

# The Effect of Adaptive Organizational Culture on Long-Term Survival

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## Abstract

**Purpose** Organizational culture is a critical resource for organizations to adapt to dynamic environments and to survive in the long term. Unfortunately, a lack of clarity exists in the conceptualization of adaptive cultures and little empirical research investigates its impact on survival. Therefore, the purpose of the present study was twofold: (1) to identify, define, and develop a measure of adaptive organizational culture and (2) to demonstrate the effect of adaptive culture on organizational survival.

**Design/Methodology/Approach** An adaptive culture rating scale was developed based on a review of the existing literature. Ninety-five organizations founded prior to 1940 were rated on nine characteristics of adaptive culture. Ratings were used to predict likelihood to survive using a Cox regression with proportional hazards survival analysis.

**Findings** Exploratory factor analysis revealed two broad factors of adaptive culture, values toward change and action-orientation. Findings indicate organizations with adaptive cultures were more likely to survive.

**Implications** The present effort provided evidence that culture can serve as an adaptive mechanism with effects spanning decades. Leaders should focus on establishing adaptive cultural norms and values in order to increase chances of surviving.

**Originality/Value** This is one of the first historiometric studies to develop and utilize a measure of adaptive culture. Further, this study looked at the impact of adaptive culture on long-term organizational outcomes using survival analysis, a statistical technique not often employed in the organizational literature.

**Keywords** Organizational culture · Organizational performance · Survival analysis · Adaptability

## Introduction

Organizations have long operated in dynamic environments that threaten their existence (Sheppard 1994). Environmental threats include technological innovation, increased competition, and evolving customer needs (Gittleson 2012; Mitchell et al. 2014). Adapting to changing environments has long been a concern of organizational leaders and founders (Gittleson 2012; Huber 2011; Mitchell et al. 2014). Even as far back as *The Art of War* in the 6th century B.C., Sun Tzu mentioned the importance of adaptability and flexibility for organizations in changing environments (Tzu 1963).

In order to respond to environmental threats and opportunities, organizations must develop an infrastructure and capabilities that allow adaptation to such environmental changes (Huber 2011; Levinson 1994; Pearce and Robbins 1993; Ployhart and Turner 2014; Trahms et al. 2013) and, ultimately, survival. However, many organizations struggle

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to determine how they can adapt in a timely and appropriate manner (Mitchell et al. 2014).

One resource that organizations might use to recognize and respond to changes in dynamic environments is their culture (Denison and Mishra 1995; Schein 2010). While organizational culture has many definitions, one common definition is the shared values, beliefs, and implicit assumptions that guide member actions as well as rituals and pattern of behaviors within the organization (Ostroff et al. 2003; Schein 2010; Schneider et al. 2013). Organizational culture is generally thought of as a long-standing and relatively stable characteristic that may provide a foundation for organizational members to recognize change and implement adaptations within the context of that particular organization (Denison and Mishra 1995; Schein 2010). While culture can and does change (Meyerson and Martin 1987), such changes generally occur very slowly and are difficult to effect (Schein 2010). Therefore, the organizations' original ongoing culture can have a long-lasting impact (Barney 1986; Schein 2010).

Within the organizational culture literature, researchers have tried to assess the impact of culture, including its impact on organizational effectiveness. Many cultural traits have been studied in relation to organizational effectiveness such as involvement, consistency, mission (Denison and Mishra 1995), hierarchical culture (Giberson et al. 2009; Cameron and Quinn 1999), clan culture (Cameron and Quinn 1999; Giberson et al. 2009), conflict (Gelfand et al. 2012), adhocracy (Cameron and Quinn 1999), market culture (Cameron and Quinn 1999), innovation, supportiveness, and team orientation, (O'Reilly et al. 1991), just to name a few. In a few cases, cultural types or traits have been used to predict specific organizational performance dimensions. For instance, Hartnell et al. (2011) found that market cultures have stronger positive relationships with organizational profit and subjective market performance than do other culture types such as clan cultures.

One type of organizational culture trait that might help explain why some organizations survive and others do not, is adaptability. Specifically, a culture that guides behaviors and processes that support appropriate responses to the environment may allow the organization to be more flexible and adaptable. Adaptability, broadly defined, has been shown to be a predictor of outcomes related to organizational survival such as growth (Covin 1991; Denison and Mishra 1995) and short-term performance (Chatman et al. 2014; Gordon and DiTomaso 1992).

Even so, the concept of organizational culture as a resource for organizations to adapt to their environments has only been discussed in very general ways in the literature. While some have recently called for more focus on this area (e.g., Ployhart and Turner 2014), research to date has yet to clearly define the construct of adaptive

culture and the literature includes a variety of definitions and measures that lack consistency (Ostroff et al. 2013). Until more clarity is brought to the construct, researchers will be unable to fully understand and study how adaptive cultures influence organizational outcomes (Hartnell et al. 2011).

Further, while researchers have suggested the ultimate organizational criterion is survival (Aldrich and Ruef 2006; Schein 2010), we are not aware of any empirical investigations that examine the relationship between adaptive cultures and organizational survival. A meta-analysis on organizational effectiveness by Hartnell et al. (2011) identified 48 unique organizational outcomes that exist in the current body of literature, none of which included organizational survival. Studies that have looked at the relationship between adaptive cultures and organizational performance have tended to use short-term, financial outcomes.

Therefore, the purpose of the present study is to extend conceptual and empirical understanding of adaptive organizational culture and its influence on organizational survival. Specifically, we aim to (1) identify, define, and measure the characteristics of adaptive organizational cultures, and (2) assess the effect of adaptive culture on organizational survival. By developing conceptual clarity and operationalizing adaptive organizational culture, we can provide a foundation for future research on adaptive culture that can contribute to the advancement of theory (Le et al. 2010; MacKenzie 2003).

## Adaptive Organizational Culture and Survival

Open systems theory (Katz and Kahn 1966) posits that organizations exist within multiple embedding environments that present challenges to which organizations must respond in order to survive. Organizations that fail to respond to environmental changes will face disorder, decline, and possible death. Within dynamic environments, having a high-functioning adaptation process can act as a mechanism to deal with change (Sørensen 2002). An effective organizational culture can act as that adaptation process by enabling members to recognize environmental threats and develop solutions to change rapidly (Barney 1986; Cheung et al. 2012; Fiol 1991; Ostroff et al. 2013; Schein 2010; Schneider et al. 2013). Conversely, a culture that does not support recognition and response to environmental changes may inhibit an organization's ability to adapt to those changes, eventually leading to decline or death (Abebe et al. 2011; Levinson 1994).

Organizational culture provides members with guidance on how to respond when environmental changes occur through a shared understanding of processes and

procedures (Chatman et al. 2014; Schein 2010). For instance, organizational cultures that encourage proactive attention to environmental threats and create structures to address these threats will be more likely to adjust to their environments. By providing social control, developing policies and procedures that support change, and driving the direction of human resource practices, organizational culture can influence survival. Mechanisms through which organizational culture can affect organizational survival are discussed in detail below.

### Social Control

Organizational culture can be considered a form of social control. Culture can explicitly influence its members' perceptions, values, and behaviors (Ostroff et al. 2013; Schein, 2010; Sørensen 2002). Accordingly, member behaviors can greatly impact the attainment of organizational goals (Sørensen 2002). When organizational members have shared meaning and understandings of the organization's goals and values, such as adaptability, they are more likely to act in the organization's best interest by responding appropriately, and thereby improving an organization's chance of survival (Ostroff et al. 2013; Sørensen 2002).

Organizational culture also directs the way members behave through reward and incentive systems. Feedback and reward systems motivate members and reinforce their behavior (Latham and Pinder 2005). Members are motivated to contribute and behave in the way the organization dictates because those actions are associated with rewards and compensation (Diefendorff and Chandler 2011; Latham and Pinder 2005; Schein 2010). For example, if an organization has an adaptive culture, and a team develops a successful new product to address customer needs, the positive feedback from coworkers and supervisors may encourage them to strive to develop new products in the future.

### Human Capital

Another mechanism by which adaptive cultures can impact survival is through human capital (Lengick-Hall et al. 2011; Ostroff et al. 2013; Schein 2010). The aggregate of members' knowledge, skills, and abilities supports an organization's adaptive performance and provides a competitive advantage that allows them to last longer than other organizations (Barney 1991; Coff and Kriscynski 2011). If an organization contains many individuals that are adaptive performers, collectively the skills are likely to influence how well the organization is able to adapt to the environment (Coff and Kriscynski 2011; Lengick-Hall et al. 2011; Pulakos et al. 2000).

When initially establishing and embedding the desired organizational culture, founders can design methods to attain and develop adaptive competencies among employees. Founders can do this through recruitment, selection, and training practices. If an organization values adaptability as a key element of their culture, it is likely to recruit and hire individuals who are, for example, innovative, creative, challenging of the status quo, or willing to take risks. Adaptive organizations understand that hiring like-minded employees will lead to consistency of adaptive behavior across employees and increase the organization's overall ability to survive (Ployhart and Turner 2014).

