Requirements Based Evaluation of eGovernment in the Large

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ABSTRACT

An increasing level of cooperation between public administrations nowadays on national, regional and local level requires methods to develop interoperable eGovernment solutions and leads to the necessity of an efficient evaluation and requirements engineering process that guides the establishment of systems and services used by public administrations in the European Union. In this article, the authors propose a framework to systematically gather and evaluate requirements for eGovernment in the large. The evaluation framework is designed to support requirements engineers to develop a suitable evaluation and requirements engineering process with respect to interoperable eGovernment solutions. The methodology is motivated and explained on the basis of a European research project. [Article copies are available for purchase from InfoSci-on-Demand.com]

Keywords: eGovernment; Evaluation; Framework; Interoperability; Requirements

INTRODUCTION

The European Union keeps growing and member states become more cross-linked every day. Some reasons are that governments are requested to work together more frequently, more intensely and in a vast and ever evolving environment. The drivers of change are manifold: modernization is requested by politics and citizen; public administrations face a huge gap between the burden of work and the available resources; new legal settings and strategic commitments are postulated; new ICT has to be introduced, keeping up with the change taking place in private business settings; customers of the public administrations have higher expectations for improved quality of service; enhanced public value generation is claimed, etc. One could list a large number of aspects implying the need for a smooth cooperation among public administrations and cooperation with their stakeholders on the basis and by means of advanced ICT (Ziemann, Kahl & Matheis,
In this respect, eGovernment in the small means to implement concepts, technologies and tools to pave the way for eGovernment in the large which aims to make such visionary cross-organizational collaboration possible.

What could be considered a fact anyway, is the underdevelopment of the public sector compared to the business sector in terms of ICT adoption. Not to mention the lack of interoperability (IOP) at all levels. This leads on the one hand to a different business perception of the IOP problem (and of the different types of lacks of IOP) and on the other hand to different requirements for the IOP solutions available. Regarding the development and application of ICT solutions the main challenges are the requirements specification and the management of customer requirements (Sommerville & Sawyer, 2003). Main objective of this article is answering the questions of

• How to gain a clear understanding of the interoperability problems or needs of public administrations and
• How to capture the stakeholder requirements in order to support the application of any IOP solution to public administrations.

The presented framework of this article answers these questions by providing a methodology for analyzing the needs of public administrations to allow for eGovernment in the large. This is tackled by improving the process of discovering, documenting and evaluating requirements. In this context, three main action domains were defined: the problem space, the requirements space and the solution space.

The article is structured as follows: First, the scope of IOP in eGovernment is presented including a snapshot of IOP in eGovernment. Based on this, we will discuss the differences between eGovernment in the large and eGovernment in the small and present an IOP lifecycle to support eGovernment in the large. The following section introduces the evaluation framework to discover, document and evaluate requirements for an eGovernment in the large taking into account the problem, requirement and solution space. Afterwards, we present the results of the application of the framework within the European research project R4eGov1. Finally, we provide a summary and describe future work.

SCOPE OF INTEROPERABILITY IN EGOVERNMENT

Within a growing Information Society as mentioned before, networked governments have become a crucial factor. A major challenge for Governments across Europe is to link up heterogeneous systems in a way that these can work together smoothly. The obstacles to overcome in the public sector are a vast amount of stand-alone solutions under local control, which need to work together to enable seamless government. Often, these legacy systems may not be changed and adapted (Werth, 2005).

As a consequence, other options have to be found to pave the way for a smooth cooperation and collaboration. To enable cooperation (either in terms of collaboration or coordination), two approaches can be identified: integration or interoperation. Integration can be defined as the forming of a larger unit of government entities in order to merge processes, systems, and/or shared information (Klischewski & Scholl, 2006). Integration is seen as not achievable across organizations for several reasons (Werth, 2005):

• the majority of eGovernment systems will always be heterogeneous; and
• the configuration of systems and definition of processes will always remain under local responsibility, management and control.

Since new emerging technologies allow loose coupling of systems by exploring for example service-oriented architectures (SOA) and web services, monolithic systems integrating heterogeneous legacy systems are required
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