

How to use Enterprise Architecture to deliver the right solution

Introduction

Change is inevitable, constant, and permanent. Today's world is characterized by uncertainty and change. Organizations must continually evolve and adapt to survive, grow, and develop. Evolution and adaptation is achieved when organizational structures and the relationships between them are transformed, and move the whole organization from an actual state to a desired state according to a previously defined strategy.

According to the Enterprise Architecture Body of Knowledge (EABOK) [MITRE 2004] an Enterprise Architecture describes how the elements of an organization (business processes, business functions responsible for them, capabilities, and infrastructure) fit together now and in the future. Enterprise Architecture also describes how such elements evolve from the actual state to a desired future state to support the organization's strategic plans.

When transformation needs arise the Business Analyst acts as the "host" of change. He or she welcomes change and makes any arrangements to understand and manage all transformation needs at all organizational levels. Through system thinking [Bunge 1979], the Business Analyst is aware that the change will impact the enterprise architecture as a whole.

This article sets out a tried-and-tested way of using Enterprise Architecture as a road map for the Business Analyst when liaising between stakeholders to understand the structure, policies, and operations of an organization, to recommend solutions that help it achieve its goals, and to continuously monitor whether these solutions meet business goals, needs, and targets.

What is Enterprise Architecture?

Enterprise Architecture is defined by Gartner as "a discipline for proactively and holistically leading enterprise responses to disruptive forces by identifying and analyzing the execution of change toward desired business vision and outcomes. EA delivers value by presenting business and IT leaders with signature-ready recommendations for adjusting policies and projects to achieve target business outcomes that capitalize on relevant business disruptions. EA is used to steer decision making toward the evolution of the future state architecture." [Gartner Group 2013]

Enterprise Architecture could basically be described as consisting of several highly independent, highly cohesive architectures, as in the model below:

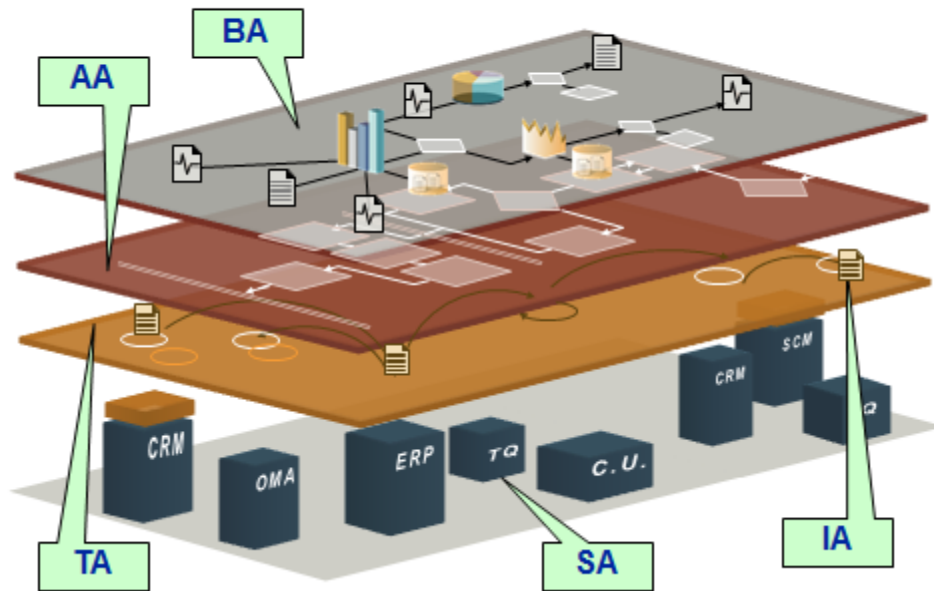


Fig 1: Enterprise Architecture.

- Business Architecture (BA): is the bridge between strategy and the running business. Each time the environment interacts with the business is through the Business Architecture.
- Application Architecture (AA): describes the structure and behavior of applications used in a business, and focuses on how they interact with each other and with users to support Business Architecture components.
- Technology Architecture (TA): is technology used to support Application Architecture components.
- Security Architecture (SA): is a cohesive security design, which addresses the requirements (e.g. authentication, authorization, etc.) – and, in particular, the risks of a specific environment/scenario, and specifies what security controls are to be applied and where.
- Information Architecture (IA): is a combination of organization, labeling, and navigation models, and retrieval mechanisms, within an information space.

Why use Enterprise Architecture?

Enterprise Architecture is a means of putting system thinking into practice to analyze the organization as a whole from a system management theory perspective.

