

# Basic Models of Organizational Structure

A Guide for Sustainable Entrepreneurs

**SUSTAINABLE ENTREPRENEURSHIP PROJECT**

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## **Basic Models of Organizational Structure: A Guide for Sustainable Entrepreneurs**

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# Basic Models of Organizational Structure

## §1 Introduction

There are obviously an almost infinite number of ways that an organization can structure its activities and every organization should select the structure that best suits its strategy, human resources, culture, technology and external environment. However, it is possible to identify certain basic models of organizational structure that can serve as a reference point for understanding the issues that must be addressed and resolved when making structural decisions. Several of these models are based on formal groupings of people and resources into units—departments or divisions—that focus their activities primarily on a particular axis or dimension such as function, product, geographic area or customer/market. Eventually, many organizations evolve toward the use of some combination of two or more of these types (i.e., a “matrix” structure) as their activities continue to grow and become more complex. As time has gone by organizational researchers have advanced alternative methods for describing organizational structures, such as the distinction between mechanistic structures, thought to be most suitable for large organizations using routine technologies in a relatively “certain” environment, and organic structures, which arguably are preferred when the organization is smaller and the environment is less certain.

Organizations are typically founded by one person or a small group of persons and there is often no need for a formal organizational structure during the early stages of launching the new venture. However, once they reach a certain size and complexity, organizations companies generally begin to departmentalize their activities along one of the axis or dimensions referenced above. In most cases, the initial decision is to distribute activities and people along functional lines (i.e., a “function-based” organizational structure). The main advantage of this approach is that it allows the organization to develop the specialized functional skills and resources that are essential for the development of any business. In addition, a function-based structure is probably the easiest way for the chief executive officer (“CEO”) to retain an overall picture of the business and thus effectively exercise his or her role as the primary decision maker. There are, however, disadvantages to a function-based structure that ultimately lead to changes as the organization grows. For example, departments organized by function tend to focus on internal goals as opposed to the broader goals and objectives of the organization. This “tunnel vision” is fostered by a lack of communication with other business units and establishment of reward systems that are based on functional objectives and achievements as opposed to collaboration with groups in other parts of the organization. As a result, conflicts begin to arise when coordination among business units is required and it becomes necessary for senior management to devote a significant amount of time and effort to ensuring that the various functions learn to work together for common goals.

A functional structure is most useful and appropriate when an organization has a single product line that is relatively stable and which has long development and product life cycles. In that situation a functional structure is the best way to achieve standardization, specialization and economies of scale. A functional structure becomes outmoded,

however, when organizations begin to diversify and expand their products and markets and at that point momentum builds to shift toward adoption of a new organizational structure built around products or markets as the primary axis or dimension. If the organization is moving toward multiple product lines, a product structure can accelerate product development cycles, develop and maintain specialized expertise in innovative product areas and reduce the challenges that arise when it is necessary to coordinate with multiple functional departments. A geographic dimension for the organizational structure becomes important when opportunities in the domestic market begin to slow down; however, the challenge is determining just what changes in product design and sales/marketing strategy are needed in order to be successful in foreign countries. Finally, customer-focused divisions are important when the organization has identified important customers that want a single point of contact for reviewing and purchasing the offerings of the various product- and market-focused divisions.

Transitioning from an emphasis on functions to products, geography or customers has the immediate advantage of dividing the activities and resources of the organization into units, typically divisions or subsidiaries, that are more closely related to its competitive environment and also makes it easier for the organization to align its rewards and incentives with the overall performance goals established by senior management for the organization as a whole. In addition, a product- or market-focus organizational structure reduces the problems that arise when attempts are made to coordinate activities across functions and CEO is able to delegate decision-making responsibility to senior product or market managers and then evaluate their performance using objective criteria. Of course, there are certain disadvantages associated with the new structure that must be considered. The most important is probably the danger that the specialist skills of the organization will be eroded which may adversely impacted what had previously been a competitive advantage of the organization. In addition, launching and maintaining separate organizational units for each product and/or market may result in duplication of functional resources in each unit, a problem that is sometime eventually addressed by creation of central resource units that offer certain functional services to two or more business units within the organization. Also, while not necessarily a disadvantage, the transition to a new structure means that the CEO must adapt to new ways of tracking the progress of the organization. The former CEO habit of relying on direct knowledge based on detailed involvement in day-to-day decisions must give way to the use of written reports and trust in the judgment, skills and abilities of other managers. In order for the structure to be effective, it must be understood and operated by managers that are highly skilled and committed to the strategic goals and objectives set by the CEO.<sup>1</sup>

Some of the shortcomings associated with an organizational structure grounded in a single axis or dimension may be overcome by implementing a matrix structure that calls for employees to report to managers on two different dimensions. A common form of matrix structure groups employees by product and by function. For example, a marketing specialist may be assigned to a particular product group to provide support on creating and implementing promotional strategies for the product while simultaneously

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<sup>1</sup> S. Power, "Organizational Structure," in C. Heyel and B. Menkus, *Handbook of Management for the Growing Business* (New York: Van Nostrand Reinhold Organization, 1986), 405-406.

collaborating with colleagues in a headquarters-based marketing department. This individual would have reporting relationships with two managers—one in the product group and one in the marketing department. The matrix structure facilitates the flow of ideas and information across product groups since this individual can share news with colleagues in the marketing department who will then pass them along to the other product groups with which they are affiliated. The matrix structure also allows the organization to build and maintain a functional core competence in marketing while still following a product-focused model for grouping all functional activities. The main challenge of the matrix structure is complexity and most particularly the very real possibility that confusion will arise in the minds of employees as they attempt to serve the needs of two managers.

As complex as the organizational structures describe can become the imagination of organizational designers is unlimited and advances in technology continue to lead to innovative new ideas about how people and organizations can collaborate outside of formal structures. One popular concept is a “network” structure that focuses on the ways in which organizations can tap into the resources of other organizations through long-term contracting and other types of strategic alliances. Another example has been referred to as a “boundaryless organization,” which consists of persons in various locations who rarely, if ever, meet face-to-face and communicate and collaborate on specific projects using technology (e.g., telephone, computers, faxes, CAD and/or video conferencing). Membership in this virtual organization is not limited to employees and often includes independent functional specialists brought in on a temporary basis to provide a specific set of services within their area of expertise and who are expected to move on after they have completed their work.<sup>2</sup> Others have emphasized the importance and utility of “communities of practice”, which have been described by Harris as naturally occurring groups of people within an organization that share similar goals and interests and pursue them collaboratively using common practices, similar tools and a common language.<sup>3</sup> Harris suggested that organizations seeking to support communities of practice can do so by providing the communities with resources and developing an organizational architecture to preserve and enhance the healthy autonomy of the communities while connecting them to the larger organization so that the organization can take advantage of the results of the experiments conducted within the communities.

Miles et al. predicted a rise in popularity and use of what they referred to as a “cellular organization” which, as the name implied, would be “a living, adaptive organization, one that can act as a single cell, or combine with other cells to perform more complex functions”.<sup>4</sup> In her description of a cellular organization, Harris explained that each cell (e.g., team or business unit) would have a specific responsibility to the organization and

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<sup>2</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 171.

<sup>3</sup> C. Harris, *Characteristics of Effective Managers* (2010), <http://pdfsr.com/pdf/characteristics-of-effective-managers> [accessed June 28, 2015], 7. See also E. Wenger, *Communities of Practice: Learning as a Social Science* (June, 1998), <http://co-i-l.com/coil/knowledge-garden/cop/lss.shtml>

<sup>4</sup> C. Harris, *Characteristics of Effective Managers* (2010), <http://pdfsr.com/pdf/characteristics-of-effective-managers> [accessed June 28, 2015], 7 (citing R. Miles, C. Snow, J. Matthews and G. Miles, “Organizing in the knowledge age: Anticipating the cellular form”, *Academy of Management Executive*, 11(4) (1997), 7).

that the organization itself would have sufficient flexibility and fluidity to continuously reorganize its cells in order to meet the then-current needs of the organization. Cells might serve other internal cells or provide services to external clients, such as customers, and would be available to combine with other internal cells to work on projects as required to achieve organizational goals. Miles et al. argued that cellular organizations would be built and maintained on fundamental principles of entrepreneurship, self-organization and member ownership. Harris noted that managers in cellular organizations would need to be self-management skills, cross-functional experience and collaborative abilities since project teams could be expected to become the primary organizing unit in these types of organizations.

## **§2 Function-based organizational structures**

The traditional or classic organizational structure is function-based and organizes people and resources around the major activities that are appropriate for the operations conducted by the organization. This approach answers the fundamental questions regarding structure by opting for a high level of job specialization, function-based departmentalization, a narrow span of control for managers, and centralized authority that vests the power to make key decisions with those at the highest levels in the vertically structured hierarchy. A graphic depiction of this structure for an organization, in the form of an organization chart, would have the CEO or president at the top level, several functional vice presidents at the next level, and various layers of management within each functional department based on the specific size and activities of the organization. For example, an organization engaged in manufacturing will usually create specific functional departments to oversee activities relating to procurement, production, engineering, sales and marketing, accounting and finance and human resources. On the other hand a hospital may departmentalize its personnel into groups focusing on surgery, nursing, maintenance, billing and collections, facilities management, human resources and legal/administration.

In most cases the first major challenge for an organization with respect to structuring its activities and resources arises with the introduction of specialization and horizontal differentiation, which begins with the first assignment of an employee to perform a specialized role. As more role assignments are made the organization gradually evolves toward a functional structure in which employees are grouped based on common skills or expertise and/or the need to rely on and use the same resources. For example, scientists and accountants may become part of the research and development and accounting functions, respectively, based on their common skills and the resources that they use in performing their roles on behalf of the company. Increased horizontal differentiation based on the creation of functional groups allows organizations to be more effective in achieving their primary business goals and objectives—producing the highest quality products and services at competitive prices while still making an acceptable profit—and should ultimately lead to sharing of knowledge that improves the skills of the managers and employees to the point where the organization develops and maintains a core competency in one or more functional areas. Creating and supporting functional

specialization should also promote standardization, reduce duplication, improve quality and harvest the benefits of economies of scale.

The creation of new functions, and the accompanying increase in horizontal differentiation, occurs as the organization grows and its activities become more complex and senior management wishes to develop the organization's own internal skills and resources for a crucial functional area. For example, when an organization is first launched it may rely on outside contractors to skilled inputs in certain areas, such as accounting and marketing; however, as time goes by and the organization achieves certain growth milestones—completion of development of its first product and/or sale contracts with its initial customers—it becomes more efficient to have employees perform the activities that have been outsourced. As more and more functions are added to the organizational structure further differentiation occurs within each function as functional sub-groups are formed to carry out specialized tasks and activities. In fact, each function eventually develops its own specific hierarchy and division of labor.

A simple example of a traditional function-based organizational structure might break activities out into four main functional areas—operations, sales and marketing, finance, and human resources/administration. The senior management team would include the CEO and four senior vice presidents—one for each of these main functions. Each function would have a senior manager or director for each major activity associated with the function and they would report to the applicable senior vice president. For example, the operations function might have senior managers or directors overseeing engineering, procurement, facilities, manufacturing and information technology. Similarly, activities in sales and marketing might be divided into sales, market research, customer service and marketing; finance activities might be broken out as accounting, treasury and planning; and human resource activities might include recruitment, training and benefits. Lower levels of management will generally be created to supervise important sub-activities. For example, supervisors reporting to the senior accounting manager may orchestrate the work of employees engaged in similar specialized accounting activities such as accounts receivable, accounts payable and cost accounting. In the same way, the senior director of sales may rely on sales managers for different geographic regions and the senior manufacturing director will oversee plant supervisors at each of the organization's production facilities.

