Business reference model of the local self-government that uses process management

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Abstract. The objective of this paper is a brief introduction in the doctoral thesis of the author. The content of the thesis is the design of the structure for efficient management of the public administration. The author explores the options, how to combine the Enterprise Architecture elements with the business process management methodology MMABP. The output is the design of the optimal structure of the public administration office at the business level – Business reference model.

Keywords: enterprise architecture, business process model, business reference model, public administration.

1 Introduction

The subject of the doctoral thesis regards the Business process management and the Enterprise Architecture and the options of their application in the local self-government in the Czech Republic.

In comparison with the private sector, the local self-government (and public administration in general) has a much broader set of competences. This also generates much complicated requirements on the process, functional, organizational and technological structure of the local self-government bodies. Implementation of such a structure can however be simplified by a certain form of business process standardization and by using of the Enterprise Architecture elements.

The doctoral thesis therefore explores and proposes the options for usage of the process management (represented by MMABP methodology) based on the broader exploration of the very basis that the local self-government stands on and its combination with the Enterprise Architecture. The concrete output is the Business reference model (BRM) of the local self-government that uses process management.

2　Description of the subject area

The constitution of the Czech Republic defines local self-government as a management of the public matters at the local level. Subjects of the local self-government in CZ are municipalities, regions and the capital city of Prague, which is both the municipality and the region. Should we talk about the process management in the area of local self-government, we also have to understand the mission and the options of the public matter management that lie in the correct understanding and paying attention to the social and cultural environment everywhere where the citizens participate in the public life.

The process management (in the thesis represented by MMABP methodology) works with the idea that based on this philosophical level of local self-government (and public administration in general), it is necessary to define basic strategic areas that the local self-government should deal with. These areas are then followed by the key processes and other processes that support the key processes. Other aspects of the overall environment of the organization- services in particular- are derived from these processes and specifically from their interfaces.

There are many definitions used for the term of Enterprise Architecture (EA). Let us mention, for instance this one: „...holistic definition of the key strategies of the organization (business, information, application and technological strategy) that have an impact on the business functions and processes ...“ [1]. Current understanding of EA stresses its importance of the Business architecture level. Should we understand the business process as the base for the functioning of the organization, EA, thus approximates the concept of the process management in the meaning that is mentioned above. One of the goals of the thesis however is to stress that these two approaches do not have to compete with each other and that they possible advantages of their combination exist.

2　Current development in the subject area

2.1　Figures

In comparison with the private sector, the portfolio of activities of the public administration is much more diversified. The processes at the local level include more than one thousand connected and linked services and related workflows [2]. Despite the growing number of requirements on the public administration efficiency there still exisst not enough recorded best practice in the form of reference models or process registers.

PARMA project (Public Administration Reference Model Architecture) [3] was taking place under the lead of Prof. Řepa between the years 2003 and 2012 with the participation of a few tens of students of masters or doctoral type of studies on a couple of the municipal authorities of statutory towns. The objective of the project was to create the content architecture of the public administration (general reference model of processes and objects) by the application of MMABP methodology. The outputs of this

project served as a base for the process model, formed by the author. The work of the author continues after the results of the stage 16, aprox. 1 year before the end of the project, due to the fact that the following stages focused more on the life situations analysis more than the processes themselves.

Another relevant activity in this area is the Reference model of municipal authority management. Originally it started as a non-formal initiative of a few representatives of Czech and Slovak municipalities. The objective was to create the environment in which the proved municipality management procedures could be published, share and develop. The model has been cultivated in the years 2013-2014. In the year of 2015 the quarantee over the model has been handed over to CIEM (Český institute of effective management). CIEM completed the model with the management processes according to standard CIMAF®, integrated the basic set of quality assurance (CAF, MA 21, ISO 9001, PRINCE2®) and started the cooperation with the Czech Ministry of interior in the area of standardization of the agenda in the devolved activities [4].

The author is part of the working group that helps to develop the model and currently the below stated evaluation of her reference model is taking place with the potential usage in the CIEM model.

2.2 Process Management

The Business Process and the Business Process Management are the key terms of the thesis.

