

## **IMPACT OF INFORMATION TECHNOLOGY ON THE DEVELOPMENT OF HUMAN RESOURCES STRATEGY AND PROCESSES IN THE KERMANSHAH PROVINCE RURAL WATER AND SEWERAGE COMPANY IN 2013**

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### **ABSTRACT**

Resilient organizations thrive despite experiencing conditions that are surprising, uncertain, often adverse, and usually unstable. We propose that the effectiveness of the organization for resilience is developed through strategically managing human resources to create competencies among core employees, that when aggregated at the organizational level, make it possible for organizations to achieve the ability to respond in a resilient manner when they experience severe shocks. We begin by reviewing three elements central to developing an effectiveness of the organization for resilience (specific cognitive abilities, behavioral characteristics, and contextual conditions). Next we identify the individual level employee contributions needed to achieve each of these elements. We then explain how development of human resources strategy policies and practices within a human resources strategy system can influence individual attitudes and behaviors so that when these individual contributions are aggregated at the organizational level through the processes of double interact and attraction selection–attrition, the organization is more likely to possess a capacity for resilience.

**Keywords:** *Information Technology, Human Resources Strategy, Kermanshah Province Rural Water and Sewage Company in 2013*

### **INTRODUCTION**

In turbulent, surprising, continuously evolving marketplace environments only flexible, agile, and relentlessly dynamic organizations will thrive. In fact, firms often must be able to move beyond survival and actually prosper in complicated, uncertain, and threatening environments. Unstable environments create frequent challenges and even relatively stable marketplaces experience occasional jolts or undergo periodic revolutionary shifts. Often these events are viewed negatively, but as Sutcliffe and Vogus (2003) explain, resilient organizations are able to maintain positive adjustments under challenging conditions.

Resilient firms actually thrive and become better in part because they faced and overcame serious challenges. Similar to a firm's efforts to encourage strategic information technology (i.e., the ability to change direction on short notice at low cost), efforts to build a capacity for resilience presume that change and surprise can be sources of opportunity as well as signs of potential threat, but that to capitalize on these opportunities often requires organizational transformation. In this paper we explain how firms can develop a capacity for resilience, why this capacity enables a firm to more fully realize the benefits that changing opportunities present, and we highlight the important role that human resources strategy plays in both developing and using a firm's capacity for resilience.

#### ***Defining Organizational Resilience***

The literature offers two differing perspectives on what organizational resilience means. Some see organizational resilience as simply an ability to rebound from unexpected, stressful, adverse situations and to pick up where they left off (Balu, 2001; Dutton *et al.*, 2002; Gittell *et al.*, 2006; Horne, 1997; Horne and Orr, 1998; Mallak, 1998b; Robb, 2000; Rudolph and Repenning, 2002; Sutcliffe and Vogus, 2003). This view is similar to definitions of resilience in the physical sciences in which a material is resilient if it is able to regain its original shape and characteristics after being stretched or

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pounded. When organizational resilience is seen as bouncing back, the emphasis is generally on coping strategies and a quick ability to resume expected performance levels. Organizational efforts are designed to reestablish a strong fit between the firm and a new reality while simultaneously avoiding or limiting dysfunctional or regressive behaviors. This perspective on organizational resilience is rebound-oriented and is often tied to hardness (i.e., an ability to react to stressful events with adaptive interpretations and actions (Kobasa *et al.*, 1982)). A second perspective of organizational resilience looks beyond restoration to include the development of new capabilities and an expanded ability to keep pace with and even create new opportunities (Coutu, 2002; Freeman *et al.*, 2004; Guidimann, 2002; Jamrog *et al.*, 2006; Layne, 2001; Lengnick-Hall and Beck, 2003, 2005; Weick, 1988). In this second view, organizational resilience is seen as thriving because of the ability to capitalize on unexpected challenges and change. This second perspective goes beyond returning to established benchmarks to see organizational resilience as an important factor enabling a firm to leverage its resources and capabilities not only to resolve current dilemmas but to exploit opportunities and build a successful future. Consequently, organizational resilience is tied to dynamic competition, and a firm's ability to absorb complexity and emerge from a challenging situation stronger and with a greater repertoire of actions to draw from than were available before the disruptive event. This paper adopts the second, transformational view of organizational resilience. Organizational resilience is defined here as a firm's ability to effectively absorb, develop situation specific responses to, and ultimately engage in transformative activities to capitalize on disruptive surprises that potentially threaten organization survival (Coutu, 2002; Freeman *et al.*, 2004; Guidimann, 2002; Hamel and Valikangas, 2003; Jamrog *et al.*, 2006; Lengnick- Hall and Beck, 2005, 2009; McCann, 2004). This follows Morgeson and Hofmann's (1999) recommendation for defining collective constructs in terms of their function or outcome and focuses attention on actions to create the structures by which such phenomena "emerge, are transmitted and persist". As we explain, and the effectiveness of the organization for resilience is embedded in a set of individual level knowledge, skills, and abilities and organizational routines and processes by which a firm conceptually orients itself, acts decisively to move forward, and establishes a setting of diversity and adjustable integration that enables it to overcome the potentially debilitating consequences of a disruptive shock (Lengnick- Hall and Beck, 2009). Human resources strategy systems are instrumental in developing the requisite knowledge, skills, abilities and other attributes (KSAOs) and in invoking the appropriate collective routines and processes to generate resilience outcomes.

**Distinguishing Resilience from Related Constructs**

While the construct of organizational resilience has some elements in common with organizational attributes such as information technology, agility, and adaptability, there are also important distinguishing elements. Information technology (the ability to change on relatively short notice and at low cost (Ghemawat and del Sol, 1998)), agility (the ability to develop and quickly apply nimble and dynamic competitive moves (McCann, 2004)), and adaptability (the ability to reestablish fit with the environment (Chakravarthy, 1982)) are often associated with resilience. However, these organizational attributes reflect different origins and outcomes. First, a need for resilience is triggered by an unexpected event.

Information technology and agility are often part of a firm's on-going repertoire of strategic capabilities leading to increased maneuverability. Second, resilience incorporates renewal, transformation, and dynamic creativity from the inside-out. Adaptability, in contrast, emphasizes the need for environmental fit from an outside-in perspective and often presumes a new, externally determined equilibrium is the desired state.

Third, while characteristics such as information technology, adaptation, improvisation, and agility may contribute to and the effectiveness of the organization for resilience, none of these capabilities is sufficient on its own to achieve it. Finally, the limited empirical work examining resilience and other associated organizational attributes use different measures to operationalize the constructs (Crichton *et al.*, 2009; Grote *et al.*, 2009; Jamrog *et al.*, 2006; Somers, 2009) demonstrating that distinct phenomena are being examined. The concept of resilience and the configurationally aspects of this organizational capability are discussed more fully in the next section of the paper.

