Chapter 2
The Structure and Culture of Enterprises

Chapter Overview
Chapter 2 discusses the need for enterprise architects to understand the role of organizational structure and culture in developing an EA. Structure and culture are important to include in the EA in order to accurately reflect the true nature of organizational goals, processes, and informal structures which influence the current and future views of the architecture. Understanding structure and culture are also important in working with stakeholders to gain their support and manage expectations for the development and implementation of the EA program. Enterprises are types of social organizations and as such, the concepts of organizational theory presented in this chapter are applicable to the practice of EA.

Key Term: Culture
The beliefs, customs, values, structure, normative rules, and material traits of a social organization. Culture is evident in many aspects of how an organization functions.

Key Term: Stakeholder
Everyone who is or will be affected by a policy, program, project, activity, or resource. Stakeholders for the EA program include executive sponsors, architects, program managers, users, and support staff.

Learning Objectives
- Understand the structural and cultural aspects of an enterprise
- Understand the differences between an organization and an enterprise
- Become familiar with models of organizations and enterprises
- Be able to tie structural and cultural aspects of the enterprise to the architecture

Introduction
Enterprise architecture is as much about people and social interaction as it is about processes and resource utilization. Understanding each of these aspects of an enterprise is essential to the development of accurate views of the current architecture and relevant, meaningful views of the future architecture.

Home Architecture Analogy: An architect needs to understand the composition, preferences, and activities of the occupants to be able to produce an effective design for their new or remodeled home. How they will use the rooms, their activity patterns, and storage needs are examples of the factors to be considered.
Insight into the “people aspect” of enterprises is also important to the development of policy, standards, and an EA Management Plan that will be accepted by the enterprise. Moving from current to future states of the EA involves changes in processes and how people will communicate. Change involves moving from what is familiar to something unfamiliar, which is uncomfortable and/or threatening to many people. Therefore, there may be resistance to programs such as EA that cause or support changes in resources and processes throughout the enterprise.

Discussion

Influences on the Field of Enterprise Architecture

Developing an enterprise-wide architecture involves an evaluation and depiction of people, processes, and resources. Some of the areas of practice and theory that have influenced the EA practices include business administration, public administration, operations research, sociology, organizational theory, management theory, information science, and computer science. Understanding the mission, goals, and culture of an enterprise is as important to implementing an EA as the selection of analytic methods and documentation techniques. The EA approach described in this book is based on theories of how social organizations are structured and how systems and activities function within enterprises. Figure 2-1 on the next page shows the academic fields and areas of theory/practice that influence EA.

The Structure of Enterprises

In this part of Chapter 2 there will be some references to organizations instead of enterprises because the concepts come from established organizational theory. The concepts of organizational theory also apply to enterprises because they are types of social organizations. Organizations and enterprises are essentially complex social systems, which regardless of mission, share many similarities in their basic structure and functions.
The Leavitt Diamond Model

One of the early models of general organizational structure is the “Leavitt Diamond” presented in 1965 and shown in Figure 2-2. Leavitt argued that a change in any of these four components will have an effect on the others and that the interaction of the components underlies organizational success.

The Parsons/Thompson Model

Another model of general organizational structure is a three-level view that was originally envisioned by sociologist Talcott Parsons in the 1950’s and further developed by sociologist James Thompson in the 1960’s. Parsons’ research identified three general levels that are common to most social organizations (technical, managerial, and institutional), based on the observation that different types of activities occur at each level. Thompson built on Parsons’ ideas by further identifying the different types of activities that occur at each level. Figure 2-3 summarizes the Parsons/Thompson Model of social organizations.

