BPM Adoption and Business Transformation at Snaga, a Public Company: Critical Success Factors for Five Stages of BPM

Andrej Kovačič, Gregor Hauc, Brina Buh, and Mojca Indihar Štemberger

Abstract

(a) **Situation faced**: Snaga is a Slovenian public company that provides a series of waste treatment services for 368,000 citizens of the Municipality of Ljubljana and ten other municipalities. In 2006, prior to adopting BPM and implementing a new information system, the company had obsolete and non-integrated IT solutions that did not provide sufficient support to the business operations. The existing business processes were not well organized, resulting in unnecessary duplication of work and excessive delays. The company also faced new challenges in waste management and new legislation that dictated the development of waste-processing technologies.

(b) **Action taken**: The company's executives were aware that the company's way of doing business was inadequate and that changes were necessary if the company was to improve its business operations and maintain its competitive advantage. The company comprehensively transformed its business operations and adopted BPM in order to undertake the critical examination, rethinking, and then redesigning of current business processes, practices, and rules. The BPM project was conducted in three phases: (1) planning for strategic business transformation, (2) business process restructuring and information architecture development, and (3) information system development and implementation in six interdependent projects.

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(c) **Results achieved**: Adopting BPM brought considerable benefits to the company. A key change brought by the BPM adoption was the transition from a functional to a more process-oriented organization with an increased customer focus. The company implemented an ERP solution to support the redesigned business processes, established process ownership and a BPM office, and introduced KPIs to measure the performance and efficiency of processes and business operations using a business intelligence solution. BPM became a way of life at Snaga, and the company has undergone considerable transformation in the last decade, evolving from a traditional, functionally organised and managed company in 2005 to a process-oriented company in 2010. Today it is one of the most effective and efficient municipal utility companies in Europe. In the past 2 years, the company also transformed itself from focusing on waste collection and delivery to separate waste collection, waste processing and promoting a zero-waste society. The company's operating results improved significantly from 2012 to 2015, and in the 10 years ending in 2015 increased the waste it processed after collected separately from 16 to 145 kg per user, which ranked the company at the top of the industry in Europe.

(d) **Lessons learned**: The involvement—rather than just support—of top management is one of the most important critical success factors in all phases of BPM adoption. The role of the chief process officer, who was enthusiastic and encouraging during all stages of the project, and business drivers were particularly important, and the chief process officer's communication approach contributed to the employees' openness to change, which was essential for success. The professional guidance of external consultants was also helpful. Identifying key performance indicators and persons responsible for their achievement was the most important critical success factor I the production phase. The company also integrated the BPM philosophy with ISO 9001:2015 into a strong management system.

1 Introduction

The adoption of BPM is a complex and time-consuming process that requires considerable effort, time, resources, and discipline. Bandara et al. (2009) observed that many organizations have tried to change their businesses to comply with a process orientation, yet only a few have managed to completely integrate their business functions into end-to-end processes.

Snaga, a Slovenian public company that adopted BPM successfully, provides a series of services for a third of the Slovenian population, including the collection and processing of waste, the removal and disposal of municipal waste (which accounts for only 4.5% of total waste), cleaning of public areas, restroom management, placarding, and overhaul. Snaga is part of Public Holding Ljubljana, which provides services to ensure efficient, economical, and user-oriented mandatory

public utility services in the Ljubljana Green Capital of Europe 2016 (EU 2015). In 2016 the company employed 500 workers and collected more than 130,000 tons of waste, of which 95% is processed, while the rest is disposed of.

In 2005 Snaga's executives recognised that the company's way of doing business was inadequate and changes were necessary. The company comprehensively transformed its business operations and adopted BPM by conducting several consecutive and interdependent projects over the next 7 years. Adopting BPM brought considerable benefits to the company and enabled it to maintain its competitive advantage. This chapter discusses how the organization transformed into a process-oriented organization.