### ***Creating a Capacity for Resilience***

While the academic literature in management includes discussions of resilience, (e.g., Collins and Porras, 1994; Freeman *et al.*, 2004; Sutcliffe and Vogus, 2003; Weick, 1993) until recently much of the work related to this concept has been in the field of psychology. As would be expected, these studies focused on resilience in individuals rather than on organizational resilience. An understanding of resilient individuals provides a useful starting place for defining resilient organizations since actions and interactions among individual organizational members underpins the emergence of a firm's collective capacity for resilience (Morgeson and Hofmann, 1999). Werner and Smith (2001) provide compelling insights into resilience in individuals through their forty-year study of 698 native Hawaiian children born in 1955. These children experienced various challenging conditions in their lives from impoverished homes, alcoholic or violent parents, lack of education and so forth. However, most of these children were able to overcome these conditions and grow into healthy, confident adults. Their study identified four factors that distinguished resilient from non-resilient individuals: problem solving abilities, favorable perceptions, positive reinforcement, and strong faith. These findings suggest that resilience is a capability that can be developed deliberately. The training undertaken by Navy SEALs provides one example of how individual level KSAOs that support both an individual level capability and the subsequent collective capacity for resilience, can be systematically developed through purposeful attention to human resource management (Couch, 2001). Navy SEAL candidates endure 27 weeks of arguably the most demanding mental and physical military training. Three weeks of indoctrination serve multiple purposes: trainees learn the complex set of procedures and protocols needed throughout the training process, trainees begin the physical preparation needed to survive the complete training program, and perhaps most importantly, trainees learn about SEAL traditions and begin to absorb the culture of their warrior class. The next three weeks include "basic" conditioning, although the term "basic" seems grossly inadequate to describe the rigors of this training. Candidates' days include running, swimming (pool and open-ocean), calisthenics, and obstacle course timed trials.

Trainees also undergo "drown-proofing", or learning to swim with their hands and feet bound, and "cold water conditioning", which includes extended exercises in surf conditions of approximately 65°F. Hell Week follows the basic conditioning and challenges candidates to five and one-half days of continuous training with no more than four hours of sleep in total. The next three weeks complete the basic conditioning. Candidates then continue their physical training with eight weeks of intensive diving instruction, which emphasizes combat scuba and long-distance dives. The final nine weeks of training extends the physical training with more strenuous runs, swims, and obstacle course trials, and also focuses on conventional techniques of land warfare, such as navigation, patrolling, rappelling, marksmanship, and explosives.

Although the demands of Navy SEAL training may seem extreme, the process provides a window into how one organization prepares its future members to build up their capacity to deal with uncertain and novel warfare conditions.

The training regime is designed to build warriors of the highest character, with premiere physical fitness and technical proficiency. It also binds all SEALs graduates together; all receive the same training, and mission success is based on teamwork where all act as one. The life and death situations that SEALs will face in warfare can test the mettle of the bravest, however, "the confidence instilled by repetition and drill" (Couch, 2001) along with a history of interpersonal interactions under extreme conditions can promote effective action. Some combat situations call for reliance on well-practiced responses, while other situations demand creative solutions.

Resilience requires the ability to distinguish these situations correctly. To enable this differentiation, for example, training and combat missions force SEALs to assess the environment, make sense of their surroundings, and to consider appropriate response options, whether they adopt alternate escape routes or rely on routine emergency procedures. In the end, SEALs training strives to produce men that exhibit determination and courage under adverse environmental conditions- essentially training men to be resilient. Graduates possess the ability not only to survive brutal conditions, but actually thrive because of the multiple conditions confronted, and to develop new capabilities and transform themselves into exceptional warriors. Successful completion of training places graduates within a

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culture oriented toward teamwork and produces expert warriors who are competent at making sense of their surroundings, know when to revert to standard procedures, and are confident and able to improvise when needed.

*Dimensions of a Collective Capacity for Resilience*

The relationship between individual resilience and organizational resilience reflects the typical interaction between systems and subsystems. Organization-level capabilities are not just additive composites of individual capabilities (Ashmos & Huber, 1987). Both the actions of individuals and the interaction effects matter (Morgeson & Hofmann, 1999). The complex social network in which it is enacted alters both the development and realization of an organization's resilience. The effectiveness of the organization for resilience in important ways. Therefore, while we direct our attention to developing resilience-related KSAOs among a firm's employees, our ultimate focus is on how individuals collectively enable the organization to be resilient. Anecdotal and retrospective results allow researchers to evaluate whether an organization has displayed resilience — "Has the firm survived the environmental threats? Did the firm prosper despite the challenges faced? Did the firm develop new capabilities and engage in transformative actions as a consequence of overcoming the crisis?" In fact, much of the existing research on organizational resilience is descriptive and outcome focused (e.g., Coutu, 2002; Horne, 1997; Horne & Orr, 1998; Mallak, 1998a,b). However, more practical and theoretical insight is likely to be gained by looking to the underlying dimensions that allow the organization and its members to develop a capacity for resilience. We rely on the work of Lengnick-Hall and Beck (2005, 2009) who suggest that a firm's capacity for developing resilience is derived from a set of specific organizational capabilities, routines, practices, and processes by which a firm conceptually orients itself, acts to move forward, and creates a setting of diversity and adjustable integration. Lengnick-Hall and Beck (2003, 2005) argue that a capacity for resilience is developed from a unique blend of organization-level cognitive, behavioral, and contextual capabilities and routines. In this paper, we argue that these organizational capabilities and routines, in turn, are derived from a combination of individual level knowledge, skills, abilities and other attributes (KSAOs) that are systematically developed and integrated through a firm's human resource management system.

*Cognitive Elements of Organizational Resilience*

A number of cognitive factors contribute to the creation of organizational resilience. First, firms can foster a positive, constructive conceptual orientation through a strong sense of purpose, core values, a genuine vision, and a deliberate use of language (Collins & Porras, 1994; Freeman *et al.*, 2004). Strong core values coupled with a sense of purpose and identity encourage an organization to frame conditions in ways that enable problem solving and action rather than in ways that lead to either threat rigidity or dysfunctional escalation of commitment (Coutu, 2002; Sutcliffe & Vogus, 2003). Second, constructive sensemaking enables firms and employees to interpret and provide meaning to unprecedented events and conditions (Thomas *et al.*, 1993; Weick, 1995). Collective sensemaking relies on the language of the organization (i.e., its words, images, and stories) to construct meaning, describe situations, and imply both understanding and emotion.

A prevailing vocabulary that implies capability, influence, competence, consistent core values, and a clear sense of direction, sets the stage for constructive sensemaking. Constructive sensemaking requires an attitude that balances the contradictory forces of confidence and expertise against skepticism, caution, and a search for new information (Weick, 1993). It is important to recognize that each contains unique features that may be quite subtle but that can be incredibly powerful in shaping consequences, relationships, and actions. The shared mindset that enables a firm to move forward with information technology is often an intricate blend of expertise, opportunism, creativity, and decisiveness despite uncertainty. If a firm is too bound by conventional answers or precedent, it will have great difficulty conceiving a bold new path. If a firm disregards real constraints it will forge infeasible solutions. Cognitive foundations for resilience require a solid grasp on reality and a relentless desire to question fundamental assumptions. In addition, alertness, or mindfulness that prompts an organization to continuously consider and refine its expectations and perspectives on current functioning enables a firm to more adeptly manage environmental complexities (Weick & Sutcliffe, 2007). Organizational resilience depends on an ability to conceptualize solutions that are both novel and appropriate (Amabile, 1988).

