Matrix Organizations:
Design for Collaboration and Agility

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Matrix Organizations

Success in a matrix happens when you focus on building a new organization rather than simply installing a new structure.

"Since the end of World War II, corporate strategy has survived several generations of painful transformations and has grown appropriately agile and athletic. Unfortunately, organizational development has not kept pace, and managerial attitudes lag even farther behind. As a result, corporations now commonly design strategies that seem impossible to implement, for the simple reason that no one can effectively implement third-generation strategies through second-generation organizations run by first-generation managers. Today, the most successful companies are those where top executives recognize the need to manage the new environmental and competitive demands by focusing less on the quest for an ideal structure and more on developing the abilities, behavior, and performance of individual managers."

This assessment of matrix management, published in the <u>Harvard Business Review</u> in 1990, is a stinging portrayal of the state of matrix organizations at the time the article was written. Fortunately, both the times and the ability of organizations to adapt have changed. Organizations have become much more adept in implementing complex structures. However, what has not changed is the key to success in working in a matrix correctly identified in the *HBR* article—the abilities, behavior and performance of individual managers.

This whitepaper is designed to acquaint the reader with current knowledge of matrix organizations and the specific skills needed by you and your managers to make working in a matrix a success.

What is a Matrix?

A matrix is an organizational structure that shares power among two or more dimensions. It entails achieving a functional **and** product or process focus. The table below outlines the interplay between these two dimensions in a matrix organizational structure.

Process/Product Dimension	Functional Dimension
Operates business processes and projects	Provides resources Maintains resources capacity and capability
Works cross-functionally	Aligns with process/product dimension Maintains technical standards
Is accountable to produce something for a customer	Is accountable to support process/product dimension Is accountable to ensure resources and technical capability are available

Two desired outcomes occur in matrix structures:

1. A simultaneous focus on multiple perspectives. A matrix makes a person or unit responsive to more than one group. This introduction of multiple perspectives can be expected to improve decision quality.

2. More effective use of technical and specialized resources. Every organization has specialists who are needed by various business units. These experts are too expensive to duplicate across the organization. The matrix allows for sharing of human resources without having one unit own them.

In the literature, the terms matrix management, project management, matrix organization and project organization are frequently interchanged. All of these terms refer to some type of cross-functional organization because they invariably involve bringing people together from two or more usually separated organizational functional areas to undertake a task on either a temporary basis (as in a project team) or on a relatively permanent basis (as in a matrix organization).

A functional structure, for example, enables individuals to remain aware of new technical developments in their respective areas of expertise, by allowing the functional groupings to concentrate their efforts and interactions in their functional areas of interest. A cost of functional structure, however, is the difficulty created in coordinating these distinct functional disciplines, task orientations and organizational localities. The product structure eliminates or reduces the coordination difficulties by concentrating everyone's attention on the requirements of the product, but at the same time such concentration makes it more difficult to stay current with developments in one's functional expertise and may result in technological obsolescence. The dilemma is that when one structure is chosen, the benefits of the other structure are lost. A matrix combines the benefits of both structures by providing proper project coordination while maintaining a continuing linkage with a functional expertise.

If we can distill these various ideas, a working definition of matrix organization and project management results: cross-functional organizational overlays that create multiple lines of authority and that place people in teams to work on tasks for finite periods of time. Within this broad definition are many varieties of cross-functional organization form. One key to understanding the distinctions is the time element. Project management forms probably have the most finite time frame. A project has a deadline and definable costs and standards within that time frame. Project organizations are an extension of project management, and they come into play as an organization finds itself continually managing multiple projects. The relationship between matrix management and matrix organization is similar in that matrix management is a more temporary application than matrix organization. And the distinction between matrix and project is that project structures form around specific finite tasks, such as a construction project, whereas matrix structures tend to form around ongoing tasks, such as managing an engineering consulting firm or manufacturing a complex product (e.g., aerospace companies). Overall, then, these cross-functional organization forms have a great deal in common--an overlay on the traditional hierarchy, multiple lines of authority, and teams working on tasks for finite time periods.

A primary advantage of the cross-functional structure is that it solves an information processing problem. It creates lateral communications channels not available in the classical bureaucratic form of organization. At the same time, the cross-functional structure reduces the need for vertical communication by creating self-contained task teams focused on a specific, finite project. It improves communication among different departments and projects by forcing managers to maintain close contact with all organizational groups upon whose support they must rely for project success. This causes an emphasis on developing communication skills as a politically intelligent response for keeping the support of resource providers to ensure resource availability to the cross-functional group.