<table>
<thead>
<tr>
<th>Organizational Level</th>
<th>Structure</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parson’s Purpose of each Level</td>
<td>Thompson’s Activities of the Level</td>
</tr>
<tr>
<td>Institutional</td>
<td>Where the organization establishes rules and relates to the larger society as it derives legitimization, meaning, and higher-level support, thus making possible the implementation of organizational goals.</td>
<td>The organization is very open to the environment in order to determine its domain, establish boundaries, and secure legitimacy.</td>
</tr>
<tr>
<td>Managerial</td>
<td>Where mediation between the organization and the immediate task environment occurs, where the organization’s internal affairs are administered, and where the organization’s products are consumed and resources supplied.</td>
<td>A dynamic of mediation occurs where less formalized and more political activities occur.</td>
</tr>
<tr>
<td>Technical</td>
<td>Where the actual “product” of an organization is processed.</td>
<td>The organization is “rational” as it carries on production (input/output) functions and tries to seal off those functions from the outside to protect them from external uncertainties as much as possible.</td>
</tr>
</tbody>
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Figure 2-3: Parson/Thompson Model of Enterprises

The geometry of the Parson/Thompson Model has been adapted by the author to resemble a series of concentric circles. This may provide a more useful image for depicting a social organization that interacts with its environment via the model’s Institutional Level, facilitates...
internal resources via the Managerial Level, and protects a “core” of essential processes and resources at the Technical Level. Figure 2-4 shows this spherical version of the Parsons/Thompson Model, which also is more useful in relating it to how an EA framework can document organizational functions.

**Figure 2-4: Relating Models of Organizational Function and Structure**

The value of the Parsons/Thompson Model is its use as an authoritative reference for developing EA views of structure and process for an organization. Regardless of the model’s wide acceptance in academia, the question of whether this fifty year old view would be relevant and useful to understanding the structure of current public and private sector organizations is answered by observing that many large and medium sized corporations and government agencies continue to be hierarchical, rule-based, and goal-oriented. These were some of the primary characteristics of the “rational” organization that Parsons and Thompson originally studied.

Evidence of this still being a valid model is also seen in the rational nature of organizational charts, mission statements, strategic plans, operational plans, and business services of these types of organizations.

However, there are new types of organizations that have emerged due to technology-based changes in how people communicate and work. Global telecommunications and the Internet have made location a largely irrelevant factor in terms of where some types of work are being done (e.g., knowledge work and on-line services). Two primary changes related to organizational structure and function have resulted. First, more organizations are becoming regional or global in nature, and are relying on remote sub-groups to do significant amounts of the work. Second, more people are becoming self-employed knowledge workers who contract their services remotely to various enterprises depending on their interest, skills, and availability. Examples include people who process digitized health care forms, software developers, web site developers, distance learning instructors, financial traders, insurance salespeople, and telemarketers. Because these organizations can get certain functions accomplished remotely, their structure may become less hierarchical and more collaborative.

While it can be argued that these new networked organizations exhibit many of the structural and functional characteristics found in the Parsons/Thompson Model, there are enough differences to merit discussion of a variation of that model which may better describe how organizations operate in a more global on-line business environment.

**The Organizational Network Model**

New types of organizations and enterprises are appearing which are based on cooperative networks of local and remote individual workers and semi-autonomous teams who carry out key functions. In these enterprises, greater cost efficiency and more mission flexibility are achieved by removing layers of management that are not needed in a decentralized operating mode. These
teams are actually sub-groups that have their own management level and technical level with core processes, and therefore will still exhibit some of the characteristics of the Parsons/Thompson Model. The difference presented here is that the organization/enterprise’s structure is based on these teams and remote workers, whose goals and functions may change depending on internal and external influences.

Called the Organizational Network Model (ONM), an Executive Team sets policy and goals, approves resources, and evaluates results, while semi-autonomous Functional Teams and Independent Workers manage ongoing programs/lines of business, new development projects, and team-specific resources. The Functional Teams and Independent Workers receive policy, goals, and general direction from the Executive Team, yet carry out organizational functions in an independent and/or cooperative manner, depending on the goal(s). Figure 2-5 provides an illustration of the ONM.