2 Situation Faced

Prior to adopting BPM and implementing a new information system (IS), the company had obsolete and non-integrated information technology (IT) solutions provided insufficient support to its business operations. Data acquisition for employees was time-consuming, and many business transaction records and other data were held manually in Microsoft Excel and Word. The existing business processes were not well organized, resulting in the unnecessary duplication of work and excessive delays.

In addition, the company faced new challenges in waste management and new legislation that dictated the development of waste-processing technologies. In the future, Snaga will have to process as much waste as possible into secondary raw material and burn only the residue without disposing of it, so the company was granted resources from the EU Cohesion Fund to develop a regional centre for processing waste, the RCERO project, which started in 2003 with project planning and finished at the end of 2016 (RCERO 2015). The regional centre entered trial operations in November 2015.

The company's executives were aware that the company's way of doing business was inadequate and that changes were necessary if the company were to improve its business operations and maintain its competitive advantage. Therefore, they decided to completely redesign the existing business processes and to adopt other BPM practices.

Snaga's main objectives in adopting BPM were to improve the effectiveness and efficiency of its business operations, thereby reducing the costs and time spent providing the services, increasing productivity, making the transition from functional to process organization, and increasing the service quality. In addition, the company's executives anticipated that adopting BPM and optimizing the business processes would enable them to select and implement the appropriate enterprise resource planning (ERP) solution and business intelligence (BI) system to support business processes in the company. Moreover, adopting BPM would enable the implementation of CRM, SCM, and HRM and help the company to maintain its quality certificates (ISO standards).

3 Action Taken

Snaga comprehensively transformed its business operations and adopted BPM by means of several consecutive and interdependent projects. The company used the business transformation approach (BTA) methodology and the professional guidance of external consultants.

BTA is an iterative methodological framework that focuses on business processes, business rules, and data in a system from which all knowledge of the business derives. It incorporates the best practices of more than 20 business transformation projects and certain fundamental principles that are already known in business system planning, BPR, and the IS development environment: business rules and the business activity meta-model, iterative development, and prototyping (O'Regan and Ghobadian 2002; Perkins 2002; Kovacic 2004).

BTA planning, development, and implementation can be divided into several iterative development phases (Fig. 1):

- Strategic business transformation planning
- Business process restructuring and information architecture (IA) development
- Information system (IS) development and implementation

Strategic business transformation planning implies an attempt to alter a company's strength relative to that of its competitors in the most efficient and effective way possible. This kind of planning focuses on the organization's direction and the actions that are necessary to improve its performance (O'Regan and Ghobadian

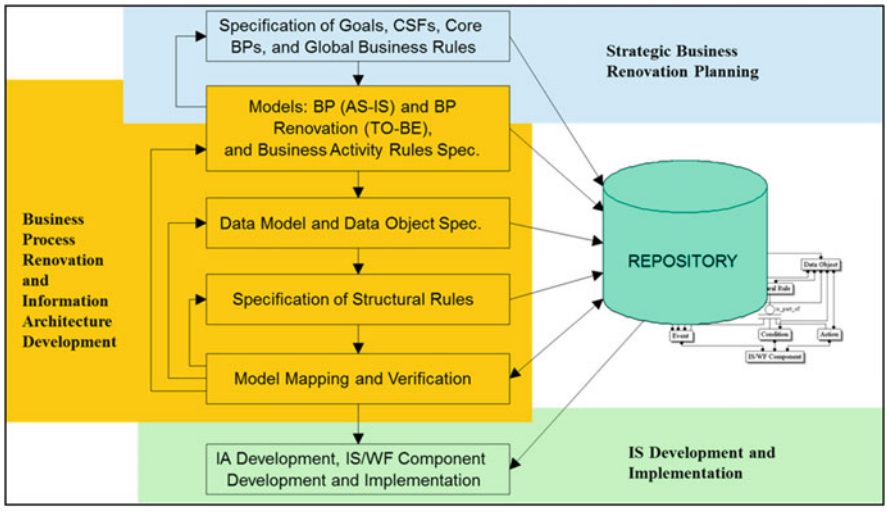

Fig. 1 Business transformation approach: phases and results. Source: adopted from Kovacic (2004)

2002). All of these results are captured in the rule repository and used in the next phases of the business transformation process.

