Implementing a Failure Learning Orientation

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ABSTRACT

Based on interviews with Chief Executive Officers (CEOs) of large U.S. technology companies, this study explored senior management activities that help create a culture that learns from failure. Findings indicate that failure needs to be positively reframed, the process needs to be supported with resources, everyone must be solution-oriented, incentives and acknowledgment for risk-taking are critical, and failure consequences must be reconsidered or removed. This paper offers strategies for executives seeking to implement a culture that supports learning from failure.

1. INTRODUCTION

According to the U.S. Small Business Administration [1], small to medium-sized enterprises make up 99.9% of all U.S. firms. However, within the first year, many of these businesses fail [1,2]. Recent estimates suggest nearly 20% of U.S. small businesses fail in the first year and upward of 50% fail by year five [1]. Failure rates in high-technology industries are far greater. Specifically, the failure rate of technology-based enterprises has been estimated to exceed 90% [3].

Some scholars have attributed the high failure rates of new ventures to unfavorable economic conditions [4,5]. Slow economic growth, lack of credit availability, stagnant capital market activity, and unfavorable price changes have been described as economic conditions that contribute to small business failures [4]. In addition to market conditions, Lussier [5] identified firms' undercapitalization and issues with creditors as two common reasons for small business failure. Lussier [5] acknowledges many other reasons but suggests external factors play the greatest role in business failure. Cardon et al. [6] suggest a combination of economic factors, financial issues, business models, and lack of innovation play significant roles in small business failure.

Miller [7] argues that while the economy, competition, market conditions, and regulations create problems for businesses, senior leadership's inability to effectively deal with such problems is the greatest risk to any business. Miller [7] describes how executives need to effectively diagnose business problems and seek changes to prevent catastrophic failures.

Edmondson [8] argues that not all failures are created equal. While some failures are catastrophic, not all result in the demise of a firm. As such, failures that lead to learning and subsequent strategic maneuvering can have favorable implications [9–11]. Specifically, Cannon and Edmondson [9] suggest that catastrophic failure is preceded by smaller failures. As such, if learning can occur from these smaller failures, success is more likely. McGrath [12] describes that the benefits of failure have not been given adequate research attention. Some scholars have suggested that firms should dedicate resources to understanding why failures occur as opposed to focusing on blame assignment [8,10,11,13]. Cope [10] and Shepherd [11] further suggest that organizational learning promotes successful strategic re-emergence from failure. Despite the suggested importance of learning from failure, until recently little research attention has focused on its empirical link to performance.

Based on the works of Edmondson [8], Cope [10], and Shepherd [11], Wilson [13] conceptualized failure learning orientation and empirically explored its effect on performance. Failure learning orientation is a six-item construct that measures firm-level commitment to learning from failure [13]. Failure learning-oriented firms (1) prioritize learning from failure, (2) encourage all employees to openly discuss failures, (3) believe that failing fast is the key to success, (4) focus on why failures occur as opposed to who is responsible, (5) strategize how to move forward from failures, and (6) believe learning from failure is a source of competitive advantage [13].

In a study of start-up technology-based firms, effective strategic alliance management and failure learning orientation were directly related to research and development effectiveness [13]. Specifically, failure learning orientation was correlated with firms' abilities to be innovative, file new patents, generate meaningful scientific output, achieve milestones, establish technology leadership in respective markets, and raise capital. As described by Cannon and Edmondson [9], although the organizational commitment to

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learning from failure has considerable support among academics and practitioners, many organizations have negative attitudes toward failure and perceive it as not an option. As such, few organizations have been successful with the implementation of a culture that promotes learning from failure.

2. IMPLEMENTING LEARNING FROM FAILURE

According to Senge [14], firms with a learning orientation, those committed to continuous learning and the incorporation of new knowledge, have a sustainable competitive advantage. As the most important function of executives is to shape an organization's culture [14], the implementation of a learning orientation needs to be initiated and supported by senior leadership. Senge [14] describes four learning orientation implementation strategies, including building a shared vision, supporting the testing of new ideas and models, illuminating the big picture to all employees, and navigating the organization through strategic dilemmas. Although Senge [14] provides strategies for implementing a learning-focused culture, the strategies do not specifically address learning from failure. Existing research related to implementing an organizational culture that learns from failure is fragmented and focused mostly on post-failure identification and recovery [9–11,14].