![Figure 2-5: Organizational Network Model](image)

Being less hierarchical, these “flatter” and more flexible ONM organizations can respond to changing requirements more quickly by creating, modifying, or eliminating Functional Teams and/or adjusting the number and type of Independent Workers. These types of ONM organizations and enterprises can also exist as extended supply chains or networks of teams from inside and outside the traditional organizational boundary. This includes trusted business partners and independent consultants who are allowed to share sensitive information and key resources with the enterprise as part of the activities of the Functional Teams and Independent Workers.

Figure 2-6 on the next page shows how Functional Teams in ONM organizations can be related to an enterprise’s Lines of Business (LOBs) in the EA³ Cube Framework.

![Figure 2-6: Relating Functional Teams to EA Lines of Business](image)

**Organizations and Enterprises**

Organizations and enterprises are similar in that they are both types of social entities that have a culture, a formal and informal structure, goals, activities, and resources. The difference is that an enterprise can be defined as a subset of an organization or can involve multiple organizations.
Why isn’t this book called *An Introduction to Organizational Architecture*? Because that would largely limit the subject to architectures that encompass an entire organization, and while those architectures are important, a more versatile concept is an enterprise, which can cover part of the organization, all of the organization, or multiple organizations.

Enterprises are normally made up of *vertical*, *horizontal*, and *extended* components. Vertical components (also known as *lines of business* or *segments*) are activity areas that are particular to one line of business (e.g., research and development). Horizontal components (also known as *crossecting enterprises*) are more general areas of activity that serve multiple lines of business. Extended components comprise more than one organization (e.g., extranets and supply chains).

EA views of vertical components are complete stand-alone architectures in that they contain documentation from all levels of the EA framework. These types of vertical components are also known as “segments.” When vertical segments are documented using the same EA framework, they can be aggregated into a larger architecture picture that may cover several or all lines of business. This may be a preferable way to develop the first version of an enterprise’s EA as it allows them to undertake a more manageable amount of work at less initial cost (compared to attempting to do the EA for the entire enterprise all at once, without prior experience). This is called a “segmented approach” to documenting the overall EA. The segmented approach is also useful in large and/or decentralized enterprises where parts of the architecture may need to be developed and maintained by a number of different groups.

**Understanding Culture**

Understanding the culture of an enterprise is essential to developing realistic views of how strategic goals are established, how processes function, and how resources are used. Every enterprise is different in some way, as are the vertical, horizontal, and/or extended sub-enterprises. This is due to the culture of the enterprise being an amalgamation of the values, beliefs, habits, and preferences of all of the people throughout the enterprise or sub-enterprise.

**Managing Change**

Changes within the enterprise will happen regardless of the presence of an EA program, however they will happen in a more disjointed or completely independent manner without EA. The effect of the EA program is to coordinate change such that it is much more driven by new strategies and business requirements, and less by new technologies.

According to John Kotter, “To date, major change efforts have helped some organizations adapt significantly to shifting conditions, have improved the competitive standing of others, and have positioned a few for a far better future. But in too many situations the improvements have been disappointing and then carnage has been appalling, with wasted resources and burned-out, scared, or frustrated employees.”

People can be resistant to changes in their environment, whether it is at home or the workplace. If the EA program promotes changes in the enterprise, and if people are often resistant to any type of change when they do not have some level of control, then the EA program may be resisted by stakeholders unless something is done to increase their level of control. Increasing their level of control helps to successfully manage change, and can be accomplished in several ways, including:

- Involving stakeholders in the EA program’s establishment and management.
• Regularly and effectively communicating EA activities to stakeholders.
• Allowing for stakeholder input to EA planning and decision-making.
• Managing stakeholder expectations as to what the EA program can do.

**Key Term: Change Management**

The process of setting expectations and involving stakeholders in how a process or activity will be changed, so that the stakeholders have some control over the change and therefore may be more accepting of the change.

