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Applying Business Process Approach to Information Systems – the Case of Public Administration

Introduction

The poor effectiveness of public administration institutions is widely noticed and discussed [Levine *et al.*, 1990], [Hill, 1992], [Goodsell, 2004]. Moreover, the usage and the effectiveness of information technology (IT) projects in public administration is widely criticized [Brown, 2001], [Nelson, Ravichandran, 2004], [Gauld, 2007], [Ashraf *et al.*, 2010].

The level of computerization of public administration entities in Poland is not satisfactory. There is still a large number of systems necessary to be built for the smooth functioning of governmental institutions. Moreover, many IT projects conducted in those organizations end up as failures. For years, various programs have been developed for the computerization of public administration, for example: [*Cele i kierunki...*, 2000], [*ePolska2006*, 2002], [*Strategia informatyzacji...*, 2003], [*Strategia rozwoju...*, 2008]. However, most of their main goals remain uncompleted and are repeated in subsequent documents. Moreover, those documents were prepared by a variety of ministries successively responsible for the computerization of the country and the development of information society. Such transfer of responsibility could not promote consistency and determination in carrying out these tasks.

One of the most important contemporary trends in information systems is binding the implementation of IT systems with the reorganization of business processes. This approach is widely accepted and used in business organizations. However, it is not a driving factor in IT implementations in public administration. The purpose of the article is to identify grounds for using business process approach in IT projects in public administration and barriers to the implementation of this approach. The analysis is largely based on the author's empirical research gained from his own experience from information systems projects conducted in various public administration units.

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1. The process-related characteristics of IT projects in public administration

The leading and the most noticeable IT projects conducted in public sector can be classified, in most cases, into two main groups:

- 1) large systems built on the base of bulk database systems, e.g., a vehicle registration system, a national tax registry, etc.,
- 2) e-government systems providing internet access to services performed by public administration offices.

The control function is the main drive to the development of large systems in public administration. The functionality of those systems is concentrated on gathering data and providing access to large databases for state or local authorities. The efficiency of complex processes supported by those systems is not a leading factor in their development and evaluation. Therefore, those systems support only the level of data integration in contrast to the level of process integration which enables the coordination and optimisation of activities [Polak, 2009, p. 199].

The majority of IT projects conducted in public sector institutions under the banner of e-government or e-administration focus on the use of the Internet by citizens in relations with various authorities. For example, ePUAP, a key e-administration project in Poland, belongs to that category [Drobiaziewicz, 2012]. Therefore in many cases, the development of C2A (Customer to Administration) applications is not directly related to the use of integrated software systems inside public administration units, and it does not entail the improvements and the optimisation of their internal operations.

The report for the Ministry of Internal Affairs on the informatization of public administration in Poland shows that in 2010 only 48% of public offices had an electronic document management system [*Wpływ informatyzacji...*, 2010, p. 38]. Moreover, only 25% of those offices having an electronic document management system had a module to manage (create and modify) business processes [*Wpływ informatyzacji...*, 2010, p. 92].

According to the same report, the implementation of IT in public institutions had enabled over previous three years [*Wpływ informatyzacji...*, 2010, p. 58-60]:

- the faster settlement of matters in 71% of offices,
- the increase of employee engagement in 52% of offices,
- the growth of employee innovativeness in 70% of offices,

- the improved coordination of processes in 71% of offices.

On the other hand, according to that report the implementation of IT in public administration offices had enabled [*Wpływ informatyzacji...*, 2010, p. 58-61]:

- the decrease of the amount of paper documents only in 23% of offices,
- the reduction of workload in 37% of offices,
- the reduction of office operating costs in only 25% of offices.

It is noticeable that positive effects of the implementation of IT in over 50% of offices concern mostly factors which are very difficult to measure, e.g., employee engagement and innovativeness. Additionally, better coordination of processes is very difficult not only to measure but also to define, particularly in organizations which did not implement business process management (BPM). Only one indicator, the faster settlement of matters, is well measurable. Moreover, the results of that survey were based only on the answers provided by the heads of the offices. They were not verified by any independent research conducted on sites.

