

Building Agility, Resilience and Performance in Turbulent Environments

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Pursuing Agility and Resiliency

Organizations must build agility and resiliency to perform effectively in turbulent environments. To increase agility, HR uses practices such as eliminating jobs and management layers, broadening job scope and using teams (Peterson, Day, & Mannix, 2003). Design solutions such as eliminating non-core activities through outsourcing or off-shoring also have become ways of better aligning businesses, downsizing and speeding response times, so that companies can become more agile (Goldman, Nagel & Preiss, 1994; Pal & Pantaleo, 2005).

These practices carry risks when they destroy boundaries, create new interdependencies that must be managed and further open the organization to its environment. Buffers, like slack staff resources and inventories, are greatly reduced, particularly in current economic conditions. Individuals and teams also become overloaded and burn out when not supported or trained to manage the complexity and stress that come with these designs. Organization systems and resources, such as IT, also must be capable of managing the complex, externalized interdependencies that come with off-shoring, outsourcing and other supply-chain management strategies (Sheffi, 2005).

Pursuing agility without investing in resiliency is risky because it creates fragility—unsupported exposure to surprises and shocks. We believe that organizations are now seeking greater resiliency because they are overexposed to environmental turbulence in the form of more frequent and intense competitive and operational disruptions (Alpaslan & Mitroff, 2004; Selsky & McCann, 2008; Weick & Sutcliffe, 2007).

The current financial crisis is only the latest example (Heifetz et al., 2009; McGrath & MacMillan, 2009). Practices that harden organization boundaries by creating information system firewalls, incorporating redundancy in operations, building reserves, using scenarios for “what if” forecasting and engaging in enterprise risk management (ERM) are widespread examples of ways that organizations try to build resiliency.

Emphasizing resiliency to the exclusion of agility, however, can result in slower-respond-

ing, under-performing organizations. The stock market does not reward companies with lower returns on assets or investments. HR professionals therefore need to help manage agility and resiliency simultaneously, but it is not clear how to jointly optimize these seemingly disparate capacities. The literatures on agility and resiliency offer limited guidance. These concepts are not yet well developed; they are rarely considered together; and there is little empirical research about how they support organization performance.

In our study of 471 North American companies, we demonstrate that environmental turbulence may indeed be managed by building agility and resiliency. Companies exhibiting higher levels of agility and resiliency are more competitive and profitable, even with higher levels of turbulence. Our results indicate that agility and resiliency do promote organizational performance, though in somewhat different ways.

Our study makes three contributions:

- First, it provides a multi-industry sampling of the levels of perceived turbulence being experienced by managers.
- Second, it derives operational measures of agility and resiliency, and then directly links these constructs to measures of environmental turbulence and two measures of organization performance.
- Third, the study provides clear design guidelines for building and applying interventions to increase agility and resiliency.

Specifically, we call for:

1. developing agility and resiliency together;
2. developing agility and resiliency at multiple levels (individual, team, organization and industry); and

EXHIBIT 1: KEY DEFINITIONS

Environmental Turbulence	The pace and disruptiveness of change within an operational, competitive or larger contextual environment.
Pace of Change	Variations in the frequency, number and kinds of conditions being experienced.
Disruptive Change	Severe surprises and unanticipated shocks that destabilize performance, even threaten ongoing viability.
Adaptive Capacity	The amount and variety of resources and skills possessed and available for maintaining viability and growth relative to the requirements posed by the environment.
Agility	The capacity for moving quickly, flexibly and decisively in anticipating, initiating and taking advantage of opportunities and avoiding any negative consequences of change.
Resiliency	The capacity for resisting, absorbing and responding, even reinventing if required, in response to fast and/or disruptive change that cannot be avoided.



3. better integrating and focusing development interventions around critical agility and resiliency capabilities.

To aid understanding of these complex concepts and our study, we summarize key concept definitions in Exhibit 1 (previous page).