The path taken by organizations to develop their particular functional structure depends on a variety of factors and often seems to be unplanned and reactive to unpredictable events in the organization's external environment. However, the founders and other senior managers can and should be able to develop a general idea of the initial functional structure that will be needed in order for the organization to fully launch its activities and then focus on acquiring the human and other resources that are necessary in order for the structure to be effectively deployed. For example, if the founders wish to create and operate an online retail "store" they should plan on having functional groups that can cover all of the steps necessary to interact with, and sell and deliver products to, the target customers they have identified in their initial business strategy. This generally means, at

a minimum, that the organizational structure will need to include functional groups for software development and testing (R&D), design and maintenance of the website (IT), procurement of products or third party fulfillment of orders (Logistics/Operations), advertising and promotion (Marketing), and processing of payments from customers and to vendors (Finance). The outline of the organizational structure is determined by stepping back and looking at all of the tasks and activities required in order for the company to create, promote and sell its products and services and then identifying the functional core competencies that will be needed. The founders can then set about recruiting experienced functional managers to build these competencies and this larger group (i.e., founders and the senior managers overseeing the functional groups) can eventually turn their attention back to strategic planning to set the direction for continued future growth.

### **§3 --Advantages of the functional structure**

A function-based structure is often selected by organizations in their early stages of growth because it is the easiest and most logical structure to implement when the activities of the organization have not yet reached high levels of complexity. Efficiency is promoted by putting jobs that require essentially the same levels of skill, knowledge and resources together into the same functional department and such an arrangement also facilitates the exchange of new information within the function-based group that builds the expertise of its members and lays the foundation for creating what hopefully will become a core competency of the organization as it grows and matures. Smaller organizations, particularly when they are just starting out, tend to initially gravitate toward a function-based structure in which employees are grouped and organized around the functional activities that are most important to the line of business in which the organization is engaged. For example, an organization engaged in the development, production and commercialization of pharmaceutical products might create departments for all or most of the following—research and development, governmental relations (i.e., securing product approvals), production, marketing, sales and human resources. On the other hand, an organization operating a chain of restaurants would create departments for procurement, human resources (i.e., recruitment and training), marketing and management of the real estate where the restaurants are located. Both types of organizations would also have other core supporting functions such as finance and accounting. The specialization associated with functional structures facilitates the development and institutionalization of specific expertise and functional structures create opportunities for standardization and economies of scale that may be necessary in order for the organization to become and remain competitive.

A functional structure has several commonly-recognized advantages for the organization and its managers. First, the natural division of labor associated with the formation and maintenance of functional groups allows the members of each group to become more specialized and productive and creates opportunities for them to continuously learn and improve through their interactions with other group members. Second, since the members of each functional group are brought together and linked by their common skills, education and training, it is easier for them to supervise one another and control

the activities and behavior of all of the members of the group. It is typical for each functional group to actually develop its own unique set of cultural values and norms that impact behavior within the group. Third, the consistent interaction and collaboration among group members ultimately leads to a team orientation that makes the group more effective in tackling and completing the projects assigned by the senior managers overseeing all of the functional groups. Ideally this will eventually result in one or more of the functional groups becoming a true core competency for the organization that can be leveraged within the company's overall strategic plan. Finally, the functional structure facilitates segregation of resources into the areas that are most important for the organization's immediate success and thus makes it easier for senior management to identify, manage and control resource deployment during a time when the organization is growing rapidly and adding new resources quickly.

#### **§4 --Disadvantages of the functional structure**

A functional structure continues to make sense for organizations as they grow and add new employees as long as operational activities remain limited to a single relatively stable product line and the organization does not venture into new markets (see Table 1). However, there are several notable disadvantages of using a function-based structure that ultimately move organizations to transition to alternative structural forms. First of all, responsibility for all of the activities associated with making sure that finished products are developed and commercialized is not allocated to a single person and the success of the products depends on coordination through rules and procedures, detailed specifications, shared traditions among engineers and meetings (ad hoc and structured). Second, functional departments may become so absorbed in their specialized sphere of knowledge and expertise that they fail to appreciate and respect the views and needs of other functions and the need to put the goals of the organization above those of any one department. Finally, as the organization grows, adding new products and locations, it becomes increasingly difficult to coordinate activities that require participation and collaboration by multiple functional departments. In general, a function-based structure works best when there is a need for a high level of specialized knowledge.

The above-described advantages of functional structures should be balanced against several serious potential problems that will need to be addressed by senior management and others involved in designing the appropriate structure for the growing organization. The use of the term "problem" is a bit ironic given that the issues usually arise because the initial function-based structure has, in fact, been successful in pushing the organization forward successfully with the result being that it is able to expand its initial line of products and services and attract greater interest from customers that will require more growth and accompanying strain on the organization's existing resources. The issues can be broadly categorized into communication problems, measurement problems, location problems, customer problems, and strategic problems.<sup>5</sup> In addition, each of the functional groups themselves will eventually reach a point where they need to be restructured and reconfigured in order to keep up with the growth of the organization.

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<sup>5</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 147-148.

**§5 ----Communication problems**

As more functional groups are created, and each of those groups expands and develops its own unique hierarchy and system of interaction among members of the group, the chances of communication problems between groups increases substantially. Not surprisingly, each functional group begins to develop its own orientation toward how the activities of the entire organization should be prioritized and these will often conflict with the views of other departments that depend on the group for cooperation and resources. For example, the sales function will be eager to increase revenues by adding new features to the organization's products in order to satisfy a wider array of customer requirements; however, the manufacturing function may resist new features that would increase the costs of production. Moreover, the R&D function may have little interest in working on what it considers minor improvements to existing technology and would prefer to devote its resources to creating entirely new technologies that might require a major shift in the company's view of its market and customer base. Since each of these major functional groups has a very different idea of what is best for the organization it is not surprising to see problems emerge in communications and collaboration between departments with the ultimate result being that it becomes more and more challenging for the senior managers to get everyone acting as a unified organization in addressing and satisfying the demands of the market and specific customer requirements.

**§6 ----Measurement problems**

As the organization grows and creates new functional groups and adds new products and services it becomes more difficult for senior management to identify and measure the contribution that each employee and functional group is making to the necessary activities of the organization and the pursuit of the strategic goals and objectives set by the leaders of the organization. One specific problem is determining the costs associated with the contribution that each functional group makes to the development and commercialization of each of the organization's products and services. Without this information, and the ability to allocate fixed and variable costs from each functional group to specific products and services, senior management cannot accurately determine the profitability of a particular product or service and may be unaware that the organization is investing significant resources on a product or service that is actually losing money. These measurement problems ultimately lead to poor decisions about the organization's portfolio of products and services unless steps are taken to collect and properly evaluate all the information necessary to determine how and where the organization's limited resources can be effectively deployed.

**§7 ----Location problems**

As functional groups develop and grow, and the range of its products and services expands, the organization will also begin to experience new issues arising from the need to conduct activities, and establish offices and other facilities, in different geographic locations around the country and world. For example, new sales offices may be opened

within the sales and marketing functional group in order to address customer requirements and market opportunities in different metropolitan areas, regions composed of several states, or foreign countries. Manufacturing and other support activities may also be conducted in multiple locations to take advantage of potential cost savings, gain better access to specialized talent, and to be closer to key customers. As steps are taken to disperse activities away from a single headquarters office decisions need to be made with respect to each functional group about how to balance the need to centralize authority in order to retain control against the need to decentralize authority to allow offices and other facilities located in specific geographic areas to collaborate with one another to serve the needs of customers in those areas.

### **§8 ----Customer problems**

As the organization grows, more and more customers will be drawn to its products and services and demand will begin to grow from the customer base for additional features and support beyond the standardized offerings that will meet their specific requirements. This is particularly true of larger customers that realize that they can and do have some leverage and will begin to push for improvements and enhancement to products and services that are customized to their particular needs. A functional-based structure is best suited to creating and supporting products and services that can be offered without customization to a continuously expanding customer base and functional groups such as sales and manufacturing will be challenged to invest time and resources in meeting the special needs of one customer or subgroups of customers with similar requirements while continuing to focus on their primary missions. For example, the ability of the manufacturing function to achieve reduce production costs per unit is dependent on achieving the economies of scale that come from manufacturing larger and larger amounts of the same product. If customization of the generic version of the product is required for a specific customer it will drive up overall manufacturing costs for the company and managers of the manufacturing function will naturally resist an initiative that may adversely impact how their performance is perceived. Unfortunately, the inability to satisfy particular customer requirements will ultimately cause sales opportunities to be lost since the organization will not be able to attract new customers that are only interested in enhanced versions of the organization's standard product or service. In addition, if the special requirements of existing customers cannot be met they may begin to take their business to competitors that are more willing and able to take on and satisfy their requirements.

### **§9 ----Strategy problems**

The expansion of the functional-based structure ultimately becomes a burdensome distraction on senior management that diverts their attention from important strategic issues that impact the entire organization. It is common for the CEO to become immersed on a daily with reconciling communication and collaboration issues between functional groups and, as a result, he or she finds it difficult to focus on and plan for new initiatives such as development and launch of new products. Moreover, when a decision is made, such as moving forward with a new product, senior management must be

prepared to invest a substantial amount of time in project management issues and coaxing the functional groups to work with one another and understand and respect what is needed by other groups in order for the entire process to be completed. These sorts of problems not only increase the stress level of the CEO and other senior managers it can also lead to costly delays in bringing new products to market that will cause the organization to fall behind competitors and erode customer loyalty.

#### **§10 ----Problems within functional groups**

While each of the key functional groups within the organization generally benefit from accumulating additional resources as the organization goes through its initial burst of expansion they will eventually reach a point where the range of activities begins to overwhelm them. For example, as the organization expands its line of products and services it becomes increasingly difficult for the sales force to fully understand each offering and be able to effectively convey the benefits and advantages of every product or services to prospective customers. One result of this “information overload” is that the members of the sales and marketing groups have less and less time to focus on properly launching new products and services. Similarly, as pressure builds to push into new markets it becomes more challenging for sales and marketing to fully understand the requirements of new customers while still servicing the existing customer base. More products and customers also makes things difficult for the manufacturing function since it becomes harder to ramp up and maintain higher and higher production levels while still attaining quality control objectives. Moreover, controlling production costs becomes more problematic as demand becomes harder to forecast and new equipment is needed to manufacture new products that cannot be accommodated using the organization’s existing production technology and resources. Finally, since fast and continuous growth depends on a consistent stream of new products and technologies, members of the R&D function will be under substantial pressure to continuously improve and upgrade existing products and engage in high-risk efforts to come up with new innovations that open completely new markets for the organization.

#### **§11 --Overcoming disadvantages of the functional structure**

One of main disadvantages of a function-based organizational structure is the tendency of each functional department to look out for its own interest and ignore legitimate concerns of other departments that ultimately reduce the value offered to customers of the entire organization. However, this attitude, which contributes to the communication problems discussed above, can be addressed by handing management of each functional area over to a cross-functional team. For example, assuming that the key functional areas are product development, manufacturing, marketing/sales and operations the management team of each area would consist of an experienced manager from that area—who would still have final authority—and representatives from the other three areas. Each team would be able to focus on customer needs and obtain quick feedback from other disciplines on how new ideas could be executed in the most efficient way. This meant that before marketing/sales decided to try and offer a new product the representatives from product development and manufacturing could chime in on how including or

dropping certain features would impact production costs and after-sale service support requirements. The result was a new product line that was cheaper to produce, thus increasing margins, and higher in quality. Also since the various functional areas involved were more closely aligned information could be transferred more easily and efficiently among the teams.

Other problems with the function-based organizational structure might be resolved, at least temporarily, by adjusting the boundaries of responsibility of the departments. For example, if there are communication and coordination problems between two functions engaged in highly related activities, such as sales and marketing, senior management may modify the organizational structure by combining those two activities into a single functional group, in this case “sales and marketing.” This increases the integration of the key activities relating to direct contact with customers and allows senior management to continue to exert the necessary level of control.

As time goes by changes to the basic functional structure will typically be required in order to provide managers with more control over the activities of persons occupying the various organizational roles by increasing the level of vertical and horizontal differentiation and the amount of integration between functional groups and departments. Increasing vertical differentiation occurs through an increase in the number of levels in the organizational hierarchy and those involved in designing the structure will need to determine the degree to which authority and final decision making will be centralized at the top of the hierarchy and introduce tools (i.e., rules and standard operating procedures) that can be used to standardize the way in which employees at the lowest levels of the hierarchy behave when carrying out their day-to-day activities. An increase in horizontal differentiation involves grouping various functional groups so that the skills and resources in these groups can be focused on specific strategic goals and objectives. Increased integration is necessary for coordination of activities between subunits and motivating employees and generally is accomplished through creation of task forces, teams and integrating roles.