Overall, organizations exist in constantly changing environments and adaptability is essential for responding to those changes (Aldrich and Ruef 2006; Katz and Kahn 1966). Given the impact of culture through mechanisms such as social control and human capital, it is expected that organizations with cultures that facilitate adaptation will be more likely to respond appropriately to environmental changes and, hence, in the long run, have a higher likelihood of survival. By providing capabilities, guidance, and shared meanings to its members on what to value and how to act, organizational culture can help organizations prepare for, identify, and respond to environmental changes. An appropriate response to the environment improves chances of survival (Gelfand et al. 2012; Hartnell et al. 2011; Kotrba et al. 2012).

**Hypothesis** Organizations with more adaptive cultures will have a higher likelihood of surviving.

Testing this hypothesis required two main steps. First, given that there is no comprehensive measure of adaptive organizational culture, we needed to define the domain and then develop and assess the reliability of an adaptive culture scale. Second, we needed to assess the impact of adaptive culture on organizational survival.

### Defining the Adaptive Culture Content Domain

Although prior research has provided some evidence that adaptive organizational cultures impact organizational outcomes, there is less consensus and few empirical investigations of the specific characteristics that define such cultures (Chatman et al. 2014; Gordon and DiTomaso 1992; Kanter 1983; Kotrba et al. 2012; Quinn and Rohrbaugh 1983; Siehl and Martin 1990). Further, while there has been research evaluating adaptability at the individual and team levels (see Baard et al. 2013 for a recent review), there is much less about adaptability at the organizational level, little on adaptive cultures, and almost nothing on the impact of adaptability on long-term organizational outcomes. Even within the individual and teams literature, Baard et al. (2013)

lament that the concept of adaptation is “poorly defined (and) inconsistently conceptualized” (p. 88).

At the organizational level, many current conceptualizations of adaptive cultures are inconsistent in terms of their definitions, content, and clarity. For example, Kilmann (1985) offered a definition of adaptive culture as a culture that enables and supports risk-taking and trust, has a shared sense of confidence in solving problems, and is open to innovation. However, this conceptualization fails to describe whether the organization actually is oriented toward implementing adaptations (i.e., take action), something Caldwell and O'Reilly (2003) argue is an essential component of innovation and change.

Another definition of adaptive organizational culture states that it is a culture that requires members to pursue and share information and support from diverse resources, expand job scope and outcome responsibility, and interact in a team-like and dynamic nature to accomplish the mission of the organization (Valle 1999). This conceptualization, however, lacks a description of the organization's values or attitudes. Chatman et al. (2014) along with Cheung et al. (2012) note that in order to adapt to the marketplace and survive in the environment, organizations must emphasize values related to flexibility, innovation, and risk-taking.

While these definitions suggest some adaptive culture characteristics, none are comprehensive. Therefore, in order to develop a fuller understanding of the construct domain, we undertook a systematic effort to identify and define adaptive culture characteristics. First, we conducted an extensive literature review to ensure that the construct as conceptualized herein was both consistent with previous literature and comprehensively covered the content domain. We reviewed the literature on organizational adaptability as well as related topics (e.g., flexibility, innovation, crisis management, organizational decline, and turnaround). We also examined research on open systems and resource dependence theories as well as the work of Denison and Mishra (1995), Kilmann (1985), Lewin (1946, 1947), and Valle (1999), all of whom have written about various aspects of culture.

Second, based on the literature review, we identified common trends, themes, and conceptualizations. For example, several of the more recent definitions of organizational adaptability and organizational innovation (e.g., Cameron and Quinn 2011; Chatman et al. 2014; Gillespie et al. 2007; Kotrba et al. 2012; Ployhart and Turner 2014) demonstrated some overlap including a focus on and awareness of environmental changes, flexibility to respond, and the willingness to take risks. For the sake of parsimony, when reviewing this literature, we created broad categories (e.g., flexibility and risk-taking) that represented what we believe would be present in an organization with

an adaptive culture. These broad themes or categories were intended to summarize all the various definitions and descriptions of adaptive culture in the extant literature.

Third, within these categories, we developed a specific set of characteristics that were then reviewed and revised several times. Eventually, this generation, revision, and refining process resulted in nine characteristics of adaptive cultures: external focus, anticipation, open to change, risk-taking, confidence, development of capabilities, collaborative action planning, executing change, and sustaining change. In addition to identifying the nine characteristics, and consistent with previous conceptualizations and based on the patterns that emerged during our review, we developed a comprehensive definition of adaptive culture. We define adaptive organizational culture as *a pattern of shared beliefs, values, and behaviors that indicate the organization is aware of and concerned about environmental changes and oriented toward agile and flexible action to address such changes*.

Below, we present each characteristic and explain how they were drawn from or connected to extant definitions and conceptualizations. Table 1 shows the nine characteristics of adaptive cultures<sup>1</sup> along with their definitions.

### External Focus

Generally speaking, adaptation is an organization's reaction to and values about the external conditions of the environment (Moon et al. 2012). Organizations do not exist in isolation; rather they are part of a larger environment and their environment presents challenges and threats to survival. For example, technological changes can render an organization's products obsolete (e.g., cars replaced horse-drawn carriages) and unless the organization innovates or improves their product or service, their customers may shift to the newer, improved offerings. Accordingly, in order to be adaptive, organizations need to value the understanding of their external environments and recognize and appropriately interpret such signals (Denison and Mishra 1995; Fey and Denison 2003; Gillespie et al. 2008; Kilmann 1985; Nadler and Nadler 1998; Ployhart and Turner 2014; Valle 1999). Conversely, those organizations that are too internally focused will have more difficulty adapting (Kotrba et al. 2012).

<sup>1</sup> Across the organizational culture literature, there is occasionally confusion about whether the work is referring to culture or climate (e.g., Schneider et al. 2013). Although in most cases, researchers have defined their construct as culture (i.e., shared basic assumptions of the larger setting taught to newcomers as the way to think and behave), it is often the case that they are measuring climate (i.e., referent-shift shared mental model of policies and practices). For the present effort, our objective was to measure culture, using the organization as the focal target of each item.

**Table 1** Characteristics and dimensions of adaptive cultures

## Values about change

*External focus* The organization pays attention to its external environments, especially its customers. The organization values reading and interpreting signals from their environments

*Anticipation* The organization proactively works to identify internal and external problems; the organization focuses on future problems or environment changes

*Confidence* The organization believes that it has the ability to change

## Action-orientation

*Open to change* The organization is receptive to innovation, change, and new ideas. The organization is flexible; it does not feel that it is bound by particular rules and procedures for carrying out its business

*Development of capabilities* The organization develops the capacity to handle environmental situations

*Collaborative action planning* The organization enables collaboration between business units that allow it to proactively and reactively develop solutions to problems

*Executing change* The organization is able to implement adaptive change

*Sustaining change* The organization is able to sustain the change by creating systems that reinforce the change

## Dropped due to low commonality

*Risk-taking* The organization is willing to take risks

## Anticipation

A number of researchers have made the argument that it is not simply enough to pay attention to the external environment and its signals. Rather, organizations must also maintain a shared value and assumption that emphasizes forward, anticipative thinking. Researchers have noted the importance of predicting future trends and anticipating environmental change (Cameron and Quinn 2011; Chakravarthy 1982; Chatman et al. 2014; Kotter and Heskett 1992). Successful organizations stay ahead of the curve and are able to understand the future needs of their customers (Fey and Denison 2003) while non-adaptive cultures have been noted to be more reactive (Kotter and Heskett 1992). Organizations high in anticipation gather and evaluate information from their environment (Valle 1999) and Baer and Frese (2003) have argued that changes cannot be made without unexpected issues along the way, suggesting that organizations need to anticipate and adapt.

## Open to Change

Another commonly mentioned aspect of adaptive cultures is organizational attitudes toward change (e.g., Kilmann 1985; Kotter and Heskett 1992). De Dreu and West (2001) argue that in order to cultivate adaptability, organizations need to allow their members to explore differing solutions to problems. Organizations can do this by attaching social approval to activities that facilitate the implementation of new ideas (Chatman et al. 1998). New ideas are generated when organizational members are able to act and think in divergent manners (Sutton 2002) and are open to the idea of changing the way they do things.

## Risk-Taking

Another consistent component of adaptability described in the literature is an organization's willingness to take risks in response to change (Cheung et al. 2012; Collins 2001; Kilmann 1985; Peters and Waterman 1982; Staw et al. 1981). Through promoting norms that encourage members to take risks and trial-and-error experimentation, organizations can become more adaptable or take advantage of changes in the environment by avoiding becoming over reliant on routines and habits (Chatman et al. 2014; Cheung et al. 2012). Studies have shown that organizations with strong risk tolerance were more likely to innovate (Tellis et al. 2009). It is worth noting that risk-taking in this case deals with the values surrounding taking risks and not just that the organization actually takes them.

