The matrix structure is an increasingly common feature on the business landscape. As firms grow more complex and more geographically dispersed, leaders are confronted with the question of how to effectively integrate and align staff that work in remote locations and need to be deployed on several projects simultaneously. The need to integrate resources and reconcile opposing objectives creates the challenge of designing mechanisms that will foster true collaboration, instead of simple compromise. As a result, in an attempt to achieve multiple strategic objectives with the smallest number of resources, many organizations are using matrix reporting relationships as a way to link disparate parts of the organization and encourage collaboration.

Use of a matrix presents a dilemma, however. Three decades of study of the matrix in organizations have shown that it is one of the most powerful ways to force interaction among business units and integrate the diverse parts of an organization. At the same time, experience has demonstrated that it is most successful in organizations that already have a strong foundation of teamwork, joint accountability, and the management processes that support collaboration. Therefore, organizations that shift to the matrix in order to get the promised benefits without putting in place the required enabling and support mechanisms, quickly find that they have introduced complexity, confusion, and frustration without achieving the expected gains. Predictably, they soon revert back to a simpler configuration, adding another example to the many that have abandoned the matrix as just too hard to do.

The reality is that most businesses today are complex. They need to serve multiple products, markets, and geographies and, if they are to reap the rewards of growth and scale, they need to integrate laterally and find synergies among all the various dimensions of the business. Complex business models result in complex organizations, including matrix relationships. And the organizations that can best manage this complexity without making it burdensome to either customers or front-line employees gain competitive advantage.

The complexity created by the matrix is usually borne by the middle manager who provides the connections between all of the various strategic dimensions that the business is trying to achieve. Attention to organization design does not remove complexity for these managers, but it can help ensure that the organization is an enabler instead of a barrier to these managers as they try to achieve the required business results.
Implementing a matrix is a significant leadership decision, and not one to make lightly. This chapter summarizes what has been learned about designing and implementing a successful matrix with a focus on virtual environments. The chapter will address using a matrix to bridge the barriers of time and space as well as the challenges of introducing added complexity for teams and managers working remotely. The intent is to demystify this much maligned organizational form and offer tools to maximize the chance of successful implementation.

WHAT IS A MATRIX?

Strictly speaking, a matrix is an organization in which various employees have two or more bosses. It was pioneered in the aerospace and defense sectors in the 1960s and 1970s in response to expansions of scope and complexity represented by initiatives such as the space program (Peters & Waterman, 1982). For example, an engineer at Boeing working on the development of the 747 airliner might have reported into the manufacturing group, but might also have reported to a manager in the commercial aviation product division. In making the engineer accountable to both supervisors, the goal was to maintain robust functional expertise while deploying resources where they were most needed.

Soon, firms in other sectors experimented with using the matrix, with mixed results. In the early 1980s, following Tom Peters and Robert Waterman’s claim in *In Search of Excellence* that no “excellent” companies used a matrix design, it was largely abandoned as overly complex, rigid, and cumbersome (Peters & Waterman, 1982).

The mid-1990s saw the matrix return to favor. One driver behind this trend was the need to hold down costs—for example, having a systems analyst report to a local functional manager in New York as well as a product manager in Hong Kong meant that the Hong Kong office would not have to hire a systems analyst of their own. Having the same person working on projects for New York and Hong Kong simultaneously also meant a greater degree of cross-border standardization, which might promote further cost savings.

A second driver has been globalization. Outsourcing and off-shoring to low-cost manufacturing and processing centers has left North American and European companies with mostly knowledge-based, project-centered work—precisely the conditions that rely on high levels of virtual collaboration and lateral integration.

Despite its reemergence, “matrix” is still a code word among many observers of organizational life for “cumbersome” and “over-engineered.” *The Economist*, in a major feature on “The New Organisation,” derides it as the corset from which many companies are still struggling to free themselves (Hindle, 2006). Yet today matrices can be found in most large companies. Rarely is a matrix used as the overall framework. More frequently, it is used to tie together key roles and ensure that decisions made take multiple business perspectives into consideration. Often, the research and development function is configured as a matrix. Researchers belong to specialist groups, but take part in projects that bring them together in cross-functional teams. Other examples can frequently be found in sales functions. Sales
departments are usually structured into regions in order to minimize travel time and exploit local knowledge. However, national accounts, global product lines, distribution channels (such as resellers and retailers) frequently cut across these regions. In order to coordinate along the customer, product, and channel dimensions as well as the geographic, sales managers may report to two managers in order to ensure a focus on both aspects of the business.

A Case Example

To illustrate the concepts and tools for designing a matrix, a typical example based on a large U.S. bank’s information technology (IT) group is presented below. Many companies organize their IT groups and other staff functions—HR, finance, legal, etc.—both by line of business and by function with the goal of gaining scale and consistency while remaining responsive to specific business needs.

This bank has five lines of business, all with different information processing needs. Three are outward facing: wholesale, lending, and retail. Corporate refers to all the corporate level staff functions and Operations refers to all the processing functions of the bank. Although these are both internal groups, because of their size they are considered a line of business — that is, a client — by the IT department. Since this bank—like many large corporations—has grown through mergers and acquisitions, different lines of business are headquartered in different cities.

The business heads want dedicated points of contact and teams that know their business and can develop and implement IT solutions that will drive customer service and revenue growth.

The IT Relationship Managers across the top provide the link to the business from the IT function. They have dedicated teams for that business unit. These managers are measured and rewarded for how well they meet the needs of the business line they support.
At the same time, the bank as an enterprise has objectives that are different from those of its individual lines of business. Some of these objectives are even in opposition. While the business heads want solutions that are customized to their unique needs, the bank wants to hold down IT costs by using common platforms, systems, and applications wherever possible. Such commonality and standardization mean easier transfer of customer and product data across business lines, allowing customers, the sales force, and service center staff to access information centrally. Commonality also means economies of scale in purchasing from vendors and servicing and securing the IT systems themselves. The six Functional Managers along the side of the diagram lead dedicated groups focusing on building the long-term, efficient infrastructure for the bank in terms of core applications, data centers, networks, and security. They are measured and rewarded for meeting these goals.