Most often we talk about the process management in the sense of Business Process Reengineering (BPR). According to the founders of this approach M. Hammer and J. Champy, it is an „elementary re-evaluation and radical reconstruction of the business process so that the dramatic improvement could be achieved from the view of critical performance measures as costs, quality, services and speed." [5] Another term used in this sense is BPM (Business Process Modelling), that can be understood as the „approach that deals with the process efficiency and optimization [6]. None of these terms depicts the process management in the way it is viewed in this thesis (represented by MMABP methodology). BPR is now already out-of-date term and the original thought about the radical processes reconstruction is being re-evaluated even by the authors themselves, BPM than in a simplified way „denies" its strategic role.

Nevertheless, the MMABP methodology principles are derived from the theoretical rationalization that is being presented, particularly by the mentioned authors of the BPR concept. These principles can be summarized as follows:

1. The only purpose of all meaningful actions of the organization are the needs of its customers,
2. the bases of all action in the organization are the business processes – time structure of the actions achieving the sole common goal – satisfying of the customers´ needs,
3. the only meaning of all organization infrastructures – both human and technological – is the support of business processes.

The author took a substantial part in the current survey of the status of the process management in the local self-government in Czech Republic, carried out in May and June 2016 with approx. 150 representatives of municipal authorities under the patronage of Ministry of Interior of CZ [7]. The purpose of the survey was to find out in a first place what is being understood by the term of the process management and what are the experiences with its implementation. The Business process management has been or is being implemented by 70% of respondents – out of which two thirds state that this implementation regards the partial changes with the use of Business process management. This is a significant shift from the survey carried out on the same topic in 2006 when the Business process management was implemented only by 23% of respondents. Unlike the previous survey, reference models appear among the particular used methodologies, yet significant number of responses stays in this sense on the quality assurance methodologies. The majority of respondents views the Business process management as a unification of the approach to the activity performance followed by the radical change in the management of the organization and use of technologies to the operation automation. The conclusion of the survey is the unambiguous growth of the awareness of the Business process management and its meaning to the local self-government of the Czech Republic. The efforts regarding the best practice formulation are therefore justified. to conduct.

2.3 Enterprise Architecture

Enterprise Architecture (EA) is already for some time been viewed as a strong tool for Business and IT alignment. It is proven for instance by the Infosys survey [8], that was dealing with the worldwide development of the EA use in the years 2008/2009 and according to which the Business-IT alignment is still considered as the main goal of EA. A typical representative of the framework that supports this alignment is the currently most used framework, TOGAF.

The interesting development in the EA understanding, however represent other places in the goals order in the mentioned Infosys survey, which are the process standardization and business and process flexibility on the second and the business transformation on the fifth place. This is a trend that confirms the shift in the EA understanding as a concept focused on the Business Architecture.

The author was searching in the area of EA a framework that would be as much as possible compatible with the requirements on the metamodel of the local self-government that uses a process management (resp. metamodel of MMABP methodology). These requirements are to a large extend fulfilled by the Archimate framework (compatible with TOGAF). Other relevant frameworks are national architectures – their metamodels and taxonomies. First of all, it is a national architecture of New Zealand (GEA NZ), followed by USA (FEAF) and Great Britain (UKRA). Last but not least, stay the efforts to create a National architecture of public administration of the Czech Republic (GEA CZ); comprehensive model of the application architecture has been presented in his doctoral thesis by Pavel Hrabě [9] and the effort further continues also in the area of business architecture. The author of this thesis consults its work also against these activities.

3   The goals of the thesis

The main goal of the thesis is in compliance with its name formed as follows:
The design of the EA reference model of the local self-government in the Czech Republic that uses the Business process management.

Furthermore, these partial goals have been formed:
PG1: To point out the importance of the implementation of the Business process management in the local self-government of the Czech Republic.

PG2: To define the relationship between the Business process management (MMABP methodology in particular) and the Enterprise Architecture and how to combine these two approaches.

PG3: The application and the evaluation of MMABP methodology in practice and an involvement of potential impacts into the methodology.

4   Methodological foundations and the process of the solution design

According to the fact that the work is primarily focused on the creation of innovative artifact, the logical choice was to use the scientific method Design Science Research. According to [10] the main purpose of the DSR method is to achieve a knowledge and understanding of the subject area by building and applying the designed artifact.