A related communication benefit of matrix is its ability to handle increased information loads over the more traditional functional structures. This, too, is due to the lateral layer of communications created by a matrix. The increased contact among departments allows information to "permeate" the organization, improving decision making and response time, which translates into an organization that can quickly and flexibly adapt to a dynamic situation.

Improved information flow and flexibility of responses by team members in a matrix can allow resources to be quickly and easily disengaged from unproductive uses and applied to new opportunities as they are discovered. The organization, too, captures response flexibility as it can assign expensive specialists and equipment over a changing array of projects in the form of project teams. At the same time, functional expertise is not lost as these specialists typically retain their associations with their functional areas while they are assigned to various projects.

A final advantage of the matrix is technical excellence. Matrix structures facilitate high quality and innovative solutions to complex technical problems. This is due to the composite impact of each of the previously discussed advantages. Improved information processing facilitates the sharing of technical information by those who need it and assists in the communication and consideration of critical, technical information for a project. Greater flexibility allows an organization to quickly make appropriate technical decisions and adapt to changing technical conditions. Efficient resource use facilitates proper resource sharing across projects. The multidisciplinary approach to a project allows the maintaining of functional discipline expertise not possible in other organizational forms. In other words, projects benefit from the use of functional economies of scale while remaining small and task oriented enough to stay technically innovative. Finally, a matrix assists in the development of knowledgeable, technically competent individuals who eventually become matrix-competent and comfortable. In combination, these advantages facilitate technical excellence.

In traditional structures, two classical principles of organization clearly stand out: (a) "Authority should equal responsibility" and (b) "Every subordinate should be assigned to a single boss." A matrix violates both of these deeply ingrained principles, creating problems for both the organization and its individual members. In a matrix, the boundaries of authority and responsibility are split or shared between functional and project managers. This characteristic creates ambiguity and conflict over areas such as resources, technical issues, salaries and promotions, and personnel assignments. If not managed, this ambiguity may result in power struggles as each side attempts to clarify and define its responsibility and accountability. The most common authority conflicts are those between functional and project managers over project priorities, administrative procedures, technical perfection versus performance trade-offs, personnel resources, cost estimates, scheduling, and personalities. In a matrix, individuals find themselves working across various projects under different managers. This situation creates multiple reporting relationships (role conflict), conflicting and confusing expectations (role ambiguity), and excessive demands (role overload).

Working in a Matrix

Implementing a matrix is a complex process, involving more than just changing the organizational structure, systems, culture, and behaviors over time. Choosing a matrix is a serious, top level decision requiring commitment to a thorough implementation. The advantages and disadvantages must be weighed and the process managed if the cross-functional form is to work. Therefore, it is imperative for organizations to understand what factors facilitate or influence the adoption of a matrix before they choose this complex organizational form.

The following table summarizes key differences in behaviors and practices between the traditional functionally structured organization and the matrix organization:

Traditional Functional Organization	Matrix Organization
Independent behavior	Interdependent behavior
Functional-only focus	Process/product focus primary with functional supporting
Top down governance	Cross-functional teams and steering councils governance
Command and control management practices	Alignment and influence management practices
Linear thinking	System thinking
Optimize the parts as goal	Optimize the whole as goal
Problem solve through reductionism to increase effectiveness	Manage the interfaces to increase effectiveness

While the behaviors of individual contributors (employees) will need to change somewhat to be successful in the matrix organization, managers' behaviors are strongly impacted. Matrix organizations are more difficult to manage in that managers must operate in two dimensions instead of one, as they have in the past. The changing role of manager is illustrated in the table that follows:

Old Role of Manager	*New Role of Manager*
Owns a set of resources to be used to optimize his/her area	Is a trustee for a set of resources to be used for the organizational good
Uses authority to get things done	Uses organizational systems such as goal alignment, accountability, and performance management to get things done Uses influence and negotiation to get things done
Uses a directive approach to managing	Uses a collaborative approach to leading
Is the primary decision maker	Leads teams and provides tools for their decision making process Pushes decision making down to the lowest level possible
Is the expert in a technical area	Develops expertise at lower levels
Maintains power for self	Empowers others
Primary accountability is for a functional area	Primary accountability is for business processes and projects
Primary focus is internal	Primary focus is external

The answer for managers making the shift from the old role to the new is not to try and apply old models of management. The answer is to learn how to effectively manage in a matrix using a different set of skills and behaviors.

