Model Based Identification and Measurement of Reorganization Potential in Public Administrations – the PICTURE-Approach

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Abstract

Public administrations are faced with a modernization and performance gap. On the one hand citizens and companies have increasing requirements. On the other hand the financial and human resources remain static or even decrease. In recent years public administrations tried to counteract with reengineering their business processes. However, it is observable that reengineering projects in public administrations have a too narrow focus as they concentrate on a small subset of their overall processes. In this paper we claim that significant progress in the identification and measurement of reorganization potential can only be achieved by including the majority of all administrational processes – the process landscape. Therefore, we propose a method architecture which is capable of two things: Firstly, it supports a distributed modeling process across a whole public administration in order to capture the process landscape. Secondly, it is able to estimate the reorganization potential within the process landscape based on an analysis model. A working example derived from a currently funded EU project is supplemented in order to demonstrate our approach and to make it more comprehensible to the reader.

Keywords: Methods and tools for assessment, Methods and tools for eGov research, Process design and change, Method engineering, International and regional projects

1. Introduction

Municipal administrations are facing new challenges like cost reduction, more administrational tasks delegated from federal and state governments, and an increased service level demand of citizens and companies. Especially municipal administrations must cope with decreasing tax revenues forcing them to rethink their resource allocation and to reduce costs.

Therefore, the efficiency and performance of public administrations have been in the scope of many research and consultant activities.
The major part of administrational tasks is mandatory for municipal public administrations as it is specified by higher administrational levels. Municipalities have only small influence on designing their service portfolio – the "what to provide" – for citizens and companies. Therefore, modernization projects mainly focused on the analysis and identification of reorganization potential of those administrational services and their underlying internal administrational processes. These projects adopted the paradigm of "Business Process (Re-)Engineering" from the 90th (Davenport 1993; Earl 1994; Hammer 1990; Hammer et al. 1993). By combining the reorganization of administrational structures and processes with the introduction of supporting information and communication technology (ICT) public administration decision makers try to raise process efficiency.
The common municipal administration service portfolio includes more than 1,000 interconnected and interdependent services and underlying processes for citizens, companies, and other administrational parties. Furthermore, there exists a vast number of ICT reorganization measures including e.g. application systems for document management, workflow management, e-payment, digital signature, archiving, enterprise application integration, and web-portals. Because of this inherent complexity of the process landscape and the set of ICT reorganization measures, decision makers are faced with the problems of identifying adequate application areas within the process landscape and measuring the potential benefits of those ICT reorganization measures. Both tasks – identification and measurement – are needed in order to plan large scale reorganization projects and to provide a sound strategy for justifying ICT investments to the political leaders.
In this paper we present a method architecture for supporting decision makers in identifying and measuring reorganization potential of E-Government infrastructure ICT within the process landscape of municipal public administrations.
In the next section we review the generic process-oriented reorganization approach in the public sector and present the insights we have gained from its application. We identify shortcomings of this common procedure. Based on the identified issues we derive requirements, which should be addressed by a method for assessing reorganization potential. In the subsequent section an architecture of an adequate method – called PICTURE – is proposed. In the subsequent section we show that this method architecture meets the previously derived requirements. We demonstrate the PICTURE method in form of a working example in the following section. The paper concludes with a short summary of our results and an outlook to future research activities.

2. The Generic Process-oriented Reorganization Approach in the Public Sector

Administrational processes within a public administration can be structured on an abstract level by using an administrational process framework. This framework divides the structures of the administration based on the process oriented paradigm and clarifies the relationships between its individual parts. Figure 1 shows such a framework adopted by ALGERMISSEN which was designed based on empirical work in the context of process modeling in municipal public administrations (Algermissen 2004).
The core processes are directly connected to the environment consisting of citizens, companies and other administrations. Those can be divided into operative and strategic processes. The core processes are well structured, responsible for the major number of process

instances, and allocate major resources of the administration. Therefore, process-oriented reorganization projects and our presented approach focus on this group of processes. Supporting processes are not directly connected to external stakeholders but are immanent for executing the core processes. Therefore, those processes are also included in the selected focus.