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*Behavioral Elements of Organizational Resilience*

Resilient employee's exhibit behaviors like the character in the television show "MacGyver" who along with a Swiss army knife, resourcefulness, and common items that he finds is able to extricate himself from seemingly insoluble problems and situations. These types of behavioral elements also contribute to resilience and can be developed through a combination of practiced resourcefulness and counterintuitive agility juxtaposed with useful habits and behavioral preparedness (Lengnick-Hall and Beck; 2003, 2005). Combined these behaviors create centrifugal forces (influences that make ideas, knowledge and information available for creative action) and centripetal forces (influences that direct inputs and processes toward actionable solutions) enabling a firm to learn more about a situation and to fully use its own resources under conditions that are uncertain and surprising (Sheremata, 2000). Learned resourcefulness, ingenuity, and bricolage (the imaginative use of materials for previously unintended purposes) are all related traits and characteristics that enable individuals and organizations to engage in the disciplined creativity needed to devise unconventional, yet robust, responses to unprecedented challenges (Coutu, 2002; Lengnick-Hall and Lengnick-Hall, 2003). These behaviors combine originality and initiative to capitalize on an immediate situation. The skills and competencies that lead to learned resourcefulness improve with experience and practice (Eisenhardt & Tabrizi, 1995; Senge *et al.*, 1994).

In a study of hospitals dealing with the sudden and unprecedeted jolt of striking physicians, Meyer (1982) found that resilient hospitals chose a variety of different paths but one commonality was that the resilient choices were counterintuitive given each of the hospital's normal operating habits. Therefore, it appears a second pattern contributing to the behavioral elements of organizational resilience is the ability to follow a dramatically different course of action from that which is the norm. Firms that engage in behaviors leading to nonconforming strategic repertoires (those that depart from the industry's norms) rather than simple strategic repertoires (those that tend to be preoccupied with a single type of action) are also more adept at taking counterintuitive moves (Miller & Chen, 1996). Third, in direct contrast to learned resourcefulness and counterintuitive agility, resilience also relies on the development of useful, practical habits especially repetitive, over-learned routines that provide the first response to any unexpected threat. Useful habits are closely tied to genuine organizational values.

A link to the cognitive foundations of resilience, then, is a cohesive sense of what a company believes and its core set of values which becomes a basis for developing day-to-day behaviors that translate intended strategies into actions. If an organization develops values that lead to habits of investigation rather than assumption, routines of collaboration rather than antagonism, and traditions of information technology rather than rigidity, it is more likely to intuitively behave in ways that open the system and create robust responses.

Fourth, behavioral preparedness helps bridge the gap between the divergent forces of learned resourcefulness and counterintuitive agility and the convergent forces of useful habits. Behavioral preparedness is taking actions and making investments before they are needed to ensure that an organization is able to benefit from situations that emerge. Behavioral preparedness also means that an organization deliberately unlearns obsolete information or dysfunctional heuristics (Hammonds, 2002). It is just as important for organizations to quickly discard behaviors that constrain them as it is for them to develop new competencies. Behavioral preparedness enables an organization to spot an opportunity that other firms without their competencies might miss.

Firms that have not developed the necessary behaviors before they are needed jeopardize resilience because they are unable to capitalize on changes in technology, ideas, or market conditions. Behavioral factors that support resilience translate the thoughts and perceptions identified as essential cognitive elements into tangible actions and responses and leads to two important outcomes. First, a combination of learned resourcefulness and counterintuitive actions generates a complex and varied inventory of potential strategic actions that can be drawn upon in emerging situations. Resourcefulness and agility combine to create a reservoir of options that expand the range of possible future behaviors (Ferrier *et al.*, 1999). Second, a combination of useful habits and behavioral preparedness creates a foundation of rehearsed and habitual expert routines that ensure an organization's initial and intuitive response to any situation will create options rather than constraints.

### **Contextual Elements of Organizational Resilience**

Contextual conditions that support resilience rely on relationships within and outside an organization to facilitate effective responses to environmental complexities. Four essential contextual conditions include: psychological safety, deep social capital, diffuse power and accountability, and broad resource networks (Lengnick-Hall & Beck, 2003, 2005). Combined, these factors promote interpersonal connections and resource supply lines that lead to the ability to act quickly under emerging conditions that are uncertain and surprising. First, psychological safety (Edmondson, 1999) describes the degree to which people perceive their work environment is conducive to taking interpersonal risks: (a) the risk of being seen as ignorant by asking questions or seeking information, (b) the risk of being seen as incompetent resulting from asking for help, admitting mistakes, or experimenting, (c) the risk of being seen as negative when offering critical feedback, (d) failure to seek feedback for fear of imposing on someone's time or goodwill. When people perceive psychological safety they are more willing to take these risks. Since organizational resilience requires interpersonal risks, it is necessary that a climate of psychological safety be established. Second, deep social capital evolves from respectful interactions within an organizational community (Ireland *et al.*, 2002). Respectful interactions are defined as face-to-face, on-going dialogues rooted in trust, honesty, and selfrespect (Weick, 1993). Respectful interaction builds informed and disclosure-oriented intimacy and is a key factor enabling collaborative sense making. Deep social capital offers a number of important benefits in developing contextual conditions that support resilience (Adler & Kwon, 2000). One, it facilitates growth in intellectual capital since people are more likely and more able to share tacit information.

Two, it eases resource exchange since groups come to recognize their interdependence. Three, it eases cross-functional collaboration since people appreciate perspectives that are different from their own. Four, deep social capital is a foundation for exchanges that endure beyond immediate transactions and grow into mutually beneficial, multifaceted, long-term partnerships. Finally, deep social capital can enable an organization to build bridges that cross conventional internal and external boundaries and forge a network of support and resources. power and accountability is a third factor associated with the creation of resilience.

Resilient organizations are not managed hierarchically. Instead, they rely on self-organization, dispersed influence, individual and group accountability, and similar factors that create a "holographic" structure (Morgan, 1997), where each part is a fractional replica of the whole organization. Holographic structures are designed to learn and to change their behaviors based on new insights and information. In addition to relying on these structural designs, resilient organizations share decision making widely (Mallak, 1998b). Each organization member has both the discretion and the responsibility for ensuring attainment of organizational interests. Overall, this shared responsibility coupled with interdependence creates a setting that facilitates the cognitive and behavioral elements that are necessary for resilience.

Finally, access to broad resource networks is a key element in creating contextual conditions that support resilience development. Resilient individuals are distinguished by their ability to forge relationships with others who could share key resources (Werner & Smith, 2001). Likewise, resilient firms use relationships with supplier contacts and strategic alliances to secure needed resources to support adaptive initiatives. Resources gained through a firm's network of organizational relationships ensure some measure of continuous slack (Judge *et al.*, 1997), extends the range of feasible actions, and promotes an assortment of interpretations for alternative applications of these resources.