Making the Move to Matrix a Success

The environments faced by organizations consist of four elements: social/cultural, economic, physical, and technological. For an organization, the combination of these elements results in an environment that has four basic properties: complexity (number of elements), diversity (variety of elements), rate of change (stable or dynamic), and uncertainty (predictability of changes). Together, these properties help determine whether the environment can be considered simple or complex. Simple environments are characterized by a small number of similar, unchanging elements and low uncertainty. Complex environments are characterized by a large number of diverse, dynamic elements and high uncertainty. When an organization's environment is relatively simple, a traditional hierarchical form proves to be sufficient. However, as an organization's environment grows more complex, the traditional structure, characterized by inflexibility, may become "overloaded" by having to process the quantity of information necessary to adjust to the changing environment. This failure to adapt should indicate the need to adopt a more organic organizational form, such as the matrix.

Another important environmental factor is the influence of a dominant stakeholder. The history of project management indicates that much of the initial impetus for its use was a function of the United States Defense Department's and NASA's requirement to include the use of project management as part of the contract acquisition process. It was believed that this organizational arrangement would best allow the organizations bidding on large, unique, complex, government projects to complete them successfully within the expected time and budget constraints. Because so many of these projects were pushing back the frontiers of knowledge into areas where it was difficult, if not impossible, to know with certainty the costs, technology, time to complete, and resources required (e.g., to complete a major project like a space shuttle or moon landing), this approach made considerable sense as a coordinating mechanism and a control measure.

However, the external environment is not the only factor influencing the decision to adopt a matrix. Internal environmental factors, such as technology, can also influence the decision. Technology can be viewed in many ways; to some it may be physical (machinery, tools) whereas to others it may be knowledge (information, "know-how"). Technology also exists at various levels: individual, departmental, organizational, industrial, and beyond. Technology is more than just technical expertise. It involves properties such as rate of technological change, interdependence of disciplines; and the type of expertise needed (efficiency or innovation). Combinations of these properties determine the nature of technology that an organization faces. Simple technology is characterized by a slow rate of change, little interdependence of disciplines, and technical expertise in efficiency. Complex technology is characterized by a rapid rate of change, high interdependence of disciplines, and technical expertise in innovation. Traditional

functional structures are most efficient when technology is relatively simple. However, as technology becomes more complex, the functional structure may be unable to provide the degree of flexibility and innovation across disciplines that matrix can provide.

Certain organizational cultures are more receptive to cross-functional structures than others. Organizational cultures characterized by a rigid bureaucracy, minimal interdepartmental interaction, strong vertical reporting lines, and little tradition of change are not very receptive to cross-functional structures. In fact, unless the culture can be changed, resistance or open hostility to matrix may occur. Organizations with a tradition of "openness" and change are more suited for matrix structures.

An organization simply cannot plug a matrix into its existing structure and expect success. Matrix structures should be uniquely developed for a particular application in a particular organization, and this development will likely follow the evolutionary path described earlier. There is evidence to suggest that there are contingencies based on the structural, systems, behavioral, and cultural contexts of the organization in general and the matrix structures in particular, which have positive and negative influences on the effectiveness of the cross-functional structure. Leaders would do well to consider these contingencies.

As organizational structure changes, so must the behaviors and practices within them. This is not unlike the experience of driving in countries that use the left lane when accustomed to driving in the right lane. The outcome (getting somewhere) is the same, but the practices are certainly different.

The benefits of working in a matrix organizational structure are significant. They include:

- The process/product big picture is identified and all employees feel connected

- Cross-functional integration, coordination, and standardization are possible

- Cross-functional learning is more easily facilitated

And for every benefit, there is a potential cost. Potential problems in the shift to a matrix organizational structure include:

- Confusion over accountability – who is accountable for what?

- Existing organizational systems and/or existing skills do not support the matrix structure

- Conflicts between the two dimensions over direction

In order to make the move to and operate effectively in a matrix, the leadership team should focus on:

- ***Aligning the leadership team.*** Since many people grow up with two bosses (i.e., parents) the idea of reporting in two directions shouldn't seem so foreign. But, just as in families, problems arise when the two supervising bosses in the matrix don't share the same goals or agree on outcomes, and the direct report (a child, in our example) is confused and left to negotiate between them.