Pace and Disruptiveness as Turbulence

For this study we use the pace of change and disruptiveness of change as two critical dimensions of turbulence. Pace and disruptiveness each pose unique implications and adaptive requirements, and these conditions vary across organizations. Organizations may build unique skills for quickly developing and delivering new products to deal with a rapid pace of technological or market change, but they will deploy different practices such as enterprise risk management to deal with potential disruptive change caused by sudden economic shifts.

While fast change is challenging, it still can be managed. Savvy firms know the rhythm of new product introductions and industry business cycles and build capabilities for managing these (McCann, 2004; Mintzberg, 1994). On the other hand, disruptive change is characterized by periods of sharp, novel conditions that upset competitive dynamics, or they may be natural disasters and man-made crises (Christensen & Overdorf, 2000; Meyer, 1982; Mitroff & Alpaslan, 2003; Perrow, 1984; Premeaux & Breaux, 2007; Selsky & McCann, 2008). For example, in the past decade the U.S. airline, healthcare and financial services industries have faced high levels of disruptive change and their fragility has

become apparent (Kansas, 2009; Meyer, Goes & Brooks, 1993).

“High velocity” (Brown & Eisenhardt, 1998) and “hypercompetitive” (D’Aveni, 1994) environments also can provide opportunities for innovation and growth for those with greater agility and resiliency, but they damage those with less. Intel’s former CEO Andy Grove relished disrupting the semiconductor industry by routinely creating technological shifts that Intel better managed because of its adaptive skills. Then again, firms such as Enron and AIG helped precipitate financial crises by overextending their resources and capabilities in markets they helped create (Kansas, 2009; McLean & Elkind, 2003).

Agility and Resiliency as Adaptive Capacity

Turbulence is experienced unevenly because the capacity for adapting to turbulence varies significantly from individual to individual, group to group, organization to organization and industry to industry (McCann & Selsky, 1984). But increasing turbulence taxes adaptive capacity, and there is a real potential for eventually overwhelming an organization unless more capacity is generated (Beinhocker, 1997; McCann, 2004). The inability to keep pace with new product introductions, for example, can ultimately lead to failure for companies in technology-intensive/driven industries. Firms like Nokia in cell phones and Dell in PCs no longer dominate their industries. An inability to retain key talent with critical skills during successive mergers and acquisitions can have a similar outcome.

Adaptive capacity has at least two important dimensions: agility and resiliency. The recent interest in agility comes from a belief that the best-performing organizations in fast-paced environments move quickly to identify opportunities and avoid collisions (McCann, 2004). Many of the skills associated with agility have a long pedigree in psychological and change-management studies.

Change-management practices designed to promote agility have concentrated on creating an openness to change and assuring swift execution of strategy by destroying structural or cultural barriers that impede the flow of work, people, resources and ideas (Dyer & Singh, 1998; Goldman et al., 1994). This could mean quickly exiting declining markets, using joint ventures, outsourcing extensively and creating global supply chains. It also means being good at making sense of emerging conditions and redeploying resources to quickly counter or create advantage from them (Heifetz et al., 2009; Weick, 2001).

Resiliency is a newer concept, rooted in psychotherapy and social psychology (Hind, Frost & Rowley, 1996; Ruttner, 1990), material science (Sheffi, 2005) and ecology (Holling & Gunderson, 2002), and it is fundamentally about the “robustness” of systems (Beinhocker, 1999; Deevy, 1995).

Central to individual and group resiliency are a strong sense of a valued identity, common purpose and shared beliefs (Coutu, 2002; Freeman, Hirschhorn & Maltz, 2004; Hirschhorn & Gilmore, 1992). Resiliency also is associated with creative, prompt responses to minimize the impact of surprises and jolts that are not avoided (Heifetz et al.,

2009; Meyer, 1982; Nathan & Kovoov-Misra, 2002; Weick & Sutcliffe, 2007).