The need to use system management theory for organization management was a result of organizations trying to adapt to rapid change in the business environment related to technological, economic, and social changes in the second half of the twentieth century. It emerged from Bertalanffy's General Systems Theory [Bertalanffy 1968] and studies an organization by analyzing its elements in its environment.

Systems are needed and created to support organizational strategy by putting it into action. People, processes, and information work together to support business functions. To be competitive, adaptable, and proactive the organization must behave according to the concept of zero latency, i.e. responding instantly to environmental stimulus [Business Dictionary 2013]. To achieve this systems have to be independent but highly cohesive, sharing consistent information and collaborating to support organizational goals. When systems fail to have this degree of cohesion they are said to operate in “silos” [Hurwitz 2008]. In this type of organizational architecture the solution created fails to achieve the organizational goals for which it was originally created. It is vital for each Business Analyst to avoid this type of situation by using of system thinking because, as stated in the Business Analysis Body of Knowledge (BABOK) of the International Institute of Business Analysis (IIBA), he or she uses business analysis to work on recommending solutions that help the organization achieve its goals.

When to use Enterprise Architecture?

Tasks included in BABOK’s Elicitation knowledge area are performed from the outset and throughout the business analysis process. During Elicitation, the Business Analyst is faced with needs and, as an archaeologist, investigates the needs to unearth “Undiscovered Ruins”: the features, services, functions required to satisfy the needs. Enterprise Architecture helps the Business Analyst stay alert to the “whole picture”.

During Enterprise Analysis, “GAP Analysis” between current Enterprise Architecture (put in place because of actual strategy) and desirable future Enterprise Architecture (put in place according to future strategy) is the key to finding the needs that define the problem situation to be solved (see Figure 2).