These functional managers have IT resources reporting to them from multiple lines of business, in multiple locations. Thus, there are a large number of virtual relationships in a matrix of this type: between dedicated IT resources and the functional manager, between the functional manager and the relationship manager, and between functional specialists who work in the same area but serve different lines of business. By virtue of the dual reporting lines that a matrix creates, almost everything that a manager in a matrix does will involve some form of virtual collaboration.

In the illustration above there are 30 “matrixed” managers. (They will be called managers, as they typically manage projects or processes, even if they do not all directly manage teams of people.) Each of these managers has a line of business supervisor, the Relationship Manager, as well as a Functional Manager as a supervisor. They are measured and rewarded against both dimensions. At any time, they may be working on business-specific projects as well as infrastructure projects. As in almost all organizations, there are never enough resources to meet everyone’s needs. Every day trade-offs are made and priorities are reset. By setting up a matrix, the organization’s leader ensures that these 30 managers make decisions about how they and their teams spend their time based upon balancing the priorities of the lines of business and the functions. The matrix forces the underlying tension in the organization about how to allocate scarce resources to the surface. It is intended to compel the Relationship and Functional Managers—who are called the “lead” managers—to discuss these trade-offs openly.

This typical example illustrates how introducing the matrix can change the fundamental dynamics of an organization and increase the number of virtual working relationships. The centers of power are purposely aligned against one another. Previous to using a matrix structure, this IT group had been organized completely functionally. The line of business dimension was added to bring more attention to the different needs of specific customers. Six months into the transition to the matrix, one Functional Manager described the change in this way: “I feel like we’ve been acquired.” The impact on the status quo of introducing a matrix should not be underestimated, nor should the change management aspects of the implementation be given short shift.
In addition, the matrixed manager is saddled with the additional burden of negotiating among the competing objectives of multiple bosses, some of whom may be rarely seen in person. No wonder the matrix is so difficult to make work. Although it is an elegant solution to the vexing problem of how to have the benefits of both a functional and a customer-oriented structure, the matrix is not easy to implement.

An important caveat to keep in mind is that a matrix itself is not an organizational structure, but rather a set of reporting relationships that tie the organization together laterally. Organizational structures define the hierarchical alignment of people. In the example above, the underlying structural framework is aligned according to customer and function. It could as easily be along the dimensions of geography and product, such as the example of the sales force mentioned earlier. The matrix sits atop the structure as a way to link each side together.

This allows the underlying structure to remain stable. In a matrix configuration not everyone is in a formally matrixed position, but the goal is to instill in all employees a simultaneous focus on multiple organizational priorities—what is called a “matrix mindset.” The IT function in the example above has over 1,000 employees. The vast majority formally report to just one manager. However, many of these employees may work on virtual project teams and have accountability into other managers. The matrixed reporting relationships at one level reinforce the mindset and behaviors that are desired at levels below. Once the mindset becomes part of the culture, the matrix may no longer be necessary. At that point, the complexity it brings in terms of reporting relationships, process, and management coordination can be reduced, leaving the underlying organization structure to remain.

**Benefits of a Matrix**

When trying to support and promote collaboration across the boundaries of organization, geography, and time, there are a number of reasons why a leader may turn to a matrix. Commonly regarded benefits of a matrix are described below.

**Flexibility.** A matrix is often used to better allocate scarce or expensive talent and flexibly configure and deploy teams around projects, opportunities, customers, problems, and products. The matrix allows the organization to shift resources in response to changing business needs or conditions while preserving a stable framework underneath.

When employees are “locked up” in a unit—whether business, product, or function—they often become invisible and inaccessible to the rest of the company. The unit is always able to generate enough work to keep them busy, but it is hard to determine if they are allocated to the tasks that are most important to the company overall. The matrix creates a mechanism to share these resources and assign them to where their talents and skills are best used. In the example above, although dedicated to lines of business and functional areas, the 30 matrixed managers are visible to and “owned” by the entire IT function. If a major project arises—such as an acquisition in the Retail sector—the IT leadership can reallocate managers and their teams to Retail business
projects, without having to physically or organizationally relocate them. The discussion among the senior team members is how to get the whole portfolio of work accomplished (and what work to delay or drop), avoiding a negotiation among individual managers for resources.

**Integration.** The matrix builds linkages across organizational boundaries and can help promote integrated solutions and consistent service delivery, which is often particularly challenging for companies that operate in multiple locations. In the example above, if the Lending business needs a system to support a new product, the matrix forces the Lending IT team to consider the need from two perspectives: what is the state-of-the art solution for the business and how can we build or buy a system that fits with existing systems or can even potentially be leveraged by another business line. The result should be one that both meets the needs of the business and can be efficiently built and serviced by the enterprise.

**Learning.** Another benefit of the matrix is the potential for learning and sharing of best practices across groups and locations. There is theoretically more opportunity for transfer of knowledge across the lines of business when employees participate in multiple teams and projects—particularly projects involving colleagues located elsewhere, with whom they would rarely interact otherwise. Variations on the matrix are often found in staff functions, and it provides these groups with a unique window onto the enterprise. These staff functions can serve as a vehicle for sharing not only functional information but also business information across units and locations. This potential is beginning to be leveraged in companies that have routinized low-level transactional work and are starting to use their staff groups more strategically. For example, a human resource group that is matrixed by business and function can use occasions when the function comes together as an opportunity to identify issues occurring in several businesses and address them systematically. Employees may also have increased learning opportunities as individuals. Working in a matrix can be difficult, but it does often result in a greater variety of work, a broader range of contacts across locations within the firm, and an opportunity to develop valuable management skills.