The majority of the spectrum of administrational tasks is prescribed by law and can contain more than a thousand different services and underlying administrational processes (Algermissen et al. 2005). Because of this high number common process-oriented modernization projects apply the following generic multi-step procedure (Becker et al. 2003a; Becker et al. 2003b; Hagen 2000):

1. Identification and pre-selection of processes with potential to be reorganized
2. Detailed as-is observation and modeling (documentation) of pre-selected processes
3. Analyzing processes for weaknesses and definition of reorganization measures
4. Organizational and technical implementation of reorganization measures
5. Monitoring of reorganized processes and continuous process improvement

The first step aims at gathering process information efficiently in order to roughly estimate the reorganization potential and the effort to spend for its implementation. Combining both estimations will result in a pre-selection of processes for further investigation. Possible criteria and an exemplary two-stage procedure for this pre-selection are presented in (Algermissen et al. 2005) and (Becker et al. 2004). A portfolio method is used to classify the processes in the first-stage. There are similar approaches from different authors which differ in the choice of dimensions but basically have the same goal (Budäus et al. 1999, pp. 155). In the second stage, the process complexity is analyzed more thoroughly by using extended analysis criteria, like organizational complexity, technological complexity, formal complexity and application complexity.

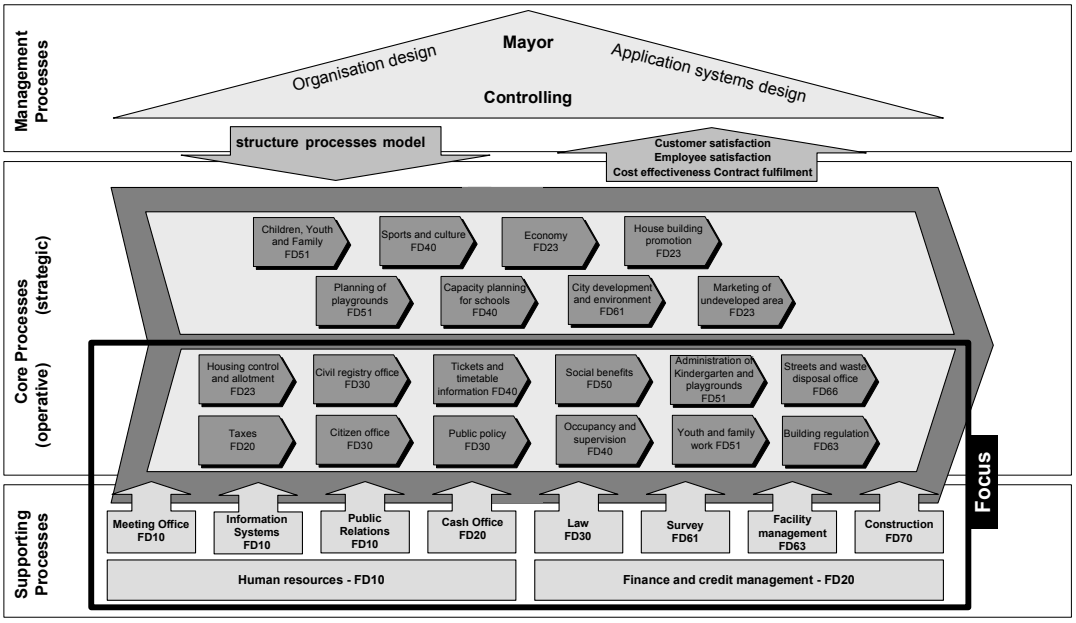

Fig. 1. Administrative Process Framework

The following detailed as-is observation and modeling of selected processes (cf. step 2) are commonly performed by using open expert interviews with clerical assistants and executive officers (Heinrich et al. 2004, p. 340). Besides the actual structure of processes, relevant administration specific terms and the organizational structure are gathered within the interview. Afterwards, the captured textual process information is commonly transferred to conceptual process models. Modeling techniques for the use of process documentation are e.g. the Event-Driven Process Chain (EPC) (Scheer 2000), selected UML diagrams (Marshall 1999) or Petri-Nets (Desel 1998). The modeling process is usually supported by certain modeling guidelines to ensure syntactic and semantic consistency (Becker et al. 2000).

The following step (cf. step 3) comprises the detailed analysis of the conceptual process models and the identification of reorganization measures. Because of the semantic degree of freedom within the process models and the complexity of reorganization measures, this analysis is commonly performed manually. Common known weaknesses are media breaks, redundant administration of used data within the process, redundant work steps, and deficient functionality of already used software, organizational barriers and unnecessary waiting time (Davenport 1993; Eversheim 1995, p. 143; Krickl 1994, pp. 28; Schulte-Zurhausen 2002, p. 353).

