Enterprise government needs to develop an overall architecture

Business, Accounting

EnterpriseArchitecture" Enterprisearchitectures and integration are vital tasks for the public and privatesectors. Government needs to develop an overall architecture that captures theactivities of people, processes and technologies and specifies how all theseactivities work with each other in a smooth and integrated manner. To succeed, the architecture must be based on a strategic plan and explore a large numberof people, process and technology issues and eliminate surprises. Modernenterprises in the public as well as private sector represent networks ofautonomous firms cooperating with each other to achieve common business goals. In such climate so as to survive and thrive in the rapidly changing environment, a firm's supply, production, logistics and distribution networks need to bearchitected in an integrated and flexible fashion to quickly respond tofluctuating market conditions and frequent mergers, acquisitions, andoutsourcing operations. The three essential components of an enterprise are Businessstrategies, applications, and IT infrastructure. Forexample, when a manufacturing company acquires multiple other companies withwidely varying systems based on different technologies of different vintages, an enterprise wide architecture is needed that makes the acquired and theexisting systems work smoothly with each other. Anintegrated enterprise architecture (IEA) is a key tool for competitiveadvantage because it smoothly inter-weaves the IT operations with the organizationalbusiness strategy that can be of great value to the corporate management.

·   An enterprisearchitecture (EA) shows components of an enterprise, what do they do, and howdo they interface/interact with each other·   An EA canclarify and help optimize the interdependencies and relationship

among anorganization's business operations and the underlying IT infrastructure andapplications that support these operationsIEA promises many benefits like identifying what resources exist; improving integration among resources; facilitating business processimprovement, and creating speed and efficiency in meeting changing businessneeds through IT. To survive in the fiercely competitive market, several companies have embarked on streamlining initiatives to cut productdevelopment time and to reduce product delivery time. To achieve this, enterprise-wide integrated systems such as the following are needed:·   Procurement systemsthat link order processing with payment, inventory management and shipping·   Manufacturingsystems that link suppliers, designers, product managers, and productionplanners in a uniform manner.·   Customer supportsystems that link customer service with customer relationship management, marketing and sales.·   Healthinformation networks that link various hospitals, doctors, pharmacies andhealth insurance providers·   Supply chainmanagement systems that link several suppliers with the material requirementplanning (MRP) systems of consumers

Enterprise IntegrationFor enterprise integration, the goal is toprovide standardized high-quality customer service across the entire firm'sservice channels. Multi-channel integration is critical because customersexpect consistent service when they interact with a company, no matter whichchannel they use. The enterprise building blocks consist ofbusiness processes needed for the business, enterprise applications thatautomate the business processes, computing platforms and middleware servicesthat

support the applications, and the network services that interconnect thevarious platforms in an enterprise.

However, enterprise application integration(EAI) receives most of the attention due to the following main reasons: ·   Lack ofintegration between enterprise applications is very visible to the customersand business partners. For example, if an order processing system is notintegrated with a payment system, then the customer has to place an order onone system and then go back and pay by using a totally different system –possibly having to re-enter all information again.·   Many of theenterprise applications can be " legacy" applications that are old, unstructured, and monolithic. Ifpossible, the IT management would like to keep the legacy systems intactbecause they provide vital services (e.

g., billing) that are very risky todisrupt. However, something must be done about these systems because thesesystems are inflexible and are becoming increasingly expensive to maintainespecially in the modern enterprise scenarios.

The building blocks are represented as horizontallayers – higher level layers are more business oriented and lower level layersare more technology oriented. Business architecture represents the architectureat business process layer, enterprise application architecture representsarchitecture at application layer, etc.·   Verticalintegrations – Businessarchitecture that is integrated with technology architecture (enterpriseapplications, platforms and networks) of a company or a division of a company. It combines

business, applications and IT infrastructure components into asolution for a particular situation. An example of vertical integration is a supplychain management ERP system that automates all supply chain processes andoperates on Linux platforms.·   Horizontalintegrations – Processes andtechnologies at the same layer are integrated.

For example, the integration of businessprocesses in sales with business processes in supply chain represent ahorizontal integration at business process level. Another example, smoothtransition between wired and wireless networks (e. g., roaming support between acellular phone, a Wi-Fi LAN and a wired corporate Intranet) represents ahorizontal network integration.·   Mixtures- Integrated architecture that isa combination of vertical architectures that interconnect different layers aswell as the horizontal architectures at the same layers of an enterprise. For example, in many practicalcases, mergers and acquisitions lead to these integration scenarios becausemany organizations have vertically integrated systems but when two or moreorganizations merge, multiple vertical architectures need to be integratedhorizontally.