## Confidence

Organizations need to have the confidence that they have the ability to change and that they can acquire experience to execute the future change (Kilmann 1985). Organizations that are adaptive create a shared feeling of assurance that they are able to effectively manage the problems and challenges they face (Kilmann 1985). This characteristic of adaptive culture is characterized by shared beliefs of confidence and efficacy.

## Development of Capabilities

Adaptive culture also requires that an organization values systems that build their capabilities to address changes and future challenges (Ployhart and Turner 2014). If an

organization wants to be able to adapt to change, it must have the internal capability to respond to the change (Kotrba et al. 2012). Lengick-Hall et al. (2011) argued that an organization's capability to adapt is rooted in the knowledge, skills, or abilities of its members as well as its capabilities, systems, and processes. To adapt, an organization must continuously invest in further developing or creating those capabilities (van der Weerd et al. 2012) and it is these capabilities that allow the organization to reconfigure and address the changes in a new, evolutionary manner (Krijnen 1979; van der Weerd et al. 2012).

### Collaborative Action Planning

When subsystems, groups, and teams within an organization can work as a single unit to plan and develop solutions, adaptability is more probable (Kilmann 1985; Valle 1999). Organizations that have successfully changed are able to create an architecture or internal structure that is designed to bridge various departments and units within the organization to act as an internal strategic alliance (Nadler and Nadler 1998). While external environments are heterogeneous, they create the need for differentiation in organizations and unified internal integration increases the chances of achieving successful action (Lawrence and Lorsch 1967). In other words, it is the strength of the linkages *within* the organization that allow it to address external changes (Horne and Orr 1998). Organizations need internal systems that support adaptive strategies and solutions and that allow subsystems to interact and collaborate to develop a plan of execution (Lewin 1947).

### Executing Change

Executing change represents the patterns of behaviors and values of organizational members related to implementing the proposed solutions and plans to manage the environmental challenges. Once organizations have appropriately determined how to address the problem or issue, they need to be able to effectively execute the change (Kotrba et al. 2012; Valle 1999). In order to adapt to the environment, an organization needs to not only stimulate new ideas, it also needs to have methods in place to effectively put the ideas into action (Caldwell and O'Reilly 2003) and emphasize the importance of doing so.

### Sustaining Change

Sustaining change characteristics relates to development of systems and policies to help the change persist. While this last characteristic has typically not been included in definitions of adaptive cultures, it has been supported by Lewin's work (1946, 1947) on action research and the

planned change literature in general and hence was included as one of the nine characteristics.

Having defined the domain of adaptive culture and identified nine characteristics, we proceeded with assessing the impact of adaptive cultures on organizational survival.

## Method

### Sample

Organizational survival is not a single event but rather a process that occurs over a period of time that is much longer than the typical organizational study (Sheppard 1994; Trahms et al. 2013). As such, the present effort was conducted using a historiometric approach that allowed for the collection of predictor data from early in the organizations' histories as well as criterion data that represented outcomes over time. Historiometric analysis consists of collecting archival data (e.g., newspaper articles, biographies, magazine stories, etc.) that describe the organization and from which assessments about it can be made (Simonton 1994). Several studies in organizational psychology, typically those assessing leadership, have used historiometric methods and demonstrated it is an adequate approach to evaluate organizational phenomena (e.g., Beck et al. 2012; Friedrich et al. 2014; Ligon et al. 2012; Resick et al. 2009).

Predictor data for the present study were drawn from articles about organizations and their founders or leaders that were published in *Forbes* magazine. The role of organizational founders and leaders serve as the primary mechanism through which an adaptive culture is established (Schein 2010); as such, we sought a sufficient data source about organizational founders and leaders as well as descriptions of the original culture. *Forbes* was chosen because it has been in circulation for nearly 100 years, has a history of publishing articles about organizations, their founders, and their leaders, and has had a consistent editorial approach and content focus. This source also allowed the inclusion of organizations across industries, a potentially important covariate of survival, as *Forbes* publishes profiles on a wide range of organizations and industries. Secondary sources of information about the organizations and their leaders/founders were not used because no single (or even multiple) source(s) were available that included sufficient information about a majority of those organizations represented in the *Forbes* articles. In addition, we also wanted to avoid introducing any source-specific biases (e.g., using source A for information only on organizations 1 and 2 and source B only for organizations 3 and 4) into the data.

To identify the articles, every issue of *Forbes* from 1917 to 1940 was reviewed by a team of graduate Industrial-

Organizational Psychology students in order to identify those that were (1) about a publicly held company, (2) included information about the organization and founder/leader, and (3) at least 750 words long (to ensure sufficient data for coding purposes). The time period of 1917–1940 was used because (1) the end date of 1940 ensured all the organizations would have at least 70 years of history to track outcomes; (2) 1940 is a natural break point before World War II, after which there were fundamental shifts in the type and nature of organizations; and (3) during the time period of 1917–1940, *Forbes* published a large number of articles about organizational founders, making the dataset as large and diverse as possible. Overall, 161 articles representing 142 unique individuals were collected. Almost every article had both narrative descriptions about the organization as well as quotes from its founder/leader, ensuring that ratings would be based on both direct statements and information about the organization as reported by the author.

Every article that fit the above criteria was included in the initial dataset and then was read by a senior I-O Psychologist. As a result of this second review, 33 articles were dropped because they did not focus on publicly held companies, were too short, or had missing pages resulting in a sample of 128 articles. Some individuals were profiled multiple times. Among organizations in the dataset, 64 % were manufacturing, 12 % were retail, 7 % were insurance or real estate, 6 % were electric, gas, and sanitary utilities, 5 % were services, 3 % were mining, 1 % were construction, and 1 % were agriculture, forestry, and fishing.

## Development of an Adaptive Culture Scale

### *Item and Response Scale Development*

The definition of each of the nine characteristics was used as the item stem. Based on the definitions of each of the nine characteristics, two of the authors independently reviewed a random sample of the articles to develop multiple exemplars for low, medium, and high anchors for each characteristic. For each of the nine dimensions, two to three anchors for each level (i.e., low, medium, and high) were created. Three of the authors collectively reviewed and discussed each anchor until there was a consensus in identifying those that they determined were most representative at each level for the nine dimensions. The 27 draft anchors were then given a final review and edited to improve generalizability across industries and rater comprehension.

Once a full set of anchors was developed, three additional senior doctoral students (individuals not associated with the research project) reviewed and sorted the anchors. They were presented with a list of the 27 anchors and a

description of the nine characteristics of adaptive cultures and were asked to determine: (1) which characteristic each anchor represented, and (2) whether the anchor represented low, medium, or high levels of the characteristic. The three raters placed over 85 % of the anchors in the correct dimension and between 18 and 26 of the anchors at the correct level.

Based on feedback from the raters, some anchors were reworded to provide more clarity and provide better distinction between levels. A second round of reviews and assignments to the same three raters resulted in unanimous assignments and confirmed that the anchors were clear and understandable. Once final wording was determined, anchors were placed on a 7-point scale with the low anchor between points 1 and 2, the medium anchor about 4, and the high anchor between points 6 and 7. These points were chosen as general reference points and were not intended to represent specific numerical values. See Fig. 1 for a full list of the items with anchors.

After the rating scales were developed, six upper level undergraduate research assistants were recruited. Raters were individually interviewed and then chosen based on grades, research and work experience, and motivation to be involved with research. All six-research assistants attended a four hour training session. During the training, they were provided general information about the project, rating task, and rater expectations. The raters were informed that the purpose of the study was to investigate the impact of culture on organizational performance but were blind to specific research propositions and hypothesis. Raters then were presented the dimensions and characteristics with the focus being to ensure all were comfortable with the content and the rating task. Once it was clear that all raters understood the content domain, they each read an example article (one not included in the study) and rated it using the characteristic scales. Ratings were recorded and then discussed as a group. Any discrepancies between raters were discussed and resolved to ensure all raters interpreted information in the same manner. This process was then repeated with two more example articles.

By the end of the training session, all raters were in agreement about definitions, anchors, and were consistently rating the example articles. Each rater was then asked to read and rate all 128 articles on each of the nine characteristics using the 7-point anchored rating scale. They were also given a “Not Applicable” option to use if the article did not contain any information related to that particular aspect of adaptive culture. To account for the degree of environmental change and variance across industry, raters were asked to indicate the primary geographic location of the organization and rate the extent to which each organization was facing significant environmental changes. If a rater indicated that the organization was facing significant

**Fig. 1** Adaptive culture scale*Adaptive Culture Scale*

Please read the following profile carefully and thoroughly. Then rate the profile on the following characteristics.