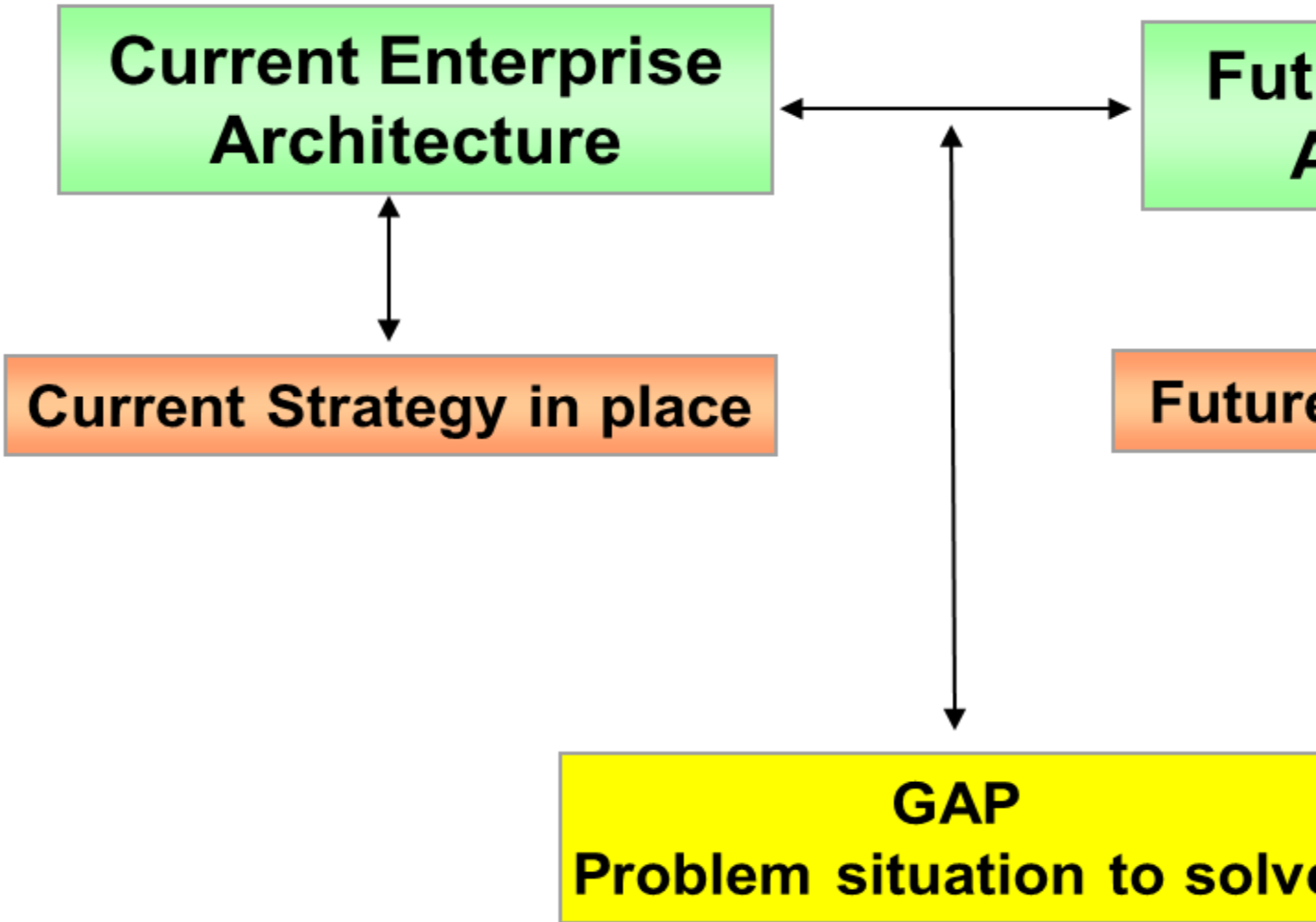


Fig 2: In search of the problem situation to solve

When the transformation is complete and the change is implemented, new changes are generated in the environment, and a new cycle gets under way. The Business Analyst proactively helps organizations to constantly regenerate themselves by continuous improvements to their Enterprise Architecture as a means of gaining in innovation, differentiation, and adaptability. At this stage, Enterprise Architecture drives tasks contained in the BABOK knowledge area, Solution Assessment and Validation.

When Planning and Monitoring the work of business analysis, Enterprise Architecture is used to define the best course of action to perform the business analysis tasks (Enterprise Architecture is one of the components to consider when choosing between plan-oriented or change-oriented lifecycles), to identify and analyze stakeholders (Enterprise Architecture acts as a “road map”), to decide the best means for requirements management and communication (Enterprise Architecture is useful, among other things, to determine geographic distribution).

How to use Enterprise Architecture?

There are several models, frameworks, or tools for working with Enterprise Architecture. Each one of them tries to answer the question: “how to create an organizational architecture as flexible as possible to rapidly adapt to environmental changes when they occur or to generate the change?” The model described here is “The 7s model”, originally developed by Tom Peters and Robert Waterman for McKinsey & Company and later described in the well-known book “In Search of Excellence” [Peters and Waterman 1982]. This was originally used to analyze both large and small firms by looking at their architecture and offering a broader explanation through seven elements – strategy, structure, systems, style, staff, skills, and shared values – hence the name “7s”. Managers should take into account these factors to successfully implement their company’s strategy, since all seven elements are interrelated, and failing to recognize one affects how the others are perceived.

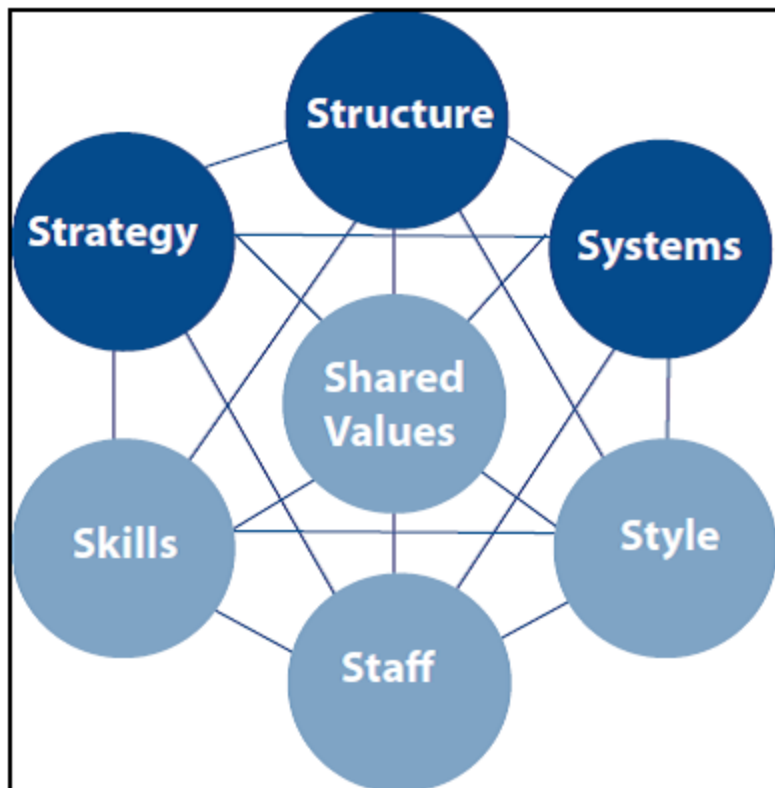


Fig 3: Waterman, R. Jr.; Peters T.; Phillips, J.R. (1980)

“Structure is not organization” *Business Horizons*, v23/3, p21.