MethodologyThe enterprise focus is on two stages:·   Enterprisemodeling stage starts with a quickbusiness opportunity analysis and captures the needed enterprise information·   Applicationplanning develops a strategy toautomate the business processes. Enterprise Modeling: The objective is to create a model of the company to capture essentialinformation such as company type, company size, workgroups (WGs) such asdepartments, company sites, and allocation of WGs to sites. The most importantpart of the

enterprise model is to capture the key business services (BSs) andbusiness processes (BPs). Some services are provided to the customers (B2C), some to other businesses (B2B) and some to the employees (B2E).

Afteridentifying the needed business services, the management needs to make thefollowing decisions:·   Decide whichbusiness services/processes take place at each location.·   Include businessoutsourcing, i. e., determine which BSs/BPs take place at the outsourced sites.·   Assign employeesto sites. The number of employees at each site helps determine the type and" intensity" of work performed at each site.

Application PlanningThe objective of this stage is to identify theapplications A1, A2… And that are needed to automate the business processesBP1… BPn identified in enterprise modeling. To identify the complete set ofbusiness processes (BPs), the following approach may be used: ·   List all BPsthat support the B2C, B2B, B2E, and other business interactions·   Keep the focusat enterprise level activities that are vital to the business. Consulting firmsuse " Heat Maps" to identify vital services. Heat maps are based on the CriticalSuccess Factors methodology. CSF instructs the managers to focus on those processesthat are critical to the success of the business·   Reduceduplication by clustering similar BPs into one. For example, if the same BP isused for customers as well as business partners, then it is better to clusterthe two BPs into one.·   It is highlydesirable to question, eliminate, and restructure business processes/servicesto improve organizational efficiency.

This is the main idea of business processre-engineering. In reality, one or many applications may beneeded to support a given business process. For example, a customer informationsystem may support many business processes such as purchasing, marketing, andpayment.

Similarly, purchasing business process needs support of manyapplications such as order processing, inventory management, shipping/receiving, and payment packages. Once the key applications have been identified, the next main activity is to develop an automation strategy with differentoptions of buy, rent, outsource develop in-house, or extend-re-use (BRODE). Forexample, it is important to select the COTS (commercial-off-the-shelf)application packages that can be bought and identify application serviceproviders (e. g., Corio and SAP) for rental and outsourcing. Finally, it ishighly desirable to sketch an SOA(Service Oriented Architecture) -based architecture. These decisions can be made by using the following steps:

1.   For each BP, identify which ones will be done manually and which ones will be automated.

Inaddition, for the automated BPs, determine an automation strategy (buy, outsource development, in-house development, or reuse). 2.   For each option, explore the commercially available solutions (e. g. for buying, investigate andselect the inventory management application packages available in themarketplace). 3.

Develop sketchof an SOA-based application architecture. For example, an organization will buy CRM(Customer Relationship Management) and MRP

(Materials Requirement Planning)software packages, rent a finance and accounting system, develop its ownwireless messaging system for furniture tracking through a software developmenthouse. The application plan is based on SOA principles, i. e., all applicationsare treated as business components that communicate with each other through anEnterprise Service Bus (ESB).

ITinfrastructure (platform)planning is concerned with determining the most appropriate technologies neededto enable the enterprise applications needed by the company. Examples ofsuch enabling technologies are the Web technologies (including Web 2. 0 and WebServices) used in corporate intranets, computing platforms on which theapplications will reside, wireless and wired networks which connect all thecomputing platforms in an Intranet, and " Extranets" which connect manybusinesses for B2B trade. Networkplanning develops a networkconfiguration that interconnects the computing platforms by using wireless aswell as wired network elements. Network planning involves three major tasks: 1.   Determine theworkload at each site based on the work activities at each site.

2.   Develop anetwork configuration and estimate the bandwidth needed by using queuingnetwork models. 3.

Developthe type of connections and the commercially available network solutions needed. The main objective of integrated architecture planningis to assure that all pieces fit together to form a working solution within theperformance, security, and cost constraints." Submitted by: Ismail Ali

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