0. Please enter the four-digit code shown at the top of the profile: \_\_\_\_\_

**1. External Focus.** The organization pays attention to its external environments, especially its customers. The organization is able to read and interpret signals from their environments.

|                                                      |   |                                                        |   |   |                                                                         |   |
|------------------------------------------------------|---|--------------------------------------------------------|---|---|-------------------------------------------------------------------------|---|
| Ignores environmental criticism of products/services |   | Aware of a limited supply issue and notifies customers |   |   | Gets an outside viewpoint in order to identify and understand a problem |   |
| 1                                                    | 2 | 3                                                      | 4 | 5 | 6                                                                       | 7 |

**2. Anticipation.** The organization proactively works to identify internal and external problems; the organization is able to anticipate future problems or environment changes.

|                                                                                                                |                                                                         |   |   |                                                     |   |   |
|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|---|---|-----------------------------------------------------|---|---|
| Competitors in their field make cuts in their prices due to an economic downturn but the organization does not | Considers customer reactions to a new product before it hits the market |   |   | Anticipates a large market demand for a new product |   |   |
| 1                                                                                                              | 2                                                                       | 3 | 4 | 5                                                   | 6 | 7 |

**3. Risk-taking.** The organization is willing to take risks.

|                                                                                                                      |   |                                                                     |   |   |                                                               |   |
|----------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------|---|---|---------------------------------------------------------------|---|
| Sticks to existing production schedule even though employees suggest new technologies that could speed up production |   | Focuses research and development efforts on existing business lines |   |   | Invests resources and assets during turbulent financial times |   |
| 1                                                                                                                    | 2 | 3                                                                   | 4 | 5 | 6                                                             | 7 |

**4. Open to Change.** The organization is receptive to innovation, change, and new ideas. The organization is flexible; it does not feel that it is bound by particular rules and procedures for carrying out its business.

|                                                           |   |                                                                                               |   |   |                                                                                         |   |
|-----------------------------------------------------------|---|-----------------------------------------------------------------------------------------------|---|---|-----------------------------------------------------------------------------------------|---|
| Is rigid; unwilling to make changes to business practices |   | Is willing to make modifications to products as long as the organization sees a demand for it |   |   | Dedicated to improving existing products, even successful ones, and developing new ones |   |
| 1                                                         | 2 | 3                                                                                             | 4 | 5 | 6                                                                                       | 7 |

**5. Confidence.** The organization believes that it has the ability to change.

|                                   |   |                                                    |   |   |                                                      |   |
|-----------------------------------|---|----------------------------------------------------|---|---|------------------------------------------------------|---|
| Fears change will lead to failure |   | Believes that the organizations will be successful |   |   | Believes the future of the organization is limitless |   |
| 1                                 | 2 | 3                                                  | 4 | 5 | 6                                                    | 7 |

**6. Development of Capabilities.** The organization develops the capacity to handle environmental situations.

|                                                              |   |                                                     |   |   |                                                                                                                         |   |
|--------------------------------------------------------------|---|-----------------------------------------------------|---|---|-------------------------------------------------------------------------------------------------------------------------|---|
| Possesses little available money to develop new capabilities |   | Attracts and hires qualified employees in the field |   |   | Develops a training program or apprenticeship program to teach employees new, critical skills to deal with future needs |   |
| 1                                                            | 2 | 3                                                   | 4 | 5 | 6                                                                                                                       | 7 |

changes in the environment, they were asked to record details about the change.

All rating data were collected using Qualtrics. Each profile was digitally scanned and included as a single

ratable item. Raters could download or view the profile on their computer screen. Due to the digitization, raters were able to view the organizational profiles on their own schedule. Raters were given three months to complete all

**Fig. 1** continued

**6. Development of Capabilities.** The organization develops the capacity to handle environmental situations.

|                                                              |                                                     |   |   |                                                                                                                         |   |   |
|--------------------------------------------------------------|-----------------------------------------------------|---|---|-------------------------------------------------------------------------------------------------------------------------|---|---|
| Possesses little available money to develop new capabilities | Attracts and hires qualified employees in the field |   |   | Develops a training program or apprenticeship program to teach employees new, critical skills to deal with future needs |   |   |
| 1                                                            | 2                                                   | 3 | 4 | 5                                                                                                                       | 6 | 7 |

**7. Collaborative Action Planning.** The organization enables collaboration between business units that allow it to proactively and reactively develop solutions to problems.

|                                                                                                 |                                                                                         |   |   |                                                                                                       |   |   |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---|---|-------------------------------------------------------------------------------------------------------|---|---|
| Business units are segmented with little communication or collaboration occurring between units | Organization's departments work together to develop plans for how to deal with problems |   |   | Conducts intra-organizational research to determine how to make a product distinctive in the industry |   |   |
| 1                                                                                               | 2                                                                                       | 3 | 4 | 5                                                                                                     | 6 | 7 |

**8. Executing Change.** The organization is able to implement adaptive change.

|                                                                    |                         |   |   |                                                                             |   |   |
|--------------------------------------------------------------------|-------------------------|---|---|-----------------------------------------------------------------------------|---|---|
| Fails to develop new products or services in changing environments | Implements a new change |   |   | Organizations implement new work process ahead of schedule and under budget |   |   |
| 1                                                                  | 2                       | 3 | 4 | 5                                                                           | 6 | 7 |

**9. Sustaining Change.** The organization is able to sustain the change by creating systems that reinforce the change.

|                                                                                                    |                                                                                       |   |   |                                                                                                   |   |   |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---|---|---------------------------------------------------------------------------------------------------|---|---|
| Organizational policies do not reinforce the change and the organization goes back to its old ways | Creates a culture and system that views jobs as a career in order to retain employees |   |   | The organization works with external entities to enact policies that benefit them in the long run |   |   |
| 1                                                                                                  | 2                                                                                     | 3 | 4 | 5                                                                                                 | 6 | 7 |

10. What is the organization's main line of business? \_\_\_\_\_

11. Where is the organization's headquarters or primary location? \_\_\_\_\_

12. To what extent is the organization facing significant changes in its industry or environment?

|            |   |   |   |   |   |                |
|------------|---|---|---|---|---|----------------|
| Not at all |   |   |   |   |   | A great extent |
| 1          | 2 | 3 | 4 | 5 | 6 | 7              |

If so, briefly describe the changes in the environment that the organization may be facing

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the profile ratings and were provided with an example schedule to help them spread out their workload. The schedule was intended to minimize the chance that a rater would wait to the very end and to avoid rater fatigue. One of the authors checked rater progress weekly to ensure that all were on track to complete the ratings within 3 months. If one of the raters was falling behind, that individual was

emailed a reminder about the remaining time and encouraged not leave all the profiles for the last minute.

Ratings were reviewed for systematic missing data for articles, raters, and dimensions. The criterion used for retaining ratings was that at least half of the possible ratings for each article had to be present. Two articles did not meet this criterion and were removed from further analysis,

reducing the sample to 126. All remaining articles had a sufficient number of ratings and inter-rater reliabilities were calculated. Intra-class correlations, ICC (2, 6), were used to estimate the level of inter-rater reliability as it indicates the degree of agreement across raters (LeBreton and Senter 2007; McGraw and Wong 1996). Inter-rater reliabilities ranged from 0.38 to 0.81 (see Table 3). While some reliabilities were lower than we hoped, on the whole, given the complexity of the characteristics being rated, we deemed these sufficient to use in subsequent analyses.

Raters' scores were averaged for each article and scores for each characteristic for each organization were calculated. Eight founders/leaders had more than one article published in the selected time period although no individual was profiled as the leader of more than one organization. For instance, Henry Ford was profiled eight times as the leader of Ford Motor Company, the most of any individual or organization in the dataset, and correlations among the characteristics across articles ranged from  $r = 0.78$  to  $0.96$ . Given the similarity across articles, predictor scores were averaged across the multiple profiles resulting in one set of adaptive dimension scores for each individual/organization. Averaging the scores of individuals with multiple profiles resulted in a final dataset of 95 individuals/organizations. See Table 2 for a list of organizations included in the analysis and Table 3 for descriptive statistics for all of the organizations.

### Exploratory Factor Analysis

An exploratory factor analysis, using maximum likelihood extraction methods and oblique rotation of the nine characteristics, was conducted to explore the dimensions of adaptive cultures. The factor analysis yielded three factors with eigenvalues over 1. However, a theoretical review of the characteristics along with empirical assessments such as the scree plot, a parallel analysis (Hayton et al. 2004), and evaluation of the specific factor loadings led to the decision to retain two factors. Further, the parallel analysis demonstrated, after comparing the eigenvalues of the original output to those created by chance, that the two-factor solution was more appropriate. See Table 4 for factor loadings.

Factor 1 included *Anticipation*, *External Focus*, and *Confidence* while Factor 2 included *Open to Change*, *Executing Change*, *Development of Capabilities*, *Sustaining Change*, and *Collaborative Action Planning*. *Risk-Taking* did not load highly on either of the two factors and had a low communality (0.10) and so it was dropped from further analyses. The final eight characteristics accounted for 49 % of the total variance. After a conceptual review of each factor, it was determined that items in the first factor represented values about change while the second

represented orientation toward change actions. Thus, we titled the first factor *Values About Change* (hereafter *Values*) and the second factor *Action-Orientation* (hereafter *Action*). Dimension scores were averaged to create the two factor variables, *Values* and *Action*. There was no a priori theoretical reason to expect that characteristics would differentially contribute to adaptability, therefore mean scores were used instead of factor scores.