Each element in the model has to be discovered and analyzed using a criterion or method. Much of the literature from the 1960s could be used as “tools” to discover and analyze each element.

The process for working with the model could be divided in two main steps: elicitation and analysis. To elicit, the techniques and processes described in BABOK’s Elicitation key process area could be used. To analyze, some authors [Peters and Waterman 1982] recommend following this path:

- Start with your Shared Values: Are they consistent with your structure, strategy, and systems? If not, what needs to change?

- Then look at the hard elements. How well does each one support the others? Identify where changes need to be made.
- Next look at the other soft elements. Do they support the desired hard elements? Do they support one another? If not, what needs to change?
- As you adjust and align the elements, you'll need to use an iterative (and often time consuming) process of making adjustments, and then re-analyzing how that impacts other elements and their alignment. The end result of better performance will be worth it.

STRATEGY

This involves planned actions that the organization will perform in response to changes in its external environment or to create changes in its external environment.

The focus is on being aware of the Corporate Strategy (the Strategy followed by the organization as a whole), the Business Unit Strategy (the Strategy followed by the organization to compete in a specific business), and the Functional Strategy (the Critical Success Factors, or CSFs, and the Key Result Areas, or KRAs, defined by the organization in order to remain focused on what really matters when competing in a specific business and organizing all organizational efforts behind them).