The steps four and five – implementation of reorganization measures, monitoring and continuous process improvement are beyond the scope of this paper.

The following insights have been collected within process-oriented reorganization projects which have been performed according to this procedural model. Significant contribution was delivered by the project “Regio@KomM”. Regio@KomM aimed to realize electronic citizen services for the public that offer an added value for connected administrations, companies and citizens. Within the project nine different administrational services were analyzed in six municipalities resulting in 22 process models and process analyses. The weakness analysis of the detailed as-is models revealed the following insights concerning the current effectiveness, efficiency, and ICT support of different types of process activities (Becker et al. 2005):

1. *"What is done" revealed no significant potential for change.* While analyzing the necessity of activities no significant reorganization potential could be identified. However, redundant activities could be found, i.e. activities that are not necessary because their intended effect is already realized by another activity.
2. *"How it is done" revealed significant potential for change.* By analyzing the possibility of alternative realizations of activities substantial reorganization potential could be identified. An alternative realization of an activity is directly assigned to a reorganization measure. The use of ICT was mainly involved in defining those measures, e.g. the utilization of a digital signature instead of a physical signature is just an alternative, more efficient realization of an single type of activity.
3. *Infrastructure ICT is significantly less prevalent than specialized software products.* Regarding the diffusion of ICT two facts were observed. Firstly, specialized service application systems are broadly used, i.e. application systems that exactly support activities unique to a special administrational service (e.g. building applications). Secondly, there is minor diffusion of infrastructure ICT for service-unspecific tasks and supporting activities. Those E-Government infrastructure systems, e.g. Workflow Management Systems, E-Payment Systems, or Digital Signature Systems, possess a broad area of application within the entire process landscape of an administration. For that reason, more efficient alternative realizations of service-unspecific and supporting activities by the use of those infrastructure systems revealed significant reorganization potential.

Based on those insights we argue that the presented common procedural model is neither effective nor efficient for the purpose of identifying and measuring the potential of E-Government infrastructure ICT for the following reason: The pre-selection and in-depth single process analyses (cp. steps one and two) are performed under the presumption that significant reorganization potential is induced by the unique characteristics of single services and their underlying processes. However, our insights show that reorganization potential lies within alternative ICT realizations of service-unspecific and supporting activities by the use of E-Government infrastructure ICT. This discrepancy results into the following problems:

(P1) *The overall reorganization potential of the entire process landscape is not transparent.* The identified reorganization measures mainly include the usage of infrastructure ICT. Application of these systems is reasonable to most services within the process landscape. As only single processes are analyzed the overall reorganization potential on the whole process landscape remains undiscovered. Calculation of the overall benefit of those measures is not possible with single process analyses. As these calculations are mandatory for reasonable decision making processes in public administrations large investments into reasonable infrastructure systems remain undone.

(P2) *Similar fields of reorganization remain undiscovered.* Reorganization measures for structural comparable processes are not applied together. Economics of scale of reorganization measures can not be exploited. As E-Government ICT infrastructure is resource consuming those economics of scale are important in order to justify investments.

(P3) *Process observation and as-is modeling (cp. step two) is performed uneconomically.* Expert interviews with administration staff are resource consuming and focus on service-specific details. However, service-specific details and corresponding activities within process models did not reveal significant reorganization potential. Summarizing,

resources mobilized for process information gathering and modeling did not pay off in the process analysis phase.

Summarizing, as the benefits of E-Government infrastructure ICT are of transversal nature we propose the need for an alternative method for identifying and measuring reorganization potential. Nevertheless, we do reject the "process-oriented" paradigm in general but suggest alternatives concerning the used methods, constructs, and procedural model. Resulting from the presented insights and identified problems we derive the following requirements for an alternative method:

(R1) *Process-Landscaping Capability:* The method should be able to cope with the overall process landscape of a public administration, because reorganization potential primary lies within the use of supporting infrastructure ICT and is spread over the whole organization.

(R2) *Domain-Expert Modeling Capability*: Modeling the overall process-landscape requires extensive *resources*. Therefore, direct involvement of domain-experts who possess the process knowledge is proposed. The domain-experts must be enabled to model their processes themselves.