  The leadership team (referred to as the Portfolio Management Team in Figure 1) will need to work to align itself behind one set of goals and outcomes. Under the old functional structure, the leadership team goals could simply be a collection of unrelated goals of individual team members.   In a matrix organization, this collection is no longer possible. The goals of the leadership team will need to be an integrated whole, with all members aligned with each goal. The good news is that the debates among team members to arrive at this integration typically result in better decisions than if there had been no debate.
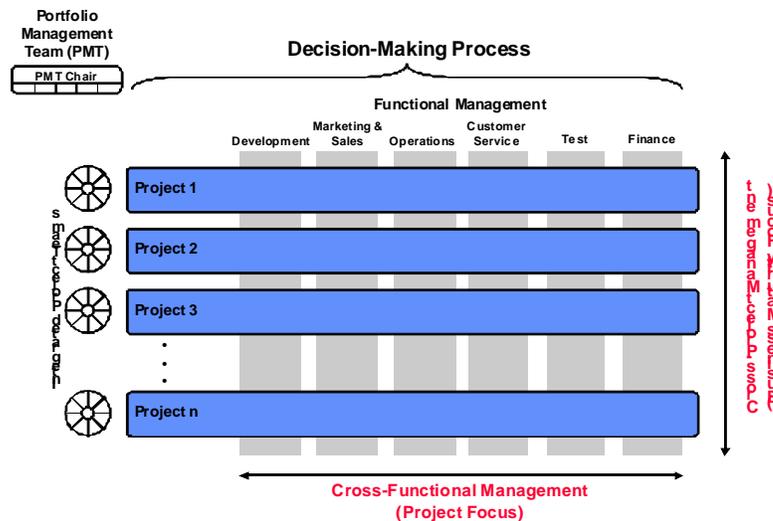

Figure 1

In addition to the need for alignment around the goals, the leadership team must be aligned in its practice of managing conflict within the organization. It is critical that senior management push these disputes back to the peer managers to resolve. The former CEO of one of the largest organizations to successfully implement a

matrix organization is remembered for telling his managers that they could escalate a problem to him once, they could escalate it to him twice, but that if they escalated it three times, he would probably know it's time to replace them. If problems are not resolved at the level closest to the work, the matrix will be defeated.

To assist in this alignment, the leadership team should participate in a series of sessions to roll out the new strategy, introduce the new structure and organizational roles, and define the responsibilities of managers in their roles as members of the leadership team.

- *Creating common ground within the organization through goal alignment.* Alignment is important so that managers and employees don't receive mixed messages, particularly around goals and priorities. To align an organization, you have to have something to align to. Alignment begins with purpose—why does your organization exist and whom does it serve?

  After determining your purpose, you develop goals. These are the means by which you plan to achieve your purpose. In the matrix organization, once process/product goals have been established they are decomposed into functional goals. Going to the theory underlying the matrix structure, the focus in goal setting is to optimize the whole rather than optimize the parts that make up the whole.

- *Installing management processes and reporting systems to support the matrix.* A management process is any that is used to get work done. It is used to manage a technical process or business process. Basic management processes include decision making, avoiding problems (risk assessment), problem solving, opportunity analysis and implementation. More advanced processes include project management, process management, strategic planning and innovation. The value in standard management processes is that once someone learns the step-by-step method in problem solving, it can be applied with any group of people. Installing common management processes will support the success of the work being done in the matrix organization.

  In addition, a matrix relationship creates dual accountability. The organization needs to have reporting systems that allow performance information to be aggregated and desegregated along all the dimensions of the matrix. This may require only a few modifications to the current system or it may necessitate the development of an entirely new system. An illustration of this dual accountability is illustrated in Figure 2.
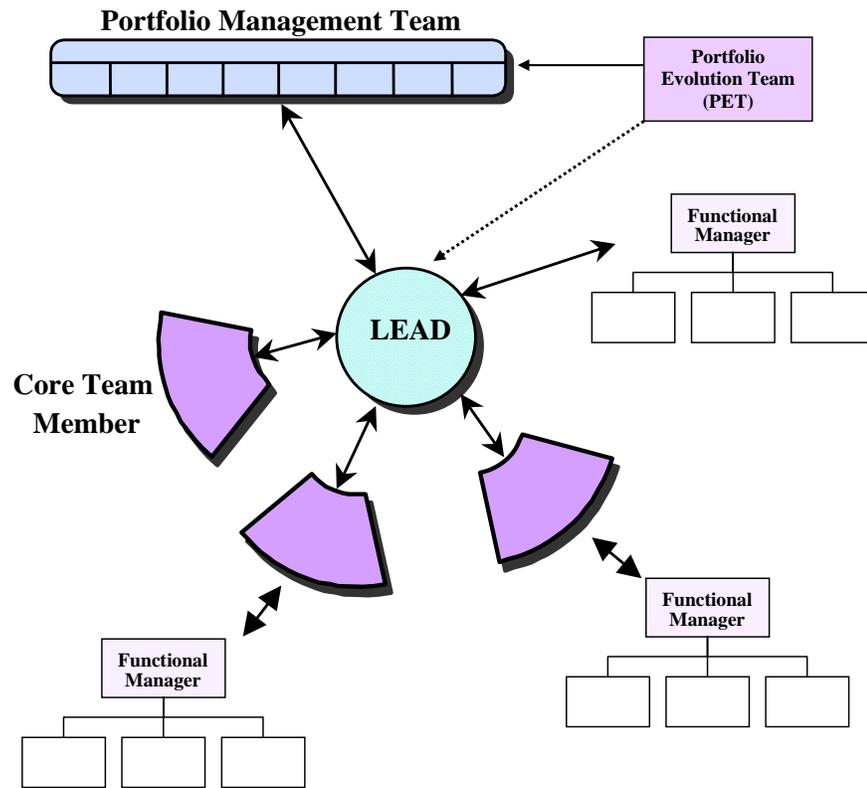