Those who are affected by the EA program are called “EA stakeholders” and they are the ones most likely to resist the program and/or changes that are perceived to be the product of the EA program. Therefore, one of the things that the EA program manager needs to ensure is that there is stakeholder involvement in as many aspects of the EA program as is possible. This includes governance and oversight activities, the selection of an EA framework and methodology, participation in and reviews of documentation activities, and participation in the development of and updates to the EA Management Plan.

Another aspect of managing change within the EA program is regular and effective communication on program activities with all stakeholders. This includes formal documents such as an EA Program Communication Plan, the EA Management Plan, and notices regarding the periodic update of the current and future EA views. It also includes informal communication on an ongoing basis with all stakeholders to ensure that their participation and support is maintained.

The details of EA program governance are discussed in Chapter 4, but it is sufficient to say that it is important to provide “a place at the table” for as many stakeholders as can be accommodated. This increases buy-in for EA policy and decision-making, as well as the success of implementing changes called for in the future architecture.

Expectation management is yet another way to promote the success of the EA program and help stakeholders deal with change. Expectation management is about identifying realistic outputs and outcomes. It can be accomplished by collaboratively assessing the capability of the EA program to document current and future architectures, the timeframe and resources that will take, and the obstacles to acceptance by stakeholders. Expectation management is an ongoing aspect of the EA program.

**Summary of Concepts**

This chapter described how enterprises are types of social organizations and discussed the importance of understanding the structure and culture of the enterprise that an EA is documenting. While it is also important to understand the enterprise’s processes and supporting technologies, it is the people of the enterprise who make plans and decisions about strategic direction, business activities, and resource utilization. The chapter also covered influences on the field of EA and presented two models of organizations and enterprises that can assist in the development of current and future EA views. Finally, the importance of managing change was discussed in that EA program activities may be resisted by stakeholders who feel a loss of input or control.
Chapter 2 Questions and Exercises

1. Why is it important to understand the “people side” of EA?
2. Compare and contrast an organization and an enterprise.
3. What are some of the academic fields that influence the field of EA?
4. Describe the purpose of each level of the Parsons/Thompson Model.
5. How is the Organization Network Model different from the Parsons/Thompson Model of organizations?
6. Who are stakeholders in the EA program and associated activities and might they want to resist the EA program and associated activities?
7. What are four ways to manage change with stakeholders?
8. Select a large or mid-size enterprise from business or government and describe the following:
   a. What structural and cultural aspects should be captured by EA?
   b. Who are the potential stakeholders in an EA program?
   c. What strategies for gaining stakeholder buy-in could be used?
   d. Relate strategies for managing change to various stakeholders.
Case Study:
Danforth Manufacturing Company
Scene 2: Considering an EA Program

Robert Danforth, the President and CEO of DMC, has called a follow-on meeting of the Executive Committee to review several recent capital investment requests and the suggestion to use an enterprise architecture approach to evaluate these requests and coordinate potential implementation projects. COO Kate Jarvis has requested a new custom Sales and Inventory Tracking System (SITS), and CFO Jim Gorman, has requested a new cost accounting system that is part of a commercial software package. Also invited to the meeting is CIO Sam Young, who joined the company one month ago, and who is giving a briefing on how enterprise architecture can help in this review.

“Good morning everyone” said Robert. “I’m eager to hear what you have to say about the architecture initiative. Sam, why don’t you lead off, and then let’s hear from Kate and Jim.”

“Thank you Robert” said Sam as he handed out an 8-page document entitled DMC Enterprise Architecture Plan-Financial and Production Segments. “Kate, Jim, and I have spent a good deal of time together during the last two weeks and I believe that we have found several interesting things about their requirements and how an architecture approach can save us money and provide a more valuable long-term solution. We formed a working group to do the analysis and included an experienced enterprise architect and a senior systems analyst who I know from some past work, as well as several managers and staff from Kate and Jim’s groups, including two sales representatives from the field. The architect, Vince Albright, provided some background on what enterprise architecture is all about and how to document and evaluate current and future views of resources and requirements. With that, the group documented the current business services and associated IT resources that might be replaced or modified by Kate’s and Jim’s proposals. Then, the group documented Kate’s and Jim’s requirements from a business process perspective and looked for areas of commonality or duplication. Finally, Vince and the systems analyst, Lily Jefferson, led the group in a scenario planning exercise that developed two plausible business and technology solutions that meet both of their requirements in an integrated manner.