## **§12 --Appropriate uses of the functional structure**

In general, a functional-based structure can be effectively used as long as the organization is only producing a small number of similar products, produces the products in one or just a small number of locations, and confines its sales and marketing activities to one major group of similar customers. Once these conditions cease to apply—product lines get larger and more diverse, the geographic scope of the business expands into foreign markets and/or customer requirements become more specialized—the problems associated with a functional-based organizational structure become too difficult to manage and consideration needs to be given to alternative structural models that allow managers to regain some degree of control over the activities of the organization while better positioning it to deal with its rapidly changing business environment.

<p><b>Table 1</b> <b>Factors Indicating a Functional Structure</b></p>
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- Is the organization engaged in a single line of business serving one set of customers?
- Is the size and scope of the activities of the organization relatively small?
- Does the organization have a strong need for depth of expertise and specialization in order to carry out its business activities and realize its competitive advantages?
- Are common standards important to the quality of the organization's products and services?
- Do the organization's products require a high level of specialized knowledge?
- Do the organization's products have long development and life cycles?
- Is the organization considering expanding its product line and/or entering new geographic and/or customer markets?

**Note:** The questions in this checklist have been adapted from A. Kates and J.R. Galbraith, *Designing Your Organization: Using the STAR Model to Solve 5 Critical Design Challenges* (San Francisco: Jossey-Bass, 2007).

### §13 Division-based structures

Eventually most organizations find that the need for increased differentiation and integration becomes so pressing that they need to transition from a functional structure to another form of divisional structure in which functional resources are intentionally and formally grouped together in order to address and satisfy the specific requirements of particular products, geographic locations or customer-defined markets. The goal of every type of divisional structure is to break the activities of the organization down into smaller, and hopefully more manageable, business units with sufficient autonomy and expertise to overcome the problems that arose within the functional structure. One of several different types of product divisions can be used in situations where the biggest control problem for managers in the functional structure is the inability to keep up with a rapidly expanding product line. If the organization's products are relatively similar a single product division can be used. However, a multidivisional structure may be needed when the organization sells a wide range of different and complex products and services or has operations in two or more distinct businesses. A product team structure is appropriate for organizations operating in dynamic technological markets where rapid product development is crucial and thus it is necessary to create an organizational structure that tightly integrates the resources and contributions from all relevant support functions. On the other hand, if the challenge for management is the need to launch and maintain sales and manufacturing activities in different regions around the US and/or in foreign countries, geographic-based divisions should be formed. Finally, if the organization has developed relationships with a large number of identifiable and distinct categories of customers it may want to break out its business into market-based divisions.

### §14 --Product structures

As an organization increases the number and type of its products it becomes necessary for its activities to be organized by product rather than by function. As such, growing organizations will eventually transition from a functional structure to a product structure, which is a divisional structure in which separate divisions are created and maintained for each group of similar products. Organizations that sell and/or manufacture a diverse line of products may elect to adopt a product-based structure in which all activities related to one product or several similar products are placed into a separate and relatively

independent product group managed by a senior manager vested with a wide scope of authority over the resources dedicated, and the decisions relating, to the product(s) (see Table 2). The obvious advantage of a product-based structure is that dedicated product groups are allowed to focus exclusively on what is necessary in order for their products to be commercially successful and develop and maintain valuable expertise in product development, manufacturing and distribution that can be used to consistently increase efficiency and productivity and rapidly develop enhancements to existing products and new products to replace products that become obsolete due to technological advances. However, the benefits of product specialization must always be balanced against the additional costs of duplication of functional resources due to the fact that each product division will have its own team of functional specialists in areas such as engineering, manufacturing and marketing and there may be times when specialists in one product division are underutilized and cannot be easily transferred to another product division where they could be immediately put to use on a current project.

**Table 2**  
**Factors Indicating a Product-Based Structure**

- Do the products offered by the organization have short product life cycles?
- Is the organization seeking to emphasize rapid product development, new product features and being first in the market as important elements of its business strategy?
- Is the organization offering multiple product lines to separate market segments and/or which have different underlying business models?
- Is their sufficient volume of activity for particular product lines such that creating a separate product division would be efficient from a scale perspective and the advantages would outweigh the costs of possibly duplicating functional resources?
- Is it possible to create and enforce procedures for sharing of information and technology among product divisions?
- Is it possible to create linking mechanisms that can support the requirements of customers and/or geographic markets such as making sure that customers are able to easily review and purchase products from two or more divisions from a single sales source?
- Is the parent unit committed to ensuring that managers and employees in each product division share values and operating practices that are common to everyone in the organization?

**Note:** The questions in this checklist have been adapted from A. Kates and J.R. Galbraith, *Designing Your Organization: Using the STAR Model to Solve 5 Critical Design Challenges* (San Francisco: Jossey-Bass, 2007).

There are several different types of product structures that may be selected based on the decisions made regarding how the activities of the product divisions are to be coordinated with those functions that are traditionally categorized as “support” (i.e., research and development, accounting/finance and marketing/sales). One alternative is the basic “product division” structure in which the various support functions are centralized at the top of the organizational structure (i.e., within “headquarters”) and are expected to provide their supporting functional services to all of the different product divisions, which in turn focus on the key operational activities (i.e., manufacturing and distribution) for their specific products. This method may be viable in cases where the similarity among all the products and each of the product divisions are focusing their activities on essentially the same markets. The second alternative is “multidivisional” structure in

which each product division has its own dedicated set of functional resources and is not required to share them with other divisions. This approach should be considered in situations where the products, and the markets and industries in which the divisions are operating, are very different. A third alternative, which may be used in cases where the technology underlying the product line is complex and/or rapidly changing, is the “product team” structure.<sup>6</sup>

### §15 ----Product division structure

Organizations that use a product division structure will create separate divisions for like groups of products that will handle the operational activities (i.e., manufacturing and distribution) associated with those products and will also establish several centralized functional units, overseen by senior managers at the headquarters office, to provide support services to all of the product divisions. The move to product divisions is generally triggered at the time that the operational requirements of the organization’s product line become too complex to coordinate in a cost-effective manner in one single production group. The creation of product divisions, each of which will have its own hierarchy overseen and controlled by a dedicated division manager, increases the level of horizontal differentiation within the overall organizational structure. Each product division manager is responsible for the specific activities undertaken by his or her division and is also the point person in interactions between the division and the centralized support functions to ensure that the division receives the necessary assistance and resources with respect to procurement, marketing and research and development. Product division managers become another hierarchical level, thus increasing the vertical differentiation in the organizational structure.

A simple organizational chart for a product division structure would have three levels of management personnel organized as follows from top to bottom: the CEO; the central support functions (e.g., sales and marketing, research and development, finance, and procurement), each overseen by a senior executive such as a vice president or chief functional officer (e.g., CFO) reporting to the CEO; and the product-focused divisions organized by grouping similar products, each managed by a product division manager and reporting to the CEO. The success and efficiency of this type of structure depends heavily on the how effectively services can be provided by the central support functions to the product divisions. While the central support functions have as their primary mission providing assistance to each of the product divisions it is common for each function to horizontally differentiate its activities by creating sub-groups for each product division that will specialize in serving the needs of that division. In this way, the sub-groups can become experts in the requirements of their division and services can be provided to the division quickly and efficiently. At the same time, since the sub-groups are also part of a large function-based unit they can smoothly transfer information and knowledge among one another so that all of the product divisions have access to the benefits of any new processes and other ideas that would be of value to each division. As time goes by the various central support functions will hopefully become core

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<sup>6</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 151-160.

competencies that can be used to the strategic advantage of the entire company. The provision of services to the product divisions and the development and maintenance of function-based core competencies is the responsibility of the senior executive of each central support function and the CEO must monitor relationships between the support functions and the product divisions.

The product division structure, with its reliance on centralized support functions, make sense in situations where the organization's products and target markets are largely similar and it is not cost-effective to provide each product division with its own full set of functional resources. A product division structure promotes certain advantages of centralization including economies of scale and a greater ability to monitor and control costs and makes overall strategic planning easier because senior management does not have to create separate plans for divisions that are essentially separate companies if they have their own functional resources. There are, however, disadvantages to a product division structure that must be considered including the possibility that functional talent in areas such as R&D and marketing will seek employment elsewhere due to the relative lack of opportunities to specialize. In addition, while central support functions can be the foundation of key core competencies there is a risk that having engineers and designers work for all of the product divisions will ultimately reduce product differentiation and lead to a sameness within the overall product line that will make it impossible for customers to distinguish between the brands and product features of the various divisions.

## **§16 ----Multidivisional structures**

Many organizations stay focused on relatively similar products and markets as they continue to grow and mature; however, there are some companies that pursue expansion through extensive diversification of their product line for a particular market or industry and/or through entry into entirely new markets and industries by developing or acquiring completely different products. For example, an automobile manufacturer might attempt a diversification growth strategy within its existing industry by offering additional models of cars and trucks designed to meet the needs of different types of consumers while a manufacturer of personal computers might look for growth in a new industry by establishing and/or acquiring a consumer electronics business. Whenever either of these strategies are used to increase the complexity and diversity of the business activities of the organization the product division structure, which is based on the creation and use of centralized support functions, will eventually cease to be the optimal way to organize and allocate the resources of the organizations given that the needs of the product divisions have become so specialized and dissimilar. At that point consideration must be given to adopting a multidivisional structure in which each of the product divisions will also have their own support function resources and thus can operate as self-contained business units that are relatively independent of the other product divisions.<sup>7</sup>

A simple organizational chart for a multidivisional structure would be more complex than the chart for a product division structure and would have four levels of management

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<sup>7</sup> A.D. Chandler, *Strategy and Structure* (Cambridge, MA: MIT Press, 1962) and B.R. Scott, *Stages of Development* (Cambridge, MA: Harvard Business School, 1971).

personnel as follows from top to bottom: the CEO; a headquarters staff that monitors the activities of the divisional managers and is organized into functional groups (e.g., sales and marketing, research and development, finance, and procurement) each managed by a senior executive such as a vice president or chief functional officer (e.g., CFO) who reports to the CEO; the divisional managers for each self-contained product-focused division, each of whom report to the CEO; and the functional managers within each division who manage the support functions for that division and report to the applicable divisional manager. When the functional resources that formally resided in the centralized support functions are distributed throughout each of the product divisions the level of horizontal differentiation in the organizational structure increases, as might be expected when the variety of the organization's products and the industries in which it competes reaches the point where it is no longer practical to rely on centralized support units to provide the needed services across the entire range of its businesses. The addition of corporate managers, who will be responsible for communications between the headquarters and the divisions and for coordinating activities among the divisions and making sure they work together as needed and share information, increases the level of vertical integration in the organizational structure.

In addition to the increase in differentiation and integration, notice should be taken of several other important aspects of a multidivisional structure. As mentioned above, a multidivisional structure is generally dictated in situations where the organization has elected to operate two or more distinguishable businesses that have their own unique market and industry environment and thus require independence and flexibility to design an organizational structure that makes sense in order to be competitive. The division manager in that structure is completely responsible for the performance of the division—in fact, each division is treated as a separate profit center and evaluated in terms of the return on the investments made in the resources for that division—and must therefore be allowed to choose and implement the organizational structure for that division that is best suited to the manufacture and sale of the division's products and meeting the requirements of the division's customers. Accordingly, each division may have a different structure—a division that manufactures and sells automobiles may use a functional-based structure because its activities are limited to production and assembly of a small range of simple components; a division that manufactures and sells computers may use a product division structure with centralized support functions within the division and separate sub-business units for different types of computers; and a division that manufactures and sells consumer electronics products may organize sub-business units that focus on different types of customers.

Another distinguishing element of the multidivisional structure is the creation of a new level of corporate managers and the roles they are expected to play within the organizational structure. These managers perform an integrating role in coordinating the activities of the various divisions and making sure that the division managers are communicating with one another and sharing information as necessary. In addition, the corporate managers play an important role in developing and maintaining the core functional competencies of the organization even as the functional resources are disbursed throughout multiple product divisions. For example, the a senior vice president

for R&D working out of the corporate headquarters must remain knowledgeable about, and involved with, all of the major initiatives being carried out by the R&D functional groups within each product division so that knowledge and technology can be shared and transferred fairly and efficiently between divisions and decisions can be made as to whether particular R&D projects should be done by a central R&D group and funded at the headquarters level or conducted by one of the divisions and funded out of its budget. Similarly, while the product divisions will have their own marketing resources the decisions regarding the organization's overall branding strategy, including all of its divisions, will be guided by the CEO and the senior vice president for marketing at the corporate headquarters. Finally, the corporate managers are expected to develop and compute measures of efficiency relating to the operations of the divisions, audit divisional performance, and use the information that they collect to plan and implement the organization's long-term strategy.