(R3) *Unequivocal Interpretation of Modeling Language Constructs*: Domain-experts modeling processes must agree on the semantics of the modeling language constructs. Because domain-experts are not method experts the semantics of modeling constructs must be easily understandable and self-explanatory.

(R4) *Economic Modeling Capability*: The proposed process-landscaping capability (R1) induces the need for an economic modeling process. Conceptual process models are economic if they fulfill two criteria. They must include all information needed for later reorganization measure identification and assessment (Completeness Criteria). They must only include information that is needed for identification and assessment (Exclusivity Criteria).

In the next section we will propose a method architecture which addresses the requirements R1-R4.

3. Architecture of the PICTURE Method

The method architecture we present here is called PICTURE and aims at identifying and assessing the reorganization potential of infrastructure ICT based on an analysis of the entire process landscape of a public organization. The architecture of the PICTURE method is described in Fig. 2.

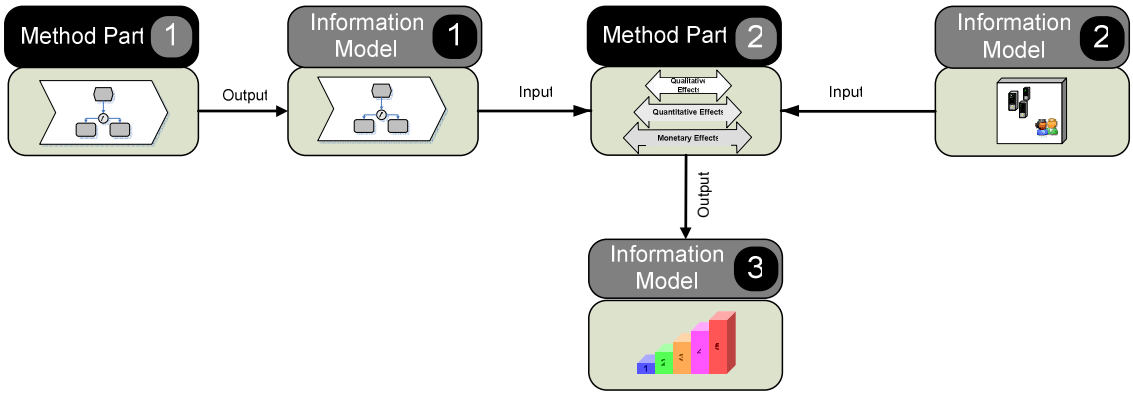

Fig. 2. Architecture of the PICTURE method

The basic structure of the PICTURE method architecture is formed by two perspectives. The *first perspective* is concerned with the description of the entire process landscape and the identification of weaknesses its processes. The *second perspective* aims at providing appropriate reorganization building blocks which can be applied to the identified weaknesses. For this purpose the qualitative and quantitative impact of the reorganization building blocks under diverse circumstances is specified.

The *first perspective* of the PICTURE method is addressed by *method part 1*, which deals with the acquisition of all relevant information in the application domain. *Method part 1* is an information modeling method. During the application of *method part 1* the processes of the public organization are documented by using predefined, domain specific process building blocks from a repository. Possible process building blocks are for example "Incoming Application" or "Enter Data into IT". Each process building block disposes of a set of attributes, which can be filled with the specific values of the process under investigation. An example of an attribute of the process building block "Enter Data into IT" is the duration in minutes it takes to enter the data. The attribute values serve as basis for the identification of appropriate reorganization measures and the calculation of the reorganization potential. The result of the application of *method part 1* is provided by *information model 1*, which describes the current structure and properties of the process landscape of the public administration under concern.

Information model 2 stands for the second perspective. It comprises and structures the reorganization building blocks and contains the knowledge under which legal, organizational and technical conditions a certain reorganization building block can be applied. Reorganization building blocks are infrastructure ICT based measures in order to approach weaknesses in the process landscape. They can exist at different levels of granularity. Whole applications, application types as well as functions can be represented by reorganization building blocks. *Information model 2,* which contains the reorganization buildings blocks, is a permanent part of the PICTURE method. It has been created based on the experiences of multiple reorganization projects in the public administration (Capgemini 2004; Millard et al.) and data on the impact of ICT reorganization building blocks provided by vendors and researchers (FileNet 2005). *Information models 2* is only adapted if a new reorganization building block relevant for the public administration is identified or new information on the performance of an existing building block becomes available.