This, in turn, stimulates innovation and challenges prevailing assumptions in ways that can cultivate constructive sensemaking. External resources also ensure that bonds with various environmental agents are maintained, thereby reinforcing social capital beyond the firm's boundaries. These types of contextual conditions provide the operational platform from which resilient behaviors and attitudes are developed. Clearly, since many of these relationships cross organizational boundaries they cannot be controlled entirely by organizational actions. However, as the growing literature on social capital explains, organizations can design structures, processes, and interaction patterns that shape the evolution of these relationships (Nahapiet & Ghoshal, 1998). While specific contextual conditions are not sufficient to create a capacity for resilience, they are an integral ingredient enabling the kinds of

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behaviors and mental models that lead to resilience. Moreover, contextual conditions provide the necessary medium for brewing the other two dimensions of organizational resilience. Without the conduit of relationships, processes, and intangible assets that form the contextual foundation, there would be few ways to synthesize resilient cognitions and behaviors into an enterprise-wide capability.

**Developing a Capacity for Resilience through Development of Human Resources Strategy**

How does the U.S. Navy create resilient SEALs? They select physically fit individuals, train them to have technical proficiency, and then prepare them for a wide variety of potential threats by exposing them to multiple challenges and obstacles under extreme, adverse conditions. Through repetition and drills SEALs develop well-practiced responses that enable them to make sense out of their situation, develop creative solutions, and adapt in ways that accomplish their missions. Can other types of organizations also develop resilient employees who collectively create resilient organizations? We believe the answer is yes, by developing a configuration of development of human resources strategy practices that are internally consistent and directed at nurturing cognitive, behavioral, and contextual dimensions of resilience.

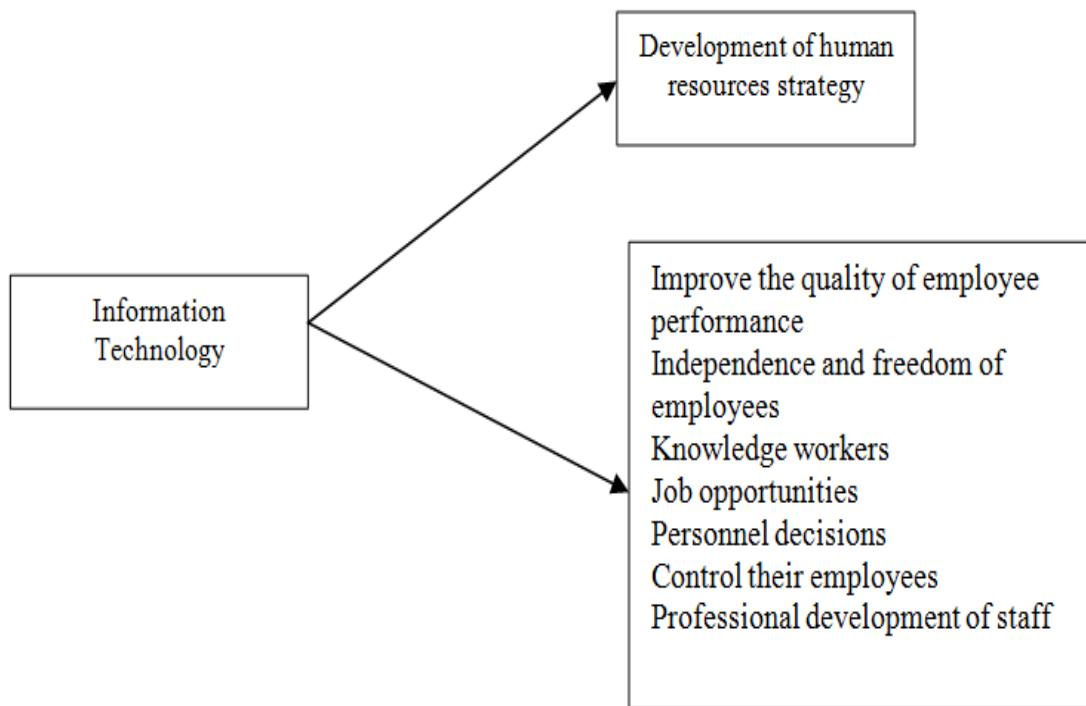
We propose that a firm's capacity for developing organizational resilience is achieved through strategically managing human resources to create individual competencies among core employees, that when aggregated at the organizational level, make it possible for organizations to effectively absorb uncertainty, develop situation-specific responses to threats, and ultimately engage in transformative activities so that they can capitalize on disruptive surprises that potentially threaten their survival. Our focus is on the human resource (development of human resources strategy) system which is a multilevel construct (Arthur & Boyles, 2007; Becker & Gerhart, 1996; Lepak *et al.*, 2004; Schuler, 1992). An development of human resources strategy system is viewed as consisting of some overarching, broad elements (development of human resources strategy architecture, development of human resources strategy principles, or development of human resources strategy philosophy) that provide general direction for the management of human capital, some mid-range elements (development of human resources strategy policies, development of human resources strategy programs) that provide alternative approaches to align development of human resources strategy practices with development of human resources strategy architecture and strategic objectives, and some lower-range elements (development of human resources strategy practices, development of human resources strategy processes) that reflect the actual development of human resources strategy activities implemented in specific circumstances (Lepak *et al.*, 2004). Our focus also is on core employees (Lopez-Cabral *et al.*, 2006).

While developing a capacity for resilience requires organization-wide involvement, we believe it is most important that core employee groups receive the greatest attention. As Lepak *et al.*, (2004) suggest, "Different employees contribute to different aspects of organizational success. Within the same firm, employees may be core for different reasons. For, high-tech firms might have some core employees working within the R&D side of the organization while other core employees work on the business development side of the organization." Consequently, we describe the elements of a development of human resources strategy system that focuses on developing a capacity for resilience in core employees. What are the characteristics of an development of human resources strategy system designed to develop a capacity for organizational resilience? To answer this question, we use the model depicted in Fig. 1, adapted from Lepak *et al.*, (2004).

This model consists of three components: development of human resources strategy principles, development of human resources strategy policies, and desired employee contributions. Development of human resources strategy principles serve as guideposts to align lower, less abstract policies and practices (Colbert, 2004). For example, an development of human resources strategy principle for decision making would be "share information as broadly as possible within the organization." development of human resources strategy policies reflect alternative means of realizing the guiding development of human resources strategy principles. Additionally, development of human resources strategy policies reflect alternative means of achieving specific sets of objectives to be accomplished by employees. As Lepak *et al.*, (2004) explain, "certain development of human resources strategy policies might be optimal to engender risk taking and innovation while other development of human resources strategy policies might be optimal for encouraging loyalty and organizational commitment."

