public sector attributes such as transparency, risk management, whole of government working, red tape reduction, and "machinery of government" change efficiency are all supported by BPM. Providing clear documentation, ownership, responsibilities, monitoring, controlling and continuous improvement of processes, BPM becomes an appreciable ally in the effort to modernize public organizations (Smith & Fingar, 2003).

As is the case in the private sector there is a plethora of forces - obstacles that make it difficult to successfully implement process management in the public sector. The fact that there are difficulties is not something that happens only in the public sector, the peculiarity lies in the nature of these differences (Niehaves & Plattfaut, 2010). The restraining forces are directly related to the great complexity of the public sector as well as the political conditions under which it operates. The complexity stems from the much more varied range of "customer", cultural contrasts, social objectives and multi-jurisdictional operations (Tregear & Jenkins, 2007).

The restraining forces are finally powered by the nature of the processes managed by public organizations, as a great amount of information included in them is classified. Classified information is material that a public organization claims to be sensitive information that requires protection of confidentiality, integrity, or availability (Bouwman, Van-Houtum, Janssen, & Versteeg, 2011). Accessing classified documents or access classified data isn't permitted by law or regulation for every citizen, and information leak can incur criminal sanctions. This is why formal processes and secure systems need to be implemented when dealing with classified information (Madigan, 2017).

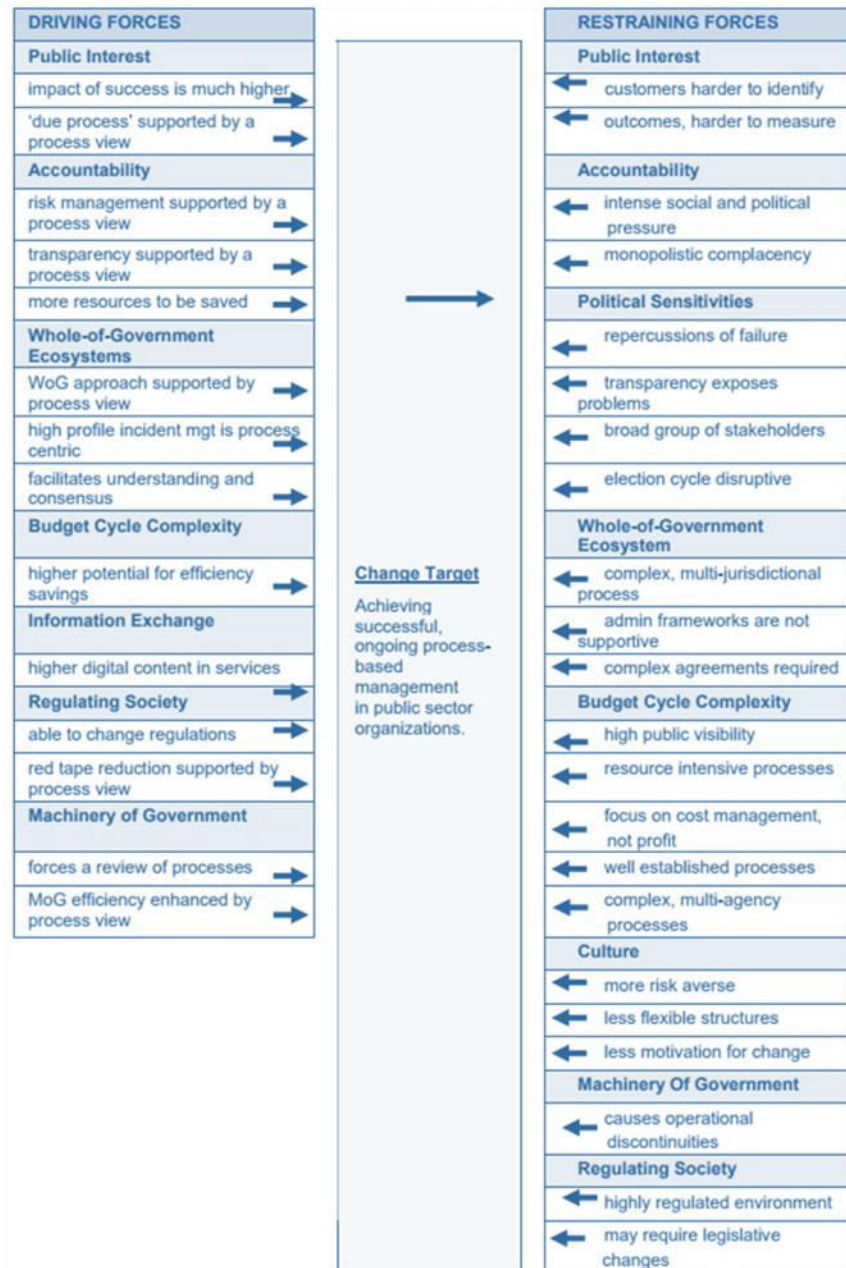


Figure 2: Force Field Analysis (FFA) diagram
(Tregear & Jenkins, 2007)

3. BENEFITS OF BPM IMPEMENTATION

Business process management has received quite a lot of attention in the private sector and its benefits are well known. On contrary the public sector BPM hasn't been in spotlight in the same degree, and what has been written was very general and not so useful. There are two main incentives for the public organizations to implement Bpm in their operations. The first one has to do with the public law and more specifically the law mandates process management approaches. The mandate to date continues to include holdovers from the past being implemented with bureaucratic processes and in a slow tempo (Promapp, 2015), (Kirik, Strazdina, & Marite, 2008).