On the other hand, a very small percentage of questioned offices, only about one quarter, showed the positive effects of IT in terms of cost related indicators, i.e. the reduction of paper documents and office operating costs.

One of the important features of the process approach is taking into consideration the point of view of the clients of the process, including customers which in the case of public administrations are simply citizens having business to government offices. The report mentioned above shows that the implementation of IT in previous three years enabled to [*Wpływ informatyzacji...*, 2010, p. 67-69]:

- simplify customer service procedures in 52% of offices,
- increase customer satisfaction with services (observed by employees) in 52% of offices,
- increase customer satisfaction with services (identified on the basis of a research) only in 16% of offices,
- reduce the cost of customer service in 25% of offices,
- obtain feedback from customers about their needs, quality of service, proposed improvements in 28% of offices.

From the point of view of the business process management those values all very low, showing that hardly any process approach was used

during the implementation of information systems in public administration offices in Poland.

The successful implementation of an information system supporting business processes should be, above all, evaluated from the perspective of the effectiveness of those processes. However, the technical viewpoint is often prevailing, also in the case of BPM oriented IT systems implemented in public administration, considering as critical the following evaluation criteria [Mazurek, 2012, p. 190]:

- the compliance of implemented IT project with planned costs, an implementation timetable and the planned scope of the project,
- ensuring the required quality of project deliverables.

The emphasis on these success factors of BPM oriented IT systems is not consistent with the modern process approach in management. Moreover, benefits for the customer (the beneficiary of the project results) are considered only a supportive criterion, together with benefits for a project contractor (an IT company conducting the project) and social benefits [Frank *et al.*, 2011], [Mazurek, 2012].

2. The role of process approach in public administration

The advantages of the process approach are usually presented in the context of competitiveness and the market success of companies. Business firms are also commonly considered superior to public administration in terms of efficiency and effectiveness [Goodsell, 2004]. However, the process improvement is not solely a business domain, it also applies to public institutions, and non-profit organizations [Czekaj, Jabłoński, 2009]. The e-administration should not be viewed only as the implementation of information technologies in public administration. It should lead to the organizational changes. It should also involve changes in the awareness of IT capabilities and increased ability to use it, both by public servants and citizens [Chmielarz, 2010, p. 15]. Contrary to these needs, various researches confirm continuously that the concepts of business process reorganization and business process management are not accepted by the common culture in the majority of public sector organizations [Cats-Baril, Thompson, 1995], [Stemberger *et al.*, 2007], [Zwicker *et al.*, 2010].

The visualization of primary business processes has been broadly used in the documents describing IT strategies in commercial organizations since the introduction of the concept of business process

reengineering (BPR). The same approach can be used in the IT strategies of public administration institutions [Wieczorkowski, 2012, p. 326].

Process oriented pro-quality programs can also be implemented in public sector organizations. Particularly, maturity models can be used in those organizations due to their highly hierarchical structures [Kania, 2012].

An important element in the process management is the correct identification of processes followed by accurate modelling. It should lead to the discovery of ineffective sequence flows, important from the point of view of process clients, and to their reorganization [Bandara *et al.*, 2007].

The global crisis forces public administration to impose austerity measures to significantly cut government spending in an effort to control public-sector debts. Those cuts include the reduction of public administration costs. On the other hand, service time is the decisive evaluation criterion of the effectiveness of public authorities by citizens in modern democracies [Kisielnicki, 2010, p. 149]. Both types of criteria: cost and time are typical performance indicators, commonly used in the business process management.

A typical public administration office performs a wide variety of complementary and sometimes even overlapping functions. In order to deal with these functions an office must use many different software application. A simple task of changing a citizen attribute, for example an address, may involve even a dozen or so information systems. However, this job is often passed on to the customer who must perform many times the task of informing various departments about the same fact. A simple process map can show all departments and IT systems influenced by such task and provide a basis for the implementation of procedures simplifying such interactions for customers.

