Enterprise Architecture to bring order out of chaos

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There's a cliché in business that some companies can become victims of their own success. Like most clichés, it might be annoying but it's also true. But what does it mean, and more importantly, how do we avoid it?

Let's take a logistics provider, for example. The company has established itself as a leading player in its target markets with an enviable reputation for delivering reliable services to its customers. Success has generated growth, growth and more growth, but then everything changes. Deliveries begin to turn up late or disappear entirely and the information the company holds on them is either inaccurate or contradictory. Formerly happy clients begin looking elsewhere.

As a responsible operator, the company invests in expensive 3rdparty consultants to find out what's going on and stem the client drain. Unfortunately, all they find is the problem and not the solution: as the business has grown every decision maker within every department has implemented his or her own systems, processes, software applications and information silos. Instead of a streamlined operation with company-wide access to business critical enterprise information, our logistics provider is actually a tangled mess of incompatible systems. The wonder is that the business has survived for so long.

OK, it might be an extreme example, but it's a scenario we're all familiar with. Organic growth will only take you so far, and at that point (and hopefully long before) there needs to be a systematic evaluation of how the business operates and its information needs — or to put it another way, Enterprise Architecture.

What is Enterprise Architecture (EA)?

Enterprise architecture is a comprehensive conceptual framework that assists organisations to understand their own structures and processes — and how they work. To put it simply, EA ensures that all the company's enterprise assets — business processes, IT (hardware and software), networks, people, information databases and operations — are aligned to support the overall business strategy.

Four critical pillars

We can break EA down into four supporting pillars, each contributing an essential element to the overall model:

1. **The Business Architecture** describes how a business works, including its overall strategy to achieve objectives, vision and future states. It will elaborate on the structure, its functional business units and processes, and how these relate to one another.

1. **The Information Architecture** describes what the organization needs to know to run its business processes and operations. It should include valid data models; data management policies and standards; databases that serve all users and a descriptions of the patterns of information production and consumption in the organization. This will include informal data stores such as flowcharts, spreadsheets, documents and presentations that exist throughout the organization.

There cannot be room for separate silos of data and knowledge within the enterprise. It is the very purpose of the EA to develop one common, shared, valid, reliable and consistent data resource.

1. **The Application (Process) Architecture** defines the enterprise's application portfolio and links the information and business architectures to selected applications that will best serve its users with their individual skills in their different job functions. It must always support the required activities and processes of the business and automate procedures as far as is practically possible. This architecture should also provide for information storage and retrieval.

Finally, provision must be made for the development of new applications based on the enterprise's needs, policies and technology platforms.

1. **The Technology Architecture** defines the hardware and software supporting the organisation. It provides the technology platforms that link the application, business and data architectures to offer user-friendly solutions to the various users in their respective work stations. These can include desktop and mobile hardware, printers, modems, server hardware, operating systems and network components.

Each of the four architectures requires an in-depth analysis across the enterprise, the outcomes of which will be reflected in models, flowcharts, diagrams, standards and specifications. These will range from broad contextual and conceptual perspectives on the policy-making level to process models on the conceptual level; and diagrams and detailed specifications of physical assets on solution and implementation levels.

An architectural approach will consistently provide management with valid and reliable information on which to take business decisions. It also ensures data of much higher integrity that will correlate to statistics drawn from various functions and departments across time and space. The productivity and efficiency of enterprise information systems will greatly be enhanced because of its dedicated design and applications.

If developed in sufficient depth and detail, the architecture will assist management to identify the best possible components to match a company's specific needs. It should identify best practices by industry or vertical and assist in building these into its systems and processes to the best advantage of the enterprise. Because EA is based on the divulgence of an enterprise's full architecture on all levels, its diagnostic capability is vested in the fact that the framework becomes a powerful single source of truth. It looks at a complete and comprehensive picture and then guides management in its attempts to realign the business and its systems and resources to achieve optimal efficiencies.

Architecting for people

When architecting solutions, it is important to know who the users of the solution will be and to design the architecture for their respective purposes. These can include employees who require their processes to be enabled by technology, employees who are geographically dispersed, suppliers who are required to integrate with the business and customers whom the business wants to give easier access to its products, services and information.

The desired solutions can be offered in whatever format or medium the enterprise requires. It should make its resources and information available when and where the respective users need it; anytime, anywhere and in any possible manner. Access to systems and information

can be made available, with full consideration of the required security controls, from the desktop or remotely through mobile devices or the Cloud.

This information will enable the architect to accommodate various role requirements in the system, and to provide for better interaction with customers, suppliers and other systems. The result is that the technology solution aligns the business much more effectively with its people and their processes.

Users will quickly recognise the familiar "look and feel" of the enterprise that will permeate all its activities and documentation generated by the architecturally designed systems. This familiarity in turn leads to faster learning of upgraded systems and processes.

Workflow and business modeling

The results of EA all contribute to continuous improvement as any good business improvement process should. Workflow design and business process modeling are at the heart of EA.

Workflow allows for the collaboration between people, documents, software and systems. Each workflow diagram shows a beginning and an end, and outlines a set of tasks in the order in which they are performed, leading to an intended outcome. In the workflow, provision is then made for monitoring through control points, report generation, and time management of the process.

By the same token information and documentation flow has to be charted. However well automated, management must at all times be able to track and monitor the flow of information and documents through the system, linking them to particular steps in the process flow.

Finally, provision must be made for historical and current data to be extracted and viewed in formats that will facilitate more reliable and valid forecasting to enable effective strategic, tactical and operational insights and decision-making. This level of transparency requires the technology to drive methods and processes that can transform raw data into meaningful information. To be truly effective for this purpose, data must have high credibility and data capturing must be done to strict and clear audit trails. The ability to access performance metrics and to do the benchmarking that enables effective management of business processes is dependent on full disclosure and complete transparency of data.

Analytical capability must also be provided for. This architecture will require components for data mining, statistical analysis, predictive analytics and predictive modeling, as well as for data visualization and an executive information system to serve reporting needs.

Taking IT to the cloud?

When enterprises already question the need for the further existence of their IT departments, the principles of EA may seem twice as daunting. Management may already feel that the cost of its IT infrastructure and continuously growing security risks exceed the value it adds to the business. The good news is that Enterprise Architecture and outsourcing its IT infrastructure are not mutually exclusive.

Software as a Service (SaaS) can deliver software as cloud computing services to the business. The hosting service provides the daily technical operation, maintenance, and support for their solutions in a hosted environment. This removes the need for expensive servers and large numbers of IT staff to maintain infrastructure. Solutions are now available that provide not only a comprehensive Enterprise Resource Planning system on the cloud, but one that includes the capability, through process modeling and workflow modules, to capture the principles of sound EA in the solution.

The beneficiaries of success

There's another cliché that is equally annoying, and equally true, as the one I began this article with — that you can't get to where you're going unless you know where you're starting from. At SYSPRO, we offer a collaborative tool called **SYSPRO Process Modeling** (SPM) that aligns all entities in an organisation via a visual representation of standard and unique processes and measures.

Enterprise Architecture is like GPS for business, telling us exactly where we are at this precise moment in time, signposting the direction we need to travel in and, ultimately, leading us to achieve our objectives. With this Pole Star to navigate by, we can ensure that order always comes from chaos and we are beneficiaries — not the victims — of success.

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