Chapter 19

# Law Modeling and BPR for Public Administration Improvement

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## ABSTRACT

*The presence of Information and Communication Technologies (ICTs) is becoming more pronounced in Public Administrations and in the context of legal knowledge management. In most countries, it is now possible for citizens to freely access the text of Parliamentary Acts, bills, judgments, et cetera. Analysts that work on re-engineering public administration processes must take into account all relevant sources of law as they will ultimately be modified in order to legitimize the new processes. This chapter considers the requirements to design a framework for business process re-engineering for public administrations by analyzing the existing systems for legal knowledge representation and interchange and the current technologies to assist modeling and change management of business processes. The ultimate goal is that of supporting the law-making process, facilitating the participation of people without a jurisprudence background to the editing of regulations, by providing effective means to comprehend and observe the law, make changes to the law, and to keep track of the dependencies between the text and the models. The framework presented in this chapter integrates several different and rather mature technologies developed in Europe and in Africa, providing a set of tools applicable to virtually any legal system.*

## INTRODUCTION

Several solutions have been proposed to address the many issues Public Administrations have to face in order to become more efficient. Most of

these efforts focus on the representation, availability and interchange of legal documentse (cf: Lupo & Batini, 2003; Vitali & Zeni, 2007; Boer, Winkels & Vitali, 2008). The House of Representatives of the United States of America, the African Union's Parliament and the governments

of Denmark, Italy, Austria and Switzerland have adopted XML-based formats to manage legislative documents, as documented in the Deliverable 3.1 document of the European Project *ESTRELLA* (Italian National Center for Information Technology in Public Administration [CNIPA] & Italian Ministry of Reforms and Innovation in Public Administration [MRIPA], 2007). The definition of such document management formats have made XML the *de facto* standard for the representation of legal information.

Besides the mere representation of documents in a standard format, the growth in importance of transnational institutions such as the European Union and the African Union require the definition of interchange formats to make the legal knowledge of the member countries' legislative bodies interoperable. See for example the efforts undertaken by the EU project *ESTRELLA* (CNIPA and MRIPA, 2007) to define a Legal Knowledge Interchange Format (LKIF).

The use of XML opens up several possibilities of integration with other knowledge management technologies. The most notable current examples of legal knowledge management use ontology based reasoning and natural language processing (NLP) to formalize the semantics of laws and to provide free access to legal documents. See for example the initiatives by the institutions and companies participating in the ICT4LAW Project, financed by the Italian Regione Piemonte (http://www.ict4law.org).

As e-Government becomes comon in more countries' public delivery frameworks, Public Administrations should make sure that monitoring and evaluation procedures are in place. This is because new ICT applications for goverments need not only to improve the quality of Public Administrations, but also comply with existing regulations, while changing obsolete procedures. For this reason, Public Administrations should invest in Business Process Re-Engineering (BPR). Wilcocks, Currie and Jackson (1997) documented initiatives of this kind in UK public services.

Although complying with existing regulations is necessary, in cases in which the changes are significant, the need to modify such regulations arises. For example, in the experience described by Villafiorita and Fasanelli (2006), introducing an electronic voting system makes certain legally defined procedures obsolete (e.g., everything that is paper-based) but it requires the introduction of security constraints as well as formalized directions for the usage of the voting machines. This highlights how re-Engineering a Public Administration process requires a parallel action on both the redesigning of the process and on the introduction of law changes.

As Lazzi (1999) states, "the current law must be considered as the constraint, the engine, and the target of the re-Engineering activity". This suggests that providing a formalized way to represent Public Administration business processes is not sufficient. A traceability strategy should also be introduced to track changes and dependencies between models and laws. While extensive literature on tools and methodologies for the analysis and representation of legal documents is available, there is a lack of a comprehensive tool that allows for a complete analysis of laws in all their aspects to ultimately facilitate the re-Engineering of PA processes.

This chapter deals with the requirements, the challenges and the design of such tool, taking into account the needs of three potential users: citizens, functional analysts (i.e., software engineers) and jurists. The first are the end users of the services provided by Public Administration and potential readers of legal documents; the second are involved in the re-Engineering of some PA procedure or in the introduction of a new ICT system; the third represent those who need to navigate and visualize the connections between laws and ultimately make better laws. Due to the high degree of interaction involved in the law making process and the heterogeneous competences necessary to successfully re-engineer Public Administration procedures, the Human-

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