An organization also demonstrates resiliency by experiencing a severe, life-threatening setback, but then reinventing itself around its core values (Alpaslan & Mitroff, 2004; Hamel & Valikangas, 2003). The bankruptcies of several airlines after 9/11 and their subsequent restructurings are examples of organizations trying to redefine their business models to preserve core identities (Lengnick-Hall & Beck, 2005). Ford Motor Company dramatically restructured itself over several years and avoided bankruptcy, unlike its domestic rivals, while still preserving its basic core identity. It appears far better positioned than GM or Chrysler as a result. These experiences demonstrate that human and financial resources are critical, and having well-established internal and external networks of relationships for accessing them become essential.

Research Design and Results

We wanted to know what measures of agility and resiliency specifically relate to organization performance and how varying levels of turbulence impact those relationships. We examined these variables using a June-July 2006 online survey sponsored by the American Management Association (AMA) and Human Resource Institute (HRI) (AMA/HRI, 2006). The survey consisted of 30 major multi-item questions, including 11 demographic items. Six experienced academic and institute researchers were involved in its design and deployment.

Because the survey was deployed online, names of many respondent organizations were known, thus aiding in the validation of responses. By far the largest percentage consisted of very well-known domestic and global corporations. A total of 1,472 usable surveys were submitted. Only the responses of a North American sub-sample of 471 firms operating in Canada, Mexico and the United States were used. Statistical tests indicated no significant differences in responses among these countries, which reduced possible sources of statistical variability. As Exhibit 2 indicates, respondents were senior executives, managers and high-level human resource professionals responsible or intimately involved with change management initiatives within their organizations.

Environment Measures

Environmental turbulence is the interaction between the pace and disruptiveness of change. We first measured pace and disruptiveness, then developed an overall composite turbulence measure from the two.

In terms of the pace of change, we asked respondents to compare the current pace being experienced to their past five years using this scale:

1. the pace is actually slower—briefer periods of significant change;
2. the pace is about the same and still predictable;
3. the pace is faster but still predictable;

4. the pace is very much faster and increasingly unpredictable; or
5. the pace is extremely fast—it is impossible to predict what will happen next.

For disruptive change we asked respondents to compare their past five years to current conditions experienced:

1. fewer and less frequent shocks and surprises than before;
2. about the same number and frequency of shocks and surprises;
3. more shocks and surprises;
4. many more shocks and surprises; or
5. very many more shocks and surprises.

EXHIBIT 2: DEMOGRAPHICS

Job Function	Frequency	Percent	Job Title	Frequency	Percent
Finance	37	7.9	CEO/ President/ Chairman	30	6.4
General Management	124	26.3	Director	93	19.7
HR or Administrative	113	24.0	EVP/SVP	17	3.6
Marketing	26	5.5	Vice President	37	7.9
Operations	67	14.2	Manager	193	41.0
Research and Development	34	7.2	Supervisor	25	5.3
Sales	45	9.6	Other	76	16.1
Systems/IT	25	5.3	Total	471	100.0
Total	471	100.0			

# Employees	Frequency	Percent	Global Revenue (USD)	Frequency	Percent
100-499	96	20.4	Less than \$50 million	130	27.6
500-999	43	9.1	\$50 to \$249 million	88	18.7
1,000-3,499	67	14.2	\$250 to \$499 million	23	4.9
3,500-4,999	33	7.0	\$500 to \$999 million	44	9.3
5,000-9,999	39	8.3	\$1 B to \$2.99 B	59	12.5
10,000 or more	193	41.0	\$3 B to \$9.9 B	61	13.0
Total	471	100.0	\$10 B plus	66	14.0
			Total	471	100.0

Region	Frequency	Percent	Gender	Frequency	Percent
Canada	126	26.8	Female	213	45.2
Mexico	49	10.4	Male	258	54.8
United States	296	62.8	Total	471	100.0
Total	471	100.0			

Organization Performance Measures

Two self-reported measures of performance were used as dependent variables in this study. Self-reported measures allow for better comparability across respondents of varying size and industry. Otherwise ready comparisons across such a diverse sample can be very difficult. These questions also asked respondents to compare the past five years to current conditions. Profitability categories consisted of: (1) at an all-time low level; (2) significantly worse; (3) about the same; (4) significantly better; or (5) at an all-time high level. Competitiveness categories consisted

of: (1) rapidly losing ground against your major competitors; (2) slowly losing ground; (3) holding steady (neither gaining nor losing ground); (4) slowly gaining ground; or (5) rapidly gaining ground against your major competitors.

