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INTRODUCTION

Organization design, as opposed to organization theory, is a prescriptive body of knowledge. It is intended to inform the choices of how to organize and manage institutions and serve the leaders who have been entrusted with the stewardship of these institutions. These organizations are purposeful: they have been created to accomplish specific goals and objectives. Organization design is therefore focused on creating organizations through which these goals and objectives can be accomplished.

The knowledge base underlying the choice of organization designs has its roots in scientific management and classical management principles. The practitioners and scholars who developed the knowledge in these areas were searching for the one best way to organize. Those early thinkers created many of the principles, like span of control, and much of the useful language, like centralization, that we still use today. However, it was not difficult to find effective organizations that violated many of the principles of classical management. As a result, modern organization design grew out of efforts to explain these exceptional observations.

Modern organization design came out of a variety of work in the 1950s and 1960s. One stream, developed in the United States, is best illustrated by the work of Alfred Chandler in *Strategy and Structure* (1962). He found that the different organizational structures we had observed could be explained by differences in companies' strategies. Therefore, different strategies lead to different organizations. This stream, referred to as strategic organization design, is a top-down design process that begins with the entity's strategy and

can be applied at the enterprise, business unit, geographical, and functional levels.

A second stream of thought developed in Europe around the work of Eric Trist and his followers (Trist and Murray, 1993). It was referred to as the sociotechnical systems approach. It was bottom up. It focused on the alignment of the technology involved in doing the work and the social system that could be created to perform that work. Sociotechnical systems' thinking and tools are best at designing organizations at the bottom levels of the structure. The strategic design thinking and tools are best used for designing organizations' top levels. The strategic organization design approach is the one that I follow in this book.

Today's Organization Design

The interest in organization design has been increasing over the past couple of decades. One of the reasons is that our organizations have been increasing in complexity over that time. "Doing what comes naturally" is not a sufficient guide to organizing today's institutions. Most leaders today rose up through a far simpler structure. Nor are the old dismissives relevant: "All you need are good people. They'll make any organization work." And people do make a misaligned organization work, but at a price. The people in an organization that is misaligned with its strategy and stakeholder environment cannot serve its customers and work around the system at the same time. They can perform much more effectively when the system supports them in doing their work. Besides, high-performing companies do not want organizations that just work; they want organizations that excel. The discipline of organization design has evolved along with the increasing organizational complexity and the desire to create high-performing organizations.

In the following chapters, I trace the organizational stages through which companies have progressed from the simple, single-business strategy to the complex multibusiness,

multicountry, multicustomer segment strategy. The first organizational stage is the single-business strategy, sometimes called the U form, or unitary form of organizations. Almost all companies start as a single business that is organized around functions, like sales, marketing, operations, product development, finance, and human resources. It is a unitary or one-dimensional form because it is structured only around functions. All people reporting to the CEO are functional leaders. Chapter 3 is devoted to the design of the single business or business unit, I introduce the concept of the lateral or horizontal organization. In order to get anything done, companies have to work across functions to deliver customer orders, new products, and projects. These processes are executed through lateral forms of cross-functional coordination. The functional structure or hierarchy is the vertical form, and the processes are the lateral forms, which vary from informal and self-organizing processes, to formal teams, to the matrix form. Lateral forms are present in all types of organizations, but I present them in a discussion about business units in chapter 3 since they are the principal design challenge facing business unit leaders.

The second stage arrives when a single business diversifies into new business areas. The company then creates a business unit and a profit and loss center for each new business area. Each business unit is another functional organization. The organization design challenge is thus to create a corporate center to govern the various business units. This center typically contains functional staffs to coordinate the functions across business units. The role and size of the center vary with the diversity of the businesses in the corporate portfolio. Since the CEO of the enterprise has both functions and businesses reporting to the center, the company has a two-dimensional organization structure.