**Pitfalls of a Matrix**

The potential benefits of a successful matrix are numerous, and if effectively deployed, the matrix should result in cost savings. Units do not need to duplicate expensive resources, scarce talent can be shared and deployed where most needed, and solutions are developed that are both effective and efficient.

But when not effectively deployed, the matrix used in a virtual environment introduces a significant cost: the diversion of management focus from products and customers to internal negotiation, and the time to resolve disputes between groups. Rather than enhance collaboration,
it consumes valuable management attention that must be spent sorting out disagreements. The pitfalls of the matrix are well documented (see Bartlett & Ghoshal, 1990; Peters & Waterman, 1982). The majority of these risks and costs—especially in a virtual environment, where people working together are not able to resolve differences in person—result from confusion and friction about priorities and accountability. Some of the most common pitfalls include the following:

**Power Struggles.** Most managers dislike like sharing resources or being told that the results they are accountable for are less important than someone else’s. All the power struggles that are inherent in any organization are magnified in a matrix, where managers are often competing for resources with other managers in other locations, who they may not know personally and whose business they do not see. In every organization there is a tension between the leader who needs all the pieces of the organization to collaborate and the managers at the next level—managers who, despite politically correct talk about teamwork, would prefer if they had control over the resources required to deliver the results for which they are held accountable.

The matrix increases the number of interdependencies and reciprocal need among these managers. If the lead managers perceive themselves to be in competition or in a zero-sum game with other managers and allow negotiations over priorities or resources to become personal, the close interactions the matrix forces can become destructive.

**Determining “Best Practices.”** If the matrix is being used to drive integration and the introduction of more core products and services across locations, regions, or lines of business, someone needs to determine what will be standardized and where differences are legitimate and allowable. This is not easily done, and can be a significant source of conflict. Many global companies struggle to come up with a truly global product. For example, in the early 1990s, Ford set the goal of producing a “world car”—a single car that is sold in essentially the same form in all markets—which would benefit the company by standardizing parts, engineering, and production and by capitalizing on Ford’s international production and R&D expertise. The design team for the car was divided between Ford’s North American and European operations. After a development effort that cost over $6 billion, the car was first introduced in Europe as the Mondeo, but by the time regional differences were negotiated, the U.S. version was barely recognizable as the same car. While the cars were similar under the skin, the only external items the Mondeo shared with the Contour, as it was called in the U.S., were the windshield, front windows, front mirrors, and door handles (see “The World Car,” 1994; Muller, et al., 2000; Mol & Koppius, 2002).

On even mundane levels, the conflict over whose process is best can consume valuable management time and, as with most debates, they are more difficult to have in a virtual environment, where reliance on asynchronous modes of communication results both in a loss of nuance and a slowing down of decision making. Whether at the level of product design or setting the performance management calendar, wrangling over regional and line of business variations
can quickly wear out management patience. Strong leadership is needed to set clear criteria for decisions at lower levels and to quickly arbitrate those disputes that are escalated.

**Decision Strangulation.** The matrix gives equal weight to two or more business dimensions. Ideally, as portrayed in the discussion of benefits above, this tension results in better and more creative solutions to problems and opportunities. It certainly means more meetings, phone calls, and video conferences, and more people involved in decisions. If the organization does not have good meeting practices, clear decision rights, effective technologies and practices for remote communication, and strong conflict resolution processes, the result can be slow decision making or no decisions at all. Managers will either put off that which is too hard to deal with, make compromises that benefit no one, or continually elevate disputes up the chain to senior management that should rightfully be settled at their own level. Or they will simply short-circuit the processes of virtual collaboration and make decisions locally for their own groups, without taking the time to work with their colleagues in other locations.

**Personal Stress.** Most people prefer a work environment of clarity, where they know “what my objectives are, what I am responsible for, and most importantly, who am I accountable to.” A matrix requires a certain amount of personal flexibility and comfort with ambiguity and change. It also requires an ability to understand and adapt to the styles and expectations of two or more supervisors, the fortitude to confront and sort out conflicting directives that may come from above, and the ability to build strong and productive relationships with people who may be located in another city or continent.

The organizational flexibility that the matrix allows for also weakens the sense of team identity that is important for many employees, which is a particular challenge in virtual work environments. Staff may find themselves sitting on a number of teams, each with differing subcultures and operating procedures. This is the nature of a project-based environment but, for employees used to a more traditional hierarchy, it can be a major change. The increased dependence on influence and negotiation rather than clear-cut rules and procedures can create stress and job dissatisfaction.

**DESIGNING A SUCCESSFUL MATRIX FOR VIRTUAL COLLABORATION**

If making the matrix effective is so difficult, is it worthwhile? For many organizations, a matrix will be the right solution to the challenge of maintaining close and responsive customer contact in multiple locations while drawing on the resources and platforms of a larger organization. The design of an effective matrix is dependent on the leader’s ability to align the organization’s components—structure, processes, metrics, and people practices—around a clearly defined strategy (Galbraith, Downey, & Kates, 2002). Those who can do that will find it is worthwhile.
Many leaders find, however, that their experiences with a matrix have not lived up to expectations, and as a result abandon it out of frustration. Typically, this is because the matrix has been “installed” as part of a reorganization rather than carefully designed and implemented. The matrix requires a major shift in the work patterns, relationships, and mindset of those employees in matrixed positions. Thoughtful planning and design of a matrix is essential to achieve its benefits. The remainder of this chapter will provide a set of design principles, actions, and tools for leaders to use in order to maximize this mechanism as a way to foster collaboration (see Table 1 for a summary). Most of these suggestions are neither new in the literature nor unique to a matrix. Many will be valuable in any organization—however it is configured—in promoting collaboration. But experience has shown that all are required to make a matrix effective and more so when used in a virtual environment.

