

Knowledge Management for E-service-Delivery – A Conceptual Approach within E-government

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Abstract. The critical challenge for the success of e-government projects is the ability to create new and interesting customer bids. This requires an organization that is able to (re-)design and (re-)invent its business models and processes continuously. Knowledge Management Systems (KMS) can only accommodate such volatile readjustments if their design permits smooth adaptation and (re-)configuration of the underlying business processes. Such a KMS ensures or even improves the required business performance outcomes. We describe here a conceptual approach towards KM, which ensures a very high level of adaptability in order to incorporate dynamic changes in business models and information architecture. The GPWM Project of the public administration of Basel – Switzerland – is finally presented as a case study of the proposed approach.

1 Introduction

Information technology is not the most critical factor in the realization of strategic e-government projects. More important than IT and its implementation is knowledge of the impact on business and of the implied consequences for the associated business processes. Demands arising from the aims of e-government projects require consistent alignment of all associated resources and processes. Projects that do not take these factors into account lack integration and sustainability and are at best short-term solutions. Information technology projects tend to be of this type.

We frequently find in the public sector a fairly fragmented operational and organizational structure. The responsibilities for delivery of services to the citizen or to business are not transparent enough.

Moving towards a customer-centred administration in the context of e-government brings with it a redistribution of tasks and hence of knowledge. Such a reorganization has a tremendous impact on all the administration's current processes. Knowledge about the processes and the way they interact has to be managed in order to bring about these strategic changes in a controlled manner. In this context, knowledge man-

agement becomes a critical success factor for the implementation of e-government. Only those organizations that are able to develop a smooth interaction between the organisation's internal knowledge management and e-government, which stretches far beyond the limits of the organisation, will be able to achieve the full potential of e-government.

Against this background, the canton Basel-Stadt is aiming for a new concept of business process and knowledge management. The intention is to achieve the following mid- and long-term impacts:

- the service performance of the canton Basel-Stadt is to be significantly improved in terms of efficiency, transparency and quality as a result of the transparent and configurable flow of information well as comprehensive responsibilities
- the public reputation of the administration is to be based on well organized and technically functional internal business processes. This is the prerequisite for a more demanding stage in the development of the e-government project, as well as an answer to the concerns related to New Public Management (NPM)
- skills related to workflow and their optimisation are to be promoted in the departments.

2 Current Situation

With regard to knowledge management, the concepts and activities are focused on the IT-related use of knowledge, and on a "holistically" oriented design approach, which, for example, integrates human resource management. The first category includes ontology-based knowledge management [1,2] and organizational memory [3,4]. The second category includes for example the building block model [5] as well as model-base knowledge management [6].

As has already been seen in many different areas, it is of only limited use to transpose allegedly proven approaches to knowledge management in private business into the public sector.

One major difficulty is that there is no agreed definition of knowledge management in the private sector (see the case studies in [7]). A variety of projects are labelled as knowledge management, such as for example business process redesign, cultural change or establishment of databases. They often concentrate on instrumental aspects of managing data, information and knowledge. It has so far been impossible to establish a generally accepted strategy in relation to knowledge management. This indicates that knowledge is highly system-dependent. And this is the reason why third party solutions cannot be easily adapted [8].

Moreover, public administration is by nature a highly heterogenous system with a diversity of targets, functions and processes [9]. So far, it has not been possible to develop a knowledge management system for the activities of the public sector without taking into account the uniqueness of the different processes [10].

Different authors have argued the necessity to combine knowledge management and e-government ([11, 12, 13, 14, 15 etc.]) and thus form the foundations of this work.

3 Concept

3.1 Approach

This work focuses on an outline showing the technical and conceptual interplay of knowledge management and e-government based on concrete requirements and solutions. The targeted knowledge management of the canton Basel-Stadt is intended to be

- resource-oriented with a focus on intra-corporate knowledge to assure effective and efficient service provision processes
- market and public-oriented to enable the design of new (e-)services, for example in the context of e-government.

Knowledge management and its activities are in this context not considered as a separate task, but as an integral part of the organizational processes of (e-)service delivery and its design, and hence an integral part of business process management.