The third stage develops when a company expands out of its home market into new host countries. This strategy adds a third dimension—a geographical dimension—to the organization. Initially companies simply add a geographical division to their

multiple business unit divisions. But when international sales reach around 30 to 40 percent of total sales, the international division disappears. In consumer goods companies, the division is replaced by regional profit centers, one of which is the home country. In the business-to-business (B2B) world, the international division is split and the parts are added to their respective business units, creating global business unit profit and loss centers. However, in the global business unit structure, there is still an international or regional overlay on the global business units. And in the regional structure, there are global business units that are overlaid across the regions. So reporting into the corporate center are functions, business units, and geographies. The organization design challenge is balancing power and authority across the three-dimensional structure. The resulting power distributions will be driven by the global portfolio strategy (Galbraith, 2000).

The fourth strategy stage begins with a focus on the customer (Galbraith, 2005). Driven partly by demands from global customers like Walmart, companies such as Procter & Gamble, IBM, and investment banks are adding global customer or customer segments to their structures. Another contributing factor is the conversion of products and services into digital offerings. In the digital world, everything talks to everything else. Vendors, like IBM and Accenture, can combine digital hardware, software, and services into smart solutions for their customers. They can easily customize and codevelop applications with customers for customer segments, like financial services and utilities. This solutions strategy is best executed by organizing around the customer or customer segments called verticals. So in these solutions-oriented companies, we find customer segments reporting into the corporate center along with business units, countries, and functions. The challenge for organization designers is to integrate four dimensions into a one-company strategy and organization. Integration becomes the task of the company's processes. As we will see, the more complex the structure is, the more important are the processes.

Inevitably, the question that comes up is, "Is there a fifth stage?" In the concluding chapter, I speculate about a fifth stage. It appears that the forces around big data, meaning the increased volume, complexity, variety, and velocity of available data, may very well manifest themselves in a fifth strategy and organizational dimension.

Drivers of New Strategies

It is natural to ask why companies are continually changing their strategies. What is driving this movement through the stages? Usually managers prefer to keep things simple, so why are they moving to ever more complicated strategies? There are at least two reasons. One is the pursuit of growth. Many companies are driven by a growth imperative. And the other is the continuing fragmentation of the stakeholder environment.

Growth

Every publicly traded company wants to grow and drive its stock to trade at a premium price. If there is no growth, the company's stock is flat and trades like a bond. A high stock price makes it easier to attract capital and reward employees. The elevated stock also can serve as a currency to make acquisitions. More important, talented people want to join a growth company that has a bright future. But while growth is desirable, it also faces limits. A firm can grow only so much in its core business and its home country. So when growth in the core business slows, firms diversify into adjacent businesses and become multibusiness companies. When growth slows in the home country, firms expand across borders and become multinationals. This pursuit of new growth opportunities causes firms to change strategies and move through the stages.

Fragmentation of the Stakeholder Environment

The other driver of strategic change is the movement from mass markets to ever smaller market segments. In the twentieth century,

businesses used mass production to supply mass merchants to serve the mass market. Now, with ever-increasing data, firms can focus on ever smaller customer segments. Consulting firms can now identify 650 microsegments in the food market. Some of these microsegments are declining, some are flat, and others are growing. So food companies are focusing on these growth microsegments, like Hispanic moms and senior foodies. Both the growth imperative and market fragmentation lead to customer-focused strategies.

So it is largely the growth imperative and market segmentation that drive firms to continually evolve their strategies. But not all companies progress through all of the stages. Some companies, like utilities and defense firms, remain domestic enterprises, and some family-owned companies remain in a single business. Andersen, Marvin, and Pella focus largely on residential windows and doors. Most companies, however, become three-dimensional, multinational enterprises like General Mills, Pfizer, Siemens, Canon, and Johnson & Johnson, while others, like Experian and Nike, progress or are progressing through four or even five stages. My point is that different strategies drive different organization designs. It is not size or industry that is the primary shaper of different organizational forms. Size, industry, and nationality all have their effects, but in this book, I start with strategy to begin the design process.