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**Build Social Capital**

The first set of enablers addresses the foundation of social capital that must be built in order for any matrix to work. Social capital can be generally thought of as the set of values, norms, and relationships shared among members of a group that permit cooperation among them. The inclusion of the word “capital” also implies investment in these social relations with some expected returns (Lin, 2001). For all the reasons highlighted in the discussion of potential
pitfalls, a strong base of trust and interpersonal skills helps managers solve problems jointly and candidly raise and resolve conflicts.

When managers in the matrix work together through virtual relationships, social capital and enabling support systems become even more essential. Just 15 years ago, many books and articles heralded the end of organizational hierarchy, structure, and the need for traditional offices (see, for example, Wheatley, 1994). Many believed that technology would obviate the need for most face-to-face interaction.

While technology has allowed separation of much work from a fixed location, businesses find themselves competing more and more on their ability to pull together ideas and knowledge across business lines and geographies to create products and services of greater value. More than ever, companies need ways to get people from different organizational and national cultures to quickly form into teams and work together efficiently, and they are finding that technology cannot substitute for human interaction. In fact, misunderstandings arising from the use of e-mail, video conferencing, and conference calls make work harder for those that need to collaborate across time and geographic boundaries. This section provides a set of principles, actions, and tools for building the social capital upon which a successful matrix rests.

**Design Principle 1: Networks and Relationships**

A successful matrix is heavily dependent upon good working relationships at every level. A “good working relationship” can be defined as two people who have had enough positive interactions to establish mutual trust, assume good intent on the part of the other, and are willing to make a personal contribution to the other’s success. Matrixed managers may have two or more formal bosses and even other project managers to whom they are accountable. They have to work with peers on at least two formal teams, and perhaps on other projects. They may also manage an on-going team or a set of project teams. In addition, there are clients, vendors, and partners in other parts of the company with whom they need to establish relationships.

Everyone creates some relationships at work. However, if not built deliberately, relationships have the tendency to fall narrowly into two categories. The first are based on day-to-day transactions: who do I need to interact with to get my work done? The second are established with people who share some common interest: who do I like to spend time with? While these relationships are important, they are not complete, and they are often restricted to those colleagues who are in the same physical location.

In addition to their formal reporting relationships, managers working in a matrix need a robust set of relationships with people they can call upon for advice, resources, political support, and expertise. The flexibility of a matrix depends on the ability to form and re-form teams. The more that people on the newly formed team have a prior positive relationship, the more quickly the team can become productive. These connections in what is sometimes called the “informal organization” must be sought out and cultivated.
One result of a matrix is that few people have full authority over significant decisions. Numerous people must be involved in decisions, both big and small. If everyone who has an interest in a decision must always be involved (that is, decision making by committee) then the leaders of the organization will soon notice a slow-down in decision making. By building a broad set of relationships based on trust, and across multiple locations in an organization, more people can be assured that others understand their perspective and will take it into account when making decisions that affect them. When this is achieved, fewer people need to be involved in each decision, and overall decisions can be made efficiently without compromising quality.

A network is a set of relationships that link people within an organization and beyond it. The power of networks is often underutilized. Either people fail to see the value of investing in relationships that have no immediate pay-off, feel uncomfortable with the whole idea of networking, lack the skills to do it effectively, or only focus on networks that involve people with whom they have face-to-face interaction. But someone who only invests in current interactions or in people they personally like misses out on proactively developing relationships that will pay off down the road. For example, in the IT illustration above (Figure 1), imagine an Infrastructure Architect who worked on a project a year ago with a peer from Database Administration in another location. They were in frequent communication during the project, but have not had contact since the project ended. The Infrastructure Architect is now working on a project where advice or an introduction to some expert contacts that the Database Administrator knows would be helpful. But, since the two have not talked or seen each other in so long, it may feel awkward to ask for a favor seemingly out of the blue.

Most managers understand the value of relationships but do not make the time to invest in them because they seem to offer only personal benefits. In fact, in the example above, while the individual may gain from the relationship, the organization benefits as well. Therefore, relationship building is a legitimate activity that can be designed, supported, and even measured. Actively encouraging it is a leadership responsibility.

So, how does one design relationships and networks?

a. **Use relationship maps**: A relationship map is a simple tool that helps people map and evaluate the strength and robustness of their network. An example is shown below.
In short, a person lists 15-20 people he or she should have a good working relationship with—wherever they may be located—and maps them on a grid based on organizational relationship. Then each relationship is evaluated. One can quickly see if there are gaps by function (for instance, no one in marketing) or by level (no one more senior that the current manager) or by proximity (no one in another location or outside one’s own unit). Anybody can use this tool to think more strategically about developing a healthy network. The real benefit is when it is used as an organizational tool. For example, each matrixed manager in the IT example might sit with both of lead managers and identify with whom to actively build a relationship within and beyond the IT function. The lead managers would then make introductions, create opportunities for interactions, encourage the time spent on fostering the relationships, and check in on how well the manager has done. This turns relationship building from an activity left to chance based on personal comfort and style to a strong fabric helping to knit the organization together.

b. **Strategically plan face-to-face time:** For organizations that are geographically dispersed, face-to-face interactions among staff are rare. And when budgets are tight, travel and retreats are often the first “frills” to be cut. Yet studies have shown that project teams that meet at least once face-to-face at the beginning of their project have much higher success rate than teams that initiate projects at the purely virtual level (see Duarte & Snyder, 2001). Teams that come together and create opportunities for members to establish personal connections seem to have much fewer misunderstandings when they then must conduct business on a virtual basis using technology. If the employees within the matrix are not co-located, be sure in the beginning to bring people together, particularly when they are working on expectations and operating procedures. Then, use training sessions, retreats, town hall meetings, and forums where people will be brought together physically as a way not just to convey information or solve problems, but to strengthen relationships and networks as well. Assign seating, mix up small groups, create opportunities for communities of interest to meet together, and allow for long breaks and lunches and other social time.