The characteristics were combined in their respective factors and scale reliabilities were calculated. *Values* had a low, but not untenable, reliability ( $\alpha = 0.57$ ) while *Action* demonstrated high reliability ( $\alpha = 0.82$ ).

## Measures

### Adaptive Culture

As described above, we developed a rating scale that measured nine different characteristics of adaptive cultures that had been identified through previous research (see Fig. 1). For the survival analysis, the two factors of *Values* and *Action* that were identified in the exploratory factor analysis were used to examine the impact of adaptive culture on organizational survival.

### Organizational Survival

For each organization, the research team searched for criterion data (i.e., whether the organizations were still in existence or if they changed in some way since their founding). Since no single database included information on every organization, a variety of sources were used to determine the status of each organization. Sources included the S&P Compustat database, Moody's Industrial Reports, and other public databases. Criterion data were identified for all 95 organizations and the following determinations were made: (1) whether the company was still in existence, (2) if not, in which year did the organization's status change and what was the change, and (3) in what year(s) did any additional status changes occur and what were the changes. In the process of identifying what had happened to each organization over the last century, the team identified and coded the following changes: renamed, reorganized, merged/acquired another organization, absorbed/bought by another organization, bankrupt/liquidated, extant (no changes), or no information available.

Organizational death is not a straightforward phenomenon by any means. As such, there is little consistency in the organizational literature about the definition of organizational death (Sheppard 1994). In order to decide how to code the organizational outcomes and operationalize the event of organizational death, the research team reviewed literature on organizational turnaround, decline,

**Table 2** Organizations in database

|                                           |                                          |
|-------------------------------------------|------------------------------------------|
| 1. A.C. Gilbert Company                   | 2. A.E. Staley Manufacturing Corporation |
| 3. Abercrombie & Fitch                    | 4. Acheson Companies                     |
| 5. Addressograph Company                  | 6. American Car and Foundry Company      |
| 7. American Rolling Mill Company          | 8. Atlas Utilities Corporation           |
| 9. B/G Sandwich Shops                     | 10. Beech-Nut                            |
| 11. Bethlehem Steel                       | 12. Bohack HC Company, Inc.              |
| 13. Carnation Milk Products Company       | 14. Celotex Company                      |
| 15. Centennial Mill Company               | 16. CH Masland & Sons                    |
| 17. Charles E. Bedaux Company             | 18. Chrysler Corporation                 |
| 19. Cities Service Company                | 20. Container Corporation                |
| 21. Crosley Radio Corporation             | 22. Curtis Publishing Company            |
| 23. Davey Tree Expert Company             | 24. Dollar Steamship Lines               |
| 25. Durant Motor Company                  | 26. Felt & Tarrant Manufacturing Company |
| 27. Firestone Tire & Rubber Company       | 28. Ford Company                         |
| 29. Franklin Simon & Company              | 30. Gair (Robert) Company                |
| 31. General Fireproofing Company          | 32. General Motors Corporation           |
| 33. General Roofing Manufacturing Company | 34. General Tire & Rubber Company        |
| 35. Goodyear Tire and Rubber Company      | 36. Gotham Hosiery Company               |
| 37. H.J. Heinz Company                    | 38. Hartford Electric Light Company      |
| 39. Haynes-Apperson Company               | 40. Henry L. Doherty & Company           |
| 41. Holland Furnace Company               | 42. International Shoe Company           |
| 43. Italian Bank of California            | 44. J.C. Nichols Investment Company      |
| 45. J.C. Penney Company                   | 46. John Ward Stores                     |
| 47. Jordan Motor Car Company              | 48. JR Booth & Company                   |
| 49. Kewanee Boiler Company                | 50. Kirby Lumber Company                 |
| 51. Lefax Corporation                     | 52. Liberty Motor Car Company            |
| 53. Loew's Inc.                           | 54. Maytag                               |
| 55. McGraw Publishing Company             | 56. Megow's Modern Airplane Shop         |
| 57. Mexican Petroleum Company             | 58. Miller Rubber Company                |
| 59. Moody's Investors' Service            | 60. N.W. Ayer and Son                    |
| 61. Nash Motors Company                   | 62. National Cash Register Company       |
| 63. Nu-Enamel Corporation                 | 64. Pacific Steam Navigation Company     |
| 65. Peabody Engineering Corporation       | 66. Piggly Wiggly Stores & Corporation   |
| 67. Proctor & Gamble                      | 68. Renault                              |
| 69. Reo Motor Car Company                 | 70. Richman Brothers Company             |
| 71. Rickenbacker Corporation              | 72. Royce, Ltd.                          |
| 73. S. Karpen and Brothers                | 74. Schilling & Nissen                   |
| 75. Security Trust and Savings Bank       | 76. Southern California Edison           |
| 77. Standard Life Insurance Company       | 78. Standard Oil Company                 |
| 79. Stone and Webster                     | 80. Swedish Match Company                |
| 81. Texas & Pacific Coal Company          | 82. The W.T. Grant Company               |
| 83. The White Company                     | 84. Thompson-Starrett Company            |
| 85. Timken Roller Bearing Company         | 86. United Cigar Stores Company          |
| 87. W.A. Sheaffer Pen Company             | 88. Ward Baking Company                  |
| 89. Western Air Express                   | 90. Willard Storage Battery Company      |
| 91. Willys-Overland Company               | 92. Woods and Company                    |
| 93. Yellow Cab Company                    | 94. Young Spring & Wire Company          |
| 95. Youngstown Sheet and Tube Company     |                                          |

Names listed are for the original organization. Some had subsequent name changes

**Table 3** Correlations and inter-rater reliabilities of adaptive culture dimensions

| Dimension                        | <i>M</i> | <i>SD</i> | 1                 | 2                 | 3                 | 4                 | 5                 | 6                 | 7                 | 8                 | 9      |
|----------------------------------|----------|-----------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------|
| 1. External focus                | 5.04     | 0.59      | (0.61)            |                   |                   |                   |                   |                   |                   |                   |        |
| 2. Anticipation                  | 5.41     | 0.57      | 0.41 <sup>a</sup> | (0.57)            |                   |                   |                   |                   |                   |                   |        |
| 3. Risk-taking                   | 4.74     | 0.52      | 0.00              | 0.09              | (0.49)            |                   |                   |                   |                   |                   |        |
| 4. Open to change                | 5.25     | 0.66      | 0.41 <sup>a</sup> | 0.31 <sup>a</sup> | 0.21 <sup>b</sup> | (0.71)            |                   |                   |                   |                   |        |
| 5. Confidence                    | 5.13     | 0.40      | 0.15              | 0.36 <sup>a</sup> | 0.01              | 0.30 <sup>a</sup> | (0.38)            |                   |                   |                   |        |
| 6. Development of capabilities   | 5.07     | 0.78      | 0.22 <sup>b</sup> | −0.03             | −0.15             | 0.30 <sup>a</sup> | 0.24 <sup>b</sup> | (0.81)            |                   |                   |        |
| 7. Collaborative action planning | 4.80     | 0.69      | 0.35 <sup>a</sup> | 0.20              | 0.00              | 0.49 <sup>a</sup> | 0.28 <sup>a</sup> | 0.56 <sup>a</sup> | (0.77)            |                   |        |
| 8. Executing change              | 4.97     | 0.43      | 0.37 <sup>a</sup> | 0.34 <sup>a</sup> | 0.09              | 0.64 <sup>a</sup> | 0.39 <sup>a</sup> | 0.34 <sup>a</sup> | 0.53 <sup>a</sup> | (0.51)            |        |
| 9. Sustaining change             | 5.14     | 0.57      | 0.27 <sup>a</sup> | 0.30 <sup>a</sup> | 0.01              | 0.50 <sup>a</sup> | 0.30 <sup>a</sup> | 0.52 <sup>a</sup> | 0.64 <sup>a</sup> | 0.62 <sup>a</sup> | (0.59) |

Inter-rater reliabilities ICC (2, 6) are listed in diagonal

<sup>a</sup> Correlation is significant at the 0.01 level (2-tailed)

<sup>b</sup> Correlation is significant at the 0.05 level (2-tailed)

**Table 4** Factor loadings from structure matrix of adaptive culture dimensions

|                               | Values about change | Action-orientation | Factor 3 |
|-------------------------------|---------------------|--------------------|----------|
| Anticipation                  | <b>0.99</b>         | 0.23               | 0.28     |
| Confidence                    | <b>0.40</b>         | 0.38               | 0.16     |
| External focus                | <b>0.45</b>         | 0.39               | 0.27     |
| Open to change                | 0.41                | <b>0.63</b>        | 0.63     |
| Executing change              | 0.44                | <b>0.69</b>        | 0.47     |
| Development of capabilities   | 0.05                | <b>0.70</b>        | −0.18    |
| Sustaining change             | 0.39                | <b>0.79</b>        | 0.15     |
| Collaborative action planning | 0.29                | <b>0.80</b>        | 0.08     |
| Risk-taking                   | 0.11                | −0.03              | 0.37     |

Bold values indicate to which factor each characteristic was assigned

Extraction method: maximum likelihood

Rotation method: oblique using direct oblimin

and death. After discussion, the authors determined that Sheppard's (1994) framework was the most appropriate way to code the data.