Agility and Resiliency Measures

Survey items describing possible agility and resiliency dimensions came from extensive literature searches and large group workshops with senior HR professionals in the United States and Canada prior to their inclusion in the AMA/HRI survey. These items

draw heavily from the HR, OD and change management fields. Factor and item correlation analyses meeting standard statistical criteria were performed and five items were derived for each. These are summarized in Exhibit 3. The agility items clearly emphasize a proactive orientation toward change and the capacity for scanning, making sense and quickly acting on what is perceived in the environment, along with the capacity for moving resources wherever needed to support those actions.

Two resiliency items cross-load on the agility construct—a strong sense of identity and purpose and clearly defined and held values and beliefs—but are both retained within the resiliency construct given their substantial support in the literature (Freeman et al., 2004; Peterson et al., 2003; Weick & Sutcliffe, 2007). Overall, these items are closely aligned with the literature on resiliency, which stresses the power of strongly held shared identity, purpose, values and beliefs, and adequate internal resources and access to external resources through relationships. Both agility and resiliency constructs are usable for this study and future research will improve them further.

Adaptive Capacity, Turbulence and Organization Performance

To test the relationships between agility and resiliency with our performance measures, we conducted a series of correlation and regression analyses. The results illustrated in Exhibit 4 demonstrate that agility and resiliency have significant positive correlations with both performance measures. Turbulence, conversely, has a significant negative relationship with competitiveness, a relationship conceptually supported by the idea that turbulence undermines an organization's capacity to respond quickly and recover effectively from setbacks.

To visualize these relationships, a model was constructed and is illustrated in Exhibit 5. Together, agility, resiliency and turbulence explain .178 of the variance in competitiveness as measured by R². Practically, these results indicate that firms can build competitiveness, even in turbulent conditions, by being more agile and resilient. Turbulence can be managed by building agility and resiliency.

EXHIBIT 3: SCALE ITEMS

		Factor Loadings	
Agility ($\alpha = .90$, variance = 55.37%)	Item-to-total Correlation	Agility Factor	Resiliency Factor
1. Our organization is open to change	0.72	0.815	
2. Our organization actively and widely scans for new information about what is going on	0.73	0.782	
3. Our organization is good at making sense of ambiguous, uncertain situations	0.78	0.831	
4. Our organization takes advantage of opportunities quickly	0.77	0.821	
5. Our organization is good at quickly deploying and redeploying resources to support execution	0.74	0.762	

Resiliency ($\alpha = .80$, variance = 10.39%)	Item-to-total Correlation	Agility Factor	Resiliency Factor
1. Our organization has a strong sense of identity and purpose that can survive anything	0.66	0.558	0.547
2. Our organization has a strong support network of external alliances and partnerships	0.68		0.668
3. Our organization is expanding its external alliances and partnerships	0.60		0.618
4. Our organization has "deep pockets"—access to capital and resources to weather anything	0.39		0.821
5. Our organization has clearly defined and widely held values and beliefs	0.61	0.606	0.468

EXHIBIT 4: CORRELATIONS, MEANS AND CO-VARIANCES OF AGILITY AND RESILIENCY*

	Agility	Resiliency	Turbulence	Competitiveness	Profitability
Agility	3.43	.413	-.064	.302	.178
Resiliency	.688	3.61	-.047	.260	.192
Turbulence	-.113	-.092	2.69	-.111	-.127
Competitiveness	.382	.362	-.165	3.66	.448
Profitability	.228	.269	-.190	.478	3.66

*Correlations in lower diagonal, means in off-diagonal and co-variances in upper diagonal. All correlations are significant at least at the .05 level (2-tailed).