c. **Make trust tangible:** When describing a good working relationship, most people will use the word “trust” as they try to paint a picture of what it looks like. But they will have more trouble defining trust—it is one of those things you know when you see it. In fact, the factors that go into trust can be made tangible. When people understand what these factors are, they can then actively build trust with others, and even rate the quality of relationships. The four major factors of trust are competence, commitment, communication, and consideration (based on Mayer, Davis, & Schoorman, 1995).
Any organization is enhanced by increased trust levels, but high trust is particularly essential in a matrix, and is even more important in virtual environments. Encounters that occur in the normal flow of business can be designed to increase trust. For example, consider the weekly conference call between the Functional Managers and Relationship Managers in the IT illustration. On the surface, they might be coming together to resolve an agenda of current operating issues. But if these meetings are well designed, the managers will also take time to educate one another about how they view their piece of the world. This allows others to understand their point of view and take it into account back on the job when making decisions (consideration, in Figure 3). They might also take a few minutes to assess how well they communicate with one another and what can be improved in terms of clarity and response time (communication). Highlighting success stories and identifying where unique or sought-after talent and capabilities reside in the organization will make the others more aware of resources they can draw upon (competence). Finally, shared agreements and follow-through on action plans demonstrate common goals (commitment). Out of this meeting comes not only completion of today’s agenda, but a higher level of trust. This simple model of trust can be used to quickly assess issues within a group, identify the root causes, and address them.

Design Principle 2: Collaboration, not Compromise

If relationships are the fabric of the organization, then trust strengthens the threads that speed the movement of information and knowledge up, down, and sideways. But good people and good
will are not enough. People need mechanisms to help resolve the inevitable conflicts that arise in a matrix.

To start, they need an understanding and acceptance that there will be conflicts, and that these are not a failing of the organization. In fact, a matrix is designed to surface conflict; it is intended to bring different points of view into contact. A common frustration in a matrix, however, is that many conflicts are hard to resolve because the two or three opposing views on the issue are all legitimate, and no one person can make the call. In the IT example above, the lending business that needs a new system truly does need specific functionality and needs it to be delivered within a tight timeframe. And the security consultants are being held accountable for ensuring that all new systems conform to enterprise standards. When some of the desired functionality fails to conform to the security standards, a conflict inevitably arises.

The creative tension that comes from trying to reconcile these opposing objectives can yield an outcome that is better for the business overall than for either of the sides. But the risk is that failure to resolve the conflict will result in a delay in decision making, personal acrimony, or escalation of the decision to a more senior level. Worse than these consequences may be compromise: an outcome that sub-optimizes each party’s objectives. True collaboration—in which the needs of both parties are met with a different outcome than either party may have had conceived of originally—needs to be designed in. Some ways to do this include:

a. Set criteria for trade-offs: Senior managers identify and communicate what factors take precedence when trade-offs have to be made. In the IT example, these factors might include time, cost, functionality, and security. These directives are unable to anticipate every scenario, but they can provide guidance to lower level managers when not all objectives can be met.

b. Establish rules for escalation of conflicts: Frequent escalation of conflicts is a symptom that managers are unclear about the criteria for decision making or do not have the managerial maturity to resolve issues at their level. Policy issues should be escalated up the ladder, as often it is only the more senior leaders that have a broad enough mandate and perspective to set policy. But when mid-level managers do not get along or are unwilling to collaborate on issues that they can resolve, then the right leadership move is to push the accountability back down for resolution.

c. Define parameters for risk: In a matrix, both the matrix managers as well as the lead managers will frequently find themselves in situations where they have to take personal risk (such as confronting a manager or colleague) or organizational risk (such as agreeing to a new process or outcome). Conflicts can end in compromise if people perceive compromise as the safe route, one that will do no harm. Many leaders send mixed messages about acceptable risk taking, and overlook opportunities to publicly recognize examples of the behaviors they want to encourage. Again, not all scenarios can be anticipated, but the more often that senior leaders communicate and reward the behaviors that they want to see, the better the matrix will function.
Design Principle 3: Managers Who Work Well Together

In a matrix, the most important set of relationships is among the “vertical” and “horizontal” lead managers. In the IT example presented in Figure 1, these would be the Relationship and Functional Managers. Placement of these positions in the hierarchy is important. Selecting who will be sharing the matrixed resources is just as critical, particularly if these managers will be working virtually. The quality of the working relationships among these managers will set the tone and culture of the whole organization. Some design considerations:

a. *Set the matrix at the right level:* A matrix works best when the matrixed positions are placed at a fairly high level in the organization. This means that when the “matrixed manager” has to raise an issue up to the two lead managers, these managers are in a high enough position of authority and knowledge to resolve the issue at their level. If the matrixed manager is placed so low in the organization that the lead managers do not have a broad enough view to make decisions and have to raise them up yet another level or two, then the matrix will become a barrier rather than an enabler of decision making. In general, the goal should be to minimize the levels between the matrixed manager and the person who ultimately has control over both dimensions of the matrix. If possible, try to limit the distance to two levels.

b. *Select for management competencies:* For these key positions, selecting people that already demonstrate the ability to work in a complex environment and possess skills in virtual collaboration will be easier than trying to train and develop these skills. Even better would be to have some of these managers come from organizations with experience working laterally and virtually to the degree that the matrix demands. If the lead managers are all in a stretch assignment, the matrix will be much harder to get off the ground. Some of the interpersonal and management competencies that have been shown to be important include:

- The ability to manage and resolve conflict
- A level of comfort with ambiguity and change
- Strong project management skills, and the ability to manage virtual teams
- The ability to take multiple priorities into account and share decision rights
- The discipline to gather information from multiple sources in order to inform decision making
- Strong communication skills, enabling managers to work with people from other disciplines and backgrounds, and to communicate effectively through a wide range of communication technologies
- Skills in negotiation, influence, and building networks
- Cultural sensitivity, enabling managers to build relationships with colleagues who are located in other countries and may have different styles of communication and collaboration

- High levels of emotional intelligence (the ability to perceive, assess, and manage the emotions of oneself, of others, and of teams) (see Sy & Côté, 2005; Bartlett & Ghoshal, 1990).