Today however adaptable and quickly executable processes are needed in order to increase the level of the services offered by public organizations. The second one concerns the integration of the new information technologies into public organizational processes. After all information systems become practical only when they add value to the business processes that are performed by the organization. Business process management enables the modernization of old public process integrating information technologies into their management resulting in a generally more efficient organizational operation (Gulledge & Sommer, 2002), (Flowcentric-Technologies, 2012).

The public sector has always been slower than the private one when adopting new technologies. This situation may have some advantages for the public sector since we can select and implement only the best of the practices that where "tested" in the private sector. There is a plethora of possible applications for BPM in the public sector. In most public organizations approval systems are complex, slow and not well managed, leaving a great margin for improvement through the implementation of BPM (Jurisch, Ikas, Wolf, & Krcmar, 2013). A big advantage of BPM is that it is so easily customized to fit the specific business processes of individual organizations and can integrate various IT systems and sections of the organization easily and cost-effectively. This aids creating a single view of the organization including all of its resources operations and systems (Rouse, 2017), (Recker, 2010).

In the public sector, the primary benefit of business process management is that it fights the monster of bureaucracy that causes delays, increases of costs and complexity and in general makes it difficult for the public organization to operate smoothly. Other important benefits are: (Gulledge & Sommer, 2002), (SIGNAVIO, 2018), (Imbility, 2017), (Promapp, 2015), (Pernici & Weske, 2006), (Capgemini, 2012), (Genon, Heymans, & Amyot, 2011).

- Better integration of public operations and priorities with resource management.
- Process management opens the door for creative and innovative approaches to enhancing organizational performance.
- Process management allows the effective implementation of modern systems and standard software since most new implementations are process-oriented.
- Alignment of policy and strategy with operational execution.
- Increased transparency and oversight for accountability.
- Continuous improvement of services provided, increasing quality and reducing costs.
- Quicker responses to policy changes and unplanned events.
- Creating transparent, streamlined processes better aligns central and local governmental priorities and objectives allowing for improved performance and management of risk and change.
- Facilitate documenting, analyzing, communicating and improving process performance.
- The development of business process model helps to identify the issues and their root causes.
- Activity standardization and harmonization. Facilitate the alignment of activities with organizational strategy,
and the implementation of quality management systems (ISO 9001).
- Improve coordination between organizational units.
- Ensure compliance with standards and regulations, more up to date processes.

- Provide visibility into the real-time status of an entire end to end processes.
- Improve control over business processes execution.
- Facilitate activity analysis in organizations by applying BPM tools and techniques enabling simulation on real work in the organizations. Models can be used as a base for managers' business process improvement and automating proposal solutions.
- Greater consistency, better alignment between teams and standardization.
- Easier induction and training of new staff.
- Process reengineering and implementation of unified information systems.

4. CASE STUDY: PROCESS MODELING FOR A GREEK PUBLIC SECTOR ORGANIZATION

During our research we cooperated with an important Greek public sector organization, more specifically with the 306 Telecommunications Base Factory (306TBF), in order to map the procedures, analyze them and improve the use of public sources. The 306TBF is based in the Municipality of Acharnon (Menidi), Attica, and is a typical Military Factory. The factory's staff are both political and military. Factory operations include:

- Maintenance of all telecommunication - electronic - electro-sanitary equipment.
- Modernization of whole devices or parts of them, telecommunications and electronic equipment.
- Construction - utilization of various spare parts, accessories and printed circuits of the above materials.
- Preparation of studies and drafting of technical specifications and technical instructions for materials of its competence.
- Performance of quality control of any electronic material, the procurement of which
- is carried out by the Procurement Directorate of the Army General Staff.
- Control and calibration of electronic measuring instruments.

The free BPMN tool ADONIS CE was utilized to aid us with our research. ADONIS CE is a software developed by BOC information Technologies Consulting GmbH in co-operation with the University of Vienna and includes many features and application areas (BOC, 2005). To begin with, ADONIS offers a great variety of tools for designing and documenting business process models. This helps us create structured models for the processes, documents, IT systems and organizational units involved in the procurement operations while at the same time understanding their independencies. ADONIS also simplifies the communication between all parties involved as well as the transmission and storage of information. Another important application area of ADONIS has to do with process analysis as the software has many tools that offer intuitive reporting and graphical analysis for better understanding the impact of decisions. Finally ADONIS facilitates the optimization of processes offering many simulation algorithms and other techniques that lead to a reduce of cost and time waste (BOC GROUP, 2017).