An e-service can be defined as any asset that is made available via the Internet to drive new value streams or create new efficiencies. To be used, such a service has to be open, serviceable in inter- and intra-organizational business processes and easily composable to varying business processes [16]. Different internal and external resources are needed to make such a (e-)service available and to integrate it in a set of the changing business processes (Fig. 1).

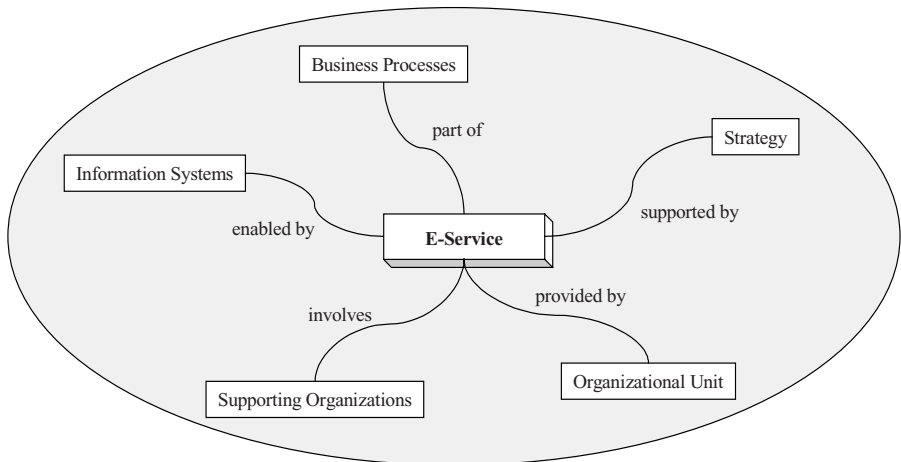


Fig. 1. E-Service resources

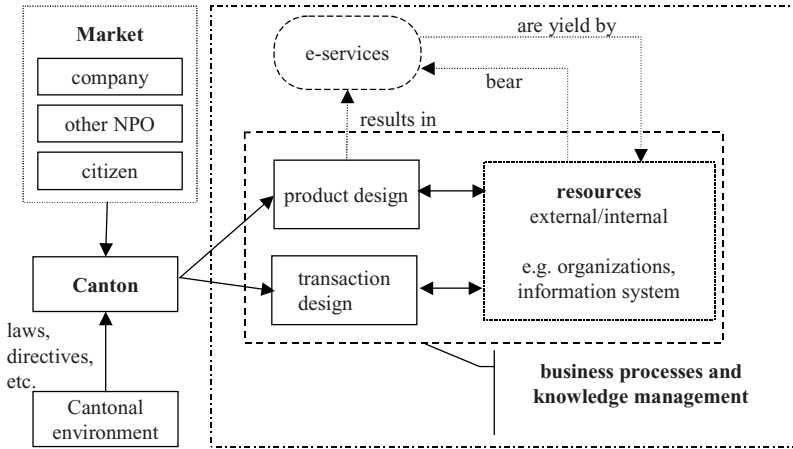


Fig. 2. Business and resource oriented business and knowledge management processes

Different business processes are executed by organizations. Particularly in the case of complex and knowledge-intensive processes and their execution, navigation through these (networked) business processes is done mentally. It is a fundamental task of knowledge management to make these processes requiring knowledge effectively transparent, along with the associated internal and external resources, in order to render them usable by the whole organization e.g. on the basis of the provision of services in the context of e-government (Fig. 2).

3.2 Steps

Based on a strategy definition for the project (phase 1: strategic definition), a thorough concept of knowledge management in e-government is worked out (phase 2: conception).

In order to guarantee the targeted implementation of a widespread organizational business process and knowledge management system in the canton Basel-Stadt, pilot schemes (phase 3) have been started. We are deliberately avoiding an integrated, organization wide introduction of business process and knowledge management involving projects of enormous dimensions.

These pilot schemes relate to knowledge-demanding processes which are interdepartmental, interdependent and involve several participants. These projects are of strategic importance for the organization to ensure acceptance and underline the corporate importance of business process and knowledge management. These are projects that have extensive implications for the execution of traditional processes. Based on the experiences of the pilots, the result of the design studies can be validated and extended, and where necessary adjusted. This procedure assures that in a later phase the organization-wide introduction of the business process and knowledge management (phase 4: distribution) is supported by all those involved and that future e-government activities are supported by these processes.