Multidivisional structures are not likely to be considered by smaller organizations during the early stages of development since they will usually be focusing on creating and/or expanding a relatively narrow product or market niche as an initial step toward future expansion; however, many larger organizations, such as Fortune 500 companies, have evolved to the point where they believe a multidivisional structure is the best way for them to manage continuous growth and complexity while still retaining adequate control at the senior management level. When executed properly, a multidivisional structure can offer several distinct advantages to larger companies operating in diverse business areas<sup>8</sup>:

- The multidivisional structure, with its clear division of labor between the corporate managers and the managers of each product division, should increase the overall effectiveness of the organizational structure. Division managers can be given sufficient autonomy and freedom to manage the day-to-day operations of their business and create their own divisional structure that is best suited to their specific products and markets. At the same time, corporate managers can avoid getting bogged down in the details of divisional operations and can focus on long-term planning for the entire organization and determining how each of the divisions fit into the organization's overall strategic goals and objectives. In fact, since corporate managers are not involved in the day-to-day administration of the activities of the product divisions they have more time to oversee a larger number of businesses which means that the organization as a whole has more freedom to expand into new products and markets.
- The responsibility of the corporate managers to monitor the performance of the division managers means that the multidivisional structure offers a higher level of control and creates incentives for the division managers to be more efficient and cooperate with other product divisions. Corporate oversight reduces the likelihood that division managers will increase their staffing unnecessarily or pursue new product initiatives that are inconsistent with the goals and objectives of the company as a whole. One of the duties of the corporate management team is to create processes and systems for objectively tracking and evaluating the profitability and

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<sup>8</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 156-157.

overall performance of the product divisions in order to determine how additional capital should be invested and when remedial measures should be taken in order to address performance problems and inefficiencies. For example, the better performing divisions are more likely to obtain approval for their requests to fund new projects while the poorer performers would be closely scrutinized and likely would be unable to launch new initiatives until they get existing operations under control.

- Since each product division in a multidivisional structure will be its own profit center, and thus can be easily evaluated to determine profitability and performance against objective budgetary goals, it will be easier for the corporate management team to determine which divisions provide the best opportunities for obtaining the highest rates of return on invested capital. With this information, better decisions can be made about the allocation of scarce resources and there is a better chance of increasing the overall profitability of the organization.
- One of the problems with functional and product division structures is that it is often impossible to accurately measure the contribution that completion of particular tasks or activities is making to the profitability of a particular product. However, since the divisions in a multidivisional structure are essentially self-contained business units it becomes much easier to identify how the activities of individual managers and employees impact “bottom line” performance and this tends to improve morale and increase enthusiasm within the workforce. This is particularly true in situations where division managers are given the latitude to create their own incentive and reward programs that are customized to the specific activities of their division.
- Typically success as a divisional manager is a prerequisite to promotion to a higher status corporate manager position in a multidivisional structure and this creates additional incentives for divisional managers to work to improve the performance of their divisions and impress the senior corporate managers with their ability to collaborate with other divisions to make the entire organizational structure operate more smoothly and effectively.

On the other hand, like all other forms of organizational structure, problems can also arise with a multidivisional structure that may need to be addressed<sup>9</sup>:

- One of the ongoing issues with a multidivisional structure is striking and maintaining the proper balance of authority between the corporate managers and the division managers. It may be desirable to centralize decision making in order to reduce costs and prevent division managers from taking actions that are contrary to the long-term goals of the entire organization; however, too much centralization deprives division managers of the flexibility and independence they need to operate their specific businesses and can damage the performance of the divisions to the extent that decisions are made slowly by corporate managers not directly involved with a particular issue or problem. On the other hand, if division managers are given too much freedom through decentralization they will no incentive or motivation to operate their divisions efficiently or cooperate with corporate managers and managers of the other divisions.

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<sup>9</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 157-158.

- As mentioned above, one of the perceived advantages of a multidivisional structure is that it makes it easier for corporate managers to compare the performance of the different divisions for purposes of determining how the organization can obtain the highest rate of return on future allocations of capital and other resources. While the resulting competition between the divisions can be healthy up to a point, there is a real possibility that rivalries will eventually become so intense that divisions cease to cooperate with one another by sharing resources and transferring information regarding innovations in technology and business processes that could become core competencies that could be used by every division to improve the performance of the organization as a whole. This is a significant challenge that requires constant attention from the corporate managers responsible for maintaining communications among the various divisions.
- Another potential problem associated with transfer of technology, products and components between the product divisions is establishing a fair transfer price. The “seller” (i.e., the division that developed the technology or created the products and components) will want to maximize its return on investment by obtaining the highest price possible; however, this approach often unfairly penalizes the “buyer” that is part of the same larger organization and may even place the affiliated buyer at a disadvantage in relation to external competitors who are free to purchase comparable inputs at more favorable prices on the open market. There are several ways to resolve this potential conflict of interest between the divisions. For example, the corporate managers may be assigned the task of setting and enforcing transfer pricing based on a formula that includes the objectively verifiable costs of the seller plus a fixed and predetermined profit margin. Another possibility is for corporate managers to set the price based on an independent analysis of the market price. Finally, transfer price may be kept competitive by allowing divisions to purchase from external vendors if they are offering a better deal.
- A multidivisional structure can be quite costly to establish and operate. For one thing, there is entirely new layer of management personnel and staff at the headquarters level that must be funded. In addition, the need to duplicate functional resources within each division creates a serious risk of inefficiency and redundancy that will drag down the overall organizational performance. These costs and inefficiencies must be continuously compared to the benefits associated with the multidivisional structure and consideration may need to be given to modifications to the structure including reducing the size of the headquarters staff and/or the number of divisions and finding ways to reduce the costs of the support functions through greater sharing of functional resources.
- While one of the main responsibilities of the corporate managers in the multidivisional structure is overseeing the activities of the product divisions, there will inevitably be communications problems caused by the very tall hierarchical structure. For example, in cases where there are a large number of product divisions it may be difficult to identify attempts by division managers to conceal performance issues from the headquarters staff. In addition, bottlenecks may arise when decisions are required from headquarters and delays in getting approvals back to the divisions may place them at a disadvantage in relation to competitors that can move more quickly because their organizational structures are flatter and more efficient.

**§17 ----Product team structure**

The multidivisional structure arises in response to the competitive requirements of the marketplace which demand increased speed and efficiency in the product development and launch process; however, a structure in which each division has its own complete group of support functions can be expensive to operate and creates impediments to the dissemination of information and innovations throughout the entire organization. In order to overcome some of the disadvantages of a multidivisional structure while retaining a product-based focus, organizations often consider using a product team structure, which combines the centralized support functions used in the product division structure with the dedicated support function resources for each product enjoyed by divisions in multidivisional structures. Specifically, when a product team structure is used product development teams are created that include representatives from each support function who specialize in the development and manufacturing requirements of a single product or a group of related products. For example, a product team might include designers, product and manufacturing engineers, procurement specialists, marketers, salespersons, and financial analysts. The primary loyalty of the members of each product team will be to the team and not to any functional group and each team will be managed by a product team manager who will oversee all of the operational activities of the team. Authority for all key decisions relating to product development and manufacturing is delegated to the team and team members will bear the ultimate responsibility for the success or failure of its efforts.

A simple organizational chart for a product team structure would be similar to the chart for a product division structure and would have three levels of management personnel as follows from top to bottom: the CEO; the senior executives (i.e., vice president or chief functional officer) for each support function (e.g., sales and marketing, research and development, finance, and procurement), each reporting to the CEO; and the product development teams for each important product or related group of products, each managed by a product team manager and composed of product-focused specialists from each support function. The senior executives at the second level are responsible for overall coordination of their respective functions; however, most of the functional resources will be assigned to the product development teams and functional specialists are allowed to make decisions on their own based on the needs of their teams without interference or delays from the functional executive. The use of self-contained product development teams that include all of the functional resources necessary for team to complete its operations obviously improves the level of integration in the organizational hierarchy and facilitates the type of quick decision making required in order to satisfy the rapidly changing requirements of customers. In that way the product development teams are similar to the product divisions in a multidivisional structure.

The main advantages of a product team structure are most apparent when comparing it to some of the problems that can arise when an organization relies on the product division structure and its reliance on centralized support functions. The big concern with respect to product development under a product division structure is that the various support

functions typically make their contributions sequentially with little or no coordination or collaboration—the original idea for the product may come from the R&D or design function, the engineering function will build a prototype, the inputs for the product will be selected and purchased by the procurement function, production will be handled by the manufacturing function, and sales and promotion will fall under the control of the sales and marketing function. Unless the activities of these functions are carefully integrated conflicts will inevitably arise as functions pursue the goals that are most important to them even if they are at odds with the goals of other departments. For example, the engineering function may want to develop a product with certain technical features regardless of the impact on production costs while the sales and marketing function may be making unreasonable demands on procurement and manufacturing to cut their costs so that the price for the product can be kept at a competitive level. The end result is that it takes longer to launch new products and those products are more costly to manufacture and of lower quality. The product team structure attempts to resolve these issues by organizing functional specialists around the product rather than their parochial functional groups and the anticipated advantages of the team orientation include more rapid product development, improved communication and problem solving, increased efficiency, and better product quality.

### **§18 --Geographic structure**

While many of the control issues for growing organizations are generally product-based, which leads to adoption of one of the forms of product structure described above, there are situations where control is best asserted through organizing resources and operations based on geographic location. In those cases the organizational designer may opt for a geographic divisional structure, which calls for divisions to be established and operated based on certain specific and relatively localized requirements identified for different geographic locations in which the organization has significant operations. Typically, a geographic structure will be a careful mix of centralization and decentralization—certain core functions will continue to be managed out of the headquarters office, where the CEO and other members of the senior executive team will be located, while other functions are placed and managed in facilities established to focus primarily on operating in a particular geographically-defined area (e.g., a country or group of countries or a region of a specific country).<sup>10</sup>

While a geographic division is usually created to align the core competencies of the organization with the localized requirements of customers in a particular country or region (i.e., by customizing marketing and sales activities and product characteristics) a plant or other type of facility may be placed in particular location in order to gain access to important strategic advantages and resources that be used wherever the organization is conducting business. For example, manufacturing operations may be moved to countries where low-cost, yet skilled, labor is available even though sales opportunities in those countries are not significant. In that case the benefits of operating in those countries will be cost savings that will make the organization's products more competitive around the

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<sup>10</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 161-163.

world. Similarly, R&D activities may be pursued in small countries like Finland and Switzerland to tap into their local knowledge bases in cutting-edge technologies even though products developed through such activities will ultimately be marketed and sold worldwide. Setting up a geographic-focused division in China or India offers a number of advantages across multiple functions—manufacturing (i.e., access to low-cost production); research and development (i.e., access to skilled scientists and engineers) and sales (i.e., dynamic and growing consumer markets).

The most common use of a geographic division is when the organization's customer base grows beyond the immediate proximity of the headquarters office and the organization needs to customize its products and sales and marketing strategies to the needs and expectations of customers in new and distant geographic markets while still retaining the advantages of centralization that are available in functional areas such as procurement and R&D. For example, a retailer might group stores into regional units that are each overseen by a regional office that is principally responsible for making sure that the products available in the stores under its control are aligned with tastes and needs in the particular region which may be determined by divergent factors such as weather, income levels and other demographic factors—a clothing retailer would, during the winter months, stock more coats and gloves in the Midwest while feature swimwear in Southern California and Florida. While regional offices are responsible for setting priorities for their particular product lines and communicating their needs to the corporate level, final decisions regarding organization-wide purchasing are still made at the headquarters office in order to achieve cost savings through volume purchasing. Done well, organizations that structure their activities using geographic divisions can offer lower prices to all of its customers while being responsive to parochial customer requirements and acting like a local business.