The mental procedure that eventually headed towards the creation of the reference model of the local self-government can be best mapped on the process model stated by Vaishnavi and Kuechler [11]. This model divides the DSR model in the following phases:

1. Awareness of the problem
2. Suggestion
3. Development
4. Evaluation
5. Conclusion

4.1   The method application within the process of the work

The following text maps each phase of the above mentioned procedure on the particular mental process and on the steps carried out within this thesis in a couple of iterations.

The progress of the work and the derived structure therefore reflect the deepening knowledge of the topic and the growing cognition level and its impact on the defined problem modification within time. The author views such an approach of admitting a certain mental shift as maximally transparent and enabling the content of the work to be fully compatible with the chosen methodology

4.2 The design of the EA reference model of the local self-government of the Czech Republic that uses process management (1st iteration)

Awareness of the problem
The awareness of the problem works on the consideration that the local self-government of CZ has its specifics (compared to the private sector but also to the state administration) and deals with the significant number of particular difficulties. Its optimal functioning could however be improved by some form of process standardization and overall local self-government structure in general. The problem has been formulated as follows: *The local self-government does not work optimally and it is necessary to find or design an appropriate concept for the CZ environment in the form of reference model.*

Suggestion
In this part, the author has been considering the form of the reference model. The Business process management would be able to react on the specifics of the local self-government, therefore the model should be based on the Business process management. As we speak about the overall architecture, it should be the reference model of Enterprise Architecture. The suggestion has been formulated as follows: *It is necessary to find or design the reference model of the Enterprise Architecture based on the Business process management that sufficiently reacts on the specifics of the local self-government in CR.*

Development
The development of the reference model in this iteration followed this process: the author first designed simple metamodel that respects basic requirements on the reference model of the local self-government of CR that uses process management and then compared the model with the offer of relevant EA frameworks in order to find an appropriate EA framework that could be used as a reference model.

The conclusion is that *the whole range of resources for the concept of EA of the local self-government exists, however, current frameworks do not offer a reference model for the self-government that sufficiently reacts on the Czech local self-government specifics – reference process and services model in particular.*

4.2 The business process model design (2nd iteration)

Awareness of the problem
Based on the first iteration, the problem has been formulated as follows:
For the definition of the reference model of Czech local self-government, it is possible to use the elements from a couple of EA frameworks, their usage for the application of the business process management for the business architecture layer in the sense of an actor of the change is however limited. It is therefore necessary to combine these elements with the Business process management methodology (if it is possible) and thus create the reference process and service model.

Suggestion

Based on the study of MMABP methodology and relevant EA frameworks, the author proved that the combination of EA elements with the MMABP methodology is possible in principle. The suggestion in this phase has been therefore formulated: *The „to-be" reference model will be based on the MMABP methodology (for the segment of the key activities of the local self-government) and further national reference architectures (for the segment of servicing activities – the activities non specific for the self-government practice).*

Development

The development in this part concerned the creation of the reference process model which comes out from the strategic goals stated within the initial analysis of the Parma project and which is created by repeated application of the basic principles of MMABP methodology on the material gathered and elaborated in the Parma project. The result is a model at the process level, that is, unlike the Parma model, consistently elaborated and completed.

The process model in this iteration confirmed that the MMABP methodology is an optimal base for the process part of „business architecture". In order to create the overall business model, including the segment based on the national reference architectures, it is necessary to find a common entity for both segments and thus formulate the overall Business reference model (BRM).

4.2 The overall Business reference model design (3th iteration)

Awareness of the problem

The reference model of the processes and services is appropriate for the key activities segment, for the overall model it is necessary to find common entities and create the overall BRM.

Suggestion

Based on the definition of the local self-government services, national architectures analysis and other sources regarding the capabilities, the *BRM structure has been designed with the 3 levels of taxonomy that use the same entities both for the key and the servicing segment.*

Development

The model has been completed in this part in both segments in the structure proposed in the previous chapter.

Evaluation

The objective of this phase is the BRM validation:

1. The validation of the basic premises of the process model against the outputs of the project Life situations analysis (carried out by Prof. Řepa at the Ministry of interior), which in principle aims at the similar area of interest.