In the business process transformation phase, the company undertakes the critical examination, rethinking, and then redesigning of current business processes, practices, and rules. The as-is model is developed in several iterations, in each of which the model is validated against the actual process for process flow by performing several executions of the process executions and for performance by comparing the times obtained in the simulations to average times measured for the entire process and its segments. The final as-is model is reasonably close to the actual process, with some minor discrepancies resulting because not all real situations can be anticipated and modelled. Finally, the to-be model is developed and its efficiency is analysed.

During this phase of BTA the IA is also defined. IA is the planning, designing, and constructing of an information blueprint that covers the business process rules on the activity level and satisfies the informational needs of business processes and decision-making. It is derived from the to-be business process model and the strategic business process transformation plan that is developed in the strategic planning phase. IA calls for full recognition of the importance of business rules and data in the design and development of an IS from the perspective of a balance between processes and data.

The results of the business transformation and IA development phase are the organization's to-be business process model (Process Architecture), a global data model (Data Architecture), and technological/organizational foundations. Determination of the global data model or data architecture is the next step in IA development. The global data model is presented as an entity-relational model that contains the company's major data entities and business rules. It reflects the company's global information needs.

In the IS development and implementation phase, we presume that the organization's to-be business process model and global data model that were developed in the previous stage contain the models' major business rules and information needs and are a suitable foundation for further development activities. In the case of a proprietary development, the activities are concerned with conceptual data modelling and logical database design. The final results of this stage are a database and application solutions developed for the particular application area or business process selected.

Service-oriented architecture (SOA), ERP application solutions, and other modern software packages are emerging process-oriented tools that can enable and implement business transformation in this phase. In this context, we recognize our to-be business process model and business-rule model as the starting points of the ERP implementation process.

Snaga's adoption of BPM is discussed later using Rosemann's (2010) framework, so the BPM adoption process at Snaga is presented in Fig. 2.

The first step in Snaga's adoption of BPM was the awareness that there were problems with the organization's processes and opportunities to improve them. Snaga's executives were aware of the future challenges and the need to change their

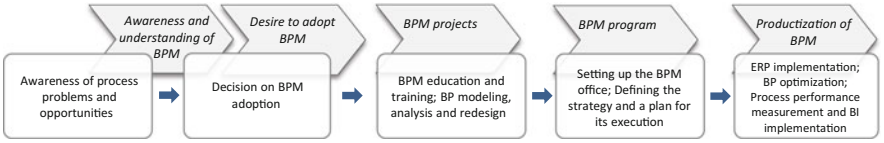

Fig. 2 Stages of BPM adoption at Snaga. Source: Snaga's internal documentation; Rosemann (2010)

business operations, so they decided to adopt BPM because, as the CEO said, they believed "that BPM would bring Snaga greater competitiveness, better management of business processes and long-term success." A precondition of this decision, which represents the second stage of Snaga's BPM adoption, was the awareness and understanding of BPM, which led to the desire to adopt it.

The initiator of the BPM adoption was the company's chief information officer (CIO), who worked closely with external consultants and garnered the support of top management. External consultants were hired to supervise the projects' implementation and advise the company when the projects deviated from the main objectives of the BPM adoption.

At the beginning of the third stage of BPM adoption, the CEO appointed the project team, which consisted of employees who had the knowledge and experience to contribute to the successful adoption of BPM, including executives, heads of departments, and key users. The first project they conducted was business process modelling, analysis, and redesign. External consultants modelled and analysed several existing business processes using a BTA methodology that had been verified in interviews with employees involved in the process and the available documentation. Even during the modelling and description of the processes many uncertainties were resolved, and the employees' understanding of BPM and business process orientation increased.