Either of these integrated solutions look to be less expensive to implement than it will be to do Jim’s and Kate’s systems independently.”

Jim then spoke to the group. “I was really impressed with what the group did in only two weeks. Sam is right about looking at these types of requirements from an architecture perspective. What I realized is that my back office support systems can have more types of direct feeds of information from Kate’s line of business systems. In fact, the more we do this, the more timely and accurate the information across the company will be. The big thing here is that we eventually need to look at all of our business and technology requirements from a company-wide standpoint so that we can start to integrate and streamline our processes and capabilities.”

Kate then spoke. “I agree with Jim that this was an eye-opener. There are flows of information between Jim’s financial group and my business managers, but these flows and the supporting systems have been developed independently with no overarching plan in mind. Sam and his
associates showed me an architecture approach and implementation process that can be completed for our respective areas within the next two months and then be used to guide the implementation of a solution that I believe will meet my requirements and those that Jim has as well. This is a win-win that can lead to more of the same. Even the sales reps were getting into the game, and provided a couple of ideas about automatically pushing sales and inventory data to them that I had not considered. I am recommending that we go with this approach to refine and select a solution so that I don’t lose any more time on my competition.”

Gerald leaned forward and looked at Sam. “Sam, I remember you saying that enterprise architecture links strategy, business, and technology. I am not hearing about strategy…. was that left out?” “Good question Gerald” responded Sam. “We did not go too much into company strategy because of the two-week timeframe for developing the initial architecture plan. However, that is an area that we will have to quickly address if the architecture plan for these two segments is approved for implementation. The way that I would pursue this is to identify DMC’s strategic goals that relate to Kate and Jim’s requirements, and ensure that the solutions align with the accomplishment of those goals. For example, I see that the company will be opening a new custom order line of business next year that builds on what we are doing on an ad-hoc basis right now. I would want to see if the solution for Kate and Jim’s requirements could also be able to support similar requirements for the custom order business.”

Robert then spoke. “I always want to talk about value and risk before approving any project. I am seeing value through cost savings and potential scalability of the solution. So, what is the cost of doing these segments and then the whole architecture? And, what are the risks and how do we mitigate those risks?”

“The cost of doing a complete and detailed architecture for a mid-size company like DMC may be considerable” said Sam. “And I therefore recommend this type of segmented approach to developing a company-wide architecture, where we take one line of business at a time. In the plan we developed, you will see that the cost for the first two segments is $105,000, which covers analysis, modeling, documentation, and an EA tool. There is also an $11,600 cost for documenting and applying the general architecture methodology, framework, and standards, that is largely reused in subsequent segment efforts. The analysis of these two segments should take two to three weeks, and depending on which of the two solutions is selected, the supporting documentation will take another month. So this plan delays Jim and Kate approximately two months, but saves the company well over the $121,600 cost if a combined solution is adopted.”

Sam continued. “By having a standardized architecture approach, we ensure alignment in each completed segment and can also use it to guide each new development and upgrade projects throughout the company, so that architecture alignment occurs much more quickly. This approach is also a risk mitigation strategy, in that we are spreading out the cost and effort over time, involving stakeholders in the development of each segment, and incorporating lessons learned from each segment effort. Two of the most important success factors for doing an enterprise architecture are the strong support of executive leadership, and buy-in from stakeholders. If you see value in having an architecture, and have a say in how it affects you, then the architecture can become a powerful planning and decision-making tool for DMC.”

Robert thought for a moment about what Sam had said and then addressed the group. “I am inclined to approve the plan to develop a standardized architecture approach and these first two segments, are there any objections?” There were no other comments. “Ok Sam, let’s proceed with the plan and get together every two weeks for a progress report.”