A geographic structure may also be chosen by an organization that trades in products that are too costly to transfer long distances to get to customers located far away from the place where the products are manufactured. For example, an organization that specializes in making containers (i.e., cans and bottles) used by customers in the soft drink, fruit and vegetable markets may locate its manufacturing facilities in locations in close proximity to those customers since containers can be bulky and thus very expensive to ship. This structure allows the organization to be price competitive and also encourages the development of close and strong relationships with customers. Each facility would have its own functional resources in key areas such as manufacturing, purchasing, sales and quality control; however, the headquarters office would retain primary responsibility for R&D, engineering and finance. A similar strategy can be used in order to place manufacturing activities near suppliers of key components and/or raw materials. As an aside, decentralizing manufacturing allows the organization to seek and achieve the optimal level of production efficiency and economies of scale for each plant.

However, the advantages of setting up divisions or subsidiaries to exclusively service a particular geographic market must be weighed against the costs of duplicative resources and the possibility that country or regional managers will become too provincial and thus unwilling to share resources with other units around the world. One of the challenges for

successfully implementing an efficient geography-based structure is determining what resources and activities can be managed out of the headquarters office, and thus available to all of the business units worldwide on a shared basis, and what needs to be decentralized into the hands of the local managers so that they have sufficient autonomy to adapt products and marketing strategies to be successful in their markets.

The organizational chart for a simple geographic structure has the CEO at the top, centralized functional departments (e.g., finance, marketing, procurement and R&D) at the next (“corporate”) level, and semi-autonomous geographic-based divisions with their own functional resources at the lowest (“divisional”) level. The creation of geographic divisions side-by-side with the centralized functional departments increases horizontal differentiation in an effort to assert control over the expanding business of the company and the decision to establish a new layer of management—regional managers—and decentralize a certain amount decision making to new regional hierarchies increases vertical differentiation. In many cases the first geographic divisions for US-based companies are domestic regions (i.e., Eastern, Northern, Southern and Western); however, growing organizations soon establish one or more geographic divisions to manage the unique issues associated with operating in foreign countries.

As organizations grow and expand into several geographic locations it may make sense to implement an organizational structure in which all or most of the activities necessary to operate the business in a particular geographic region are grouped and managed together. A geography-based organizational structure reduces the challenges of coordinating activities between functional-based groups that are separated by distance and time and also give organizations the flexibility to customize their products and marketing strategies to the requirements of each important local market. While organizations that limit their activities to the United States can establish regional divisions the more common use of a geography-based structure is when an organization decides to sell and/or manufacture its products outside of the United States in one or more foreign markets. For example, a company may operate in Western Europe through a separate division that includes its own complete set of local resources (i.e., personnel, capital, tangible assets, and facilities) for key commercialization functions such as sales and marketing, manufacturing, and customer service.

Organizations should seriously consider a geography-based structure when entering distant markets where it is clear that the preferences of prospective customers will be substantially different than in the United States due to local customs, culture and language (see Table 3). In that situation it is imperative to have a core group of personnel and resources that is specifically focused on the needs of the local market. A dedicated local presence is also recommended when the expense of transporting materials to a foreign market is so high that it would be impossible to generate a profit from the outputs of processing those materials. However, before setting up divisions or subsidiaries in foreign markets careful consideration must be given to the costs of duplicate services and the need to achieve the proper balance between maintaining control over activities in those markets at the headquarters office and delegating authority to local managers who

may be familiar with local customs yet uninformed about how the rest of the organization works.

**Table 3**  
**Factors Indicating a Geographic-Based Structure**

- Is it costly to transport products to customers?
- Is it considered especially important to be able sell and render after-sale services locally?
- Is there a strong need to localize products, services and sales/marketing strategies based on culture and language differences in particular geographic markets?
- Is it important to develop and maintain strong governmental and community relationships in order to be successful in a particular geographic market?
- Can the organization recruit experienced local managers who can oversee operations of geographic units while maintaining effective communications with other business units within the organizational structure?
- Can the appropriate balance be struck between the need to maintain control over global issues such as branding and quality and the need to allow country managers to have sufficient autonomy to be successful in their local markets?

**Note:** The questions in this checklist have been adapted from A. Kates and J.R. Galbraith, *Designing Your Organization: Using the STAR Model to Solve 5 Critical Design Challenges* (San Francisco: Jossey-Bass, 2007).

## §19 --Market structure

Some organizations prefer to use a structure in which activities are broken down in accordance with distinct groups of customers. For example, a manufacturing organization may establish separate multi-functional departments or divisions to focus on each of its main types of customers—consumers, small businesses, large businesses and governmental entities. A market structure organizes operations—functional skills and activities—by reference to the specific requirements of particular customer groups (i.e., markets). For example, a market-based organizational structure might have different business units for marketing and sales of products to customers in the following general categories: commercial, consumer, government and corporate. The primary distinguishing focus of these business units is marketing rather than manufacturing, and managers within each division will be responsible for identifying, developing, selling and supporting products that provide the highest level of functionality and utility to customers in the particular market. Each market-based business unit will have access to the resources of centralized support functions such as engineering and manufacturing—engineering will be responsible for customizing the organization’s products to suit specific market requirements and manufacturing will build products to meet the customer-specific specifications provided by each division. The success of a market-based structure depends heavily on the organization’s ongoing ability to recognize changes in customer requirements and then quickly deploy its resources to cope with these changing conditions.<sup>11</sup>

<sup>11</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 163-164.

A shift from a product structure to a market structure may be made in order to introduce customers to a broader line of products and services, increase sales by offering customers a wider array of solutions to their problems and build stronger relationships with customers. In a product structure the primary focus of each division is commercialization of its own products and maximizing sales of those products. In many cases, however, the relatively narrow product focus causes the organization to miss, or simply ignore, opportunities to generate additional business with customers by introducing them to products offered by other divisions that might fill a different need for those customers. Moreover, since managers of product divisions are generally rewarded solely based on the performance of their product lines there is little incentive for cooperation between divisions and often real fear that introducing a customer to another division will lead to loss of control of that customer and ultimately a reduction in sales revenue for the division that had the original relationship with the customer. A market structure overcomes the inherent limitations of a product structure by focusing the efforts of everyone involved in marketing and sales in understanding all of the requirements of the customer and making sure customers have knowledge of, and are offered the opportunity to purchase, the full line of the organization's products and services.

The limitations of a product structure, and potential advantages of a market structure, can be illustrated by the way that many global financial institutions have been forced to realign their organizational structures in recent years. Historically, financial institutions, such as banks, organized their operational activities by product line. For example, banks would typically establish separate product-focused business units to handle deposits, financial instruments (e.g., certificates of deposit), credit cards, mortgages and insurance. Each business unit would have its own management team and dedicated set of support functions and would work to building and maintain a customer base for its specific products and services. Business units would rarely, if ever, share information about the requirements of their customers and there was little or no incentive for units to refer their customers to another business unit to evaluate other products offered by the bank that might be of interest to those customers. The weaknesses of the product structure began to become apparent as customers demanded the ease and efficiency of dealing with just one financial institution to satisfy all of their requirements for finance-related products and services. In response, financial institutions identified different customer groups (e.g., "high net worth" individuals, small businesses and large corporations), bundled the products and services most suitable for those groups and placed marketing of those products and services under the control of new market/customer-focused business units. The internal competition and resultant failure to share information disappeared and product managers began to work together to create the best portfolio of products and services for each customer and offer them at competitive prices that were available because the costs of servicing the customer had been reduced due to the efficiencies associated with the market structure.

Market structures also create opportunities for greater efficiency and higher performance within the centralized support functions. Market structures typically include market/customer business units with their own dedicated resources for product development, marketing, sales and customer service and centralized support units that

house resources that are needed, and can be efficiently shared, by all of the business units (e.g., market research, advertising, manufacturing, legal, finance and information technology (IT)). Organizations should be able to realize the benefits of economies of scale from centralization and reduce conflicts that previously existed among product managers as to how the support resources should be allocated. Also, centralizing advertising facilitates creation and dissemination of a strong company-wide branding strategy and centralized IT makes it easier to create systems for sharing information that can be used to improve the customized product and service offerings to customers.

A market structure is the answer for organizations that are having problems coordinating marketing of a broad line of products and services to distinctly different groups of potential customers. By grouping people and other resources into market-focused business units the organization can eliminate the conflicts, and unwillingness to cooperate, that is often associated with product structures and can develop expertise in understanding and addressing the requirements of particular customer groups with the ultimate objective of becoming the long-term preferred provider of a wide range of products and services to its customers. The relationship that is created with customers tends to be very strong and it becomes quite difficult for customers to switch to competitors given the level of dependence that is created. However, organizations using a market structure must be mindful that competitors often follow the same strategy and thus will be poised to offer an all-inclusive solution to entice customers to shift all of their business. Market-focused organizational structures are also vulnerable to niche competitors that offer specific products and services.

The goal with any market/customer-based structure is to put together a team of specialists from each of the essential functions—product development, production, sales, marketing and customer service—that focus on the particular needs of their designated customer-defined market. The organization chart for this type of structure would have the CEO or president at the top and senior vice presidents for each of the customer markets at the next level along with senior executives responsible for performing certain activities (i.e., finance and human resources) for each of the market-based divisions. Each of the senior vice presidents and other executives would report directly to the CEO or president and the “office” of the CEO or president would include staff personnel to perform other essential services such as business planning and public relations. Reporting to the senior vice presidents would be managers or directors responsible for particular functions within the market-based division such as the creation of customized sales and marketing strategies for each of the important customer groups.

While the transition to customers or markets as the primary structural dimension generally does not occur until the organization has reach a fairly mature stage and is able to offer a diverse range of products and services it is a strategy that can be used by organizations of any size to overcome obstacles created by a lack of cooperation among various functional departments (see Table 4). For example, take the situation where sales personnel believe they are not able to properly serve their customers because important information collected and maintained within the finance and credit departments is not being shared on a timely basis. While the various functions argue with one another

customers grow frustrated and begin looking for other alternatives. In order to reverse this downward spiral senior management can modify the organizational structure to make customers the primary dimension and adjust rules, procedures and organizational technology accordingly. Information can be made freely available to anyone involved in serving a customer and customer service teams with employees from multiple functions can be formed to improve the experience that the customer has with the organization and expose customers to other products and services that they may not know exist. Organizational goals, performance measures and rewards systems should also be modified so that it is absolutely clear to all managers and employees that customer service is the activity most valued by the organization.

**Table 4**  
**Factors Indicating a Customer-Based Structure**

- Does the organization key customers that demand customization and special attention and which offer significant volume sales opportunities for the organization?
- Is extensive knowledge of the needs and preferences of particular customers considered to be an important competitive advantage?
- Is it possible to identify and different customer segments that have their own unique requirements with respect to the products and services offered by the organization?
- Is the organization large enough so that it can create and maintain customer-focused divisions efficiently and without excessive unnecessary additional costs due to redundant functional resources?
- Is the organization able to create and enforce lateral processes that ensure communication and cooperation between customer- and product-focused divisions?
- Is the organization willing and able to launch and maintain information technology tools that can provide managers in customer-focused divisions with timely and adequate information about product-related developments?

**Note:** The questions in this checklist have been adapted from A. Kates and J.R. Galbraith, *Designing Your Organization: Using the STAR Model to Solve 5 Critical Design Challenges* (San Francisco: Jossey-Bass, 2007).

## §20 Matrix organizational structures

As organizations continue to grow larger and larger, and activities expand into multiple product and/or geographic areas, they begin to rely more and more on the use of lateral processes to connect resources from around the organization in a way that allows it to be productive and efficient. A number of tools are available to organizations with respect to lateral processes and modes of communication and collaboration among people including informal personal networking, project teams with members from different divisions and formal integrative roles; however, from a structural perspective the biggest step is the introduction of some form of matrix organizational structure. Simply put, a matrix structure is based on the creation of dual reporting relationships for persons occupying specific organizational roles that makes them accountable to managers from two or more of the key organizational structure dimensions—functions, products, locations and customers. In general, the chosen dimensions are considered to be equally important and the challenge for employees and their managers is making sure that the objectives of each dimension are achieved, that conflicts are minimized and quickly and fairly resolved and that resources are efficiently deployed. Matrix structures can promote flexibility;

however, senior executives must carefully oversee the activities of the managers disbursed throughout the matrix structure to be sure that communications are good and resources are flowing smoothly to the points where they are needed to execute the organizational strategy.