This also is an important finding because the model shows that business competitiveness can boost profitability. Competitiveness (.425), resiliency (.131) and turbulence (-.113) all have direct influence on an organization's profitability ($R^2=.250$). The influence of agility is fully mediated by competitiveness, while resiliency and turbulence are only partially mediated. Agility contributes most to competitiveness, but in itself does not contribute directly to profitability in this model.

as high competitiveness is characterized by effective sense-making and fast, decisive action to take advantage of opportunities. These abilities are most associated with agility (D'Aveni, 1994; Goldman et al., 1994). Then again, resiliency is better at minimizing or helping to avoid the damaging consequences of turbulence that impact profitability. Operationally, this may mean that a company's access to capital and resources can be used to buffer and rebuild operations, protect

was destroyed, not just because it lacked internal capital relative to its needs, but because it had poor external relationships to draw upon for more—a key feature of resiliency (Dyer & Singh, 1998; Freeman et al., 2004; Kansas, 2009).

The revealed relationships between turbulence and performance stress how increasing turbulence is debilitating for organizations that do not build sufficient adaptive capacity to meet new conditions. Conversely, it is likely that high levels of adaptive capacity, supported by high performance, can better moderate turbulence; organizations better manage turbulence because they are simply more capable. High adaptive capacity, for example, provides the opportunity for assertive market moves that can dislodge competitors that have less capacity (Christensen & Raynor, 2003). The flip side is equally important: Competitors place themselves at considerable risk if they try to disrupt their industry's competitive balance without having the adaptive capacity to manage what they induce.

Conversely, it is likely that high levels of adaptive capacity, supported by high performance, can better moderate turbulence; organizations better manage turbulence because they are simply more capable.

The overall patterns are complex, but clear. Agility and resiliency have significant positive relationships with performance, with turbulence moderating those relationships. Businesses experiencing greater turbulence have greater difficulty competing and translating competitiveness into profits, but adaptive capacity in the form of agility and resiliency significantly help their efforts to do so.

margins or preserve market position, all of which protect the bottom line.

As a possible illustration, the same 2008 financial market conditions that proved fatal for Lehman Bros. were not as damaging for Wells Fargo. Both were agile competitors in their respective markets, but Lehman Bros. had over-extended its resources and strained critical stakeholder relationships, while Wells Fargo had internal capital and the ability to raise more money externally. Lehman Bros.

We venture that agility has a stronger relationship with competitiveness than resiliency