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For example, an development of human resources strategy policy of “open book management” would be related to the development of human resources strategy principle “share information as broadly as possible within the organization.” Desired employee contributions include a “variety of employee attitudes, behaviors, and work-related outcomes that enable employees to contribute toward the implementation of strategic objectives” (Lepak *et al.*, 2004). For example a desired employee contribution of “collaborative behavior” would be related to the development of human resources strategy policy of “open book management” and the development of human resources strategy principle of “share information as broadly as possible within the organization.” An development of human resources strategy system creates messages that are sent to employees and signal what is expected of them, how they should interact with one another, what they should focus on, what they should not focus on, what is rewarded, etc. (Bowen & Ostroff, 2004; Haggerty & Wright, 2010). These signals can vary in terms of their distinctiveness, consistency, and how widely they are agreed upon. A strong development of human resources strategy system is one in which the messages intended by the organization's leaders are understood and interpreted correctly by employees, and which guide their individual behaviors which aggregate to create organizational capabilities. A weak development of human resources strategy system is one in which the messages intended by the organization's leaders are such that there is wide variation in how they are interpreted and acted upon. As Haggerty and Wright (2010) note, “The strength of the HRM system and process will determine how well employees attend to HRM messages, how well they understand, individually and collectively what behaviors are expected, and what the outcomes will be for so behaving.” Thus, to create organizational resilience, it is necessary to have a strong development of human resources strategy system that signals expectations that are correctly interpreted and acted upon by employees. As the model in Fig. 1 suggests, a capacity for resilience is directly related to an organization's particular development of human resources strategy system. Together development of human resources strategy principles and desired employee contributions determine the development of human resources strategy policy configurations that are appropriate. Following this reasoning, we first identify desired employee contributions associated with resilience, followed by development of human resources strategy principles, and then representative development of human resources strategy policies (see Table 1).



**Figure 1: Systems, human resources strategy in developing the capacity for information technology in a corporate environment uncertainty**

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**Table 1: HR system components for developing a capacity for resilience**

Dimension of organizational resilience	Desired employee contributions	HR principles	HR policies
Cognitive dimension	<ul style="list-style-type: none"> <li>■ Expertise</li> <li>■ Opportunism</li> <li>■ Creativity</li> <li>■ Decisiveness despite uncertainty</li> <li>■ Questioning fundamental assumptions</li> <li>■ Conceptualizing solutions that are novel and appropriate</li> </ul>	<ul style="list-style-type: none"> <li>■ Develop a partnership orientation with employees.</li> <li>■ Localize decision making power.</li> <li>■ Create fluid team-based work and job design.</li> <li>■ Build relational rather than transactional relationships with employees.</li> <li>■ Minimize rules and procedures.</li> <li>■ Hire to ensure a range of different experiences, perspectives, paradigms, and competencies are available in the workforce.</li> <li>■ Place a high value on pluralism and individual differences.</li> <li>■ Invest in human capital.</li> <li>■ Use both formal and informal social integration mechanisms.</li> </ul>	<ul style="list-style-type: none"> <li>■ Selective staffing</li> <li>■ Job security</li> <li>■ Cross-functional work assignments</li> <li>■ Broad recruiting sources</li> <li>■ Continuous developmental opportunities</li> <li>■ Teamwork</li> <li>■ Group-based incentives</li> <li>■ Continuous socialization</li> </ul>
Behavioral dimension	<ul style="list-style-type: none"> <li>■ Devising unconventional, yet robust responses to unprecedented challenges</li> <li>■ Combining originality and initiative to capitalize on an immediate situation</li> <li>■ Sometimes following a dramatically different course of action from that which is the norm for the organization</li> <li>■ Practicing repetitive, over-learned routines that provide the first response to any unexpected threat</li> <li>■ Taking actions and making investments before they are needed to ensure that an organization is able to benefit from situations that emerge</li> </ul>	<ul style="list-style-type: none"> <li>■ Develop a culture of organizational ambidexterity.</li> <li>■ Create a climate of open communication and collaboration.</li> <li>■ Encourage problem solving processes tied to organizational learning.</li> <li>■ Encourage knowledge sharing.</li> <li>■ Enable rapid deployment of human resources.</li> <li>■ Emphasize worker flexibility.</li> <li>■ Encourage individual hardiness.</li> <li>■ Encourage reflective practices</li> <li>■ Eliminate organizational borders.</li> </ul>	<ul style="list-style-type: none"> <li>■ Experimentation (freedom to fail)</li> <li>■ After action reviews/Lessons learned</li> <li>■ Open architecture</li> <li>■ Human resource and coordination flexibility</li> <li>■ Fitness/wellness</li> <li>■ Broad job descriptions</li> <li>■ Employee suggestions</li> <li>■ Cross-departmental task forces</li> </ul>
Contextual dimension	<ul style="list-style-type: none"> <li>■ Developing interpersonal connections and resource supply lines that lead to the ability to act quickly</li> <li>■ Sharing information and knowledge widely</li> <li>■ Sharing power and accountability</li> </ul>	<ul style="list-style-type: none"> <li>■ Encourage social interactions both inside and outside the organization.</li> <li>■ Nurture a climate of reciprocal trust and interdependence.</li> <li>■ Develop facilitative communication structures.</li> <li>■ Develop self-management and self-leadership capabilities.</li> <li>■ Emphasize contributions and outcomes rather than tasks.</li> <li>■ Encourage an organizational orientation.</li> <li>■ Reinforce organizational citizenship, personal accountability, and power based on expertise rather than hierarchical position.</li> <li>■ Create broad resource networks.</li> </ul>	<ul style="list-style-type: none"> <li>■ Joint employee–customer teams and networks</li> <li>■ Empowerment</li> <li>■ Open communication</li> <li>■ Results-based appraisals</li> <li>■ User-friendly, accessible, integrated information systems</li> </ul>

Desired employee contributions are not focused on the implementation of a set of specific strategic objectives, but instead are more broadly focused on developing component capabilities (e.g., cognitive, behavioral, and contextual elements that support resilience) and interaction patterns, so that an organization can exploit shocks and jolts rather than merely survive and rebound to a prior equilibrium state.

#### ***Designing Development of Human Resources Strategy Systems to Develop Desired Employee Contributions***

Six specific employee contributions are particularly important for developing a firm's collective cognitive capabilities that contribute to resilience. These include: (a) expertise, (b) opportunism, (c) creativity, (d) decisiveness despite uncertainty, (e) questioning fundamental assumptions, and, (f) conceptualizing solutions that are novel and appropriate. These contributions can be developed from a variety of development of human resources strategy investments. Expert judgment accompanied by a willingness to question conventional assumptions is essential for constructive sensemaking and promoting a willingness to act in accordance with core values.

Expertise can be enhanced through systematic investments in specialized human capital. Divergent thinking skills are instrumental in conceiving novel solutions and can be developed through training in brainstorming, devil's advocacy techniques, and dialogue (Senge *et al.*, 1994). Decisiveness despite uncertainty is enhanced through a combination of experience and feedback, so job designs, for