Method part 2 combines the two perspectives. By using *information model 1* as an input it deals with the identification of weaknesses in the process landscape. For this purpose it analyzes the process building blocks used in *information model 1* and evaluates their attribute values. Table 1 lists some examples of common weaknesses types in the public administration (Becker et al. 2005), which can be identified by the PICTURE method.

Weakness Type	**Description**
Media breaks (MB)	A media break is a mostly unwanted change of representation of information within a process.
Redundant data management (RDM)	Redundant data management means to keep identical data multiple times.
Redundant process steps (RPS)	Redundant process steps occur whenever certain fragments of a process are repeated several times.
Missing software functionality (MSF)	Missing software functionality can be identified when not all process steps capable of being automated are represented by a program.
Organizational breaks (OB)	An organizational break denotes the unwanted transition of a process from one organizational unit to another.
Transport and idle times (TIT)	Idle times mark the period when a task is assigned to an employee but is not yet processed by this agent. Transport times measure the duration of forwarding an activity from one employee to the next.

Table 1. Description of weakness types

Method part 2 applies *information model 2* in order to establish a mapping between the identified weaknesses and the ICT reorganization building blocks. Table 2 contains some examples of ICT reorganization building blocks which are relevant for the public administration with their corresponding weakness types. These reorganization building blocks are described in *information model 2*. During the application of *method part 2* it is examined whether a certain reorganization building block meets all legal, organizational and technical requirements in order to be applied on a certain weakness. If a reorganization building block and a weakness match up, the reorganization potential of a particular infrastructure ICT is calculated. In this context the attribute values of the processes documented in *information model 1* are examined and a result for the entire process landscape is estimated.
The result of the application of method part 2 is described by information model 3. It contains the calculation results of the estimated reorganization benefits of the public administration in a qualitative and quantitative form. Thus, information model 3 provides the basis for a management decision whether the purchase of a certain ICT is efficient as well as effective for an organization.

Reorganization Building Block	**Description**	**Weakness Type**
Virtual Post	A virtual post office is an application which	MB, MSF

Office	enables a secure, traceable and confidential communication.	
Payment System	A payment system is an application which allows a secure, traceable and confidential transfer of money over an electronic medium.	MSF
Workflow Management System	A workflow management system is an application which supports business processes by rule based forwarding of documents, information, and tasks.	MB, RPS, TIT,
Document Management System	A document management system is an application which facilitates the storage, search, versioning as well as archiving of unstructured documents.	RDM, RPS
Delegation of signature authority	As far as this complies with the law, documents are no longer signed by a superior organizational unit but by one or more employees on the same hierarchical level.	MB, RPS, OB
One-Stop front office	Application forms are accepted by a central office and forwarded to other organizational units.	OB, TIT

Table 2. Reorganization measures and weakness types (Becker et al. 2005)

An application of the PICTURE method always starts by employing the modeling method in order to generate an artifact which describes the current process landscape and covers its properties (*information model 1*). Then, the calculation method uses *information model 1* as well as the knowledge on the reorganization building block model stored in *information model 2*. These two models serve as input to determine the reorganization potential of the organization which is in turn documented in *information model 3*. The overall result of the method is a qualitative and quantitative forecast on the reorganization potential of certain reorganization building blocks. This forecast is based on a coarse-grained analysis of the process structure of a public administration.

4. Advantages and limitations of the PICTURE Method

In the PICTURE method the analysis of the organization is performed by a coarse-grained description of the business processes. Coarse-grained means that the modeling language does not contain constructs for refinement of model elements and does not permit ramifications. A coarse-grained modeling does not aim at disclosing all details of a process but at explicating its main structure. This provides the following advantages over a classic, detailed form of representation:

- *The information acquisition is efficient and the documentation of the process landscape remains maintainable.* As a result, compared to classical approaches, a much smaller information quantity per process is needed and by applying the same modeling resources significantly more processes can be acquired. At the same time these processes remain maintainable, because structural changes in the environment of a process have greater effects on detailed descriptions than on coarse-granular representations. Thus, the modeling is economic and meets requirement R4.

- *Reorganization potential can be identified process over-spanning.* As the information acquisition is performed economically the analysis is no longer restricted to a certain set of processes as in the case of the classical approach. Rather, it is possible to purposefully describe the entire process landscape which fulfills requirement R1.