The other point about strategy stages that is important for organization design is that the strategies are cumulative. Chandler called this feature concatenation. That is, a multibusiness enterprise also has stage 1, single-business strategies that guide its business units. And when the stage 2 enterprise expands across borders, it adds third-stage international strategies to its stage 2 multifunction, multibusiness strategies. This cumulative stage-wise progression is what increases the complexity of organization designs and gives organization design its challenge and its priority to create high-performing enterprises.

Drivers of Organization Designs

There are three major shapers of organization designs. The first is the one that we have been discussing: the diversity and variety of units that must be coordinated for the company to execute its mission. The second is the degree of interdependence between these diverse units. Usually the units in a company are not independent but require coordination, and the amount depends on the degree of interdependence. This interdependence results from the initial division of labor into functional specialties that are needed to execute the business's activities. The third factor is the dynamics of change associated with a business. The dynamics consist of the rate or pace of change combined with its predictability. The predictability of change is the key. Even if a business is subject to constant change, if that change is predictable, a company can use plans and schedules to coordinate interdependence among units. If each unit can meet its planned goals and delivery schedules, the organization greatly reduces the amount of ongoing communication that it needs to coordinate its work. It is when change is constant and unpredictable that plans and schedules need constant revision and renegotiation. These organizations require designs that permit high levels of communication, flexibility, and adaptation.

Variety and Diversity

It is actually the interaction of the three shapers—variety, interdependence, and change dynamics—that drives organization designs. To illustrate, let us start with a single business that conducts its affairs through seven functions: development (of products and services), operations, marketing, procurement, sales, finance, and human resources. These seven functions must coordinate their efforts to conduct normal business for the existing product already in the market. They must also
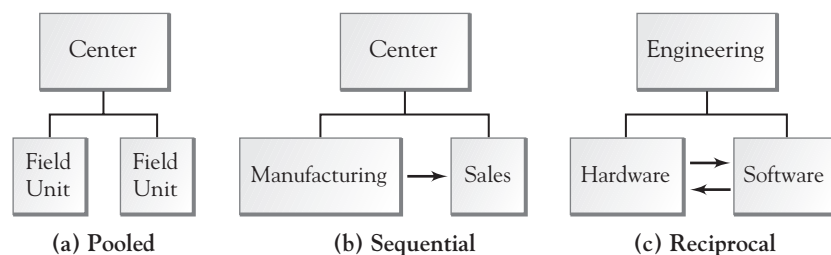
synchronize their activities to launch a new product, and they probably need to agree on the priority and features of the next product in development. The communication and decision making to arrive at the plans and schedules for the existing product in a seven-function organization must take place across twenty-one interfaces. (Links $= \frac{1}{2} n [n-1]$. Thus, $21 = \frac{1}{2} \times 7 [6]$.) Communication and collaboration must also take place across these same seven functions and twenty-one interfaces for the launch of the next product and yet again for the initiation of the new product. The process repeats itself for each product that is added to the single-business, functional organization. So variety, as measured by the number of products in this case, increases the volume of information processing and decision making that a single functional organization must execute. And every functional organization has a limited capacity for communicating and deciding. Then when the growth imperative causes the single business to follow a diversification strategy, it will add one or two new businesses. At this point, the coordination task exceeds the company's capacity to coordinate. As a result, it will move to a stage 2, multibusiness company and multibusiness structure. The functional organization does not have the information-processing and decision-making capacity to manage multiple businesses within a single functional structure.

Dell is a good example. Dell started with a single product line of desktop personal computers. In order to maintain its growth, it added desk-side computers and laptops. Then it added new businesses of personal desktop printer, personal desk-side storage, and low-end servers. It also migrated from a single personal computer business into a multibusiness unit, multiprofit center company. It changed its name from Dell Computers to Dell. Each profit center was a functional organization capable of managing a single business, like personal computers, printers, storage, and servers.