Cannon and Edmondson [9] propose three post-failure learning requirements. First, firms must adequately identify and define failure. Second, failures need to be analyzed to understand why the failure occurred and to evoke learning. Finally, firms need to create strategies to move forward based on the knowledge gained from failures.

2.1. Identification of Failure Types

Edmondson [8] identifies three types of failures, including preventable failures, complexity-related failures, and intelligent failures at the frontier, submitting that not all failures are created equal. Preventable failures are not encouraged, as they occur as a result of inattention, negligence, inability, or deviation. Edmondson [8] describes these failures as the bad ones, as they can be prevented with adequate protocols, attention to detail, and competent employees. Complexity-related failures are a result of the various unknowns of the task [8]. It is suggested that larger failures can be mitigated by the identification and subsequent rectification of smaller complexity-related failures. As such, this type of failure is not problematic, if identification occurs and corrective action is taken [8]. The most encouraged type of failures are those at the forefront of discovery [8]. Intelligent failures, defined as failures that generate knowledge and made in the pursuit of innovation should be encouraged and even celebrated. These types of failures can lead to discontinuous innovations, serving as a sustainable competitive advantage [8].

2.2. Analysis of Failures

One of the most essential components of business failure is the understanding of how any why it occurred [15]. As Pretorius [16] suggests, to understand what to do about failures, businesses must

seek to understand why failures occur. Cardon et al. [6] also stress the need for sensemaking after failure. Failure sensemaking refers to the process of giving meaning to business failure experiences [6]. According to Baumard and Starbuck [17], it is common for managers to find specific external reasons for business failures but rare for managers to highlight specific reasons for business success. Therefore, it is argued that firms need to take a holistic approach when analyzing business failure [17]. Crutzen and Van Caillie [18] underscore the need to understand failure factors and pathways to overcome them.

It has been suggested that failure analysis is critical to firms' strategic re-emergence and ultimate success [10]. The works of Cope [10] and Sitkin [19] have specifically focused on post-failure analysis. Sitkin [19] was among the first to argue that learning should be focused on failures and not successes. Specifically, the analysis of failure in pursuit of agility, creativity, or innovation, thus intelligent failures, leads to the most thoughtful learning [19]. Cope [10] further specified the perspectives that firms should take when analyzing failures. As Baumard and Starbuck [17] suggest, Cope [10] also argues that a comprehensive analysis involving internal and external analyses is vital to effective organizational learning from failure. Therefore, an introspective review of internal factors that contributed to failures coupled with an analysis of strategic alliances, partners, and networks provides the most complete picture of why failures occur and how to move forward.

2.3. Strategizing from Failures

According to Coelho and McClure [20], executives need to have perseverance and optimism when it comes to business failures. That said, Coelho and McClure [20] caution that such positivity should be based on knowledge and grounded with realistic expectations. Pretorius [16] echoes Coelho and McClure [20] by suggesting senior leadership needs to be pragmatic and objective when it comes to moving forward from failures.

Despite its importance, strategizing post-failure is limited to research related to nonspecific organizational learning. According to Argote [21], organizational learning is a firm-level commitment to creating, retaining, and transferring knowledge. Organizational learning has been empirically linked to firm performance [22]. Even amongst other prominent new venture strategies such as an entrepreneurial orientation, organizational learning has been shown to directly enhance firm performance [23–26].

Shepherd [11] further highlights the importance of a culture that supports learning from failure as it was found that when firms do not support a culture that necessitates learning, failure will elicit organizational grief. According to Shepherd [11], this grief prohibits organizational learning and strategy implementation post-failure. As such, Shepherd [11] posits that firms need to immediately begin strategizing after failure to promote learning and recovery. Although Shepherd [11] alludes to its importance, exactly how to implement a culture that is committed to learning from failure remains unexplored. Moreover, all existing research has focused on post-failure learning and provides little insight into the organizational context needed to foster an environment that prioritizes learning from failure.