A matrix organizational structure simultaneously groups personnel (i.e., managers and employees) and other business resources by two of the primary structural dimensions, typically functions and products. A matrix structure has been used in some form across a wide range of organizations including engineering and aerospace firms, research and development organizations, financial services businesses, health care providers, and manufacturers. It has been difficult to reach agreement on a precise definition of a matrix; however, the essential elements are identified by defining it as an “organization that employs a multiple command system that includes not only a multiple command structure but also related support mechanisms and an associated organizational culture and behavior pattern”.<sup>12</sup> A matrix structure is often closely linked with project management and, in fact, it is not uncommon for an organization using the matrix structure to be referred to as a project organization. Like a project team, a matrix is an overlay on the vertical hierarchical structure that is traditionally function-based and creates a second dimension of authority and influence on the roles that functional specialists play within the organization. Other similarities are obvious—combining resources from two or more functional departments to collaborate on a specific product-related task and creating dual lines of authority, responsibility and accountability; however, the work of project teams is limited to a specific purpose and the interrelationship of the functional specialists is temporary while a matrix is a relatively permanent allocation of functional resources.<sup>13</sup>

A matrix organizational structure is a combination of features of the other structural models (i.e., function-based, geography-based, product-based, or customer/market based) in an effort to seize the advantages of those models while minimizing the disadvantages of organizing along a single dimension. One common example of a matrix structure is based on two key dimensions—function and product—and is used as a way to coordinate the activities that need to be completed in order to develop and launch new products. In that situation a manager for the new product is selected from the product division and assigned personnel from each functional division that needs to be involved in order for the product development project to be successful (e.g., research and development, engineering, manufacturing and marketing). The functional specialists work on the product development project for a pre-determined period of time during which they report to both the new product manager and their functional manager. Since the new product manager cannot be expected to have adequate technical background and experience in each of the functional areas there will usually be other managers reporting to the new product manager who have the appropriate functional understanding and are responsible for working on a day-to-day basis with the designated project members from the functional division (e.g., a product manager with engineering experience would work

<sup>12</sup> S.M. Davis and P.R. Lawrence, *Matrix* (Reading, MA: Addison-Wesley, 1977).

<sup>13</sup> R.C. Ford and W.A. Randolph, “Cross-Functional Structures: A Review and Integration of Matrix Organization and Project Management”, *Journal of Management* (June 1992).

with the project member(s) from engineering; however, this engineering-focused product manager would report only to the new product manager and not to anyone within the regular engineering division).

A matrix structure can overcome one of the main disadvantages cited for product-based structures—duplication of functional resources and the potential imbalance in the distribution of functional resources across product divisions. When the matrix structure is used each functional division becomes a shared resource for all of the product divisions that can be tapped as the need arises. In many cases specialists in a functional division may be working on two or more projects at one time, thus ensuring that they are fully occupied and also exposing them to the specific requirements of several product divisions. In addition, by maintaining the functional divisions the organization facilitates the continuous development of functional expertise that can be shared within the group and exchanged with the product divisions during the course of various projects.

The main problem associated with the matrix structure is that it lacks a control structure, such as rules and standard operating procedures, which can serve as a basis for stable and accepted modes of communication and interaction between employees. While the matrix structure is extremely flexible, it is built on the proposition that employees must continuously negotiate with one another regarding their roles and mutual responsibilities to one another as they move among the product teams. Many employees are not comfortable with the role ambiguities and conflicts that are likely to arise from time-to-time when dealing with an ever-changing set of project colleagues. The most obvious example is when an employee is faced with conflicting demands from the applicable functional supervisor and the manager of the product team that the employee is then currently working on.<sup>14</sup> Organizations have often found that any attempt to transition from a traditional bureaucratic structure to a matrix is followed by a period of relatively high turnover among the workforce and generally elevated levels of employee dissatisfaction with their jobs and the way that they feel about the workplace.

Another very important challenge that often arises with a matrix structure is conflict between functional departments and product teams over the availability and use of functional resources. In general, product managers need to request and obtain resources from the functional departments and assignments are made based on specific assumptions regarding the amount of time that a functional specialist will be need for work on a particular product. If the original time estimate is too low, perhaps due to unforeseen technical problems that are taking longer to resolve, the product manager will need to “renegotiate” the availability of the functional specialist with the applicable functional manager. If they cannot agree senior management may need to intervene before the entire project comes crashing to a halt. The matrix structure can also be much more expensive and complicated to operate, primarily due to the fact that it creates multiple reporting relationships that must be carefully managed and administered. In most cases

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<sup>14</sup> For further discussion of disadvantages of a matrix structure, see S.M. Davis and P.R. Lawrence, “Problems of Matrix Organization,” *Harvard Business Review* (May-June 1978), 131-142; E.W. Larson and D.H. Gobelli, “Matrix Management: Contradictions and Insights,” *California Management Review* (Summer 1987 – Volume 29), 126-138.

this means that employees must prepare two sets of reports for their functional and product managers and must invest additional time in keeping informed about the activities and rules in multiple areas.

## **§21 --Organization chart for a matrix structure**

The organization chart for a matrix structure resembles a rectangular grid with functional responsibilities laid out side-by-side at the top of the grid and each of the main product teams listed up and down the side of the grid. For example, an organization may create five functional departments (e.g., research and development, purchasing, manufacturing, sales and marketing, and finance) based on an assessment of what functional resources are needed in order to execute all of its goals and objectives with respect to its full product line. Each of these departments would be headed by a member of the executive team, typically a senior vice president, who reports directly to the CEO. At the same time, two or more product groups will be created under the oversight of senior product managers that also report directly to the CEO. These product groups are self-contained cross-functional teams that include personnel from all of the functional departments that are needed to support the specific product lines. Each employee would have a reporting relationship within his or her function; however, an employee's primary reporting relationship at any point in time is with his or her then-current supervisor within a specific product group. In fact, the key feature, and defining characteristic, of a matrix structure is that employees report to two different managers—a manager within the appropriate function department and the manager of the product group to which the employee has been assigned.<sup>15</sup>

From an overall organizational structure perspective, the matrix alternative is relatively flat with a minimum number of hierarchical levels within each functional department and a decided reliance on decentralized decision making within each of the product groups regarding how functional resources will be deployed on a day-to-day basis to meet product-focused goals and objectives. While the senior managers of each functional department have some level of influence and authority over employees engaged in the applicable functional activities the success and value of those activities depends primarily on how well those employees collaborate with the other members of their product groups. In that way a matrix structure is, as noted above, similar to a product team structure; however, there are two important distinctions that must be borne in mind. First, while the team members in a product team structure report only to their team manager the product group members in a matrix structure have both functional and product supervisors. As noted below, the real possibility of conflicts between the directives of the two supervisors is one of the main challenges and potential disadvantages associated with the matrix structure. Second, while team membership is permanent in the product team structure the matrix structure anticipates that functional specialists will move among product groups as the demand for their services changes.

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<sup>15</sup> S.M. Davis and P.R. Lawrence, *Matrix* (Reading, MA: Addison-Wesley, 1977); J.R. Galbraith, "Matrix Organization Designs: How to Combine Functional and Project Forms," *Business Horizons*, 14 (1971) 29-40.

**§22 --Advantages of a matrix structure**

A matrix structure is often praised and touted as a reasonable compromise between functional and product structures that allows an organization to realize the advantages of both of those structures while avoiding the difficulties that typically arise when too much focus is placed on either functional competence or product-based activities. For example, while a functional structure, in which personnel and other resources are divided into functional categories (e.g., sales, marketing, manufacturing and finance), is the best way for employees to maintain and build their specific functional expertise it is likely that strong identification with a functional group will impede needed coordination with other departments. On the other hand, while a product structure breaks down functional barriers it makes it more difficult for members of a product group to find the time to remain current with new developments in their functional areas and this may eventually erode the overall level of the organization's functional expertise. A matrix structure, if done properly and carefully, can capture the benefits of both structures by providing the foundation for coordinating and managing product development and launch activities that require resources from multiple functional areas while also ensuring that proper attention is being paid to nurturing function-based knowledge and expertise. Some of the main advantages that a matrix structure offers over a one dimensional structure focusing on functions or products are as follows<sup>16</sup>:

- The reliance on cross-functional product teams within a matrix structure breaks down the barriers that usually arise between functional departments and prevents the functional departments from developing a self-centered orientation that ignores the needs of other departments.
- The use of cross-functional teams within a matrix structure increases communication and understanding between functional specialists and allows them to learn from one another and gain a greater appreciation of the contribution that each function makes to the completion of a product development project. In fact, since matrix structures are flatter and persons from different functional departments work so closely with one another the result is that information flows more smoothly and efficiently throughout the organization and allows more people to have access to the technical knowledge, marketing data and financial information necessary for better decisions about new product ideas.
- The flexibility of the matrix structure provides the organization with the ability to effectively deploy the appropriate specialized functional resources where they are most needed among each of the ongoing product-related projects. For example, at the very beginning of the product development process the team should be heavily staffed with R&D specialists; however, once the initial development work is completed the R&D specialists would move on to other product teams and would be replaced by staffers that specialize in engineering and manufacturing.
- The matrix structure can increase the capacity of the organization to respond quickly to opportunities and challenges in the business environment. For example, if a product manager identifies an attractive acquisition opportunity the close relationship

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<sup>16</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 166.

with the finance department created by the matrix structure would allow the manager to obtain an expedited response on the availability of capital to pursue the transaction, including an a detailed and expert analysis of the potential risks and return associated with the deal.

- The combination of functional and product focus assures that the product team will give equal weight and attention to both quality and cost as the product is developed and launched. The functional specialists will oversee and manage technical goals and objectives include making sure that the product quality and performance meets or exceeds projected levels and that the technology imbedded in the product is perceived as innovative. On the other hand, the product managers will rein in the functional side, which often gets too attached to adding new features regardless of how long it takes and how much it costs, by making sure that the development process is completed on a timely basis and within specified budget parameters.
- While employees can experience stress and disorientation in a matrix structure, affiliation with the cross-functional product groups can increase motivation and morale within the organization since team members will become strongly committed to the goals of their groups and derive satisfaction from greater involvement in day-to-day decisions and the camaraderie that will develop with other members.
- Use of a matrix structure can expand the skill sets at the management level since managers will be exposed to, and involved with, decisions on multiple dimensions and have access to more information from other areas. For example, functional managers will benefit from having a better idea and appreciation of the activities of all of the product teams and product managers will be better educated as a result of their interaction with specialists from multiple functions.

### **§23 --Disadvantages of a matrix structure**

The advantage of flexibility that comes with the matrix structure does not come easily and naturally and requires careful and continuous management of relationships between functional specialists and their two supervisors and the relationship between the supervisors themselves. Managers and functional specialists operating within a matrix structure are often confronted with high levels of uncertainty regarding their roles and the reporting relationships in which they are involved. This situation can be quite stressful for many people and often leads to the emergence of informal groups of functional specialists in an effort to create some degree of structure and predictability. Over time each group achieves its own “status,” or reputation, within the organization, the group begins to recognize certain of its members as natural leaders, and members develop such an identity with their group that they resist transfers to other projects that would take them away from the group. If the informal groups become too powerful and it becomes too difficult to realize the theoretical advantages of flexibility that are expected from a matrix structure senior management may need to intervene by abandoning decentralization and exerting more influence over how functional resources are allocated.