Interdependence

Interdependence is the degree to which activities in one organizational unit affect the activities and goal accomplishments of other units. Interdependence has been a driver of coordination since the work of Thompson (1967), who identified three types of interdependence, which increased in magnitude. These types are shown in figure 1.1. The simplest interdependence is pooled interdependence whereby field units, shown in figure 1.1a, share the same pool of funds and talent resources. Other than sharing resources, these field units, like sales units, perform their work completely separately. There is a minimal need to coordinate and communicate between one another. The next type, sequential, shown in figure 1.1b, indicates a higher level and greater amount of interdependence. In sequential interdependence, the output of manufacturing is a necessary input for the performance of the sales function. In order to achieve successful performance, company management must coordinate the flow of work across sequentially interdependent units. The sequentially interdependent units, however, also possess pooled interdependence. The greatest amount of interdependence exists when units are reciprocally interdependent, as in figure 1.1c. The output of both is the input of the other. Engineering design groups are a good example. The reciprocally interdependent units possess the greatest amount of

Figure 1.1 Types of Interdependence

(a) Pooled   (b) Sequential   (c) Reciprocal

interdependence because they possess all three types. They require the greatest need for coordination as a result.

Interdependence is a variable that can be changed and can lead to different amounts of coordination. For example, the new product initiative referred to above may have greater interdependence among development, marketing, operations, and procurement than it has with the other three functions. Therefore, the interdependent four functions can form a core new product team, which has more limited communication with the other three functions. But when you add the other functions to the core team, it becomes the extended product team. One of the reasons that interdependence drives organization designs is that a principle of design is to create structural units based on the degree of interdependence. A designer should maximize the amount of interdependence and coordination that takes place within an organizational unit and minimize interdependence and coordination across units.

Today the most competitive management practices—lean processes, speed to market, and real-time decision making enabled by big data—increase the interdependence among functions. Previously companies reduced interdependence by using sequential work flows across functions. Between each stop in the flow of work were buffers like in-process inventories and order backlogs. These sequential work flows, called "loosely coupled systems," uncoupled the functions so that they could solve their issues independent of other functions. The loosely coupled systems reduced the amount of information processing and decision making so that the complexity of coordination fit within the business unit's capacity. However, loose coupling led to the barriers between functions that we refer to today as silos.

The competitive practices referred to above are creating tightly coupled systems that remove the buffers that uncoupled sequential flow across functions. And in their place, we need to

create communication links across the interfaces between functions. We need to break down the silos. One of these practices began as lean manufacturing, such as in the Toyota production system. In lean manufacturing, all the buffers were seen as waste to be eliminated: they consumed resources and created no value for customers. From manufacturing, "lean" has progressed into services and now to the lean start-up (Ries, 2011).

The new product development process has been redesigned to reduce time to market. Previously the process was sequential. Engineers designed the product. They then gave the design to procurement, which contracted for the components and to operations, which designed the manufacturing process. Almost all manufacturers today use parallel processes called simultaneous engineering or concurrent design. The engineers still design the product, but they are joined by manufacturing engineers, quality engineers, and service engineers to jointly design a better, and more complete product, faster.

A third practice for speeding up decisions is the need to decide and act in real time as events unfold in social media. Nestlé has a digital acceleration team to constantly monitor social media conversations about its brands and categories, and then engage consumers in conversations. The team is not composed just of social media experts. It includes many functions like brand managers, consumer insights, legal, customer account managers, agency personnel, and food scientists if needed. The purpose is to act quickly on bad news before an incident goes viral. The digital acceleration team is a good example of a reciprocally interdependent group of functions.

All of these practices increase the speed of decision making and the amount of interdependence across functions. Usually to implement these practices, cross-functional teams are needed to short-circuit the hierarchy. The organizations take on a strong lateral or horizontal orientation. Many refer to these designs as networks. I address these in chapters 3 and 4.