Next, the consultants and Snaga's managers proposed several process improvements in line with the adopted strategy and other employees: process optimization, introduction of process ownership, and setting up a BPM office. During the project a number of workshops were conducted to encourage the 'process' way of thinking in the company. The company accelerated its training of employees to raise their competence. The biggest challenge in redesigning the company's existing processes lay in changing the mentality of the people in the processes. At the end of this stage, Snaga introduced some of the important concepts of process orientation, such as process ownership for core end-to-end processes.

The fourth stage of the BPM adoption at Snaga involved the establishment of the BPM office, which is managed by chief process officer (CPO), who was once the CIO. The company's executives and BPM office redefined the company's development strategy, including the vision, mission, and strategic objectives, and identified strategic projects to achieve them using a strategy and a roadmap for BPM adoption (a BPM program). As the CPO said, "The company paid a lot of attention to ensure

proper communication, both vertically (top to bottom and vice versa) and horizontally (within the business processes) among the various sectors and departments." By encouraging communication they hoped to ensure that all employees understood the objectives of the BPM adoption and that a suitable organizational culture would emerge.

In the last stage of the BPM adoption, Snaga implemented a new ERP solution to support the redesigned business processes. Best practices from ERP solutions were studied prior to the implementation and taken into account in redesigning processes.

Other projects (Fig. 3) conducted during this stage by several project teams with some help from external consultants included implementation of a Balanced ScoreCard (BSC) system and standards and criteria for measuring the business processes' effectiveness and efficiency. Snaga developed key performance indicators (KPIs) for every core business process and implemented a BI solution that allows it to measure efficiency and performance across all core business processes. With the new BI solution's support, the process owners monitor KPIs

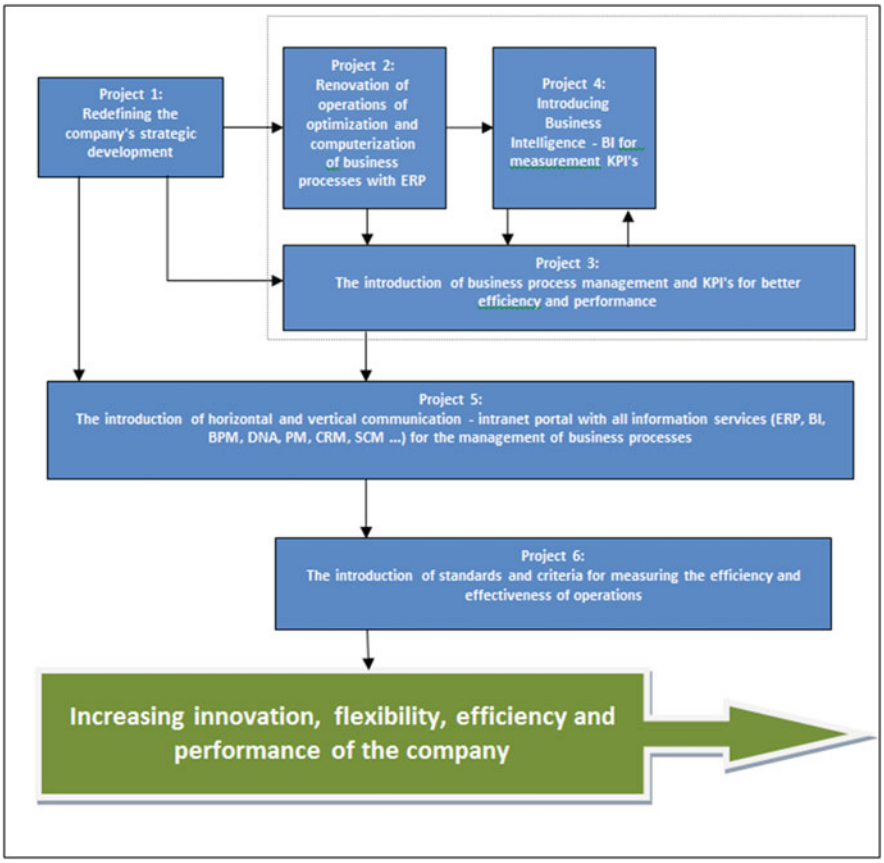

Fig. 3 BPM projects at Snaga. Source: Hauc (2016)

daily and often find ideas for improvement in the results. Snaga also re-certified the ISO 9001:2015 quality system through which it manages and improves its business operations.