Intervention Design Implications

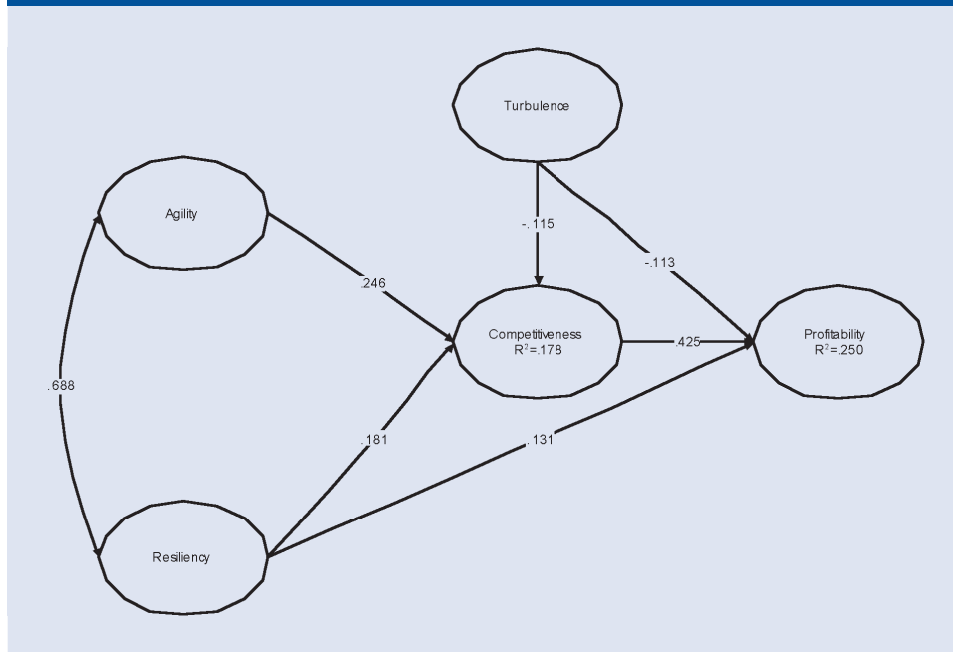
Overall, our findings yield three major guidelines for HR executives and senior management when designing interventions for developing adaptive capacity. They must: 1) balance attention to agility and resiliency; 2) build both of these at multiple levels; and 3) think strategically in assessing and aligning interventions to build them.

Balancing Attention to Agility and Resiliency

It is tempting to think that the pace of change can best be matched by building agility, while the disruptiveness of change is best matched by building resiliency. In this scenario, fast-paced markets are met with speedy product innovation, and severe setbacks are offset with robust response management. However, it is risky to overemphasize either agility or resiliency to the exclusion of the other. The strong correlation between the two concepts in our study indicates that they are different but indeed linked.

Agility and resiliency are both essential, and they must both be actively developed, although the relative emphasis given to each may vary

EXHIBIT 5: PROFITABILITY PATH MODEL



over time as the relative pace and disruptiveness of change varies. The task is gauging which of the two is needed most at a point in time. To do so requires having multiple, explicit, agreed-upon metrics and indicators of when agility and resiliency are being excessively pressured due to environmental conditions. Gaming and simulations of a variety of extreme situations, along with taking every opportunity for candid debriefs of actual failures and poor performance, become important ways of identifying those indicators.

Developing Individuals, Teams, Organizations and Industries

We are struck by how the agility and resiliency literatures focus on individuals, teams and organizations, but rarely two or more of these at the same time. Emphasizing agility-building interventions such as systems thinking or creative problem-solving workshops at an individual or team level may be helpful, but if efforts to build agility across the organization are weak, then individual and team-level efforts ultimately may fail. For example, encouraging new product design teams to act quickly in recognizing market opportunities may be a valuable intervention, but a team's agility is undermined when it must deal with slow decision making by top decision makers. Teams also may become proficient in using scenarios for strategic planning, but organization-level planning and budgeting processes must support them. It is impossible to have agile and resilient organizations without agile and resilient individuals and teams within them.

It also is challenging to build adaptive capacity at an industry level, but managing turbulence at an industry level can help reduce the level of change experienced at the organization level. This idea is not new. Auto, healthcare and financial services industry lobbyists worked for decades to minimize regulatory change. Ultimately the consequences of such resistance proved disastrous in each instance. Nonetheless, broad-based alliances and consortia for acting on widely shared challenges, such as alleviating global warming, collaboratively strengthening global supply chains, speeding shared decision-making through open access information networks and setting industry standards are all ways of building adaptive capacity beyond a single organization. Such industry-level interventions are increasingly essential as

contextual disruptions affecting entire industries increase (Gomes-Casseres, 2003; Selsky & McCann, 2008).

Targeting Specific Competencies

It is a daunting challenge to continuously balance attention to both agility and resiliency and build capacity at multiple levels. The specific items that compose the agility and resiliency constructs in this study are at least the starting point for systematically assessing how an organization's current interventions support or hinder agility and resiliency. Those construct items from Exhibit 3 can sound deceptively simple in their capacity-building implications. Yet those of us who have worked with organizations on major change initiatives know they are not simple. Building a

strong sense of identity and shared values helps build resiliency, but these are not easy to achieve after successive mergers, restructurings and staff reductions have compromised an organization's culture.