In order to document the business processes in the PICTURE method a domain specific modeling language (van Deursen et al. 2000) is applied. This language differs from traditional approaches to process modeling, e. g. Event-Driven Process Chains (EPC), by a set of modeling constructs which are specifically designed for the public administration sector. EPCs contain modeling language constructs as events or functions, which are instantiated in the models and provided with concrete denotations (Mendling et al. 2005). The modeling language of the PICTURE method applies a set of predefined, reusable modeling language constructs, the process building blocks (Bertram 1994). By employing process building blocks the modeler is specifically restricted in his expressive power as only predefined means of articulation can be used. The employment of process building blocks provides the following advantages:

- *The comparability of process models is facilitated.* By a set of predefined modeling language constructs the degree of freedom of the modeler is restricted. Thus, a homogeneous modeling of processes with a similar structure is fostered. Simultaneously, naming conflicts which occur during a model comparison process due to divergent denotations are effectively reduced (Pfeiffer et al. 2005). The comparability of processes is of particular importance as it provides the foundation of a process over-spanning identification of weakness types and thus the realization of concrete reorganization benefits. The avoidance of comparison conflicts improves the interpretability of the model and thus meets requirement R3.
- *From the perspective of a representative of the public administration domain the modeling is significantly simplified.* The restriction of the modeling language constructs and the adoption of the domain terminology increases the acceptance of the modeling language among the employees of the public administration (Luoma et al. 2004). This allows a delegation of the modeling task to employees of the public administration. A specially trained method expert is no longer required. Therefore, requirement R2 is also fulfilled.

These advantages of the PICTURE method compared to the classical approach of process modeling arise from a theoretical analysis. However, also some limitations of the approach can be derived:

- *The PICTURE method does not allow for detailed single process analyses.* The focus of the method is an examination of the entire process landscape. As the domain is described in a coarse-grained way, no detailed data on a single process is acquired. Therefore, the information is not sufficient to decide whether the internal structure of the process could be optimized.
- *Decision processes cannot be represented by the PICTURE method.* As the domain is modeled by predefined process building blocks only structured and repetitive processes can be described. Decision processes are mostly unique and unstructured. Therefore they are not suited for the PICTURE approach.

- *The PICTURE method relies on the support of the employees.* As the domain experts are involved in the modeling of the processes, it is curial that they are motivated to reveal their knowledge. Without backup by the management as well as sympathy among the employees a project with the PICTURE method is doomed to failure.

The practical feasibility of the PICTURE method is demonstrated in a working example in the next section.

5. Working Example

Subsequently we present a working example of the PICTURE method with a special focus on how the different models and methods of the architecture interact. In our example the City of Muenster has applied the PICTURE method in order to develop an ICT strategy. Therefore, PICTURE has been used in the majority of the departments and divisions of Muenster in order to capture process information. To make the overall approach more comprehensible we focus on the analysis of only one representative process – the application for accommodation allowance with 5,000 cases a year. Figure 3 contains the working example of the PICTURE method.

The first step in the *modeling phase* (*method part 1*) was performed by an employee of the City of Muenster who composed the basic structure of his process by applying process building blocks from a repository. The set of available building blocks as well as their attributes were defined by the modeling method. As the building blocks are designed in a way that they cover all special features of the public administration domain, they are not process specific. They are standardized so that they can be reused throughout the organization to model a large quantity of processes. As a second step the modeler had to gather the relevant process knowledge by filling in the attribute values. The modeler could for example choose e-mail as the main channel for the building block "Incoming Application". In our example eleven building blocks have been selected. Together with their attribute values they form the process model for the accommodation allowance application (*information model 1*).

In the *measurement phase* (*method part 2*), certain ICT reorganization building blocks are linked to process building blocks based on a rule set specified in the calculation method. The repository of available reorganization building blocks has been specified once and can be reused for all upcoming applications of the PICTURE method (*information model 2*).