Building a cadre of managers that already possess some or all of these competencies will greatly increase the likelihood that a matrix structure will succeed, both because they will be stronger individual managers and because they will be able to work together more effectively as a team.

c. **Actively build the team through structured meetings:** The importance of occasional face-to-face meetings for the lead managers has been discussed above. The intervening virtual meetings that occur on a regular basis need to be planned as well. A common mistake is to just bring these players together when there is a problem or so rarely that the agenda is overloaded. The lead managers needs to establish regular meetings to jointly set overall objectives, review and adjust priorities, educate one another about their work programs, and assess and manage talent. Making decisions and resolving conflicts is more difficult when done remotely, such as by telephone or video conference, yet this is the work of management teams in a matrix. Therefore, extra attention needs to be given to using the technology effectively and structuring the meetings around outcomes while not harming working relationships. (For a helpful discussion of different communication technologies and how they meet the needs of specific types of virtual meetings, see Lori Bradley’s chapter in this volume.)

**Design Principle 4: A Culture of Teamwork and Joint Accountability**

*Teamwork* is an overused word that has almost lost its meaning. Few organizations fail to list teamwork as a desired value and behavior. So what is different about teamwork in a matrix? The head of a business transitioning to a matrix likened it to the difference between the game of football and soccer as a way to help his organization understand how the new organization was different from how they were used to operating. He pointed out that in football, players have well-defined positions, and it is illegal for them to go outside the boundaries of those clearly defined roles (for example, offensive linemen are not allowed to move downfield before a pass is thrown). Likewise, in traditional organizations, job descriptions prescribe the boundaries of one’s role. In contrast, soccer positions, while defined, are much more fluid. When one player is in trouble, another will step in and continue moving the ball forward. Sports analogies for business should not be carried too far, but the image can be helpful when trying to convey the culture needed to support a matrix. Since each manager’s fate is closely tied to the success of others, the prevailing attitude needs to be one of “how can I help?” rather than “that’s not my job.”
Too often, leaders hold the matrix responsible if they fail to meet their objectives, when the real culprits are a lack of desire, incentive, or ability to work together among the management team. To promote such a culture of teamwork:

a. **Align rewards**: The matrix cannot be implemented without a realignment of the reward system. It will be quite visible that the matrixed managers will need to be appraised and rewarded for balancing and meeting two sets of objectives. Less obvious, and even more important, is to ensure that the *lead* managers have their compensation linked to the success of the whole organization, not just meeting their line of business, geographic, project or functional goals. If part of their compensation is tied to the success of their colleagues, one will quickly see more “how can I help” behaviors.

b. **Make heroes of those that demonstrate the behaviors**. Look honestly at who the heroes are in the organization. Are they the people who exemplify the behaviors discussed here? Recognition is an inexpensive way to visibly convey the culture and behaviors that are desired. Public thanks, featuring a team on the website or newsletter, and selecting individuals for high-profile projects or assignments are all ways to reinforce the message of what personal success in the matrix looks like.

c. **Make it easy to share information**: Teamwork and collaboration in a matrix are also dependent on strong systems for sharing information, not just about the work itself but the people as well. Searchable directories that include information on experience, skills, and interests can help individuals build their networks and speed the assembly of teams for project managers.

Creating a culture in which teamwork and joint accountability are genuine elements of the organization’s daily life, and not simply buzzwords, will help staff handle some of the challenges that a matrix presents, particularly around changes in the way that work moves through an organization.

**Instill Disciplined Work and Management Processes**

All of the design principles and actions discussed so far build the foundation for the matrix. They will go a long way toward helping employees in a matrix work more effectively together and realize the promise of the matrix. But they are not sufficient. The introduction of a matrix has profound implications on how work gets done. If this is not recognized, an organization will find itself with hard-working, well-intentioned people struggling over where to make hand-offs, who can make decisions, and where roles begin and end, particularly when they have to interact remotely. To extend the soccer analogy a bit further, a soccer team is not just a group of athletes willing to help each other out. Rather, the team goes into the game with a well-defined plan, clear roles, and a set of well-practiced plays. For the majority of situations, there is an agreed upon response that allows each person to play out his role without worrying about conflicts with his own team members over who goes after the ball. In the same way, the key managers in a
matrix are advised to spend time anticipating—practicing, if you will—the most likely scenarios where hand-offs and decisions will need to be made.

Strong and disciplined management processes are needed in addition to clear work processes. These are the mechanisms that allow leaders in the matrixed organization to efficiently manage people, processes, and projects. As noted earlier, managers need to be selected for either demonstrated experience or a propensity for the behaviors that support virtual collaboration. They need the individual skills to succeed. But neither workflow nor management processes should be left up to the good will of individuals. They must be designed and implemented by the top leadership.

**Design Principle 5: Clarity Around Roles and Responsibilities**

The matrix will change the way work moves through the organization. Process mapping will help test assumptions about who touches the work and what roles are involved at each step. It is not necessary to map every process, just the key ones that cut across the organization and are likely to cause the most confusion.