Another potential problem with the matrix structure is that functional and product managers cannot resolve resource allocation disputes on their own and senior management must be prepared to create and enforce formal rules and guidelines that

establish the balance of power between the two organizational dimensions. In many cases, senior management may need to become actively involved in mediating and deciding disputes between different departments and divisions in order to ensure that important projects do not get delayed and valuable functional specialists do not depart due to frustration about how the organization is managing their skills. In fact, commentators have distinguished several different subcategories of matrix structure—functional, project and balanced—based on the rules that are used to make final decisions regarding the allocation of functional resources.<sup>17</sup>

A functional matrix, sometimes referred to as a “light-weighted” matrix, exists when the functional manager retains the final authority over how functional resources are allocated among product teams and the scope of the activities engaged in by functional specialists under the control of the manager. In this situation the organizational structure remains strongly function-based and the level of specialization is comparable to that found in the functional mode. The difference is that there is also a product manager who is responsible for coordination of product-related activities through liaison representatives from each function. The main tasks of these product managers are to collect information, solve conflicts and facilitate achievement of overall product-related objectives. Their status and influence are less as compared to functional managers because they have no direct access to working-level people any they rely heavily on their own communications skills and personal influence within the organization to obtain the cooperation of functional managers and secure the resources needed in order to accomplish the product-related goals and objectives. Assuming that product development is the most immediate concern for the organization, a functional matrix is appropriate when the new product has a relatively low level of complexity but the total amount of work required to complete the development project is high. In that case each functional department will perform its portion of the necessary activities on a concurrent basis with employees in those departments working full-time on the particular product. Managers of the functional departments would primarily responsible for making sure that their employees perform in accordance with the established production goals and objectives and the product manager will ensure that schedules are adhered to and that work-in-process flows smoothly between departments.

A project matrix, sometimes referred to as a “heavy-weighted” matrix, represents the other extreme and vests product managers with control over functional resources, including the ability to freely select product group members, and the authority to direct the activities of functional specialists assigned to the group at any point in time. In this situation the product manager has a broader responsibility particularly with respect to concept development, manufacturing and marketing. The employees working on a product-related project leave their functional department, devote all their time to the

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<sup>17</sup> See E.W. Larson and D.H. Gobelli, “Matrix Management: Contradictions and Insights,” *California Management Review* (Summer 1987 – Volume 29), 126-138; R.J. Might and W.A. Fischer, “The role of structural factors in determining project management success,” *IEEE Transactions on Engineering Management*, 32 (2) (May 1985); and S. Power, “Organizational Structure,” in C. Heyel and B. Menkus, *Handbook of Management for the Growing Business* (New York: Van Nostrand Reinhold Company, 1986), 403.

project, share the same location and generally are given broader tasks and responsibilities. With a project matrix the role of the functional manager is limited to provide support and advise as requested by the product manager and the functional manager is expected to focus most of his or her attention on personnel development, maintenance and improvement of specialist skills and more detailed technology research in the functional groups. A project matrix is appropriate when both the complexity and amount of work associated with a product development project are high.

A balanced matrix is based on shared authority between functional and product management—the product manager defines the goals and objectives of the work of the product group, including the timetable for completion of specific activities, and the functional manager oversees the activities of his or her specialists and is responsible for ensuring that they perform those activities in a manner that is consistent with the product manager's goals and objectives. The balanced matrix does carry a higher risk of conflict and it may be useful for the functional and product managers to delegate in advance some authority to subordinates, such as project managers, to resolve issues that are expected to arise at some point during a project.

#### **§24 --Evolution of the matrix structure**

The type of matrix used by an organization will likely change and evolve as time goes by and the business environment of the organization becomes more complex. Assuming, as is generally true, that the organization starts out with the traditional functional structure, the first step down the road toward a full-blown matrix structure is the introduction of project management skills and the use of temporary project teams as secondary overlays on the still dominant functional structure to resolve specific problems. For example, a short-term project team may be created with representatives from various functions (e.g., research and development, engineering, marketing and finance) to create the specifications for a new product or make recommendations to senior management on the features that need to be included in a new information systems network for the entire organization. The next step is institutionalizing the overlay format by establishing a functional matrix that retains the functional hierarchy as the primary dimension in the organizational structure while incorporating permanent product-focused groups within which the functional resources are deployed. The next step, sometimes referred to as the mature matrix, is the balanced matrix in which functional and product managers must share authority over, and responsibility for, the use of the company's resources.<sup>18</sup> It is not necessary that every organization go through all of the above-described steps and each organization must seek the balance that is best suited to its business activities and environment.

#### **§25 --Product/geographic region matrix structure**

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<sup>18</sup> S.M. Davis and P.R. Lawrence, *Matrix* (Reading, Addison-Wesley, 1977); J.R. Galbraith, "Matrix Organization Designs: How to Combine Functional and Project Forms," *Business Horizons*, 14 (1971) 29-40; H.F. Kolodny, "Evolution to a Matrix Organization," *Academy of Management Review* (Volume 4): 543-553, 1979.

It should be noted that while the product/function matrix structure is commonly used it is possible for organizations to use other dimensions when creating their matrix. For example, as the organization expands into foreign markets it may adopt a product/geographic region matrix structure that attempts to capitalize on the efficiencies of centralized product development and manufacturing and the benefits of establishing a localized commercialization strategy. When a product/geographic region matrix structure is used the organization will look to managers in global product divisions to oversee development and manufacturing of their products around the world and will have them work with managers in geographic regions who are responsible for distribution and marketing of the products in their local areas. In that situation a sales employee in a geographic region will simultaneously report to a manager in the global product division and to a sales manager in the employee's geographic region. As with the product/function matrix great care must be taken to align the goals and objectives of the product and geographic region dimensions to ensure cooperation. However, if the arrangement can be successfully implemented the organization should be able to successfully launch new products in multiple markets, an important benefit in light of the often large development costs associated with new products, and gather intelligence that can be used to develop products that can easily be adapted to local requirements.

#### **§26 --Multidivisional matrix structure**

A modified form of matrix structure may be used in cases where the business activities of the organization have been segmented into multiple divisions.<sup>19</sup> The goals and benefits of a multidivisional matrix structure would be decreasing potential communication and coordination problems between corporate and divisional managers and between functional and product managers in the same division. The organization chart for a multidivisional matrix structure would resemble the grid used for a matrix structure and might have senior vice presidents of the key corporate functional departments or units—research and development, procurement, manufacturing, marketing and finance—at the top horizontal level and the general managers of each of the major product divisions listed vertically on the left side of the grid. Each of the senior executives from both the functional and product dimensions would report directly to the chief executive officer.

The senior vice presidents in the corporate functional departments would not have direct reporting relationships with functional specialists in the major product divisions. Instead the role of the corporate functional departments is to provide the product divisions with advisory and evaluation services regarding the functional resources that each division requires and assist the general managers of the product divisions in creating a strategy for obtaining and using the necessary resources. Each product division would ultimately have their own functional managers who would oversee division-specific activities. For example, a product division might have a senior manufacturing manager who is responsible for the procurement of raw materials and the manufacture of finished products that are to be marketed and sold by the division. The senior manufacturing manager would be primarily responsible to the general manager of the product division;

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<sup>19</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 167-168.

however, he or she would also maintain contact with the corporate manufacturing department to exchange function-specific information including ideas from other product divisions that might improve manufacturing efficiency.

### §27 --Global matrix structure

Organizations that are engaged in significant international operations may also adopt some form of matrix structure based on coordination along two or three different dimensions.<sup>20</sup> The simplest template for a global matrix structure is the traditional two dimensional matrix grid with global product divisions or divisions listed along the vertical access and geographic divisions listed along the horizontal access. Global product managers are expected to collaborate, and share responsibilities, with senior managers in each geographic division to devise and implement the most effective strategies for producing and marketing products in specific locations around the world. The matrix element comes from the appointment of product managers in each geographic area who will simultaneously report upward in both the product and geographic divisional hierarchies. For example, the product manager responsible for production and marketing of widget products in Europe will report to a senior manager within the European division and to a senior manager within the global widget division. In order for this arrangement to be effective there must be agreement between all of three parties involved regarding the appropriate strategy and allocation of resources for effective exploitation of the company's widget products in Europe.

A more complex global matrix structure attempts to achieve coordination along three different dimensions—function, product/market, and country. A typical example of this type of arrangement is to have a global functional manager, a global product manager and local managers in each country. The functional manager will be responsible for identifying and managing worldwide issues in the manager's functional area, typically from the world headquarters office. For example, in the finance area a global manager, typically the chief financial officer, will oversee capital raising and investment activities for the entire organization including budgeting for operations in specific countries. The functional manager would also be available to provide support to country specific managers on local issues such as launching relationships with banks and other financial institutions in particular countries and structuring financing packages for local projects. The global product managers will monitor and manager product-specific issues that run across national boundaries including manufacturing and development of global marketing strategies. The country specific manager is responsible for local operations including implementation of product-related strategies and management of functional activities. Country managers might, for example, work with the office of the global financial manager on local banking arrangements and budgeting for in-country operations and would also collaborate with global product managers on production and/or marketing of products or services within the applicable geographic territory.

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<sup>20</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 168.

Global matrix structures have all of the advantages and disadvantages associated with using a matrix in a single geographic territory. In addition, however, a global matrix carries certain additional risks that should be carefully considered and, if necessary, closely monitored and managed. One significant drawback is the expense and potential inefficiency associated with operating a global matrix given that communications will need to cross long distances and multiple time zones. If country managers are forced to wait for input from two different managers, each of whom are based in different locations with relatively little regular interaction, the matrix structure will adversely impact the ability of local teams to respond quickly to opportunities and threats in their markets. These challenges can be overcome by investing in information technology resources that accelerate the exchange of information and communications and by broadening the authority of country managers to minimize the need for approvals from the global functional and product managers. Another concern is if and how the role ambiguity that exists in any matrix structure will be exacerbated by the need to conduct business and communications across international boundaries. It is difficult enough for functional and product managers to collaborate in one country; however, the challenges can become overwhelming when language and cultural differences are included in the mix. Among other things, functional and product managers need to be careful about creating the perception that they are favoring some of the local managers while ignoring the needs and requests of others. In order for a global matrix structure to be successful the company must focus attention on defining and disseminating a unified global vision of the company's vision and establish shared cultural values that transcend borders.

#### **§28 --Recommended uses of a matrix structure**

The choice of a matrix structure represents a conscious decision to impose some type of formal cross-functional collaboration procedure in place and the complexity and amount of work associated with a particular product development project is an important factor in selecting the appropriate structure. For example, when a proposed product has a high level of complexity—a lot of different elements such as hardware and software items need to be integrated—but the amount of work required for development and volume production is fairly clear and responsibilities are unambiguous the organization needs to determine whether the work can effectively be done with the functional managers retaining primary control over their employees or whether it is appropriate to implement some form of product-based project structure. In this situation it is not necessary for employees to work on a particular product on a full-time basis and they will generally be working on several different products at one time. If they remain in their functional departments it may be difficult to plan the work on a specific product since the employees will be balancing several tasks. In order to overcome scheduling problems it may be appropriate to reduce the number of product development projects that the organization is handling at any one point in time. This should result in faster completion of product-related projects and allow the organization to get new products to market more quickly. In addition, employees will not be distracted by continuous interruptions from other projects and can focus on being more innovative with the projects at hand. However, the organization may experience underutilization of resources and may also miss opportunities associated with projects that were set aside.

In light of the difficulties associated with achieving the recognized advantages of the matrix structure it is not surprising that a matrix is recommended only for specific limited business environmental conditions. In general, a matrix structure works best, and is most effective, when an organization is operating in a rapidly changing environment and it is essential for functional specialists to collaborate and coordinate their activities in order to respond to competitive conditions that demand a continuous flow of new products and services or changes to existing products and services. In fact, the matrix structure became extremely popular during the 1980s among larger US business organizations as they struggled to deal with intensified competition due to slower growth in their domestic markets and the rising competence and influence of foreign competitors—conditions that created new pressures for them to be innovative and accelerate their rate of new product development. Researchers have also identified various conditions that tend to increase the chances of success for a matrix structure. For example, a matrix structure is more likely to be effective for organizations that are managed and staffed by persons with professional training and background, such as engineers and scientists. A matrix structure is also more likely to work well in situations where the skills of the workforce are diverse and employees are adept at interpersonal and work relationships. Finally, effective matrix management requires a conflict resolution process and a clear understanding among each employee and his or her two supervisors regarding how decisions will be made regarding the role of the employee and how the employee can carry out the activities associated with the position.

Many organizations, particularly smaller ones, avoid the matrix structure in favor of temporary project teams overlaid on their permanent functional or product structure and rely on advanced information technology capabilities to increase the efficiency of those teams, particularly when team members are widely dispersed in centers of excellence located around the world. Larger organizations have had mixed results with matrix structures and many have ultimately abandoned the idea in favor of a product-focused structure when the matrix generated problems such as increased costs and employee turnover and higher levels of interpersonal conflict. One way that organizations have incorporated the advantages of the matrix structure into their operational activities and planning, while minimizing the potential problems associated with the matrix, is by limiting its use to the development and launch of a new product. Once that critical work, which typically requires close collaboration across functions that can be efficiently accomplished with a matrix structure, is completed the ongoing management of the product can be transferred to a division that is operated using a more traditional function- or product-based organizational structure.