Sheppard (1994) noted that an organization's death occurs when it stops performing functions expected of it. When organizations combine, at least one (the less dominant partner) ceases to exist. Based on this framework, we argue that the "death" of an organization happens when the original goals and culture are no longer the dominant driving force. For example, although an organization may still physically exist after being acquired, the acquiring organization is more dominant and likely attempts to impact the values and focal goals, eventually eliminating the culture of the acquired organization. As such, acquisition was included in death under the assumption that when the organization was acquired, its culture ceased to exist in its original form. Bankruptcy was also considered death because the organization stops performing its functions as expected. Overall, death (i.e., no longer surviving) of an

organization was defined as an event in which an organization was bought or acquired by another organization, when it had declared bankruptcy, or when it was liquidated.

In terms of the other changes, given that multiple organization-altering events were coded in the process of collecting the criterion variable, it was decided to account for outcomes such as renaming, reorganization, or merging (as the dominant organization) as organizational states that did not represent death but might still have some impact on the organization's survival. Unfortunately, given the relatively small number of organizations that experienced each of these changes, there was no sufficient power to test them individually. Therefore, the presence or absence of any one of these other status changes (renaming, reorganization, or merging) was coded for each organization and this variable was used as a covariate in the main analyses.

The years in which organizations included in the dataset were founded and died varied widely. The earliest an organization was founded was 1824 and the latest was

1931. The earliest an organization died was 1905 and, as of the end of 2014, 15 organizations were still in existence. Nine of the existing organization experienced none of the identified status changes.

Life span of the organization was operationalized as the length of time between founding date and death. Life span for organizations that were still surviving was calculated as the length of time between the founding year and 2014. The length of survival ranged from 6 to 177 years. There was no theoretical reason to assume that the particular day or month that an organization died was meaningful so survival was recorded in whole years. Those organizations that were still surviving at the end of 2014 were treated as right censored (i.e., have not *yet* experienced death).

## Results

Several authors have been advocating the need to use statistical techniques that are more appropriately aligned with theory (e.g., Kammeyer-Mueller et al. 2005). Given that organizational survival is a time-dependent phenomenon, we used survival analysis, specifically Cox Regression with proportional hazards modeling, treating survival as a function of time instead of a simple dichotomous variable. Survival analysis, or event history analysis, is a collection of tests, which analyzes the relationship between events and their causes longitudinally (Allison 2014). Proportional hazards modeling estimates a baseline pattern (unspecified and nonparametric) of survival over time of risk. Survival analysis facilitates the ability to distinguish organizations on the basis of their length of survival from each unique founding date (1824–1931) and date of death (Allison 2014; Nyberg 2010).

A hierarchical Cox Proportional Hazards regression (a semi-parametric model with fixed covariates) was conducted to analyze the data in the present study. This technique has occasionally been used in previous organizational research, particularly studies evaluating turnover (e.g., Nyberg 2010). Cox regression determines whether survival time is a function of a set of independent variables (termed covariates in survival analysis). Advantages of Cox regression are that it does not require that researchers choose a particular data distribution a priori (it is based on the form of the unique data) and it is also quite robust (Allison 2014; Mills 2011), making it appropriate for the present effort.

Data were checked for multivariate outliers by evaluating the Mahalanobis distance (Stevens 1984). Neither univariate nor multivariate outliers were identified. In order to account for the possibility that some organizations shared the same date of death, the Efron method was used (Allison 2014). The sample of 95 organizations met the

suggested sample size of 60 when there are five or fewer parameters for covariates being estimated in survival analysis (Eliason 1993).

In order to test the assumption that the hazards were roughly consistent across time, the correlations between the Schoenfeld residuals and the Kaplan–Meier survival function at event time were examined (Allison 2014). No apparent relationship between survival time and the Schoenfeld residuals (indicating hazards are the same across time) was found, satisfying the assumption of proportional hazards (Allison 2014) and suggesting the planned analyses could be conducted.

Results of a survival analysis are reported as a hazard rate. In this study, the hazard rate is conceptualized as the probability that an organization will die (i.e., acquired, bankrupt, or liquidated) after a given amount of time. *Values*, *Action*, and the interaction between the two were the covariates (i.e., independent variables). We included the interaction between the two dimensions because previous research has shown that aspects of culture can interact with one another (e.g., Kotrba et al. 2012) in impacting organizational outcomes. Dimensions of culture may not be competing or contradictory but rather can work together (Hartnell et al. 2011; Schneider et al. 2013) to help organizations and meta-analytic research suggests that specific types of culture (as defined by the Competing Values Framework) may differentially predict organizational criteria (Hartnell et al. 2011).

Also included in the model was a variable that captured whether the organization had gone through one of the other changes (i.e., renaming, reorganization, or merging). For this last variable, due to the relatively small sample size and the large number of change categories, organizations were coded as a 1 if that had experienced any one of these changes and 0 if that had not. Both culture dimensions and the dichotomous variable that indicated whether or not an organization experienced one of the other changes (e.g., renaming, reorganization, or merging) were treated as fixed covariates in the survival analysis model.

It was also assumed that the survival conditions across industries were reasonably consistent over time and across industry. To check this latter assumption, each organization's industry was coded using the Bureau of Labor Statistic's North American Industry Classification System (e.g., Sector 11—Agriculture, Forestry, Fishing, and Hunting; Sector 23—Construction) and the industry variable was treated as a covariate. It was found that industry was non-informative and therefore not included in further analyses.

There are certainly variations in dynamism and economic conditions over time and the environments in which each industry operated likely varied in the extent to which conditions were favorable and unfavorable. While there is

no single statistic or industry metric that can capture environmental dynamism across industry and time, our assumption was that any variations average out over time. Combined with the non-significant statistical finding for industry, we concluded that there was no reason to expect that there were systematic, un-estimated variations in survival by industry. Table 5 provides descriptive statistics and correlations between all the study variables.

Due to the small amount of variability across the profile scores on some of the adaptive characteristics, a slight increase in the average score led to a disproportionate increase on the odds ratio. Therefore, to increase interpretability, characteristic scale averages were transformed into z-scores to provide conceptually coherent results. Results indicated the overall survival model with the two adaptive culture dimensions and the categorical variable indicating whether the organization went through a non-death change was significant ( $\chi^2 = 11.24$ ,  $df = 3$ ,  $p = 0.01$ ).

When the interaction variable was added, the overall model improved, ( $\chi^2 = 15.41$ ,  $df = 4$ ,  $p = 0.0$ ;  $\Delta\chi^2 = 4.70$ ,  $p = 0.03$ ). That is, together, the adaptive culture dimensions and their interaction along with the categorical variable indicating whether the organization went through a non-death change significantly predicted the time that elapsed until organizational death.

*Action* significantly predicted the time that elapsed until death ( $\beta = -0.60$ , Wald = 14.46,  $p < 0.001$ ). The hazard ratio indicated that for every one-unit increase in *Action*, organizations were 55 % (CI [0.40, 0.75]) less likely to experience death. *Values* uniquely predicted the time that elapsed until death ( $\beta = 0.27$ , Wald = 4.48,  $p = 0.03$ ); however, it was in the opposite direction hypothesized. The hazard ratio indicated that for every one-unit increase in *Values*, organizations were 31 % (CI [0.02, 0.69]) more likely to experience death. The interaction between *Values* and *Action* significantly predicted time that elapsed until death ( $\beta = -0.26$ , Wald = 4.23,  $p = 0.04$ ). The occurrence of the other state changes (renamed, et al.) did not uniquely predict lapse of time until death ( $\beta = 0.23$ , Wald = 0.96,  $p = 0.33$ ).

The interpretation of the interaction term is critical to understand the effect organizational culture has on survival, but interaction terms in survival analysis are much more difficult to graph and interpret than interactions in a general linear model (Trevor 2001) and have not commonly been reported in the organizational literature. One way to interpret the effect size of a survival analysis interaction is by calculating probabilities of death for a fixed time-frame. Essentially, one must calculate the total effects on the logged hazard and the hazard rate multiplier which can be easier to interpret in comparison to hazard rate graphs. (See Trevor 2001 for full details on calculations). The hazard rate multiplier represents a one standard deviation increase in the cultural effect at high and low levels of the moderator (i.e., *Values*).

In other words, the hazard rate multiplier demonstrates that a one standard deviation increase in *Action* results in a 0.42 hazard rate multiplier and a 58 % decrease in organizational death likelihood. That is, when organizations were high in *Action*, the effect of *Values* on survival is about 30 percentage points larger than when *Values* is low. Even though the two cultural characteristics demonstrated opposite effects on survival with *Action* decreasing the likelihood of death and *Values* increasing it, the interaction suggests that at least for the very highest levels of *Values*, the combination of the two cultural characteristics jointly decrease the probability of organizational death. Because of the size of our sample, it was not possible to explore the nature of this seemingly complicated relationship further. See Table 6 for calculations of effect size within this study.