3. METHODS

3.1. Purpose

This study is novel as it articulates implementation strategies that pertain to learning from failure, specifically how firms implement a failure learning orientation. This is particularly salient given the high failure rates of technology-based enterprises and failure learning orientation's empirical link to performance. This study sought insight from CEOs as to how to implement a failure learning orientation.

3.2. Sample

In-depth interviews were conducted with CEOs of large U.S.-based technology firms experiencing rapid growth. Although there is no requirement for sample size in qualitative research [27], semi-structured interviews were conducted until data saturation was achieved. According to Richards and Morse [27], data saturation exists when each data category is rich, thick, and replicated. Data saturation occurred after 10 CEO interviews. Of the 10 firms, three were publicly traded and seven were privately held. All firms were in high technology sectors including life sciences, biotechnology, information technology, and consumer technology. All CEOs gave estimates of the number of employees and revenues. The number of employees ranged from 200 to 20,000 and revenues ranged from $250 million to over $10 billion. Additionally, all the companies made claims about demonstrating technological leadership and experiencing recent growth. Before each interview, the CEO completed and scored highly on Wilson's [13] measurement instrument and were therefore considered to be highly failure learning-oriented. Interviews were undertaken in the fall of 2019 and were designed to prompt discussions related to creating a culture that is committed to learning from failure.

3.3. Data Analysis

The qualitative analysis software NVivo (ORS International, 35 Corporate Drive, Burlington, MA, USA) was used as an analysis tool to conduct a thematic analysis of the in-depth interviews with technology CEOs. According to Braun and Clarke [28], thematic analysis is widely used and is a "foundational method for qualitative analysis" (p. 77). Thematic analysis is the process of discovering data patterns to generate concepts and establish their interconnectedness [28]. Thematic analysis involves identifying, analyzing, and interpreting patterns in qualitative data [28]. According to Braun and Clarke [28], there are six phases of thematic analysis. In the first phase, the researcher gets familiar with the data by reading the interview transcripts multiple times while making notes in the process [28]. Next, the researcher systematically creates an exhaustive list of ideas and concepts from the interview transcripts [28]. In the third phase, the researcher searches for broader concepts based on the list of ideas [28]. Common ideas are grouped together to form initial themes [28]. For the fourth phase, the researcher refines and clearly establishes the data's themes [28]. In the fifth phase, the researcher explicates the interconnectedness of the themes [28]. In the final phase, the researcher discusses the themes in detail and provides examples using passages from interview transcripts [28]. In this phase the researcher elaborates on the analysis, drawing larger conclusions from the data.

4. RESULTS

After the interview transcripts were thematically analyzed using Braun and Clarke's [28] methodology, five major themes related to the implementation of failure learning orientation were established (Appendix 1). These five strategies that fill a needed gap in the literature included, (1) creating the appropriate culture for learning from failure, (2) reframing failure to have a positive connotation, (3) dedicating resources to discovery, (4) incentivizing and acknowledging risk-taking, and (5) removing negative consequences of failure. The subsequent sections describe and provide examples of these five strategies for the implementation of a failure learning orientation.

4.1. Create the Culture

As previously described, shaping the organizational culture begins with, and is a core function of, executives [14]. Not surprisingly, all 10 CEOs described how the senior leadership team must create an appropriate culture in order to learn from failures. CEOs explicitly described how employees may initially find it difficult to make the transition and ultimately think differently, especially those that have not been a part of a learning organization. CEOs emphasized the importance of walking-the-walk early. As one CEO stated:

> "…you absolutely have to lead by example. It's one thing to have a playbook, it's another thing to live it."

This executive, as did the others, described how early decisions that support the culture are critical to demonstrating a commitment to learning from failure. These executives also outlined how they created new roles related to ideation and dedicated more time to discovery in an attempt to demonstrate a commitment to continuous learning.

