Chapter 7

E– Government Systems Architecture:
Contextual and Conceptual Level

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ABSTRACT

Based on the inclusion of several types of stakeholders for e-government services, the authors propose an architecture of multiple levels that ensures adaptability to new technological and organizational demands for these services; thus the authors emphasize the possibility of representing public services as electronic services which can be continuously improved.

INTRODUCTION

A common problem in the selection of appropriate e-government systems and the relevant software development is the consideration of the whole set of stakeholders and their requirements. This is the most critical phase in establishing a problem's environment or in representing a "real world domain". We usually refer to it as the contextual level (why questions). It provides context information. In Cap Gemini's Integrated Architecture Framework (IAF) (CapGemini, 2006) for systems design, four levels of abstraction are recognized: contextual, conceptual, logical and physical. The first, contextual, is for answering the "why" question providing context information and key principles that support the value proposition for the architecture to be developed. The conceptual level addresses the "what" aspect of architecture design. It defines the services that are required and what is required from each service. The logical level derives "how" the customer needs can be realized, showing how components interrelate and where components 'implement' services. The last one, physical, level addresses the "with what" aspects of architecture design and defines standards, products (catalogues), guidelines, etc. for further development and implementation.

In this chapter the authors propose a methodology that identifies all stakeholders in e-government domain. Through Public Administration (PA) theory and practice, stakeholder categories can be identified. These can provide a full set of principles which will govern a new architecture. Principles are guiding statements about fundamental beliefs, truths, rules and qualities that guide objectives and the decision making process. Architecture is linked to business needs through these principles. The principles / (non-functional) requirements are deduced through publications, formal documents, expressed opinions and experience. Coherent analysis of these high level non-functional requirements can lead to more specific ones. Even if the final result cannot be as detailed as an implementation engineer would like it to be, it provides a very satisfactory context allowing, requirements control. Instantiation of stakeholders' categories can lead to individual needs within the limits of each category.

As the efforts for having a software meeting the needs of the whole set of stakeholders begun from the enterprises themselves, findings from such efforts can be transferred to the e-government field as best practices. However, an evident and explicitly stated difference between PA and the private sector appears to be forgotten. While PA can no longer be a "bureaucratic monster", but a structured citizen and business oriented service, it cannot set aside its fundamental principles though.

In the following a modelling of PA's function is presented. The modelling refers mainly to PA of the "normative" countries but it could be expanded to the operational model countries as well. This modelling provides the conceptual level of the architectural design for e-government systems. The different groupings of styles of PA found in Europe are discussed at a later point in the chapter.

In this work's functional model, PA's function is represented in an independent way. Goals and limitations, quantitative objectives and law restric-

tions are being made obvious allowing tradeoffs and negotiations between trends. It highlights areas where controversies can deploy and allows instantiations for real life argumentation.

Finally towards the end of the chapter the authors provide application examples of this approach tested in the reality of the Greek PA system.

CONTEXTUAL LEVEL

In Savvas et al. (2007a), PA's stakeholders were identified and their strategic relationships in the socioeconomic environment, at national and supranational level were defined. Stakeholders were defined on both sides of public service provision, supply and demand.

- The demand side includes citizens (also as employees) and businesses. Judicial power (administrative courts) and Legislative power can also be classified here. Parliament receives PA services in law making process and it is interested in the application of the laws it provides. Courts are control mechanisms regarding public service provision. They are interested in the application of their decisions concerning administrative acts and they support administrative processes providing jurisprudence.
- The supply side includes the indivisible of governance. Government national and supranational (EU case). When we are referring to a certain service though, final provision is being made from one Public Organization (PO). The demand side then might includes other POs too.

Especially for the case study of the Greek PA a first set of stakeholder requirements has been presented. In this case, stakeholders are not only national but supranational as well, as Greece is part of the E.U. Stakeholders belong to the direct

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