Figure 2

- ***Introducing performance management and reward systems that reflect the multiple foci of the organization.***   The formal performance management and reward systems must support the relationship of the multiple dimensions within the matrix.

- ***Assuring the development and alignment of new roles for managers within the matrix.*** Just as the roles of the leadership team have changed, so have those of managers within the matrix organization. Role descriptions will need to be written and discussed, and where needed, additional training provided. In addition to the steps to redefine roles, accountability will also need to be redefined (see Figure 3).

Matrix success requires a productive relationship between
Project Manager and Functional Managers

Functional Manager

• Core competencies
• Skill and infrastructure evolution
• Functional budgets
• Outsourcing/resource sharing
• Mentoring and MFAs
• Recruiting and training
• Technical direction
• Technical reviews
• Processes, standards, tools
• Benchmarking

Project Manager

• Customer engagement
• Product definition
• Integrated plan
• Issues identification and resolution
• Project direction
• Cross-functional coordination
• Risk mitigation
• Resource planning

What Happens at the Intersection?

➢ Negotiation of specific staff to fulfill the Core Team's PMT-approved resource commitment
➢ Identification of and commitment to specific deliverables
➢ Active, ongoing dialogue on technical direction
➢ Participation in technical reviews
➢ Assistance in applying functional processes, standards, and tools
➢ Discussion and resolution of escalated issues
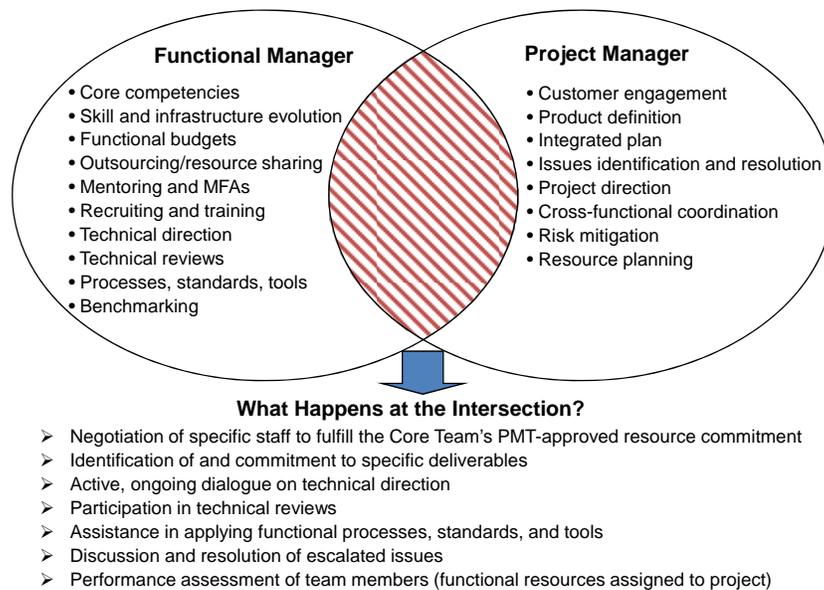➢ Performance assessment of team members (functional resources assigned to project)

Figure 3

- ***Developing the abilities of the workforce.*** The skills and experience of the leadership team, other managers, and the workforce will impact how quickly and successfully the organization can implement a matrix organizational structure. Where needed for the leadership team, training should focus on developing accountability, influence and conflict resolution skills (see Figure 4). They need to feel comfortable in letting go of decision-making authority and so may need training in how to coach others in decision making. For others, three skills are needed:

  ▪ Communication, including informing others, consulting, gathering perspectives and presenting issues.