Utilizing ADONIS CE we were able to map all of the activities, the resources, the IT systems and organizational structure of the organization and gain a clear image of the operations. Additionally, with the use of the tools offered by ADONIS we were able to create various reports and graphical models off all organizational processes. We also evaluated the use of resources and business personnel and we also identified those procedures that do not add value to the organization. Finally, when completing our research, we were able to offer valuable solutions that benefited the organization improving its efficiency and speed (BOC GROUP, 2017).

A clear example of the models we created for the public sector organization is presented in the Figure 3 which represents, in the form of a business process model, the procedure for the internal inspections. Multiple parties are involved and their cooperation is needed in order to accomplish the procedure's goals. This is why their responsibilities are clearly expressed. The procedure always needs to have a start and an end point that are represented with a yellow circle. All parties involved are represented in horizontal "lanes" while the organization is represented with a "pool" containing all those lanes. A procedure may involve a number of activities that are linked by a sequence flow and are represented with blue rectangles. An activity may be just a single task or may be composed of multiple tasks that represent altogether a sub process. This diagram also makes use of the responsibility assignment matrix, commonly known as RACI matrix, that demonstrates who is Responsible, Accountable,

Consulted and Informed in every specific task involved in the procedure. From all the facts mentioned above we can understand that a business process diagram consists of numerous elements and interactions of elements that contribute to the process completion (BOC-GROUP, 2017).

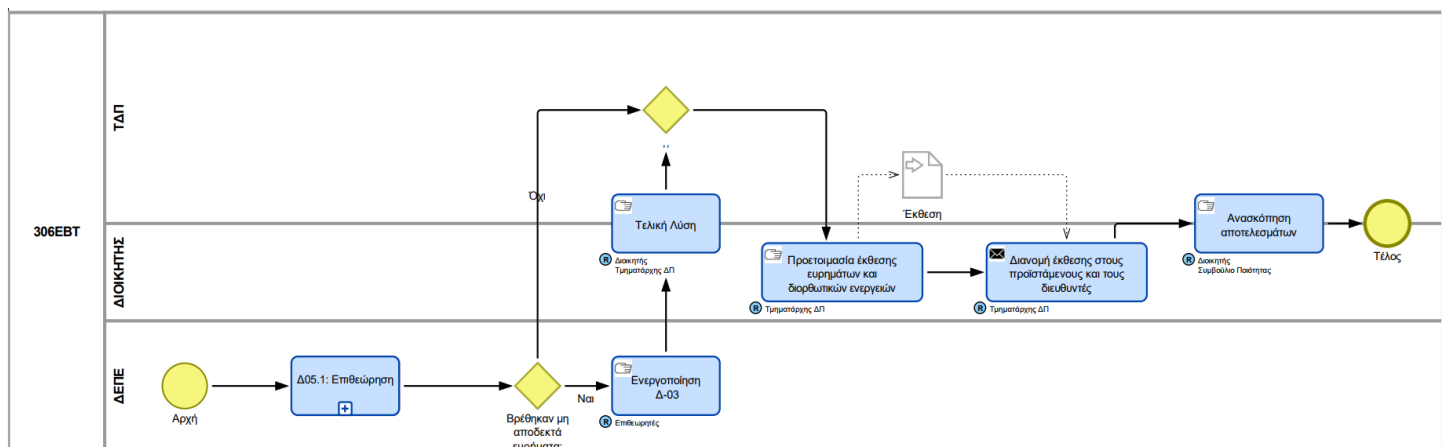


Figure 3 Business Process Model of Internal Inspections

5. CONCLUSIONS

Governments nowadays are faced with a growing burden from financial crises, plus unemployment and budget cuts. This is why most public sector organizations are under huge pressure to do more with less. They are forced to perform structural changes, optimize the use of their resources and turn to e-government. All of this can be implemented with the integration of information technologies such as BPM in public sector organizations.

This case study clearly shows that business processes management has multiple benefits for a public sector organization. Public sector organizations in general have faced numerous problems that result from bureaucracy, outdated procedures and systems, lack of a customer service focus, and low adoptability. Public sector pressure for administration efficiency, better performance, transparency, good governance, and increased accountability has also seen a rise in BPR's appeal for application in the public sector in general.

BPM can integrate all of the systems, data, and resources within the construction company reduce the waste of costs, time and resources and improve the operations. It may also vastly improve the offered services by reducing the gap between decision-making and implementation while also enriching their content in order to make them more useful and attractive to citizens. Therefore, they determinate the ability of the business to adapt to the ever-changing risky circumstances, while at the same time enabling it to respond to the rapidly growing requirements. The study also makes it clear that business process management for the public sector largely integrates many factors affecting the operation of the organizations.

Although this study clearly demonstrates the numerous benefits of BPM implementation for the public sector, a further research of how the business modeling tools and systems can be utilized effectively in the public sector is needed in order to overcome the restraining forces that where noted. After all the two sectors differ quite a lot in terms of the missions, goals, objectives and values they promote.

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Biographies

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