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example, that systematically present employees with unfamiliar and non-routine issues to resolve and then provide clear knowledge of results aid in developing this type of employee contribution. The ways in which organizations frame and label environmental issues (e.g., as a problem or an opportunity) influences the types of responses that are generated (Dutton & Jackson, 1987) and, in turn, affect subsequent behaviors in terms of risk assessments, commitment, engagement, and persistence. These six employee contributions enable a collective mindset that is conducive to achieving organizational resilience. To create the behavioral elements that support development of resilience, desired employee contributions include: (a) devising unconventional, yet robust responses to unprecedented challenges, (b) combining originality and initiative to capitalize on an immediate situation, (c) sometimes following a dramatically different course of action from that which is the norm the organization, (d) practicing repetitive, over-learned routines that provide the first response to any unexpected threat, and (e) taking actions and making investments before they are needed to ensure that an organization is able to benefit from situations that emerge. These types of contributions are derived from a composite of KSAOs that enable employees to navigate the competing forces needed to achieve organizational resilience. Development of human resources strategy can contribute to developing these capabilities in a variety of ways. For example, promoting problem solving techniques that rely on frequent iterations serve as catalysts for new ideas and increase the odds of success simply because there are more options available for consideration. Performance expectations that emphasize initiative, creativity, analysis of second-order consequences, calculated risk taking, and learning from mistakes encourages employees to act and interact in ways that develop a capacity for resilience. Employee contributions of this type lead to timing advantages that allow a firm to capitalize on rapid response opportunities, experience at doing more with less, and an emphasis on using all of a firm's resources fully. Described by Coutu (2002) as "ritualized ingenuity," these behaviors tend to have a symbiotic relationship with the cognitive factors necessary for resilience. In addition, development of human resources strategy can develop these employee contributions by providing training and work designs that enable employees to develop a personal and collective action repertoire that is varied and unconventional. Research has shown that firms can enhance their counterintuitive agility by making a greater number of competitive moves (action propensity), routinely undertaking actions that incorporate a variety of different types of activities (action complexity), acting more quickly (action execution speed), and taking actions that are time-triggered rather than event-triggered (Chen & Hambrick, 1995; Eisenhardt & Martin, 2000; Ferrier, 2000; Young *et al.*, 1996). At the same time, however, some essential behaviors rely on employee contributions that are embedded in powerful routines. development of human resources strategy practices that provide employees with practice in juxtaposing a need for inventiveness with a need for reliable stability are particularly important to design. Employee contributions that create contextual conditions ripe for resilience focus on employee actions and interactions that enrich social and resource networks within and beyond the organization. Specific, desired employee contributions include: (a) developing interpersonal connections and resource supply lines that lead to the ability to act quickly, (b) sharing information and knowledge widely, and (c) sharing decision making widely. development of human resources strategy practices that craft effective structural, relational, and cognitive dimensions of social capital (Nahapiet & Ghoshal, 1998) and encourage both strong and weak ties (Brass *et al.*, 2004) provide the basis for employee contributions that create conditions promoting resilience. Employee contributions that build the cognitive, behavioral, and contextual dimensions of resilience are summarized in Table 1.

***Identifying Development of Human Resources Strategy Principles to Facilitate a Capacity for Resilience***

Development of human resources strategy principles consistent with creating each dimension of organizational resilience (cognitive, behavioral, and contextual) are also provided in Table 1. However, while we present these principles by dimension, we expect that there is overlap among them, with some principles affecting more than one aspect of a firm's capacity for resilience. development of human resources strategy principles particularly related to the cognitive dimension of resilience include the following: (a) develop a partnership orientation with employees, (b) localize decision making power, (c) create fluid team-based work and job design, (d) build relational rather

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than transactional relationships with employees, (e) minimize rules and procedures, (f) hire to ensure a range of different experiences, perspectives, paradigms, and competencies are available in the workforce, (g) place a high value on pluralism and individual differences, (h) invest in human capital, and (i) use both formal and informal social integration mechanisms. These principles are designed to create a workplace in which simple rules and core organizational values shape priorities and guide behavior especially in the face of unexpected events. These principles are also intended to nurture individual differences so that a broad repertoire of perceptions and perspectives is readily available for sense making and decision making. The focus on long-term relationships, diversity, and flexible work design facilitates self-organization, negative entropy and related complex systems characteristics. development of human resources strategy principles related to the behavioral dimension of resilience include the following: (a) develop a culture of organizational ambidexterity, (b) create a climate of open communication and collaboration, (c) encourage problem solving processes tied to organizational learning, (d) encourage knowledge sharing, (e) enable rapid deployment of human resources, (f) emphasize worker information technology, (g) encourage individual hardiness, (h) encourage reflective practice, and (i) eliminate organizational borders. The overarching intent of these principles is to create a workplace in which employees feel confident in their ability to explore new options while exploiting what they know, and to share information and observations in ways that lead to quick and situation specific responses when novel conditions emerge. Moreover, this development of human resources strategy principles are designed to promote a team oriented culture.

development of human resources strategy principles related to the contextual dimension of resilience include the following: (a) encourage social interactions both inside and outside the organization, (b) nurture a climate of reciprocal trust and interdependence, (c) develop facilitative communication structures, (d) develop self-management and self-leadership capabilities, (e) emphasize contributions and outcomes rather than tasks, (f) encourage an organizational orientation, (g) reinforce organizational citizenship, personal accountability, and power based on expertise rather than hierarchical position, and (h) create broad resource networks. These principles reinforce the multilevel, systemic relationships that are essential for developing a capacity for organization-level resilience. It is through enacting these principles, as well as those associated with creating the cognitive and behavioral dimensions of resilience, that individual level actions and interactions can emerge as collective organizational attributes.

***Crafting Development of Human Resources Strategy Policies to Create a Capacity for Resilience***

Focusing on a more meso-level of analysis makes it possible to identify development of human resources strategy policy sets that are more likely to be appropriate for eliciting employee behaviors that help a firm create resilience. Again, we present the development of human resources strategy policies associated with each component dimension of organizational resilience, but acknowledge that some policies may affect more than one dimension. These policies are also summarized in Table 1. Development of human resources strategy policies aligned with the development of human resources strategy principles and desired employee contributions for the cognitive dimension of resilience include the following: (a) selective staffing, (b) job security, (c) cross functional work assignments, (d) broad recruiting sources, (e) continuous developmental opportunities, (f) teamwork, (g) group-based incentives, and (h) continuous socialization. In combination, these policies reinforce a climate of security and collaboration needed for the intricate mix of expertise, opportunism, creativity, and decisiveness that enables sense making and adherence to core values to thrive despite the uncertainty triggered by crisis and surprise. The collective cognitive mindset needed to create a capacity for organizational resilience requires development of human resources strategy policies such as these that are designed to facilitate complexity absorption and management (Boisot & Child, 1999). development of human resources strategy policies aligned with the development of human resources strategy principles and desired employee contributions for the behavioral dimension of resilience include the following: (a) experimentation—freedom to fail, (b) after action reviews/lessons learned, (c) open office architecture, (d) human resource and coordination information technology, (e) broad-based job descriptions, (f) employee suggestions, and (g) cross departmental task forces. These policies reflect the need to relentlessly balance opposing needs associated with inventiveness,

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unconventional moves, and divergent thinking with stability, established routines, and useful habits. They provide the freedom to experiment and think creatively with systematic self-evaluation and multidisciplinary review. Development of human resources strategy policies aligned with the development of human resources strategy principles and desired employee contributions for the contextual dimension of resilience include the following: (a) joint employee–customer teams and networks, (b) empowerment, (c) open communication, (d) results-based appraisals, and (e) user-friendly, accessible, integrated information systems. These policies are designed to obtain a rich array of resources from inside and beyond the boundaries of the firm, measured and transparent performance appraisals, and broad stakeholder collaboration and investment. A goal of the strategic human resource system discussed here is to influence individual attitudes and behaviors so that in the aggregate, the effectiveness of the organization for resilience increases. Employee attitudes and behaviors become shared by individuals over time. This can occur through a process of “double interact” (Morgeson & Hofmann, 1999), in which employees “share some sentiment with a colleague, who responds, the first employee responds back, and this reciprocal interaction creates collective perceptions” (Nishi *et al.*, 2008). Once these shared perceptions become distinctive and dominant in an organization, then the process of attraction–selection–attrition (Schneider, 1987) further highlights similarities in attitudes and behaviors across employees, and over time becomes embedded in the fabric of the organization. Thus, the human resources strategy system influences individual attitudes and behaviors that when aggregated at the organizational level (through the process of double interact and attraction–selection–attrition) creates an organizational capability a capacity for resilience.