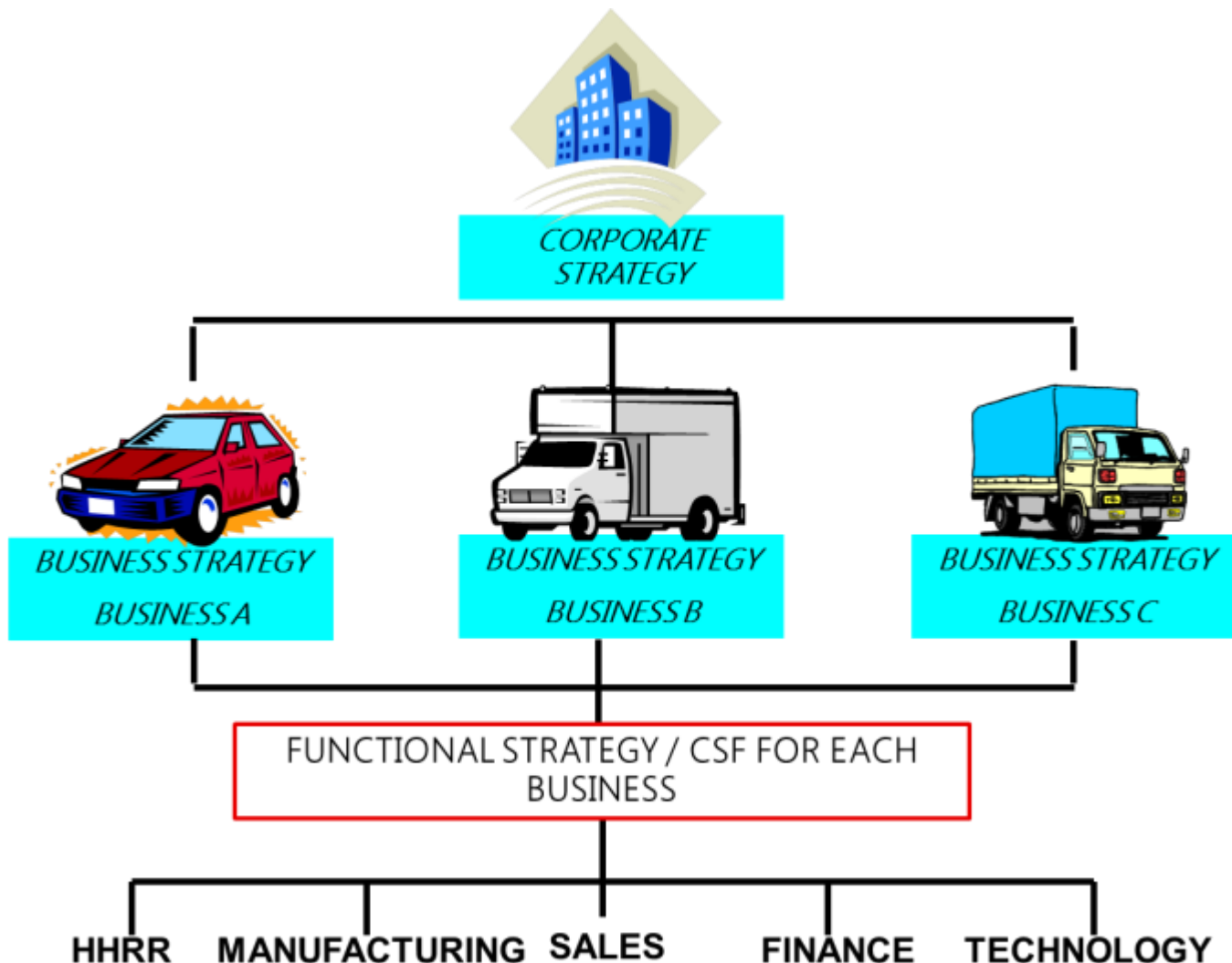


Fig 4: Corporate, Business, and Functional strategies

Literature on the subject includes Michael Porter's *Competitive Strategy* [Porter 1998], Sun Tzu's *The Art of War*, and Carl Von Clausewitz's *On War*.

STRUCTURE

This involves setting up organizational critical success factors and key process areas, and grouping activities and responsibilities into an organizational architecture.

Structure follows strategy, so this is the most important thing to validate. Traditional structures could be Bureaucratic, Functional, Divisional, Matrix, Team, and Virtual. Literature on the subject includes Max Weber's *Essays in Economic Sociology*, [Weber 1999] Derek Pugh's *Organization Theory: Selected Readings*, [Pugh 2007] and the book *Virtual Organizations and Beyond*. [Hedberg 1998]

SYSTEMS

These are formal and informal procedures to support strategy and structure.

Process and procedures used by the organization to administrate and control day-to-day operation must be analyzed. Information systems, "formal" and "informal" systems that help the organization to operate according to the strategy must be considered; especially those intended to support the organizational implementation of Critical Success Factors.

Literature on the subject includes James Martin's *Strategic Information Planning Methodologies* [Martin 1989] and McMenamin and Palmer's *Essential System Analysis*. [McMenamin 1984]

STYLE

Organizational Culture, Management style and Leadership style are analyzed here.

Management style and Leadership style are the leader's style of providing direction, implementing plans, and motivating people. One important thing to be aware of is that nobody will find organizational culture formally defined on a piece of paper.

Edgar Shein's *Organizational Culture and Leadership* [Shein 2010] is a benchmark for this subject.

STAFF

This includes the processes and efforts used to develop managers, socialization, and the shaping of basic management values, as well as ways of introducing young recruits to the company.

The People Capability Maturity Model (P-CMM) is a framework created and maintained by Carnegie Mellon Software Engineering Institute, and a model that could be used to analyze how the organization attracts, develops, organizes, motivates, and retains its workforce according to the organizational strategy. The P-CMM consists of five maturity levels.

More information can be found at <http://www.sei.cmu.edu/>.

SKILLS

The key here is to find things that make the organization "unique."

These are commonly called “core competencies.” A core competency is a specific factor not easily imitated by competitors. It can be reused widely for many products and markets and must contribute to the end consumer's experienced benefits.

Michel Porter's *Competitive Strategy* [Porter 1998] and Hamel & Prahalad's *Competing for the Future* [Hamel 1996] can be considered benchmarks in this area.

SHARED VALUES

The central premise behind creating shared value is that the competitiveness of the organization and the health of the communities around it are mutually dependent.

Values must be shared and accepted by all internal and external human resources. An organizational value is a belief that a specific mode of conduct is preferable to an opposite or contrary mode of conduct. Values help the organization to differentiate itself from others, so, as with the other 7s elements, it impacts strategy formulation and implementation. Organizational values are usually explicitly defined in corporate foundational statements, such as mission, vision, and so on.

Conclusion

Endeavors to transform organizational structures and its relations are initiated by the need to evolve and adapt to environmental change. It makes sense to see Enterprise Architecture as a way of focusing on the use of system thinking ability as a tool to integrate and align all organizational levels toward a main objective, to recommend solutions that help the organization achieve its goals, and to continuously monitor whether solutions are meeting business goals, needs, and objectives.