All executives acknowledged that an organizational culture needed to be continuously supported by every employee. Therefore, hiring people for jobs today and tomorrow was a common theme. One CEO stated:

> "You have to start the process by making sure that personnel do not fear failure. It's not about hiring for the ideas and needs of today, its about hiring someone that has the drive and ultimately the guts to fail a few times in order to win big tomorrow."

It was evident from the interviews that CEOs understood implementing a failure learning-oriented culture needed to be led by the executive team. Additionally, CEOs recognized that resources, both related to personnel and time, required early adjustments. These results were congruent with findings that suggest implementing strategic orientations requires the strong desire to change and the commitment of senior management [29]. Once executives felt that this was at least initiated, many talked about how failure needed to be reframed in the minds of all employees.

4.2. Reframe Failure

As Edmondson [8] suggests, learning from failure requires shifting away from the blame game. Specifically, learning from failure necessitates the why and the how, as opposed to the who [8,13]. Overwhelmingly, CEOs disliked the word failure. In fact, during an interview one executive asked and commented:

"Can we call it something else? In fact, we don't really think of them as failures, more like discoveries. We like to think that if something doesn't work, we know what to change, and that isn't really a failure."

It was apparent that the connotation of failure was perceived as negative and ultimately counterintuitive to these organizational cultures committed to learning from failure. In fact, all the CEOs viewed the failure learning orientation process as purposeful and favorable. One CEO described how it is extremely rare for something to be completely wrong and careful attention should be paid to understanding what should be carried forward. This was congruent with Cannon and Edmondson's [8] proposition that understanding small failures is important to avoiding catastrophic failures and increasing the likelihood of success. This idea was further supported by the executives, as they all agreed that failing – or discovering – fast was the key to succeeding faster.

4.3. Discover Faster

As discussed previously, resources were described as critical to implementing a failure learning orientation. All of the CEOs described that they viewed adequate resource allocation as one of the most significant contributors to failing fast and ultimately succeeding faster. Although many CEOs described the allocation of a variety of resources as important, one CEO's comment encapsulated all ideas:

"You've got to be all in on the discovery process. Don't waste your time with it if you aren't going to give it enough financial, scientific, or human capital means."

The consensus from these CEOs of technology companies was that available and adequate resources were crucial to fostering a culture that learns from failure. Moreover, the appropriate use of firm resources and capabilities furthered the successful implementation of failure learning orientation and its ultimate ability to create a sustainable competitive advantage, supporting the resource-based view of the firm [30].

The CEOs were also solution-oriented as opposed to product-oriented or idea-oriented, meaning they were more concerned with solutions as opposed to the viability of any one product or idea. One CEO described how he became known for asking if people had problems or solutions.

"I told them from day one, I'm not interested in identifying problems, I'm interested in finding solutions. And so, there was this continuous group of people that would come into the office, and it sometimes took a little while, but it usually came to a point where I said are you bringing me a problem or a solution?"

As such, the solution-oriented nature of the CEOs, and ultimately the firms, was not bound by any one product or idea. All executives, either directly or indirectly, alluded to the idea that it is often necessary to fall out of love with ideas. For example, one CEO discussed how people get invested in things that may not be the best solution and how the overall goal needs to trump any one methodology. Although it was described as challenging, there was general agreement among CEOs that open discussions of ideas can make divestments in projects less personal and more systematic. One CEO described its difficulty and importance by stating:

"It's hard to do, you have a scientist who has come up with something and to fall out of love with that, it's pretty tough if it's your big idea… You get attached. That's why you have to have a structured open forum to switch directions."

The notion of a formalized open forum was a common comment by the interviewed CEOs. These routine meetings were described as both a place to discuss successes and failures. Whether in these meetings or not, all CEOs talked about how overall firm-level positivity, as well as recognition or incentives for innovation, were a large part of appropriately supporting a failure learning orientation.