In our example, in the first line of figure 2, the process building block "Incoming Application" is linked to the reorganization building blocks "Web-Interface" and "Digital Signature". The two ICT elements "Web-Interface" and "Digital Signature" are combined here because they support the process most efficiently together. This is because the attribute value of "Signature Necessary" in "Incoming Application" is set to "Yes". This means, that the incoming applications can only be supported over the internet if all documents are signed electronically. The estimated usage rate – 5% in the example – tells something about the maximum level of expected user acceptance. 5% for using an online transaction in combination with a digital signature might be realistic here. The next columns give information about the possible qualitative impact of an ICT reorganization building block. The process building block "Enter Data into IT" (line 3) can be supported by a web-interface. In this process step, the citizen enters data directly into a system over the internet. This has two qualitative effects: there is no media break anymore which leads to a lower error rate. Time is also saved within the public administration as the 4 minutes for entering the data (compare attribute values) become obsolete.

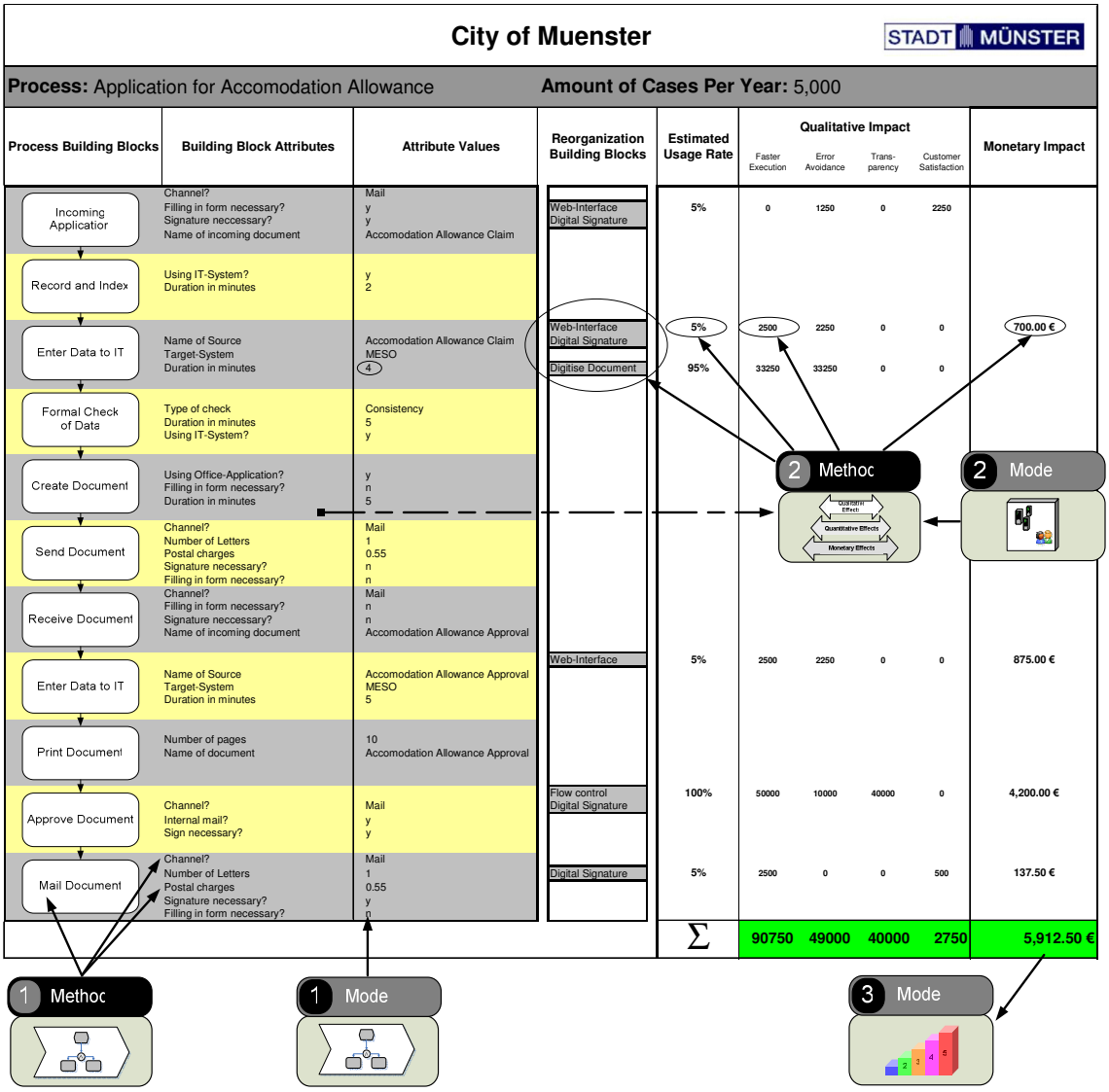

Fig. 3. Working example of the PICTURE method

The calculation of the reorganization potential is done qualitatively and quantitatively. In our example we evaluate each qualitative dimension on a scale from one to ten, and then multiply it with the number of cases and the estimated usage rate. Letting the citizen enter the data has a qualitative value of 10/10 for faster execution. Multiplying this by the number of 5,000 cases and the estimated usage rate of 5% delivers a value of 2,500. The monetary impact is calculated quantitatively based on the saved personnel time and hence cost. In this example 4 minutes with a cost of 0.7 €/min multiplied with the number of cases and the estimated usage rate of 5% explicates a potential cost saving of 700.00 €.

The resulting qualitative and monetary values can be analyzed in many ways. In our example we can only identify the potential benefit of a fixed set of ICT reorganization building blocks on one process. The total cost saving potential for the allowance application process sums up to 5,912.50 € per year. This information for itself does not deliver real business value as the necessary investments to implement the proposed ICT functionalities will be much higher.

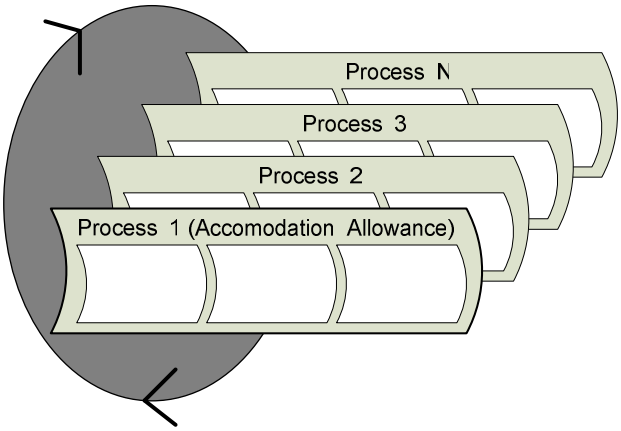

Fig. 4. Analysis loop for overall process landscape

Applicable results can be derived by repeating the procedure described above for all processes of the public administration (compare figure 4) and including the results of the analysis in the overall analysis model process by process (*information model 3*). Based on this model the following facts could be derived:

