

Configurable Reference Process Models for Public Administration

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INTRODUCTION

For the last couple of years public administrations increasingly face a modernization and performance gap which they try to close by reorganizing their processes. Reference models can provide added value in improving those processes and procedures. Their main characteristics, the storage for domain knowledge and their universal validity, create a high potential for reuse and therefore allow for the exploitation of synergies and the reduction of unnecessary tasks and redundancies. In order to reduce the amount of resources for adapting reference models to regional specifics the application of configurable reference models is especially useful and proposed in this article.

BACKGROUND

During the last years public administrations have started to focus on their processes (Falck, 2002, p. 137; Lenk, 1997), and with the increasing diffusion of electronic government (Becker, Algermissen, Delfmann, Falk, & Niehaves, 2004a) a rising number of reorganization projects have been started to close the modernization and performance gap (Budäus & Schwiering, 1999, p. 145). Information models have proven to be an adequate solution to cope with the complexity of these reorganization projects. In order to reduce the modeling expenses on the one hand side and to allow for a reuse of existing “best-practice” or “common-practice” models on the other side the application of reference information models has been discussed in the domain of public administrations more thoroughly (Lenk, 2002).

This is especially true for the European public domain. Therefore, this article focuses on the given EU context and takes Germany as an example. In Germany—especially on a local level—the potential for a transfer of reference solutions is very high because a quite regulated legal framework creates a high level of task similarities and structural analogies between the 14.000 different municipalities.

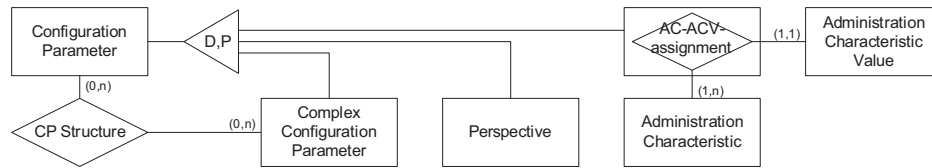
Existing contributions of the literature mainly formulate universal reference frameworks which do not take into account different process variants that are specific to certain administrations (Lenk, 2002). But there are certain variations in public administrations that are caused by the federal system which implies having different laws and regulations on a state, regional and local level. The application of reference models for public administrations therefore requires an adaptation to regional and local specifics.

First, this causes an additional customization effort for an administration using a reference model. Second a general increase of maintenance effort can be expected for all users of the reference models when changes in laws and regulations make a revision necessary.

A good idea to reduce the efforts mentioned is to consider regional specifics during the construction phase of reference models. This approach leads to an increased customization effort for the creator of the reference model.

However, the additional effort can be partly compensated through effects of scale, which are created through the applicability of different model variants for a large number of public administrations. In this context an additional requirement is a non-redundant integration of variants in the reference model as the public domain is faced by continuously changing laws and regulations.

Figure 1. Configuration parameters



Regular adjustments in redundant models create a non acceptable effort, especially when adjustments consider a lot of different models as it is the case in the domain of public administrations.

If reference models integrate different variants free of redundancies adjustments are only necessary once. The relevant variants for a specific administration should be easily derivable from the existing reference model by automatic methods. One example could be to select a certain state and hence deliver the process variants including specific state regulations. The main goal of this contribution is to apply an existing approach for a redundancy free management of variants in reference process models to the domain of public administrations. Hence we follow the demand for cheap but high-quality information models.

CONFIGURATIVE REFERENCE MODELING AS A FOUNDATION FOR THE MANAGEMENT OF VARIANTS

In order to integrate variants into reference models as well as to generate these variants automatically based on adaptation criteria, the concept of configurative reference modeling is considered as an adequate approach (Becker, Delfmann, Dreiling, Knackstedt, & Kuropka, 2004b). Configurable reference models contain rules that specify which model elements and model sections are relevant for which application context. Non-relevant model sections are hidden. On this basis, model variants can be generated by performing configuration mechanisms that are dependent on specific criteria (configuration parameters) (Becker et al., 2004b). Configuration parameters can be specialized in administration characteristics and their values (AC/ACV), perspectives as well as complex configuration parameters that are both based on perspectives and AC/ACV. This interrelation is illustrated in Figure 1 as Entity-Relationship Model (ERM, cf. Chen, 1976).

An administration characteristic can be represented by the affiliation of a certain administration to a federal state or by the number of inhabitants. Perspectives consider that different user groups are characterized by different requirements according to the conceptual and representational format of the used models (Darke & Shanks, 1996; Rosemann, 1998; Rosemann, Schwegmann, & Delfmann, 2005).

In order to reduce the modeling complexity both for reference model developers and reference model users, it is reasonable to provide configuration mechanisms with different impacts on the models. Therefore, configuration mechanisms that operate on models and those that operate on the modeling language are distinguished (Becker et al., 2004b):

- **Model Type Selection:** Model types represent result types of special modeling languages. The relevance of model types is dependent on the actual perspective. For example, different user groups prefer different modeling languages in order to model the same circumstance. The configuration mechanism of model type selection provides the perspective-specific selection of model types and hiding of those that are not relevant for the actual perspective.
- **Element Type Selection:** This mechanism admits the building model type variants. Model type variants differ in the number of valid element types and thus in their expressive power. Users from different perspectives naturally prefer model types with a different expressive power (e.g., due to their different skills).
- **Element Selection:** Element selection allows the assignment of single models, model sections or model elements to configuration parameters. For example, for cities with different inhabitant numbers, different branches of administrative processes are relevant. Non-relevant branches can be faded out by applying element selection.



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