Once the simplified process map is complete and agreed upon, then a responsibility chart (Figure 4, below) can be used to clarify who makes decisions (based on Melcher, 1967; Galbraith, 2002).

In a responsibility chart, the key roles are identified across the top (these may be individuals or groups). Key decisions are listed down the left side. For each decision, those involved discuss and agree on who:

- **Is Responsible** for making and/or carrying out the decision. If more than one person is responsible, they all have to agree to the decision.
- May not make the decision, but will be ultimately held **Accountable**
Can **Veto** the decision because it will significantly affect their role or work; different than the normal veto a boss has based upon positional power

Must be **Consulted** and give input before the decision is made

Needs to be **Informed** about the decision after it is made

Fuller instructions for using the responsibility chart are contained in the tools section of the handbook.

The purpose of the tool is to anticipate gray areas and cases where clashes may occur. In a matrix, many interactions are more a series of requests and promises than they are sharply defined tasks and responsibilities. While job descriptions are important in many companies for setting compensation, they are less useful as a way to describe where one role ends and another begins. They may speak to the activities or outcomes that are expected, but are a poor tool for communicating how people are expected to interact with one another (Lawler & Worley, 2006, 93). In addition, the effort to keep them up-to-date is Herculean and rarely achieved.

Therefore it is more useful, in any organization, but especially in one as complex as a matrix, to focus not only on the activities within a role, but on the interfaces between roles. This is especially important in virtual environments, where people may not be aware of what their colleagues are working on from day to day.

**Design Principle 6: Governance Mechanisms to Resolve Issues Quickly at the Right Level**

A look at any matrixed organization quickly reveals that it does not have a traditionally recognizable leadership structure. The typical group of five to seven direct reports that an organizational leader usually brings together to set strategy and make decisions that require cross-functional agreement does not exist. In the example of the IT function that has been discussed throughout this chapter (Figure 1), who is on the leadership team? Is it the seven direct reports to the CIO? What about the eleven lead managers? How is this important level engaged in leadership decisions?

Rather than focus on the hierarchy, it may be more helpful to identify the range of issues that are likely to require leadership direction and then create councils and committees with the appropriate representation based on the topic. These topics might include standards, pricing, exception processing, resource allocation/staffing, and customer engagement, to name just a few. To make these councils effective, each needs a charter setting out its mandate and scope of authority.

A useful tool for these governing bodies is a Relationship Health Check, shown below in Figure 5. The tool assesses the state of a relationship as perceived by an internal customer or peer group.
## Design Principle 7: Efficient and Effective Meetings

Good meeting practice may seem a tired topic. Anyone who has been through a basic management course has learned the value of setting and adhering to an agenda, facilitating group discussions, and capturing and distributing action items after the meeting. And yet the scourge of holding too many meetings, poorly planned and badly run meetings, meetings the wrong participants in the room, and meetings with no clear outcome, continues to plague many organizations. There is no doubt that the introduction of a matrix means more meetings. Certainly in the planning and transition process there should be meetings to bring people together around the work processes and interfaces described above, but on an ongoing basis there are more meetings as well. Again, the number of meetings, just like the increase in conflicts, is not a failing of the matrix. It should be expected and planned for.

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
<th>Stage 4</th>
<th>Stage 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision / Identity</td>
<td>&quot;Us&quot; and &quot;Them,&quot; with little or no middle ground; based on negative experiences</td>
<td>&quot;Us&quot; and &quot;Them,&quot; looking toward a future &quot;we&quot;—building trust</td>
<td>Beginning to think as &quot;we&quot;; some level of personal connection exists</td>
<td>Achieving partnership, based in personal relationships</td>
</tr>
<tr>
<td>Mindset / Approach</td>
<td>Working together has not come up or is not feasible; sees little or no value in working together</td>
<td>Exploring partnership possibilities; sees other groups as a &quot;necessary evil&quot;</td>
<td>Work together to achieve our individual goals—quid pro quo</td>
<td>Work together to succeed as a team</td>
</tr>
<tr>
<td>Strategy / Purpose</td>
<td>Plans and decisions are made with complete independence</td>
<td>Plans are made &quot;behind the scenes&quot; and then discussed</td>
<td>Decision making may involve discussion with and consideration of other groups; when asked, groups share objectives or strategy</td>
<td>Decisions/plans are discussed with other groups; input and feedback is requested regarding objectives or strategy</td>
</tr>
<tr>
<td>Communication</td>
<td>Little to no communication being developed</td>
<td>Infrequent, but with communication modes being developed</td>
<td>Communication is as-needed, to gain understanding of other groups' goals—tactically driven</td>
<td>Communication is the norm; both groups clearly understand the common goals; regular meetings with give and take</td>
</tr>
<tr>
<td>Trust</td>
<td>Conflicting interests or unawareness of common goals or mutual benefits</td>
<td>Aligning interests or are experiencing conflict in current interests</td>
<td>Still a focus on individual interests, but a degree of trust exists</td>
<td>Desire for mutual benefits; seeks out help and advice</td>
</tr>
<tr>
<td>Results / Value Added</td>
<td>Lack of any significant engagement precludes any value added</td>
<td>Value could be added in the future</td>
<td>Value is added for a specific project with limited time frame</td>
<td>Value added for extended period of time</td>
</tr>
</tbody>
</table>

The assessment is given to an internal client or peer group and they are asked to indicate at what stage of development they perceive the working relationship is against a set of six dimensions. Follow-up conversations can focus on where there are lower than desired ratings and what actions can be taken to build the relationship. The intent of the tool is two-fold. First, it serves as a vehicle to stimulate a structured conversation around “what are the factors behind this (low) rating?” and “what can we do to improve it?” Second, it creates a baseline to measure results against and a way to communicate relationship expectations to others in the organization. The tool is useful when the nature of the work requires a high degree of collaboration, positive interaction, and trust. A Stage 5 rating may the desired goal, but not all relationships require such a degree of connection and Stage 4 may be sufficient.
Poorly run meetings (which are, unfortunately, even more of a risk in virtual environments) can only sometimes be blamed on the lack of individual skill or knowledge of the leader. Most people know what a good meeting looks like. More often, bad meetings are symptomatic of a lack of overall discipline in the organization. An irony of the matrix is that, while it is most often used to drive integration and flexibility, it can not be run as a loose and informal organization. More thought and care needs to be given to creating a common management culture, particularly across multiple locations. The more that operating norms are shared, the easier it will be for people to move between teams and units and focus quickly on the work rather than mechanics of working together.