Step 1: Strategy definition / requirements and goals

(Sub-) goals / contents	Results	Key questions
According to the strategic vision of the organization – in our case e-government – concrete requirements and goals for knowledge management have to be worked out and defined.	<p>KM-strategy with detailed strategic project goals according to the specific organization of the canton Basel-Stadt.</p> <p>Key figure for how to deduce and supply KM-strategy design in public administrations.</p>	<p>What are the characteristics of a KM strategy?</p> <p>What sort of KM-strategy is suitable for the support of the introduction of a new business model in the context of e-government (e.g. One-Stop-Shop)?</p>

Step 2: Design of knowledge management in e-government

(Sub-) goals / contents	Results	Key questions
Methodology for the analysis, design and introduction of knowledge demanding business processes.	Evaluation / definition and documentation of appropriate methods for modelling knowledge-demanding processes.	<p>What requirements can be deduced for the shaping of knowledge-demanding processes?</p> <p>Which modelling approaches and methods should be used in knowledge management?</p>
Roadmap of existing, customer-oriented and knowledge-demanding business processes.	<p>Classification and systematic description of knowledge-demanding business processes or workflows in public administration.</p> <p>Key figure for how to deduce and supply a reference model.</p>	<p>What are the knowledge-intensive processes in public administration?</p> <p>Are there generic reference models that can be deduced for certain activities of public administration?</p>
Design of a knowledge basis for business process and knowledge management.	<p>Metamodel of knowledge engineering.</p> <p>Model of a staged method for creating a comprehensive knowledge basis for the public domain and its integration into the proper business processes.</p>	<p>What identifies the knowledge basis in form, content and function in the context of knowledge management?</p> <p>Which techniques of knowledge recording / distribution / use can / should be applied?</p>
Overview and assessment of the relevance of tools and systems of knowledge management, dependent on requirements.	Decision guidance when/how/which tool and system can be used dependent on requirements.	What sort of tools and systems of knowledge management such as yellow pages, communities, best practices and the like can/should be used?

Step 3: Pilot schemes for knowledge management in e-government

The immigration office of Basel-Stadt is planning a complete reorganization of its customer services, called a "one-stop-shop". Instead of the traditional separation between Swiss and foreign customers, a three-stage model consisting of a front office, an inquiry office and a back office is envisaged. In the medium term, other services of the cantonal administration are also to be integrated. The goal is to create a multifunctional contact point in which the "guichet basel" – a virtual access point as one of various access channels to the administration services – is to be integrated. The clerks in the front and inquiry office will have to supply knowledge-intensive services. Their "mode of operation" will change drastically in a few years. They have to rely upon an informative, effective and user-friendly knowledge base. The connections with business processes and knowledge management are obvious. Business processes and knowledge management have to assist the immigration office in setting up the "one-stop-shop" both from the methodological point of view and by making available appropriate tools.

(Sub-) goal / contents	Results	Key questions
Field validation of knowledge management for e-government.	Methodological support of the immigration office at the creation of the one-stop-shop. Field report allowing inferences to be made about the concept of knowledge management. Integration of results/experiences into the concept.	How does the Knowledge Management Concept support the chosen pilot project? How should the concept be improved with regard to the experiences?

Step 4: Distribution of the results

(Sub-) goal / contents	Results / milestones	Key questions
Specific concept of implementation for an organization-wide introduction of knowledge management in the canton Basel. General guidance for an implementation concept in the public sector.	Specific concept of implementation for the canton Basel-Start Framework for the implementation of knowledge management in the public sector.	Which are the success factors for an organization-wide implementation of knowledge management? What are the key components for a successful framework of knowledge management in the public sector?

4 Conclusion

In the present paper we pointed out that knowledge management in e-Government is a critical factor for e-Service delivery. An outline has been discussed showing the technical and conceptual interplay of knowledge management and e-government. Therefore a conceptual approach for knowledge management within e-Government has been presented. Further research work is ongoing on the basis of the presented approach. Currently we work on the design and realisation of a knowledge basis according to the proposed business process and knowledge management within e-Service Delivery.

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