Many practices that promote agility and resiliency already exist in organizations, but they need to be identified, improved where necessary and then aligned within an overall capacity-building strategy. The items in Exhibit 3 provide a good starting point for designing and aligning interventions. Exhibit 6 lists just a few of the interventions that HR professionals in Toronto and Philadelphia workshops helped generate to aid our research.

It may be necessary to improve practices for identifying, attracting and retaining individuals with the ability to manage ambiguity. Team composition also can be structured

EXHIBIT 6: AGILITY- AND RESILIENCY-BUILDING INTERVENTIONS

Agility-building:

- **Improve "sense-making" skills—better manage uncertainty and ambiguity.**
How: Use scenarios to scan and build hypotheses and models about what is happening. Get people to read broadly and explore new ideas together.
- **Create and sustain an openness to change.**
How: Provide financial rewards and career incentives for innovation and continuous improvement.
- **Efficiently and quickly acquire, build, share and apply knowledge to critical priorities.**
How: Create a knowledge management process, but communicate clearly and consistently from the top about the big issues. Form fast-response teams around issues.
- **Create an action bias throughout the organization.**
How: Set clear priorities and deadlines and hold people responsible for meeting them. Avoid paralysis in decision making—work on streamlining and clarifying roles/responsibilities in decision-making process.
- **Develop the ability for quickly deploying and then redeploying resources, talent and skills.**
How: Learn to hedge bets and avoid over-commitment. Cross-train and frequently move people around to broaden skill/knowledge base.

Resiliency-building:

- **Improve contingency planning and crisis response capabilities.**
How: Take simulations, role-playing and scenario planning seriously and make certain the skills and competencies for surprises and crises are built.
- **Engage in strategic (enterprise-wide) risk assessment.**
How: Think about areas of most risk and exposure and develop plans to proactively manage each of them—focus on the higher-risk, under-managed relationships.
- **Learn to deal with the consequences of failed plans—"take the hit" and react appropriately.**
How: Minimize losses by avoiding escalation and learning from the process to anticipate it better the next time.
- **Develop assets and talents both inside and outside the organization that can be drawn upon to mobilize a response.**
How: Alliances and partnerships are critical and need to be developed and sustained, whether financial or otherwise.
- **Make certain everyone has a deep, shared belief in your core values and beliefs.**
How: Communicate often and sincerely about the organization's vision and values, making certain these are understood and truly hold meaning and value.
- **Be prepared to rethink and redesign yourself if required.**
How: Develop your transformation skills—know what to preserve that is part of your core identity and what can be given up.

with the right mix of individual skills and experience, and then supported to sustain their performance during extreme stress (Mohrman, Cohen & Mohrman, 1995). Introducing scenario planning to explore multiple futures, and encouraging individuals and teams to create hypotheses and models about what they are experiencing, would be valuable in building openness to change, greater tolerance for ambiguity and sense-making capabilities (Schoemaker & Day, 2009; Selsky & McCann, 2008).

At an organization level, creating a well-designed knowledge management system that improves knowledge sharing and retention can speed both decision making and response time. Some of these initiatives are low cost, while others, such as deploying a robust knowledge management system, could take millions of dollars.

Building adaptive capacity requires strategic leadership and commitment. A thoughtful auditing of current change management initiatives is the starting point, but ultimately a sustained process for systemically managing adaptive capacity is required. This highlights the role of strategic thinking and shared responsibility across the organization, not just within HR. It calls for strategic organization designing (note the “ing”), comparable in scale to enterprise risk management but larger in scope because it encompasses more human resource variables. Building adaptive capacity becomes a strategic imperative as the pace and disruptiveness of change accelerates. **P&S**

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