**Resilience, Development of Human Resources Strategy, and Firm Performance**

A capacity for resilience is related to many of the competencies that underpin effective competitive dynamics. The dimensions of a firm's capacity for resilience (cognitive, behavioral, and contextual) work both independently and interactively to support the development of various types of organization capabilities and to promote effective responses to environmental change. Consequently, HRM practices and policies that promote and nurture this capacity have added benefits through their contribution to achieving and leveraging other vital strategic capabilities. Similar to the way that absorptive capacity underpins a firm's ability to appreciate, transform, and exploit new knowledge for strategic purposes (Zahra & George, 2002), a capacity for resilience underlies a firm's ability to take actions to effectively reconfigure and augment a firm's resources. In addition, this capacity captures an important conceptual diagnostic and interpretation component that enables a firm to accurately determine the most appropriate type of strategic approach to use given the current situation. A capacity for resilience stimulates a firm to develop a diverse repertoire of routines and resources. This variety creates an array of different strategic moves that enable a firm to choose among alternative ways to respond to environmental shifts and competitive conditions.

**Organizational Resilience Development of Human Resources Strategy Configurations**

When a capacity for resilience is transformed into action in organizations, it can become an organizational capability. A capability may be defined as a collection of organizational routines that enables an organization to respond to situations in an effective manner (Grant, 1991). In the case of organizational resilience, this means a collection of routines that not only enable organizations to bounce back from adversity and obstacles, but also to create new opportunities and move beyond a previous equilibrium point. To create a capacity for resilience, we argue that organizations need to take a configurationally approach to human resources strategy (Delery & Doty, 1996; Martin-Alcazar *et al.*, 2005; Youndt & Snell, 2004). As Delery and Doty (1996) describe it, a configurational perspective (1) draws on a holistic principle of inquiry to identify unique patterns of factors that are posited to be maximally effective, (2) is characterized by nonlinear synergistic effects, and (3) incorporates the assumption of equifinality (i.e., multiple unique configurations of factors can result in maximal performance). Therefore, from this theoretical perspective, the goal is to identify internally consistent configurations of development of human resources strategy practices or employment systems that lead to a desired organizational outcome, not one set of best practices, such as high performance work systems. We focus on creating an “organizational resilience development of human resources strategy configuration” that results in a desired organizational capability which enables organizations in dynamic environments to attain and retain at least competitive parity and often

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achieve competitive advantage. Our description of an organizational resilience development of human resources strategy configuration is focused primarily at the principles and policy level to acknowledge different sets of specific development of human resources strategy practices that might be bundled together to produce similar results. That is, there is more than one set of specific development of human resources strategy practices that might be combined (i.e., equifinality) to create a capacity for resilience. Rather than attempting to identify one set of universal practices, such as those typically associated with high performance work systems, we argue that organizations need to focus more on articulating the principles and policies that define the essential elements of a capacity for resilience. It is not surprising that some of the development of human resources strategy practices and HR policies identified as potentially contributing to the cognitive, behavioral, and contextual dimensions of resilience have also been identified by others as high performance work practices or have been included in “best practice” HR systems. However, high performance work practices are designed for a very different purpose, that is, to reduce turnover, increase productivity, and enhance financial performance (Delery & Doty, 1996; Huselid, 1995). To create a capacity for organizational resilience, as described previously, requires more than simply implementing a set of high performance work practices. Furthermore, a configurationally perspective implies that there are multiple development of human resources strategy practices that could potentially be combined (consistent with the principles and policies laid out) to yield organizational resilience. Therefore, simply implementing a high performance work system alone is not likely to produce organizational resilience, either as a direct outcome or byproduct. We do not contend that the practices discussed here are limited to achieving only a single, narrow organizational purpose. However, we do argue that it is the particular configuration of employee contributions, development of human resources strategy practices, and development of human resources strategy policies identified here that work together to create a capacity for resilience and that transforms individual actions into this collective organizational capability.

*Organizational Resilience and Performance*

As we noted at the beginning of this paper, only flexible, agile, and relentlessly dynamic organizations will thrive in turbulent, surprising, continuously evolving environments. A capacity for resilience enables a firm to take appropriate actions and undergo transformation in response to unanticipated events that potentially threaten its continued existence. In markets characterized by sudden jolts, a capacity for resilience may be necessary for survival. A strong capacity for resilience creates a useful internal guidance system for organizational analysis and decision making. The outcomes of the cognitive factors that promote resilience enable a firm to more accurately diagnose environmental conditions and to select the most effective strategic posture. This can help a firm decide whether to build upon current sources of advantage or create fundamentally different ones. Behavioral elements that support resilience ensure that firms take the actions needed to turn competitive potential into realized strategy. In addition, useful habits and behavioral preparedness often yield simple rules to guide organization choices under turbulent conditions. Simple rules provide effective guidelines for leveraging the new resources that dynamic capability produces. Finally contextual conditions that support resilience offer fertile ground for using strategic capability to best advantage. Implications of these synergistic relationships among dimensions that contribute to organizational resilience suggest that many of the needed human capital elements have the potential to help leverage other strategic capabilities as well. However, it is the particular development of human resources strategy system configuration proposed here that we contend leads to a capacity for organizational resilience. Moreover, it is important to recognize that while human capital, just like many other assets, can be applied toward multiple ends; opportunity does not mean that the leverage potential will be realized. For example, creative problem solving routines, a clear sense of purpose, high levels of intellectual and social capital, and a propensity for iterative, double-loop learning which are elements contributing to a capacity for resilience can also contribute to developing organizational change strategies and promoting dynamic capabilities. Likewise, the empowering interpretation of the world and self-efficacy that represent essential cognitive factors enables a firm to act on its decisions despite uncertainty and complexity. Similarly, a complex and varied action inventory, a key behavioral component, also increases a firm's expertise in a broad range of activities. This, in turn,

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increases the firm's ability to recognize value in new knowledge, which leads to enhanced absorptive capacity. The perspective and mental agility that stem from needed cognitive abilities provide a foundation for a firm to be able to learn from the consequences of the actions it undertakes within its complex action repertoire and thereby be more effective in dynamic competitive environments. Useful habits such as continuous dialogue and the trust that results from deep social capital provide the raw material for constructing meaning and making difficult choices in ambiguous situations. However, it takes deliberate intent to ensure that particular outcomes are realized. We argue that it is the comprehensive bundle of desired employee contributions, development of human resources strategy principles and development of human resources strategy policies that enables a firm to develop a capacity for resilience. Whether a firm considers its current need for a capacity for resilience to be extremely high or relatively modest, it is beneficial to recognize that investments made to develop this capacity can yield high returns. Once the composite set of skills, resources, and competencies are in place a firm can choose a number of different applications enabling it to leverage its development of human resources strategy investments in a highly productive manner.