2. The BRM validation against the process model of the city of Kopřivnice.

3.The validation and the application of the output within the CIEM Reference model of municipal authority management

Development
The Evaluation results have been elaborated in this phase in the BRM.

5 The results up to now

5.1 Principles

The input to the reference model is a MMABP methodology and the processes identified based on this methodology in Parma project, based on the basic principles of the Business process management. The reference model is further significantly influenced by the own analysis of the author and the analysis and completion within the model validation (Life situation analysis, CIEM Reference model, process model o Kopřivnice)
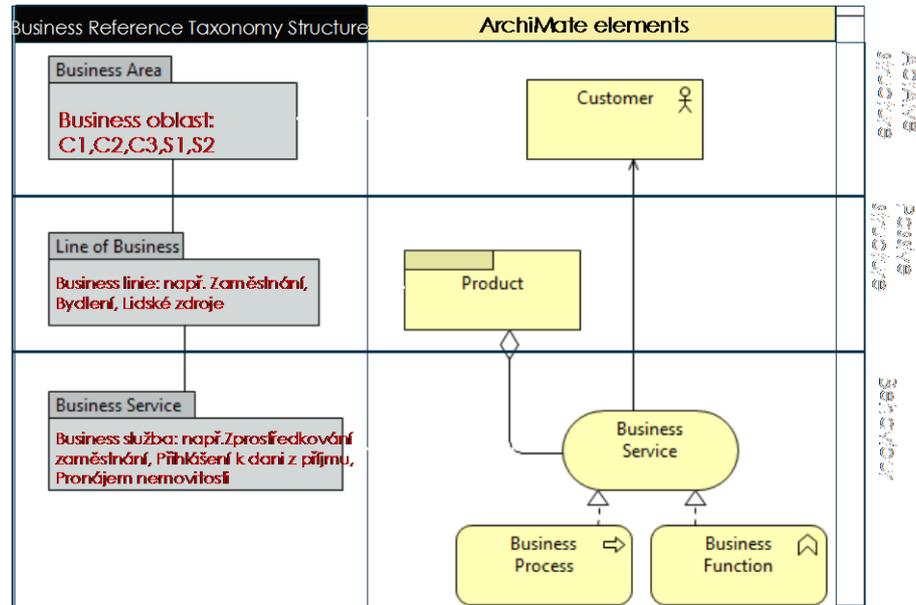
Two main areas of activities have been identified: the key segment and the servicing segment. The customer of the servicing segment is the local authority. The key segment has three customers: physical person, business and the public interest. Consistently with this division of customers the key segment can be divided into three areas: Services for citizens, Services for business and the Environment development.

The elaboration in the form of business processes is most relevant in the key segment. The key process uses for its operation supporting processes that can have a cross-sectional character (they are reusable)

The needs (resp. status) of the process customers define the products of the authority. The business processes/services themselves are defined by the life situation of the process customer in relation to the life cycle of the relevant product.
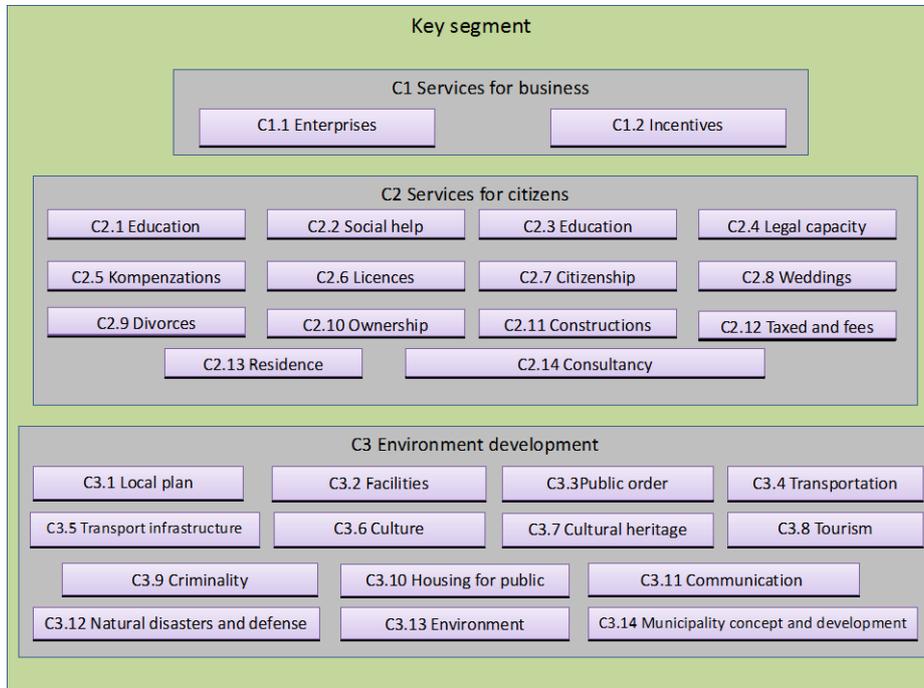
5.1 Metamodel