## **§29 Hybrid structure**

Larger organizations operating in several different industries generally have numerous divisions and may deploy a hybrid structure that simultaneously includes two or more of the commonly used organizational structures (i.e., functional, product and matrix)

depending on the particular environmental conditions and activities of each division.<sup>21</sup> For example, while one product division may select a functional structure another division may decide it is best to operate using a product team structure due to the nature of its products and/or the perceived advantages of aligning divisional activities with the needs of specific groups of customers. A hybrid structure may also be used by an organization operating in just one industry if it is competing in several market segments that each requires a different structure to their specific competitive conditions. For example, a retailer may establish multiple divisions to focus on marketing and sales to specific customer groups. While some of these divisions may simply use the traditional functional structure for operating in their segments other divisions may adopt a geographic structure because the tastes and requirements of their customers vary from region to region. The geographic structure features regional offices that oversee the activities of stores within a specific geographic area. Each regional office collects information from its stores and provides it to the centralized merchandising function so that products suited to the particular needs of customers in each region can be produced or otherwise procured on a cost effective basis due to the economies of scale available through centralized merchandising.

An interesting variation of the hybrid structure is the “front-back” hybrid structure which relies on two multifunctional halves, each of which is focused on different activities. The front half of the structure is organized around a particular customer group and the composition of the customer group can be defined by reference to geographic regions (e.g., a large country or a group of countries in proximity to one another), markets (e.g., industries) or even just a single large customer. The back half of the structure is organized around a specific product or a group of products that have been combined into a distinct product line. The front end units are created and managed to achieve a high level of responsiveness and service to the requirements of the selected customers while the back end units, which supply the products to all of the front end customer units, are organized and operated to achieve the economies of scale and efficiencies generally associated with product units. In order for the front-back hybrid structure to be successful senior management must be able to effectively link the activities of both ends of the structure.<sup>22</sup>

### §30 Strategic business units

As an organization continues to grow the level of complexity associated with its structure will continue to increase and inevitably it becomes more and more difficult for the organization to respond quickly and efficiently to sudden changes in its external operating environment. One way that larger organizations attempt to address this problem is to establish strategic business units and delegate to them substantial authority

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<sup>21</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 168-169.

<sup>22</sup> J. Galbraith, *Designing the Global Corporation* (San Francisco: Jossey-Bass, 2000), 238-254. For further discussion of the use of the front-back hybrid structure in designing a global organization, see “Globalization: A Library of Resources for Growth-Oriented Entrepreneurs” prepared and distributed by the Sustainable Entrepreneurship Project ([www.seproject.org](http://www.seproject.org)).

and autonomy to pursue their goals and objectives as laid out in the overall strategic plan for the entire organization established by its senior management. Each strategic business unit, or “SBU,” looks and operates very much like a separate organization with its own dedicated set of functional departments and the senior managers of each SBU are given full responsibility for the profit-and-loss performance of their SBU. The chief executive of each SBU, who may be referred to as the president and/or senior vice president of the unit, will report directly to the chief executive of the organization and will typically serve as a member of the organization’s executive committee.

Organizations may choose from each of the commonly-used non-functional structural dimensions—products, geographic regions or customer markets—when establishing an SBU-based structure. For example, a separate SBU may be created for each of the major geographic regions (i.e., continents) in which the organization conducts business. The domestic business may be placed into a North American SBU and an SBU may also be formed for Latin America, Europe and Asia. Each SBU would be headed by a senior vice president of the organization who would report directly to the CEO of the organization and who is responsible for profit-and-loss performance of the SBU in the applicable geographic region. Each SBU would have the resources to carry out all of the necessary functional activities including product development, manufacturing, sales and marketing, and accounting and finance. Senior management of each SBU would have the authority to select the organizational structure that they believe to be most appropriate for the business of their particular SBU. In some cases they may elect to organize the activities of the SBU by function; however, it is also common to find that the personnel and assets of a geography-based SBU have been divided into smaller groups that focus on products or specific countries within the larger geographic region covered by the SBU.

### §31 Network structure

A very different strategy for designing an organization is a network structure, which has been defined as a cluster of different companies that coordinate activities through contractual arrangements rather than by creating a formal hierarchy of authority.<sup>23</sup> Network structures became popular during the 1970s as organizations searched for way to increase their flexibility and responsiveness to rapidly changing market conditions. Well-known examples of the use of a network structure include strategic alliances and outsourcing. For example, rather than investing time and money in creating internal manufacturing and marketing functions an organization may rely on outside parties that specialize in those functional activities and can provide them on a more cost-effective basis—manufacturing might be outsourced to a low-cost provider in a foreign country and marketing services may be obtained under contracts with independent public relations and advertising agencies. Networks may be expanded to include almost all of the value-creation activities necessary to commercialize a product once the original product concept has been developed. In fact, the headquarters activities of an organization may focus primarily, if not exclusively, on research and development and product design and the final specifications for the products may then be turned over to

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<sup>23</sup> R.E. Miles and C.C. Snow, “Causes of Failure in Network Organizations,” *California Management Review* (July 1992), 53-72.

suppliers, manufacturers and distributors around the world for them to manufacture and market the products.<sup>24</sup> Use of networks has been touted as a good way to downsize and remove inefficient and unnecessary layers from the organizational hierarchy in order to increase competitiveness and reduce overhead. Networking also allows firms to quickly extend their reach into new product and geographic markets while not drifting from their own particular core competencies.

Network structures are becoming more popular, and viable, due to advances in information technology that facilitate quick and efficient communications among the companies that are part of a particular network. For example, it is now possible for the specifications for a new product to be stored and transmitted electronically to suppliers and manufacturers in remote locations. Suppliers in different parts of the world can produce necessary components for the finished product that conform to the specifications and can then ship the components to a manufacturer in another part of the world who will be responsible for assembling everything and disseminating the finished products to regional distributors who will market and sell the products in their geographic areas. Instructions to all network members can be sent electronically and the status of the activities of all of the members can be continuously tracked in “real time” using sophisticated software programs. Moreover, computer-aided design (CAD) can be deployed early in the design process to allow supplier and manufacturers to participate and provide suggestions as to how the design can be modified in order to expedite and reduce the costs of actually producing the product.<sup>25</sup>

As with any of the other organizational structures described above the network structure has definite advantages and disadvantages that need to be considered. One of the obvious potential advantages of relying on a network of outside partners is the ability to tap into the resources and experience of other organizations that specialize in conducting a specified value-added activity and which can be expected to complete projects more efficiently and at a lower cost. In addition, reliance on a network structure avoids the expense associated with investing in the development of internal functional capabilities including the costs that will inevitably arise from creating and managing an organizational structure for the functional activity. Freed from these fixed costs organizations can remain flexible and adapt their strategies quickly to changing needs in their business environment. For example, as new opportunities arise the organization can terminate its contractual arrangements with partners that are no longer needed and seek and obtain new relationships with firms that can provide the services that are currently required in order to remain competitive. A network structure also leverages the advantages of decentralization and allows the headquarters staff to remain lean and focused on strategic issues. Finally, network structures can be carefully and closely

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<sup>24</sup> W.E. Baker, “The Network Organization in Theory and Practice,” in N. Nohria and R. Eccles (Eds.), *Networks and Organizations: Structure, Form and Action* (Boston, Harvard Business School Press 1993, 397-429).

<sup>25</sup> For further discussion, see “Organizational Design and Technology” in “Organizational Design: A Library of Resources for Sustainable Entrepreneurs” prepared and distributed by the Sustainable Entrepreneurship Project ([www.seproject.org](http://www.seproject.org)).

managed through the use of strict and objective performance metrics in partner contracts and partners that fail to meet those standards can be quickly removed from the network.<sup>26</sup>

On the other hand, however, the advantages of a network structure become much more difficult to realize as the complexity of the activities necessary for production and marketing of a product or service increases. For example, consider what would have to happen within a single organization in order to develop and launch a new computer system with proprietary hardware and software elements. Members of the hardware and software groups would need to be in constant communication and carefully coordinate their activities during the design and programming processes. Among other things, participants in the process must be willing and able to share information that can be used to improve the final product and managers must be prepared to adjust schedules and resolve conflicts with other projects in order to accommodate work on unexpected issues that will inevitably arise as the design process unfolds and initial versions of the product are tested. It is hard enough to achieve the necessary control over such a complex process within the same organization and attempting to use a network structure may be too difficult for several reasons. First, sheer distance and lack of mutual trust can impede sharing of information among scientists, engineers and other functional specialists from different firms within the network. Second, it can be extremely difficult to coordinate activities and availability of resources when several independent organizations are involved in the process. Finally, members of the network will typically be engaged in other activities that may interfere with their ability to adapt to adjustments necessary for completion of network-related projects.<sup>27</sup>

In addition, while the contractual foundation of the network structure is perceived as advantageous given the flexibility that it provides to organizations that have established the network there are also important drawbacks that need to be considered. From a partner's perspective, the prospect that a contract might be terminated reduces the incentives for the partner to make significant investments in resources that are uniquely specific to the goals and objectives of the network activities. For the same reasons a partner may be reluctant to share information that the recipient might use to develop internal resources that compete with the partner's core competencies. While this is understandable, any reluctance to share knowledge and experience may undercut the immediate goals and objectives of the network, such as achieving an accelerated pace of design and development and/or increased efficiencies and lower costs with respect to production. As to the flexibility to terminate contractual arrangements the value of this advantage depends on how easy it is to find competent and reliable replacements. Moreover, terminating a relationship always carries a risk of legal disputes and the possibility that a disgruntled former partner might use proprietary information obtained or developed during the course of the contractual activities in an unauthorized manner.

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<sup>26</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 170.

<sup>27</sup> G.R. Jones, *Organizational Theory, Design and Change* (5<sup>th</sup> Ed) (Old Tappan N.J.: Prentice Hall, 2007), 170-171.

When discussing the skills that are required in order to effectively manage activities in a network structure, Harris mentioned technical and commercial skills and collaborative knowledge and abilities.<sup>28</sup> With regard to collaboration, Harris noted that managers needed to be adept with respect to referral skills, partnering skills and relationship management. Referral skills are the ability of the manager to analyze an issue or a problem and identify a solution either within the firm or among the external partners in the firm's network. In order for this to be successful the manager must have a good grasp of the firm's core competencies—what it can do best—and the competencies and expertise of the network members. Partnering skills were described by Harris as including the ability to conceptualize, negotiate, and implement mutually beneficial outcomes for the firm and the selected partner in the network. While the manager certainly needs to protect the interests of his or her firm and seek and obtain terms that allow the firm to meet its business and financial goals, it is important for contracts to be perceived as fair and reasonable by both sides since network relationships are more than one-time transactions. Finally, relationship management builds on partnering skills by focusing managers on the need to pay close attention, and give high priority, to the needs and concerns of network partners.

## References and Resources

The Sustainable Entrepreneurship Project's Library of Resources for Sustainable Entrepreneurs relating to Organizational Design is available at <https://seproject.org/organizational-design/> and includes materials relating to the subject matters of this Guide including various Project publications such as handbooks, guides, briefings, articles, checklists, forms, forms, videos and audio works and other resources; management tools such as checklists and questionnaires, forms and training materials; books; chapters or articles in books; articles in journals, newspapers and magazines; theses and dissertations; papers; government and other public domain publications; online articles and databases; blogs; websites; and webinars and podcasts. Changes to the Library are made on a continuous basis and notifications of changes, as well as new versions of this Guide, will be provided to readers that enter their names on the Project mailing list by following the procedures on the Project's website.

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<sup>28</sup> C. Harris, *Characteristics of Effective Managers* (2010), <http://pdfsr.com/pdf/characteristics-of-effective-managers> [accessed June 28, 2015], 4 (citing B. Allred, C. Snow and R. Miles, "Characteristics of managerial careers in the 21<sup>st</sup> century", *Academy of Management Executive*, 10(4) (1996)).