Process–Oriented Reorganization Projects in Electronic Government

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INTRODUCTION

From the beginning of the 90s, public administration has been confronted by a series of new demands. Society has been transformed by the influence of new technologies. There is a strong trend towards growing individualization, whereby there are increasing demands by individuals on the state. Simultaneously, in the context of national and international competition, efficient and effective state activity and support for entrepreneurial activities in a region or country are becoming an increasingly decisive factor in location decisions. No one has yet succeeded in improving the performance capability of the state, in a manner and degree that is commensurate with the increasing number of responsibilities. According to Budäus and Schwiering (1999) a modernization and performance gap has arisen because of the difference between the volume of work and performance.

For some years, the term electronic government, coined from e-business, has been universally proposed as a way of closing this gap. The core of e-government as well as e-business is the execution of administrative processes (Langkabel, 2000, p. 6). In recent years, businesses have already initiated and successfully undertaken measures to strengthen the organization of business processes. At the same time, the academic disciplines of business management studies and business information technology have taken up this issue (Davenport, 1993; Earl, 1994; Hammer 1990; Hammer & Champy, 1993). Commensurately, fields such as process modeling, workflow management or process cost calculation demonstrate a deep understanding of theory and have consequently attained a high standard of development.

However, the practical application of this knowledge, acquired in the domain of public administrations, has only occurred to a limited degree. Alongside an insufficient translation of theoretical knowledge into practice, the urgent practical challenges of process management, for example, and the design of procedure models for specific domains, have not so far been adequately taken up by the relevant academic disciplines and conceptualized soundly.

The purpose of this article is to stimulate an improvement in the situation outlined above. The objective is the presentation of a systematic approach how to prepare process oriented e-government projects. As a rule, comprehensive preparation is essential for process modeling, because, on the one hand, the model design is characterized by a high degree of process complexity and on the other hand, the information model is characterized by a high degree of object complexity. When considering the aim of the modeling, it is necessary to determine both the object of modeling, and the modeling methods and tools.

As an introduction we first provide an overview of related work. In section one we briefly describe different modeling objectives and explain, why organizational design is one of the most important aims of process modeling in the context of e-government ("why" should be modeled). In section two we identify requirements for a modeling method based on the domain e-government and the modeling objective organizational design. The requirements lead to the selection of event-driven process chains (EPC) ("how" should be modeled).

In section three we show how the target environments for modeling projects can be identified. Based on a public service classification scheme we therefore introduce a two-phase procedure comprising the successive application of the portfolio analysis and the profile method ("what" should be modeled).

BACKGROUND

Business process modeling and business process reengineering are the dominating topics in the discussion

of enterprise modernization (Davenport, 1993; Hammer, 1993; Hammer & Champy, 1993; Harrington, 1991; King, 1994).

Several methods, techniques and tools have been developed and implemented to support process oriented reorganization (Keen, 1991; Kettinger, Teng, & Guha, 1997). The Architecture of Integrated Information Systems (ARIS) presented by Scheer, is an approach for specifying organizations and information systems (Scheer, 2000). The four different perspectives data, functions, organization, and control, each consisting of the three layers of conceptual model, technical model, and implementation, can be used to model different aspects of a software system from a business perspective as well as an IT perspective.

Modernization efforts are also undertaken in the area of public administrations. The discussion of public administration modernization and e-government is often limited to the provision of online services and public administrations' Internet portals. Big steps towards an integrated European e-government were taken within the eGOV project, funded by the European Commission. Within this project, an integrated platform for online one-stop government was specified, developed, deployed and evaluated. Based on "life-events" the effectiveness, efficiency and quality of public administrations' services were improved (Krenner, 2002; Wimmer, 2002).

Much remains to be done, both optimization of services delivered via Internet (e.g., one-stop-government), and the optimization of public administrations' internal and inter-organizational processes (Traunmueller & Wimmer, 2001).

In order to reach the goals described we show one approach how the optimization of administration's processes can be prepared: the questions which will be answered are why, how and what should be modeled in order to generate benefits in public administrations through process oriented e-government projects.

PROCEDURAL MODEL FOR E-GOVERNMENT REORGANIZATION PROJECTS

Select the Modeling Objective

The main aims of process modeling according to Rosemann and Schwegmann (2002, p. 58) are organization and application system design.

Organization Design:

- Organization documentation
- Process-oriented reorganization

- Continuous process management
- Certification
- Benchmarking

Application System Design:

- Selection of ERP software
- Model-based customizing
- Software development
- Workflow management
- Simulation

Models for organizational design require a high degree of clarity, whereas models for application system design require a high degree of technical precision, because of their close relationship to the final implementation.

The above listed purposes of process modeling obviously force the process models to meet certain different requirements in terms of content and methodology. With respect to contents, the requirements differ in the related model components. The first step in order to improve public administration's processes and make them suitable for e-government applications should be organization design, in particular, the process-oriented reorganization. An examination of application system design is only considered worthwhile on the basis of organizational process improvements (Raymond, Pare, & Bergeron, 1995).

SELECT THE MODELING METHOD

Modeling Method: Requirements

There are various and diverse model types for modeling (business) processes. Petri-nets (Jensen, 1985), added-value chain diagrams (Porter, 1990) and event-driven process chains (EPC) (van der Aalst, 1999), are amongst the best known. The choice of a model type is influenced mainly by the purpose of the application and the requirements of the model users. Application aims, such as simulation and workflow management, require model types which produce detailed, precise, formally itemized models. Application objectives such as process-oriented reorganization require less formal models. In this case, *clarity* is especially important. For a modeling method to meet the requirements of administrative processes, their most salient characteristics need to be considered first (Scheer et al., 1996, p. 120):

- Information processing functions predominate. Even if actual products are being produced, information processing predominates as the main resource for the public administration is information.

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