The CEO, who was actively involved in the projects, proposed improvements and encouraged employees to accept changes. The CPO and other members of the BPM office cooperate with the process owners and suggest further improvements of business processes. The BPM office is responsible for maintaining the process models and informing employees about ongoing events via the intranet. The CPO also writes ongoing news about the BPM adoption, which is published in the in-house newsletter *Snagec* and is accessible to all employees.

4 Results Achieved

To determine whether Snaga's BPM adoption was successful, we chose two out of ten BPM maturity models identified by Röglinger et al. (2012): Process Performance Index (PPI) from the Rummler-Brache Group (2004) and the BPO maturity model from McCormack and Johnson (2001). Both models have been validated empirically, both are generic (i.e., they are used for business processes in general), both produce quantitative data (i.e., they can be statistically analysed and compared easily, independent of the assessors' interpretations), and both take into account all business processes in the organizations involved. In addition, the assessment does not take a lot of time, and the assessment questions and corresponding calculations are fully known and publicly available without charge.

Snaga's PPI index is 47, so the company is in the third stage of process management maturity, called "process management mastery." For organizations in this final stage of process maturity, BPM is a way of life and process management is fully integrated into the organization's planning and overall performance evaluations (Rummler-Brache Group 2004). The BPO maturity questionnaire gives Snaga a score of 4.6, the highest level of BPO maturity, defined as "integrated." This level is characterized by process-based organizational structures and jobs and process measures and management systems that are deeply imbedded in the organization (McCormack and Johnson 2001).

Adopting BPM has brought considerable benefits to the company. A key change brought about by the BPM adoption was the transition from a functional to a more process-oriented organization with an increased customer focus. The company introduced process ownership, established a BPM office, and incorporated KPIs to measure the performance and efficiency of processes and business operations. In addition to process owners, the company introduced administrators of business processes whose job it is to connect core and support business processes and, in cooperation with the process owners, search for opportunities for improving business processes.

The BPM office plays an important role in the company and is at the executive level. It is responsible for assigning tasks to the process owners and other employees in the company and for motivating and training them to work in accordance with the new (process) ways of working. The process owners are responsible for ensuring that business processes are clearly determined and have well-defined CSFs and KPIs.

Business processes are managed with the support of Snaga's BI system, where each process owner monitors the KPIs for his or her own process and can measure the process's efficiency and effectiveness on the company level.

A process-oriented culture at Snaga, which was established by educating the employees and encouraging the 'process' way of thinking, is maintained by means of continuous employee training, presentations and analyses of results of business operations, and appropriate actions. Top-down, bottom-up, and especially horizontal communication has been improved. Every year, the CPO, in cooperation with the process owners, process administrators, and key users, reviews the CSFs, objectives, measures, and indicators for each process, including the suitability of process models and descriptions of process activities. To ensure realization of the company's strategy, they consider three critical factors for the company's efficiency and success: human resources, processes, and technology.

Employees accepted BPM as a permanent activity that is carried out in an organised and standardised manner. At least once a year the company performs internal audits of the management system in accordance with the requirements of ISO9001:2015, ISO18001:2009, and ISO14001:2004. Employees who are internal auditors are invited to look for emerging gaps and opportunities for improvement.

The adoption of BPM has yielded significant positive results for the company and its business operations. The company gained a good overview of its business processes and the deficiencies of the processes were exposed and eliminated, which contributed to an increase in customer and employee satisfaction, a 50% reduction in complaints, increased price competitiveness, and the company's improved business value.