Dynamics of Change

The predictability of an organization's work has been identified as a shaper of designs for a long time. March and Simon (1958) identified programmed decision making as the appropriate process for predictable tasks and unprogrammed decision making for unpredictable work. Burns and Stalker's (1961) case studies revealed two types of organizations that they called mechanistic and organic, with the appropriate organization depending on the work to be performed. If the work was predictable, a hierarchy or mechanistic form was appropriate. If it was unpredictable, an organic form was appropriate. By organic, the authors meant lots of lateral forms to foster coordination. The work of Lawrence and Lorsch (1967) was the most revealing. (Their results are shown in table 1.1.) They compared companies in the plastics, food, and container businesses and measured the amount of revenue in each company that came from new products introduced in the previous five years. This variable was a proxy for predictability of the work. Revenue due to new products varied from zero for containers (can companies) to 15 percent for food to 35 percent for plastics (packaging).

Table 1.1 Matching Strategy and Organization

	Plastics	*Food*	*Container*
Percent of revenue due to new products	35%	15%	0%
Coordination mechanisms used	Hierarchy Voluntary Formal groups at three levels Integrating departments	Hierarchy Voluntary Formal groups Integrating roles	Hierarchy Voluntary
Percent integrators/ managers	22%	17%	0%

This work was performed by functional organizations. The container companies were able to achieve cross-functional coordination with only voluntary or informal personal contacts across the hierarchy. These companies had the most predictable work to perform. Cans were a commodity, and the focus was on operational excellence. The food companies faced moderate amounts of unpredictability associated with 15 percent of their revenue coming from new products. The impact of more unpredictable work can be seen by the number of additional resources that were invested in cross-functional coordination. In addition to the hierarchy and informal contacts, the food companies employed integrators (product managers) and formal groups (cross-functional product teams). In addition to the managers in the functional hierarchy, the food companies used 17 percent more managers for coordination.

The results are even more striking with the plastics companies. These companies compete with new products and continually face new and unpredictable tasks. These companies employ integrating departments (product management departments) and formal groups at three levels (cross-functional product teams). They employ 22 percent more integrators to coordinate all of this cross-functional, new product coordination. So the effect of unpredictability on interdependent work flows is dramatic. When companies are designing, making, and launching new products, the effect of unanticipated issues causes them to make and remake decisions repeatedly. They must process information from all of the interdependent functional groups, which requires an organization designed specifically to execute a new product strategy.

The effect of unpredictable work is much less dramatic when the work is independent. A law firm may work on uncertain cases for different clients. Each case has a team working it, and each case is independent of the others. There is minimal pooled interdependence and minimal need for continuous decision making and information processing across the case teams. The law firm can function with a much less complex organization. So the

design challenges come from the extreme values of the shapers of organization design. That is, the challenge is to design an organization that is providing a variety of products and services through an interdependent group of functions when change is rapid and unpredictable. But most companies have been following strategies that push us to the extremes of these design-shaping factors. These companies need the accumulating design knowledge to create the high-performing organizations they desire.

Summary

This book will follow a school of thought called strategic organization design. That is, we start with a company's or a unit's strategy and design the organization from the top down. This school of organization design follows from Chandler's work, *Strategy and Structure*. His model states that every twenty or thirty years, companies add a new strategic dimension to their portfolio. Not all companies follow this stage-wise progression, but many publicly traded companies do in order to pursue growth. In so doing, they adopt ever more complex strategies. This complexity is behind the rise of organization design to guide the choice of organizations with which to compete in global markets.

If growth creates complex strategies, it is diversity or variety, interdependence, and change that shape organizations. As a framework for the book, I describe the trajectory of a typical company as it evolves through the stages of increasing diversity and increasing complexity. To the extent possible, I provide examples of actual companies to illustrate the points being discussed. But before beginning the chapter on the single-business strategy and functional organization, I define what I mean by organization and use the Star Model for this purpose. I also identify the design factors that leaders can use to create the organizations that they desire.