The usage of numerous applications, often based on different IT architectures, database environments and user interfaces, is a valid argument for the implementation of service-oriented architecture (SOA). The best way to take advantage of that architecture is to represent processes in a business process layer, aggregating services provided by the various pieces of software [SOA Reference..., 2009]. Therefore by defining business processes and implementing them in SOA, different applications may constitute one integrated information system for a functionally differentiated public administration unit.

3. The barriers to the implementation of business process approach in public administration

An attitude towards customers' needs plays an important role in the process approach. A process is defined as "a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer" [Hammer, Champy, 1993]. Most primary processes are cross-functional (interfunctional), spanning functions performed by different functional or divisional units [Rummler, Brache, 1995]. Identifying and classifying the different types of processes is essential because an organization can appear to managers as a seamless web of processes [Davenport, Short, 1990, p. 14].

Unfortunately, public administration units are characterized by hierarchical, functional structures. The performance and the effectiveness of an administration unit are evaluated in relation to its narrowly defined functional tasks. Therefore, large cross-functional processes are rarely properly defined. Instead, the large number of small processes, which are in fact subprocesses, are identified. Moreover, the classification into primary and support processes raises controversy among public administration officials. From their point of view, the most important are support processes: informing and reporting to the superior bodies. When properly done, they can secure the peace of bureaucratic existence.

Occasionally, public administration units reorganize their activities in order to improve their services to customers. However, those actions are often superficial. For example, they create customer service points, or allow the submission of documents and communication with officials in electronic form. Naturally, these changes can facilitate communication with customers. However, they usually do not improve internal processes. Neither parallel or variant sequence flows are implemented nor decision-making powers are transferred to employees at the operational level. As a result, the internal parts of those processes remain unchanged and inefficient.

The highly hierarchical structures influence also the employees' perception of organizational goals and functions. Public administration officials often avoid the identification of performance indicators. Forced to define them, they often formulate indicators that can be reduced to the verification of compliance with procedures, rules, or legal regulations. For example in one of public sector institutions, the only performance indicator of a procurement process was defined as follows: "The ratio of

accepted appeals or protests to the total number of appeals or protests". Such indicator measures the correctness of office activities and documents in accordance to the regulations concerning public tenders what results from a complicated and bureaucratic public tender act. However, tardiness or minimizing the cost of purchase are not mentioned as the indicators of this process.

Another curious case was encountered by the author in a public sector organization which carries out large infrastructural construction projects. The primary process "The execution of the construction project" had the following performance indicator: "Participation in the project councils". It is actually not addressed to customers who can expect, for example, the timely completion of the construction but to superiors controlling the routine duties of public officials.

Conclusion

The implementation of the process approach is essential in order to improve the effectiveness of public administration, particularly in the utilization of information technology. However, despite the official declarations, the process approach is not popular with the public administration. This fact confirms the negative opinions expressed in the literature on the effectiveness of public administration institutions. The main barriers are not technical but are related to organizational culture. Public administration does not promote effectiveness typical for commercial organizations, but concentrates on bureaucratic relations and procedures. Only profound changes in the organizational culture and the promotion of business attitude towards tasks and the growth of professionalism of public officials can provide the basis for the real implementation of the process approach in public administration.

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Abbreviations

BPM – Business Process Management

BPR – Business Process Reengineering

C2A – Customer to Administration

ePUAP – Elektroniczna Platforma Usług Administracji Publicznej (Electronic Platform for Public Administration Services)

IT – Information Technology

SOA – Service Oriented Architecture

Applying Business Process Approach to Information Systems – the Case of Public Administration (Summary)

The aim of this article is to identify grounds for using business process approach in IT projects in public sector and barriers faced by the introduction of this approach in public administration units. The content of the article merges two approaches: theoretical and formal view of business process approach with the author's experience in information systems projects carried out in public administration. The author presents several significant arguments for using business process approach. However, they are overwhelmed by many problems

of the implementation of this approach, including: reluctant attitude to the process approach, bureaucratic mentality, a firmly fixed hierarchical organizational structure, and poor information culture among civil servants.

Keywords

business process management, information systems implementation, public administration, e-government