4.4. Incentivize and Acknowledge Failure

CEOs described how the organizational context, both rewards and punishments, must change in order to support failure learning orientation. With respect to rewards, these CEOs underscored the importance of linking successful risk-taking to monetary incentives and unsuccessful risk-taking to organizational acknowledgment. Incentives for successful strategic risk-taking is not new, as the marketplace has always rewarded innovation [31]. As such, implementing monetary incentives to promote this culture was a widely held viewpoint of the interviewed CEOs. Many CEOs also suggested that public acknowledgment for risk-taking and successes was also critical to the implementation of an innovative culture. One CEO described how he showcased successes:

"I told the whole staff, we were going to have a bell hanging in the foyer of the office. And, every time you have a win, you ring the bell. Because everything is so overwhelming, and failure is inevitable. So, for us to celebrate the wins is important. We ring the bell when we have a win, even if it's something small."

Although not as dramatic, the other CEOs described how they acknowledged successful and unsuccessful risk-taking. The open forum, as described earlier, was the typical location of such acknowledgments. All CEOs described the importance of recognizing employees' contributions to results or the direction of projects. A statement from one CEO summarized many executives' perspectives:

"In our weekly meeting, I make sure to give recognition to everyone that was part of a team that completed something successfully and to those that contributed to projects that may have failed, but provided direction for other ideas."

These rewards and acknowledgments demonstrated how executives must fully commit to context changes that support the successful implementation of a failure learning orientation. However, incentivizing these activities was only part of the equation.

4.5. Removing Failure Consequences

In different ways, all CEOs described how negative consequences need to be removed, or at least significantly reduced, in order to foster a failure learning orientation. One CEO described how "negative consequences make people play it safe" and went on to emphasize the risks of avoiding such endeavors, suggesting the greatest risk may be risk avoidance. The idea of removing negative consequences of failure

was an idea universally supported by the interviewed CEOs. This also supported recent innovation thought-leaders, as avoidance due to perceived risk puts firms at a greater competitive threat [32]. However, executives did make the distinction between strategic risk-taking as compared to uncalculated risk-taking. Specifically, it was clearly communicated in the interviews that consequence removal was not applicable to negligence or hasty decision-making.

5. DISCUSSION

Based on the interviews with 10 CEOs of leading technology firms, five common themes related to the implementation of a failure learning orientation were identified. The first theme related to immediate commitment by senior leadership to change the culture. This included prompt actions that signaled commitment to learning from failure such as hiring new personnel for roles that focus on ideation as well as dedicating time to innovation in all roles. This was congruent with Senge's [14] proposition that organizational cultures need to be driven by senior leadership. However, this study furthers Senge's [14] work, as it articulates how executives can make changes to the existing context to support learning from failure.

The second theme suggested that failure needs to be reframed to have positive connotations. Many CEOs disliked the term and referred to it as discovery as opposed to failure. It is important to note that the CEOs were discussing failures at the frontier as opposed to preventable failures or complexity-related failures [8], highlighting the importance of proper failure identification. Changing the organizational mindset related to failure also requires the support of senior leadership.

The third theme that emerged underscored the importance of failing fast. CEOs unanimously agreed that failing fast to succeed faster requires adequate financial, scientific, and human capital resources as well as a solution-oriented approach. Specifically, CEOs described how all employees must be solution-oriented and willing to abandon ideas by falling out of love with technologies, processes, or methodologies. This finding is similar to Senge's [14] in that executives need to support new ideas and illuminate the big picture. In the pursuit of the bigger idea, it may require the abandonment of some ideas in the process. The combination of adequate resource commitment and the notion that only the best idea will be carried forward was thought to propel firms from failures to successes.

The fourth theme related to implementing a culture that learns from failure highlights the need for incentives and acknowledgments. CEOs described how incentives and acknowledgments are critical for employee buy-in and ultimately risk-taking. Many executives indicated that financial and non-financial incentives such as public acknowledgment promoted strategic risk-taking and an innovative culture. As such, CEOs described how simple acknowledgments in meetings can go a long way in establishing trust and enhancing employee morale. This study offers examples of how to discuss failures, it is acknowledged that there are many ways to discuss and acknowledge employees. What is most critical is that executives create an open forum to discuss and analyze failures, while acknowledging those that participated in the process. This finding supports the classic psychology theory of positive reinforcement that suggests behavior is more likely if there is a corresponding favorable outcome [33].