Overall, the results partially supported our hypothesis as *Action-Oriented* significantly predicted time until death in the hypothesized direction such that organizations with higher *Action* scores were less likely to die. *Values About Change* also predicted time until death but in the opposite direction of what was hypothesized. *Action-Oriented* and *Values About Change* interacted such that organizations higher in both characteristics were least likely to die. Put another way, organizations that were high in *Action* and also high in *Values* were most likely to survive the longest.

**Table 5** Descriptive statistics and correlations among study variables

| Dimension                                  | <i>M</i> | <i>SD</i> | 1                 | 2     | 3                  | 4    | 5    |
|--------------------------------------------|----------|-----------|-------------------|-------|--------------------|------|------|
| 1. Action                                  | 5.05     | 0.49      |                   |       |                    |      |      |
| 2. Values culture                          | 5.19     | 0.39      | 0.47 <sup>a</sup> |       |                    |      |      |
| 3. Death (1 = death, 0 = censor)           | 0.84     | 0.37      | -0.15             | 0.10  |                    |      |      |
| 4. Org change (1 = change, 0 = no events)  | 0.42     | 0.50      | -0.07             | 0.08  | 0.02               |      |      |
| 5. Years of survival                       | 78.74    | 34.74     | 0.17              | -0.15 | -0.47 <sup>a</sup> | 0.08 |      |
| 6. Industry (1 = manufacturing, 2 = other) | 1.36     | 0.48      | -0.06             | -0.08 | -0.16              | 0.03 | 0.11 |

<sup>a</sup> Correlation is significant at the 0.05 level (2-tailed)

**Table 6** Effect size computation for interaction between values and action in organizational death hazard analyses

|                         | Total effect on logged hazard <sup>a</sup> | Hazard multiplier <sup>b</sup> | Change in organizational death likelihood <sup>c</sup> |
|-------------------------|--------------------------------------------|--------------------------------|--------------------------------------------------------|
| Low moderator (values)  | −0.348                                     | 0.706                          | −29.39 %                                               |
| High moderator (values) | −0.858                                     | 0.424                          | −57.60 %                                               |

Exponentiating the total effect on logged hazard produces a hazard rate multipliers that are associated with a one standard deviation increase in the effect of action at high and low levels of values

<sup>a</sup>  $\beta_{\text{Main Action}} + \beta_{\text{Values*Action}}(\text{High and low levels of values})$

<sup>b</sup> EXP (Total Effect on Logged Hazard)

<sup>c</sup> (Hazard Multiplier-1)\*100

## Discussion

Given that changing environments threaten organizational survival (Gittleson 2012), organizations must develop and maintain capacity for adaptation to these changes in order to survive (Levinson 1994; Pearce and Robbins 1993; Ployhart and Turner 2014; Trahms et al. 2013). Organizational culture is an essential resource to identify and respond appropriately to change (Barney 1986; Cheung et al. 2012; Schein 2010); culture provides guidance to members on how to recognize, respond, and consistently adapt to environmental change (Barney 1986; Cheung et al. 2012; Denison and Mishra 1995; Schein 2010). An adaptive culture is an essential resource for organizations to handle threats in the environment and manage change and, therefore, should predict organizational survival. However, characteristics of adaptive cultures that predict survival have not typically been examined in the culture literature (Aldrich and Ruef 2006).

This research developed nine characteristics of adaptive culture and identified two distinct dimensions of such cultures: *Values About Change* and *Action-Oriented*. Further, this project provided evidence that the dimensions of adaptive culture predict organizational survival. Results showed that *Action* as well as the interaction between *Values* and *Action* significantly predicted survival such that organizations higher in *Action* and highest in both *Values* and *Action* survived the longest.

## Research Implications

Overall, the study contributes to our understanding of adaptive organizational culture and its impact on organizational survival in several ways. First, this study provided insight into the conceptualization and measurement of adaptive organizational cultures. A conceptualization was developed that suggests there are two dimensions of adaptive cultures: *Values About Change* and *Action-Oriented*. That is, organizations with adaptive cultures are aware of their environment and anticipate changes to which

they must respond, have a mindset open to change, and confidence to take action. Organizations with highly adaptive cultures also have an attitude about working to develop capabilities and resources necessary to take the appropriate action and toward building systems to sustain that change.

The findings supporting these two dimensions and their characteristics supports and extends the work of previous researchers (e.g., Cheung et al. 2012; Denison and Mishra 1995; Gillespie et al. 2008; Kilmann 1985; Nadler and Nadler 1998; Valle 1999) and the research of Ployhart and Turner (2014) by identifying specific adaptive characteristics and relating their importance to organizational outcomes. The characteristics of *Values* and *Action* also mirror those found by Chatman et al. (2014) who identified an adaptability dimension that included items such as being innovative and being willing to experiment.

In addition, the present effort contributed to our understanding of the measurement of organizational culture. A lot of the research on organizational culture is conducted using qualitative methods; those efforts that do use quantitative measures do not use consistent frameworks or measures, and much of the research is often conducted in the field and thus is proprietary (Ostroff et al. 2003; Schneider et al. 2013). The measures that are consistently used in the literature have been criticized for their poor psychometric properties (Ostroff et al. 2013; Schneider et al. 2013) and others have suggested that overreliance on survey technique results in confusion about levels of culture examined (e.g., Sackmann 2011). Thus, for the current study, a new measure of adaptive organizational culture was developed that assessed *Values* and *Actions*, ultimately using eight characteristics, and this measure was used to predict organizational outcomes.

Second, this study provided evidence that adaptive organizational culture has an impact on organizational survival. This finding is in line with recent studies evaluating the relationship between culture and outcomes (e.g., Chatman et al. 2014; Schneider et al. 2013) and extends our understanding of the impact of culture. Specifically,

organizations with *Action* adaptive cultures are more likely to survive. Further, *Values* and *Action* interacted such that organizations high in both *Values* and *Action* were the most likely to survive the longest. This finding suggests that it may not be enough for an organization to have positive values toward change, but rather, they must also be oriented toward and willing to take the necessary steps to make and sustain the change in order to appropriately respond to the dynamic environment. If an organization is only high in one of the dimensions, the likelihood of survival is not as great as when the organization is high in both dimensions. The interaction effect supports previous research that shows cultural dimensions can interact with one another to influence organizational outcomes (e.g., Hartnell et al. 2011).

It is also worth noting that the relationship between *Values* and survival was significant but in the opposite direction than was predicted. This may suggest that valuing adaptability might not be enough and might represent support for the idea of change but not necessarily the implementation of it. In other words, it may be detrimental for organizations to say they value something but never act on those statements. That said, the fact that the interaction indicated that organizations that were highest in both *Action* and *Values* were least likely to die suggests that the nature of adaptive culture and outcomes may be more complicated than was expected; organizations need to not only value adaptability but they must act in accordance with those values to effectively handle environmental threats. Nonetheless, adaptive culture was demonstrated to have an impact on organizational survival and that is a substantial contribution to our understanding of the impact of culture on organizational survival.

Third, this study provides contributions to our understanding of the use of survival analysis in assessing organizational outcomes. Although survival analysis has been used in turnover research (e.g., Nyberg 2010), this study exemplifies additional uses for this technique to gain deeper understandings of organizational phenomena. Specifically, this type of analysis allows for the inclusion of time in the assessment of the relationship between culture and outcomes. While logistical regression, for example, would only be able to determine whether or not certain covariates predicted death, survival analysis captures the likelihood to the event (e.g., death) as well as time until the event. Furthermore, though some organizations in our dataset still survive, that is not to say they may not die at some point in the future. Survival analysis accounts for this possibility by *censoring* variables and estimating those organizations' survival probabilities. In much of the organizational literature, researchers are measuring states that change over time as the present effort did, suggesting promise for the use of survival

analysis in a broad range of organizationally related research questions.

Fourth, this research contributed to the literature on the use of historiometric approaches in the study of organizational phenomena. While the technique has been used successfully in previous studies (e.g., House et al. 1991), its use in the study of culture and organizational outcomes is new and offers a potentially valuable tool for organizational researchers. Given the difficulty of obtaining quality data on organizational culture and high-level organizational leaders, let alone founders who have long since died, this approach holds substantial promise for both measuring variables and testing hypotheses about culture, leadership, and organizational outcomes. In short, this approach opens new opportunities for organizational research to measure and assess the adaptive culture of organizations without direct access to leaders and members.

### Practical Implications

This study also has several practical implications. The findings herein suggest that organizational culture is a resource organizations can use to improve their chances of survival. Organizations, their leaders, and their members can benefit from an understanding of how adaptive cultures can help them navigate uncertain and shifting environments. Previous research on organizational adaptability has been fragmented and prior to this study there was no unifying framework that explained the specific aspects that comprise adaptive cultures or their effects.