5 Lessons Learned

Based on our experience from the project and on additional interviews with Snaga's CEO and process owners, CSFs for Snaga's BPM adoption were identified for each stage of the adoption process, as presented in Table 1.

In the first stage of Snaga's BPM adoption, the empowerment of employees was important because of the company's increased customer focus. When the company put its customers in first place, top management became aware of process-related problems and the need for their improvement. Another important factor identified was openness to changes, which was critical in the company's ability to advance to the second stage of BPM adoption.

In the second stage top management support and a project champion were important success factors, together with business drivers. Business drivers (a sense of urgency) and champions are required if the desire to adopt BPM is to be triggered (Rosemann 2010). The business drivers for the BPM adoption at Snaga can be summarized as (1) new challenges in waste management and new legislation that dictates the development of waste-processing technologies, as waste disposal without processing will not be possible in the future; (2) the need to replace outdated and inadequate IT solutions and systems; and (3) the need to establish technical and quality control over business operations in order to enhance customer satisfaction

Table 1 Critical success factors at five stages of the BPM adoption at Snaga

BPM adoption stage	Critical success factors
Awareness and understanding of BPM	• Empowerment of employees • Customer focus • Openness to change
Desire to adopt BPM	• Involvement and full support of top management • Project champion • Business drivers (a sense of urgency)
BPM projects	• Well-communicated and clearly defined objectives, purpose, and plan for the BPM project • Professional guidance of external consultants • People who are willing and motivated to change
BPM program	• Involvement and full support of top management • Vertical and horizontal communication • Professional guidance of external consultants • Communication
Productization of BPM	• Involvement and full support of top management • Professional guidance of external consultants • Identification of key performance indicators and persons responsible for their achievement • Educated, trained and motivated employees • Synergy between BPM and ISO9001:2015

through faster and cheaper provision of services. At Snaga, the project champion was the company's CPO, who was responsible for building support among the company's executives and other employees by actively promoting the BPM projects and spreading information about their progress. Special attention to promoting the BPM adoption is necessary to create a positive atmosphere in an organization.

In the third stage of BPM adoption, the well-communicated and clearly defined objectives, purpose, and plan of the BPM project were essential. For a successful business process modelling, analysis, and redesign project an organization has to clearly define the project objectives and its purpose and communicate them to all participants before the project starts (Indihar Štemberger and Jaklič 2007). The project at Snaga was led by the company's CPO, who is an expert in project management and who paid considerable attention to communicating the project's clearly defined objectives, purpose, and plan, which enabled the participants to recognize the expected benefits of the project. In addition, as the CEO and other Snaga employees claimed, the help of external consultants who provided appropriate methodology and professional assistance significantly contributed to the project's success. Thus, the organization avoided many problems during the project, such as inadequately described and evaluated existing business processes, employee resistance, and unwillingness to participate in the project because of fear of redundancies and changes that would degrade employees' positions.

Since the success of any project largely depends on the organization's people and their willingness and desire to change, communication among all employees in the organization is important. The experience of two consultants who participated in our case study indicated that all participants in the project have to cooperate fully and understand the purpose of adopting BPM. Employees must be appropriately educated,

and motivated to understand and adopt the necessary changes in the company. At Snaga, the communication among employees was ensured through the intranet, meetings, and interviews, and the education was promoted by means of several workshops.

The CSFs of the fourth stage of BPM adoption were top management support (especially the support and involvement of the CPO and the CEO), the professional guidance of external consultants, and good communication skills. As one consultant said, "It is essential that top management not only provides support, but is also actively involved." The strategy, objectives, and implementation plan should be specified, and the organizational culture must be open to change.

In the last stage, the people (top management support, guidance from external consultants, and knowledgeable employees), the identification of KPIs, and assigning individuals to be responsible for their achievement were important. The CEO set the objectives at the company level and the employees set the indicators for achieving these objectives at the process level.

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