Similarly, the final theme related to the removal of negative consequences to incentivize risk-taking. This finding supported another psychology reinforcement theory, suggesting the removal of negative

consequences supports the reoccurrence of a behavior [33]. All CEOs suggested that failure consequences must be removed or at least reconsidered as innovation and discovery. CEOs were clear that this related to failures at the frontier and complexity-related failures as opposed to those that are easily preventable.

6. CONCLUSION

As most literature focuses on post-failure learning, this study is novel as it provides insight into how to create a culture aimed at learning from failure. The results offer five strategies for implementing a failure learning orientation. First, executives need to be fully committed to learning from failure. Second, intelligent failures have to be positively viewed. Third, resources need to be committed to discovery and innovation. Fourth, strategic risk-taking must be incentivized and celebrated. Finally, negative consequences for failures in the pursuit of discovery need to be removed. Given a failure learning orientation has been linked to performance [13], understanding ways to successfully implement this type of culture is particularly relevant and beneficial for executives of technology-based enterprises. These five common strategies are novel and significant as they articulate approaches designed to enhance performance in an environment of large-scale failure.

7. LIMITATIONS

While this study achieved data saturation when exploring common strategies to implement a culture that learns from failure, it is limited to the perspectives of 10 CEOs. Additional CEOs may have been able to provide further viewpoints and methodologies for implementing a failure learning orientation. As such, there may be more ways CEOs implement a culture that learns from failure. This study was also limited to CEOs of U.S. technology firms. Other cultural contexts and industries may likely yield additional insight into implementing an organizational culture that learns from failure. Nonetheless, this study uncovered five common themes that U.S. CEOs described as critical to implementing a failure learning orientation.

8. FUTURE RESEARCH

Although it has been established that a failure learning orientation is linked to performance among high-technology firms, future research should explore this relationship with other strategic orientations and in other industries as well as cultural contexts. Future research should further investigate this topic with more executives in other industries, environments, and cultural contexts.

CONFLICTS OF INTEREST

The authors declare they have no conflicts of interest.

AUTHORS' CONTRIBUTION

GAW conceptualized failure learning orientation, a firm-level commitment to learning from failure, and demonstrated its importance in high-technology industries. In this paper, the authors explored

how CEOs of high-growth U.S. technology-intensive firms implement a failure learning orientation. The authors provide specific strategies for executives seeking to implement a culture that learns from failure aimed at enhancing the performance of technology-based enterprises.

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APPENDIX 1: LITERATURE GAP AND CONTRIBUTION

CULTURE IMPLEMENTATION

LEARNING FROM FAILURE CULTURE IMPLEMENTATION

POST-FAILURE IDENTIFICATION

POST-FAILURE ANALYSIS

POST-FAILURE STRATEGY

Senge (1990)
Primary function of executives
Building shared vision
Supporting new ideas
Illuminating big picture
Navigate dilemmas

Contribution to Literature
Create the culture
Reframe failure
Discover faster
Incentivize and acknowledge
Remove negative consequences

Cannon & Edmondson (2005)
Identify failures

Edmondson (2011)
Preventable
Complexity-related
Intelligent

Sitkin (1992)
Analysis of intelligent failures

Cannon & Edmondson (2005)
Analyze failures

Baumard & Starbuck (2005)
Avoid specific reasons for failure

Crutzen & Van Caillie (2008)
Holistic analysis

Pretorius (2008)
Understand why failures occur

Cardon, Stevens, & Potter (2011)
Sensemaking post failure

Cope (2011)
Internal and external analysis

Argote (1999)
Strategy grounded in organizational learning

Shepherd (2003)
Move from grief to strategy

Cannon & Edmondson (2005)
Strategize from failures

Coelho & McClure (2005)
Strategies to be realistic and based on knowledge

Argote (2011)
Organizational learning promotes performance