In order to establish and develop an adaptive culture, organizations need to ensure that their values emphasize the importance of having openness and willingness to change and to developing and supporting structures that enable such changes. Founders and leaders of organizations should build these values into their mission and vision statements and all policies and procedures in the organization. Cultural values about openness to change, tolerance toward potential failure during trial periods, and willingness to step outside typical boundaries is essential. That the cultural factors that make up *Values*, such as External Focus and Confidence, seem to have a complicated relationship with survival does not diminish their importance as organizations that were highest in both of the main characteristics survived the longest. Overall, organizations should explicitly state these values and adjust policies and procedures to ensure they support change behaviors.

Organizational founders and leaders must also enforce these values and assure their followers that the organization has the ability to execute such changes. For example, feedback and reward systems should motivate members to pay attention to the changing environment and think of new ways the organization can address environmental changes.

Through emphasizing and embedding these values and beliefs in internal processes and systems, organizations can explicitly influence employee values and behaviors in the organization; employees will have a shared understanding that the organization values change and has a goal to continuously adapt to the environment. This should increase the likelihood that employees act in a manner that aligns with the organization's adaptability values and increase chances of survival.

Organizational culture is not only maintained through espoused values, but also through the aggregate of employees' knowledge, skills, and abilities (Barney 1991; Coff and Kryscynski 2011). In order to create and sustain an adaptive culture, organizations must take care to hire and promote employees who demonstrate adaptive performance. Collectively, the performance of the employees will influence how likely an organization is to adapt to the environment. Recruitment, selection, and training practices must focus on identifying and building adaptive skills.

The findings also underscore the importance of devoting resources to assessing, evaluating, and predicting forces in the external environment. Organizations should take care to continuously monitor their insularity by scrutinizing events in competing organizations, industry trends, as well as events in society that have potential influence on their business model. Furthermore, the importance of understanding customer future needs and expectations are also stressed; organizations should not work toward simply maintaining their current state but rather work toward evolving in the future.

Based on these findings, organizations should be active and continuously develop their capabilities and buffering strategies. Executing change must be an organizational-wide initiative and a multi-level approach is likely essential and integral to successful implementation of change. Once the change has been made, organizational leaders must also adapt policies, procedures, and systems to support the change.

The findings from this study provide increased understanding of the necessary components an organization must develop in order to maintain an adaptive culture. As a result, organizations may be in a better position to monitor, prepare for, and respond to their changing environments.

## Limitations

Although these findings begin to shed light on the concept and impact of adaptive cultures, some limitations should be considered. First, the development of the dimensions and measures of adaptive cultures were developed based on the thematic categorizations using extant definitions in the literature. While the definition of the construct and the content domain may have been stronger if independent

subject matters experts had reviewed the themes and patterns developed herein, they remain embedded in the present while the predictor data were derived from articles about organizations and organizational founders written in the 1920s and 1930s.

A second limitation is the use of archival sources. It is possible either that the profiles contained not enough information to accurately make ratings or that characteristics of adaptive cultures were reported in a way such that they were difficult to assess. Research has suggested that articles such as these can be mined for a variety of characteristics (e.g., Beck et al. 2012) but the profiles might not have comprehensively captured organizational culture. For example, it was impossible to evaluate organizational size, popularity, or subcultures. While these variables might influence survival (perhaps impacting profits or growth), the organizations profiled varied widely in scope (e.g., B/G Sandwich Shops v. Ford) and familiarity (e.g., Davey Tree v. Firestone) and death occurred in a variety of organizations. Another constraint with using profiles is that it was not possible to track and measure culture over time so this variable was treated as a fixed covariate. Many aspects of organizations may change over time and there is evidence that culture itself may change and evolve, though when it does, it likely does so very slowly. Nonetheless, using data from a single profile cannot assess these changes.

The use of archival source may also introduce biases and interpretations of the authors or the publication that are present in the profiles. While *Forbes* has consistently reported on organizations and their leaders and founders and has had a stable editorial perspective since its inception, it is possible that the articles may be limited in the extent to which they represent a generalizable sample. For example, it may be that the organizations profiled were selected by *Forbes* because they were already considered successful, introducing range restriction into the criterion of survival. This concern is somewhat lessened by the fact that a number of the organizations died before World War II (i.e., during the period represented by the profiles) and many more died before the end of the criterion data collection 2014. Concerns about the generalizability of the findings cannot be eliminated but the widely ranging organizational types serve to ameliorate concerns that the *Forbes* profiles were inherently biased because of the criteria used to select organizations for an article.

A third limitation has to do with the raters and their evaluations of the profiles. Rating historical profiles on multiple dimensions is an extremely taxing task and hence limits the number of evaluations that the raters can be asked to make. While we were concerned about rater fatigue, the raters were diligent, timely, and thorough in their work and we found no evidence of rater burnout, boredom, or compromised ratings.

It is also possible that familiarity with a given organization might have impacted the rater evaluations such that more familiar organizations were rated more positively. Because the profiles were photocopied from original print editions of *Forbes*, it was impractical to de-identify them. Hence, the raters were not blind to the organization or the individual being profiled. That said, the profiles did include a wide variety of organizational types and sizes and varied from the well-known (e.g., Ford) to the unfamiliar (the Gair Company and S. Karpen & Brothers). Additionally, the fact that some of the more famous organizations profiled did not survive (e.g., Heinz and Maytag) and that the time period covered by the profiles (e.g., the 1920s–1940s) is far removed from the experiences of the raters all serve to lessen concerns about the potential rater biases.

A final limitation is that some of the inter-rater reliabilities were lower than ideal (LeBreton and Senter 2007) and this may have limited the strength of the observed relationships. One reason for this may be that the raters had some difficulties in rating these extremely complex constructs using relatively short articles and single markers of each characteristic. It is also possible that raters drew upon additional information when rating organizations with which they were familiar. If so, that might have impacted the accuracy and reliability of the ratings. Other studies using a similar methodological approach (e.g., Beck et al. 2012; House et al. 1991) obtained higher reliabilities using sources such as published speeches, interviews, and longer passages from books although those studies too may have suffered from rater familiarity. It is also possible that adaptive cultures are a formative construct as opposed to a reflective model. In a formative model, one would not expect high reliability between characteristics (MacKenzie et al. 2005). Nonetheless, even with the lower reliabilities, significant and meaningful results were obtained suggesting fairly robust relationships.

Finally, there is the possibility of endogeneity. Endogeneity occurs when the predictor variable, in this case adaptive culture, is correlated with other potential causes of the dependent variable (survival). It is conceivable that adaptive cultures are predictive of change that relates to a downward spiral of inadequate organizational responses leading to decline (Trahms et al. 2013). An instrumental variable, a possible method to address endogeneity, was not included due to the demanding cognitive task of rating the historiometric profiles. Future research should include a variable of such nature to address and provide a potential solution to endogeneity.

## Future Research

Based on the findings of our study and review of the literature, we have provided recommendations for future research. First, additional evidence of construct validity should be gathered.

The present effort advanced our understanding of the content domain of adaptive culture as well as provided evidence of predictive validity. Future steps might include a multi-level construct validation effort (Chen et al. 2004), evidence for the convergent and divergent validity of adaptive culture, further development of the adaptive culture scales so that there are multiple items per dimension, and conceptual and empirical work on how adaptive cultures interact with other organizational culture traits.

Second, researchers need to better understand the relationship between culture and organizational outcomes across time. Organizational culture materializes through multiple interactions between individual-level or group-level members and the organizational context over a period of time (Morgeson and Hofman 1999; Ostroff et al. 2003; Schein 2010). This system of interactions and reactions evolve over time in response to the environment. However, most measurement techniques evaluate culture at one point in time. The impact of other intermediate states (i.e., renaming, reorganization, or merging) as well as other time-variant changes such as CEO succession, unionization, and global expansion on survival should also be assessed. Future studies should measure culture at multiple points in time and treat culture as a time-dependent covariate to more accurately capture and understand the effect that culture has on organizational outcomes.

Third, given the changing nature of organizations, the conceptualization of survival as the ultimate criterion of organizational performance needs additional research and clarification. Many modern organizations are founded with the intent of being bought out in a few years and thus have no intent of long-term survival. While survival is a defensible criterion of adaptability to a dynamic environment, it is not the only measure and is certainly impacted by a wide variety of other factors. More research is necessary to better understand the differing types of outcomes for different types of organizations that were founded at different points in history.

Finally, future research needs to include potential moderators such as national culture, organization size, and economic factors that may influence the culture-outcomes relationship. Previous research (e.g., Hartnell et al. 2011) has provided evidence for the existence of some of these moderators, but the specific moderators and their impact remain to be fully assessed.

## Conclusions

Overall, this study developed and supported a multi-dimensional conceptualization of adaptive culture and showed that such cultures were predictive of organizational survival. This research utilized a novel measurement

approach for assessing organizational culture that may prove highly useful in future studies. Finally, this study utilized and demonstrated the benefits of using survival analysis in organizational research. These findings advance the understanding, measurement, analysis, and demonstrate the importance of two very complex and related concepts, organizational culture and survival.

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