  ▪ Conflict resolution, including legitimizing conflict, working with conflict resolution processes, and determining when to escalate issues.

  ▪ Influence, including negotiating win-win solutions, building trust through understanding of other viewpoints, and creating buy-in for initiatives.

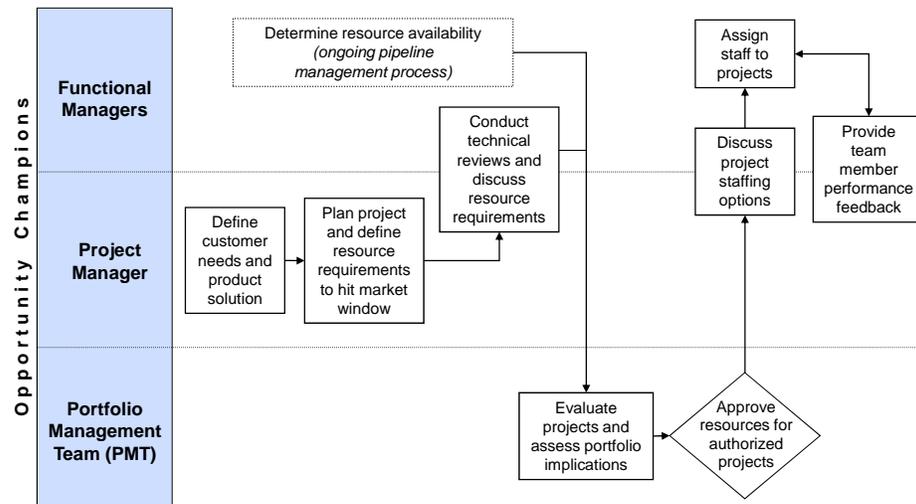## In a Matrix, Functional Managers are instrumental in allocating required resources


Figure 4

Jay Galbraith's 2009 research report entitled "Designing Matrix Organizations That Actually Work" illustrates many companies that succeed in leveraging the benefits from matrix organizations and often they are the top performers in their industries … like Nokia, Proctor & Gamble, Cisco Systems and IBM. There is something about how these winners go about their leadership focus, organizational alignment and strategy deployment that consistently sets them apart from the others. These organizations have created adaptive strategies for their businesses as well as their organizational deployment.

Values in the Matrix

Clearly, behaving according to an organization's values will enable it to work in a way that is consistent with what needs to happen in a matrix. For example, working cross-functionally means that previously disjoint groups must listen to each other to accomplish common work (Collaboration); in doing so, respect is demonstrated for the views of others and their perspectives (Respect for People). Pushing decision making to the lowest possible level reflects the nature of Leadership Empowerment. When everyone communicates openly and honestly to come to workable and effective agreements, that demonstrates a value of Integrity. Therefore, values can serve to facilitate the move to a matrix organization.

Agility Consulting

Since 2001, we have been building research and a body of knowledge around what drives true organizational agility. What differentiates those organizations, teams and leaders that are able to sense and respond better and faster than others in this increasing turbulent world we have? Our research led to the development of The Agile Model® which embodies five key drivers that enable organizational, team and individual leadership agility. This model has been recognized by The American Management Association, Human Resources Planning Society, CIO Magazine and others as well as highlighted in a 2008 book entitled Human Resource Transformation.
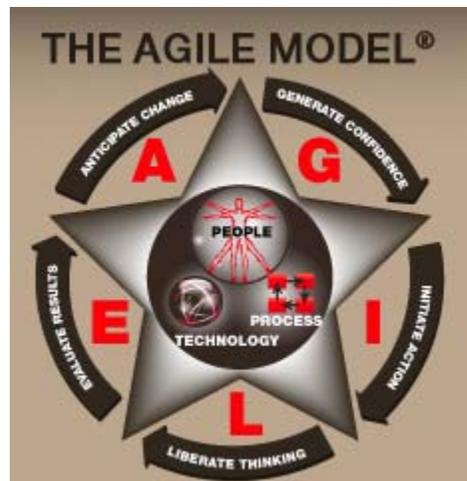
The Agile Model®

Anticipating Change

Generating Confidence

Initiating Action

Liberating Thinking

Evaluating Results

Further Resources

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