1. The total saving potential of all processes – focus: all processes
2. The total saving potential of supporting a certain process building block with a reorganization building block (e.g. supporting authentication with ICT) – focus: a certain process building block which is used in several processes
3. The total saving potential of a certain reorganization building block (e.g. optical archive) and the processes/process clusters it affects - focus: a certain reorganization building block

The PICTURE method delivers an integrated model of all processes from a certain public administration in form of a process landscape. With the building block approach it delivers clusters of processes which have strong structural analogies. PICTURE identifies potential ICT impact and reorganization potential per process cluster. Thus, the PICTURE method delivers a sound foundation for an ICT strategy.

6. Summary and Outlook

The modernization and performance gap in the public sector can be addressed by reorganizing administrational processes. This problem is well known from other domains. Within the industry and insurance sector there exists a variety of similar reorganization approaches which address this issue. So far these classical methods have been focusing on certain core processes which must be prioritized and selected from the total set of processes. In section 2 we identified several weaknesses of these classical approaches and motivated our goal to develop a method which allows for the identification of the reorganization potential of all processes within a public administration. In section 3 we developed a method architecture called PICTURE. In section 4 we have shown that the architecture fulfills the requirements stated in section 2. The working example in section 5 demonstrated the architecture and expressed its potential benefits in comparison to the classical process modeling approaches in the city of Muenster. These advantages are:

- The modeling of a large quantity of processes is made possible with standardized and reusable process building blocks.
- The process models created with the PICTURE method remain stable over a long period of time and can easily be updated.
- The PICTURE method explicates reorganization potential of the overall process landscape in a qualitative and quantitative manner.
- The PICTURE method provides support for a decision maker in determining a consistent ICT investment strategy.

Based on the results of this paper we can identify two main research tasks coming up: Firstly, the complexity of the PICTURE method requires software tool support. Secondly, as the picture method has not been subject of a broad empirical validation yet. The next step of research will be to evaluate the method in large public administrations in form of a case study.

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