Chapter 7
Enterprise Architectures for E–Government Development

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ABSTRACT

There are two common strategies for the development of e-government projects. One approach is demand based e-government initiatives having no national level centralized Enterprise Architecture. The other is the development of projects under the shadow of a predefined set of guidelines following a given Enterprise Architecture at the national level. It is similar to developing a demand based unplanned city development verses a master plan based development. Complex electronic service deliveries need allied and synchronized output of all the projects. Architectural approach provides guidelines from project planning to technical development and operations. It aligns all the e-government projects with some standard principles. A National Enterprise Architecture based approach provides a number of benefits, including institutionalization of top level strategic planning, standardized development across all levels of e-government, sustainability of e-government projects when governments change, cost reduction by sharing resources and better return on investment. There are many enterprise architectures for e-government development. Different countries are experimenting with different enterprise architectures. In this chapter, e-government projects and their devolution is discussed using Zachman Framework, Reference Model for Open Distributed Processing (RM-ODP), A Reference Model for Collaboration Networks (ARCON), The Open Group Architectural Framework (TOGAF), and Federal Enterprise Architecture Framework (FEAF). It is recommended that architectural implementation should be aligned with governing structure of a country such as centralized, devolved and decentralized. However, governments may use a decentralized architecture and devolve it to its sub-nationals such as state/provincial level and city level as per their political, fiscal and administrative needs and capacity.

INTRODUCTION: NATIONAL ENTERPRISE ARCHITECTURES

Enterprise Architecture (EA) is a high level framework to standardize an organization's business strategy, Information Communication Technology (ICT) infrastructure, software, human resource, operations, and projects. It also defines how information technology will support the business operations and provide benefit to the business. Enterprise Architecture is a business issue and covers business process integration and business process standardization (Peter Weill & Ross, 2004). A National Enterprise Architecture (NEA) defines national strategy and the corresponding ICT infrastructure to run a government. It is also called as Federal Enterprise Architecture (FEA) or Government Enterprise Architecture (GEA). Main objectives of NEA are to reduce duplication and hence cost by encouraging reuse in public sector projects. A NEA helps cover gap between policy and its implementation (Janssen & Hjort-Madsen, 2007).

It is a global trend that governments are realizing the importance of enterprise architectures to improve public services and efficiencies. Figure 1 shows the similarity between town planning and EA. Town planning includes long-term plan of transportation and communication networks, provision of utilities, health and housing facilities, etc. A building owner may be interested in the aesthetics and comfort of living whereas a construction contractor would need guidelines about the water, electricity and other supplies in location. Local authorities interest would be facilitate and regulate expansion of a town. Its main responsibility would include provision of and availability of shared facilities such as schools, shopping areas, hospitals, graveyards, public transport and community centers. The establishment of services is a common investment, and the use of these services is regulated to achieve an acceptable investment cost. For example sky rising building would need extra resources. Without a town plan, there is a risk of disorder, chaos, and hence increased security threat. A town planner's job is not to construct or design the buildings, roads and under passes, they primarily provide the vision and master plan.

Similarly, NEA provides guidelines at the strategic level to design and implement ICT infrastructure starting from the top-level applications to lowest level of physical IT facilities, while keeping manpower, security and governance in view. Similar to a town planner, NEA architect provides a master plan in the form of a IT Architecture (ITA) covering e-governance strategy, e-applications, and IT infrastructure. This ITA also provides guidelines how different types of systems will integrate using common standards and protocols (Meersman & Vandenborre, 2006), (White-Paper, 2003).

An architectural approach for the e-government development projects has the following main characteristics:

Figure 1. Similarity between town planning and enterprise architecture
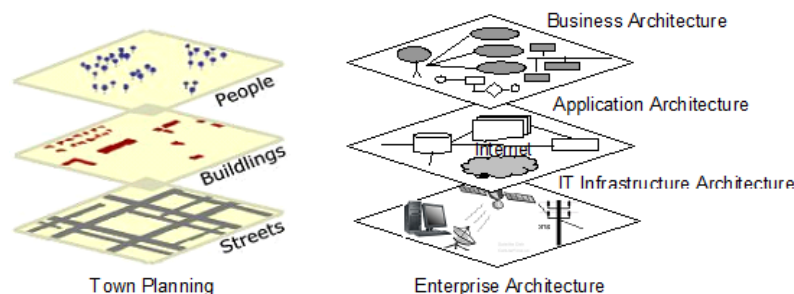
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