The basic metamodel maps the ArchiMate elements on the Taxonomy structure.
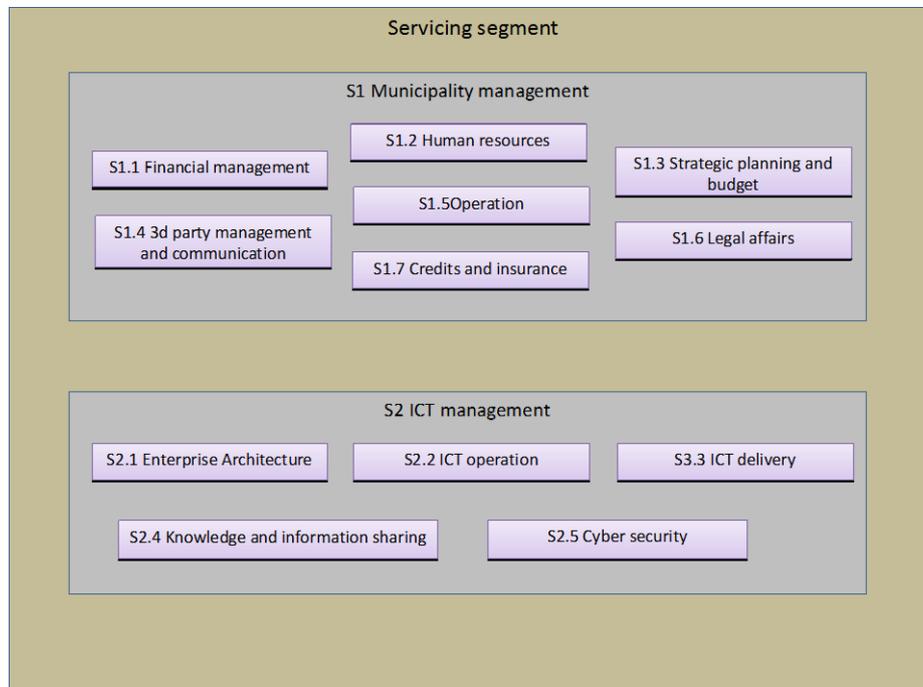

Fig. 1. The Metamodel of the EA of the local self-government that uses process management (source: Markéta Zimmermannová).

5.1 Taxonomy

The taxonomy so far has been set at the level of the Line of Business both for the key and servicing segment. Detailed Business Services (level 3 of taxonomy) have been set for the key segment, currently the author is working on the level 3 for the servicing segment.

Fig. 2. The reference model taxonomy for the segment of key activities (source: Markéta Zimmermannová)

Fig. 3. The reference model taxonomy for the segment of servicing activities (source: Markéta Zimmermannová).

6 Conclusion

The goals stated in the thesis have already been partially achieved. Regarding the main goal - The design of the EA reference model of the local self-government in the Czech Republic that uses the Business process management - the metamodel and the overall high level taxonomy has been created and also the detailed taxonomy for the key segment. Partial goals 1 and 2 have been proved in the thesis by carrying out an own survey and by study of the relevant materials and by the thorough cooperation of the Business process management approach with the Enterprise Architecture approach.

The impacts on the MMABP methodology have to be further considered, as the approach of the author has been to a wide extend influenced also by other approaches (EA frameworks, other Business reference models in public administration).

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