**Discussion and Conclusion**

Three themes underpin the ideas presented in this paper. One, development of human resources strategy policies, practices, and activities are the bedrock of a firm's capacity for resilience. The effectiveness of the organization for resilience is a multilevel collective attribute emerging from the capabilities, actions, and interactions of individuals and units within the firm. Employee contributions, development of human resources strategy practices, and development of human resources strategy policies are the primary integrating mechanisms for achieving a collective resilience capability. Three, organizational resilience is an increasingly necessary collective competence for firms that operate in high-velocity environments and those characterized by jolts and surprises. Since resilience is developed over time through path-dependent interactions, developing a capacity for resilience should take place before the need arises. Unfortunately, an effort to develop organizational resilience has not been an explicit goal for much development of human resources strategy units. However, an understanding of HRM's role in developing and capitalizing on a firm's capacity for resilience is consistent with the expanded responsibility of development of human resources strategy for managing a firm's overall human capital and contributing to its competitive success. An important contribution of this paper is a better understanding of the relationship between strategic human resource management, organizational resilience, and organizational success. A better understanding of this relationship suggests a number of interesting research directions. For example, while a number of employee contributions, development of human resources strategy policies and development of human resources strategy practices are proposed to underpin a capacity for resilience, it would be useful to examine empirically which specific activities are more strongly associated with particular dimensions of a firm's capacity for resilience (cf. Youndt & Snell, 2004). Similarly, it would be helpful to distinguish crucial activities and individual contributions from those that are useful but discretionary. It is also likely that path-dependent relationships and interactions facilitate an organization's efforts to develop its capacity for resilience suggesting that a longitudinal examination of the evolution of organizational resilience would be useful. In addition, it is clear that human resource professionals play a vital role in realizing the benefits of an The effectiveness of the organization for resilience. As Haggerty and Wright (2010) have noted, an development of human resources strategy function that is more strategically focused and development of human resources strategy professionals that are more sophisticated than those typically found in organizations is required to create the kind of strong development of human resources strategy system we have described. "The deep analytical capability, intuitive capacity, data input and processing speeds required to do this well favor development of human resources strategy professionals and functions with focused and tacit academic and functional training and professional development" (Haggerty & Wright, 2010). Both the diagnostic capabilities and the potential action alternatives associated with organizational resilience can lie fallow unless a firm uses its human capital to enact and execute these options. This requires a development of human resources strategy function and development of human resources strategy professionals that focus more on being strategic partners than administrative experts (Lawler & Boudreau, 2009). A second important contribution from this paper is a detailed

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description of the three organizational attributes that underlie the path-dependent process of creating a collective capacity for resilience. These factors are discussed in terms that can be operationalized and which capture the multilevel actions and interactions that create collective organizational attributes. This specification is a first step toward linking aspects of organizational resilience to particular HRM system choices. An understanding of the connections among development of human resources strategy systems, organizational resilience, potentially associated strategic capabilities, and competitive performance contributes to the growing literature on intangible assets and ties human resources strategy theory to the resource based view of the firm in a new way. Disaggregating and dissecting organizational resilience is an important step toward empirically testing the underlying relationships. There are also several useful implications from this paper for development of human resources strategy managers. Most organizations operate under conditions of resource limitations or scarcity. Consequently investing in resources and competencies that can be effectively leveraged because they can be combined easily with other complementary assets or because they can be applied flexibly for multiple purposes is positively correlated with organizational performance (Hamel & Prahalad, 1993). Recognition that certain types of resources and capabilities contribute to both a capacity for resilience and other strategic capabilities can help firms develop improved development of human resources strategy investment strategies. For example, investments in human capital to develop employees who are adept learners, strong communicators, and skilled at creating strong interpersonal ties creates a foundation for both a capacity for resilience and effective knowledge management. Similarly, developing organizational skills such as “ritualized ingenuity” (Coutu, 2002), temporal pacing (Eisenhardt & Martin, 2000), using action to shape cognition (Weick, 1995), and counterintuitive thinking (Meyer, 1982) contribute to both a capacity for resilience and innovation. Even choices regarding physical resource allocations such as designing buildings with open architecture to facilitate interaction and information systems such as knowledge repositories to increase the stock of ideas available can enable a firm to develop assets that are more effectively leveraged. A capacity for resilience can be developed and managed. This implies that development of human resources strategy professionals could help their firms effectively analyze and respond to environmental conditions by communicating a strong and clear organizational purpose to encourage decision making and action that is consistent with the firm's core values. In addition, development of human resources strategy managers should ensure their firms develop the capacity to successfully address competing objectives. For example, employees need to learn how to incorporate behavioral routines of resourcefulness and creativity while also identifying and maintaining useful habits. Third, development of human resources strategy professionals contribute to their firm's success by establishing settings that are conducive to intra- and inter -organizational relationships. Together, these organizational relationships open access to skills, resources, and competencies useful for improved analysis and greater diversity in behavioral responses to uncertain and surprising conditions. Finally, development of human resources strategy managers should craft development of human resources strategy principles, policies, and practices to actively attend to their firm's capacity for resilience in order to achieve greater potential advantages from their overall strategic capability. In conclusion, change is an inevitable feature of organizational life. Sometimes change is mandated by powerful external agents. Sometimes change is the natural consequence of interdependence and interaction. Sometimes change is a deliberate strategic initiative designed to increase competitive advantage. Regardless of the causal trigger, organizations must be able to efficiently and effectively alter their resources, competencies, and business models in order to go beyond bouncing back and instead flourish in shifting conditions. Organizational resilience has received increasing attention in both the academic literature and the popular management press in the past decade (Balu, 2001; Coutu, 2002; Crichton *et al.*, 2009; Deevy, 1995; Freeman *et al.*, 2004; Hamel & Valikangas, 2003; Jamrog *et al.*, 2006; Lengnick-Hall & Beck, 2009; Lengnick-Hall & Lengnick-Hall, 2003; Mallak, 1998b; Robb, 2000; Sutcliffe & Vogus, 2003) yet specific links between a firm's development of human resources strategy system and its capacity for resilience have not been examined. This paper is a step toward filling that gap in our understanding and our ability to manage for resilience. A capacity for resilience enables a firm to capitalize on events which have the potential to lead to serious adverse consequences. A capacity for resilience provides a basis for building sufficient diversity into a firm's

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strategic repertoire to enable a portfolio of options and outcomes and at the same time provides mechanisms for helping a firm choose wisely among available alternatives. This diversity coupled with effective choice is a well-supported path to strategic supremacy (D'Aveni, 1999; Eisenhardt & Martin, 2000; Ferrier, 2001). A better understanding of HRM's role in creating and using a capacity for resilience offers a new way to explain why some firms continue to outperform others by examining the connections between specific individual employee contributions, human resources strategy choices, processes of double interact and attraction-selection-attrition, and the development of organizational capability routines.

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