If there are no agreed upon and enforced protocols for how meetings are run, information is shared, and decisions are made, the matrix will just exacerbate the usual frustrations of organizational life. People will soon blame the matrix for wasting their time, which can lead to the intervention being abandoned prematurely, causing the blame to become a self-fulfilling prophecy. A hard look will likely show that just as much time was being wasted in unproductive meetings before the introduction of the matrix. It only seems that more of it is being wasted now.

**Design Principle 8: Minimum Management “Rework”**

The reengineering movement of the 1990s brought focus to the cost of badly designed processes, where work and information passed through unnecessary checkpoints and approvals. In the back rooms and operations of most organizations, work now flows efficiently in a streamlined manner. The same can not be said for most management processes. Organizational assessments and surveys often turn up the complaint that management decisions do not “stick”—that, once made, they are revisited in subsequent meetings, challenged behind closed doors, circumvented through back channels, or renegotiated one-on-one with the leader.

The matrix creates a host of opportunities for management rework. The matrixed managers are clearly in a position to play one lead manager off against another, but clients can do it as well. The problem that clients “shop” for a better answer is a common complaint of the matrix, one that can be exacerbated by a lack of standard decision criteria across multiple locations. This calls for a well functioning management team that is clear about the organization’s objectives and that takes accountability for decisions.

One of the best ways to make visible the problem of management rework is to measure the perceptions of the employees in the organization. Regardless of how well the management team believes they are interacting, the perceptions of those they manage are the most important reality. At one company, leaders used a survey to gain focus on these very issues and to shine a spotlight on where there were gaps in accountability. The survey asked such questions as “How well does the Executive Team…”

- Address the organization’s most important issues?
- Follow up on actions/commitments to ensure they were implemented?
• Make decisions that stick?
• Come to closure when there is disagreement or conflict?
• Engage in productive dialogue?
• Differentiate issues that call for a cross-functional approach?
• Lead change as a cohesive group?

The survey was administered before the implementation of an organizational change, and then at six month intervals afterwards. By making these issues so visible, it forced them onto the agenda of the management team.

**Design Principle 9: Objective Setting and Performance Management**

A key management process that must be realigned as part of a matrix design is the practice of objective setting and performance management. The lead managers need to come together and determine jointly what the matrixed managers will be held accountable for and how their performance will be assessed. A few things to consider when modifying the performance management process:

- Even though the matrix assumes that some resources are shared, they are not always shared equally, and this should be reflected in the goal setting and appraisal process. If one manager sets 75 percent of the goals for the year and supervises their attainment, that manager should have 75 percent of the input into the final report or ranking.

- On the other hand, both lead managers must have explicit input into the process for review and agree to the final result. It cannot be delegated fully to one or the other. This may feel more efficient and less political, but it will drive the wrong behaviors. People cannot help but respond more to those who determine their year-end ratings and compensation.

- Each manager should focus on those areas where they have direct observation and be responsible for gathering input from other managers and project leaders in other locations as necessary. In this way, the process is less cumbersome. Joint performance discussions can focus on areas of disagreement, ensuring that the collaboration and other values of the organization are met in addition to the business results, and identifying development and next job moves.

**FINAL THOUGHTS**

What has been learned from observing many organizations implement matrix relationships is that the principles and tools for success are neither mysterious nor difficult to employ. The suggestions offered in this chapter are good basic practices that benefit any organization. They
just need to be applied fully and consistently in a matrix. Most organizations run into trouble in sustaining the focus and energy during the planning and transition phases to create all the supporting capabilities that will give the matrix a chance of success.

The matrix is complex, and can be challenging to implement. Some of these challenges are increased in virtual environments. Conversely, an organization that is already practiced in virtual collaboration may have an easier time adjusting to a matrix as it has built many of the underlying capabilities required.

This chapter has offered a set of tools that can be used in building a matrix, but it is difficult to know what areas to focus on, particularly in a virtual work environment. Readers are referred to the accompanying CD-ROM for a matrix assessment that can be used to gauge how far your organization is on the road toward building these capabilities. If the assessment indicates that an organization is toward the “weak” end of the spectrum, especially in the social capital category, we suggest that its leaders spend time strengthening these areas before jumping to changing roles and reporting relationships. If they do so, the organization will be in a much better position to reap the benefits of a matrix and minimize the pain of transition.

**REMINdERS**

- Using a matrix can promote teamwork in a virtual environment by formalizing the lateral connections among organizational units.

- However, the matrix is a complex organizational form that works best with mature management teams that already have a culture of shared accountability and collaboration.

- Leaders contemplating using a matrix to further foster collaboration in a virtual environment should first build the underlying capability to support success, including:
  - Encouraging the development of social capital, working relationships, and robust interpersonal networks
  - Clarifying roles and responsibilities, and streamlining underlying work processes
  - Creating governance mechanisms to set standards and settle conflicts
  - Modeling a culture of disciplined meeting and communication norms
REFERENCES


