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A Diagnostic Tool to Determine a Strategic Improvisation Readiness Index Score (IRIS) to Survive, Adapt, and Thrive in a Crisis

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Abstract

Crises for business-to-business (B2B) firms are characterized by unexpected or unanticipated severe threats that are highly uncertain where strategic response times are low in which executives are victim of overwhelming time pressures to action fast strategic responses to these events—as the threats bring to question the viability and survivability of the firm. Consequently, crises provoke a profound impact on executives' sensemaking, as they attempt strategically navigate these events. We bridge thinking around crisis management with theories of strategic decision-making and conclude that strategic improvisation is a vital mechanism that enables effective management interventions to be executed as a means of surviving, adapting, or potentially thriving under challenging circumstances. We derive a theoretically grounded framework of five strategic imperatives underlying our 10C Strategic Imperative Framework for improvisation readiness. First, we develop the *Improvisation Readiness Index Score* (IRIS) as a means for executives to diagnose their organization's improvisation readiness according to the requisite strategic imperatives. Second, we present a three-step guide for executives to consider for managing through crisis with improvisation and the strategic imperatives at its heart. Third, we illustrate the strategy improvisation challenges. This allows executives to close the strategic improvisation gaps between their 'actual' and 'preferred' readiness.

Keywords: Crisis; Strategic improvisation; Improvisation readiness; Resilience; COVID-19; Strategic implications.

1. Introduction

There is popular consensus concerning the fact that the current COVID-19 pandemic is one of the worst crises to impact the global economy over the last century. Crisis events, be they global economic crises or organizational crises, are characterized as being: (i) *unexpected* or *unanticipated* by the organization (Hermann, 1963; Rosenthal et al., 2001; Stern and Sundelius, 2002); (ii) de facto *severe threats* that are *highly uncertain*, where available strategic response times are low (Hermann, 1963; 't Hart et al., 1993); and, (iii) situations in which executives are victim of *overwhelming time pressures* to action *fast strategic responses* to these events (Sayegh et al., 2004), as they bring to question the *viability and survivability of the organization* (Grewal and Tansuhaj, 2001). As a virtually unprecedented global economic crisis, the COVID-19 pandemic is a severe threat to organizations that has created significant uncertainty and has demanded rapid rethinking of strategy and business models by executives. Many industrial organizations and business-to-business (B2B) businesses have shifted their business strategies as a result. For example, by pivoting production lines to create valued personal protective equipment (e.g., American Roots), innovating new forms of ventilators for health services worldwide (e.g., McLaren and Mercedes-Benz F1), and pivoting business models to switch from B2B to business-to-customer (B2C) sales (e.g., Signature, Brew and HG Walter).

Crises "defy interpretations and impose severe demands on sensemaking" (Weick, 1988: 305) and can cause significant confusion for executives who attempt to strategically navigate these events. Nonetheless, executives confronted with crises must make critical strategic decisions (Rosenthal and Kouzmin, 1997) and take strategic actions in the face of high uncertainty (e.g., Rosenthal et al., 1989). Uncertainty refers to an unspecific and unpredictable context with outcomes that can neither be foreseen nor linked to specific probabilities of

occurrence in strategic decision-making processes (Reymen et al., 2015), the extreme of which may be referred to as Knightian Uncertainty (Knight, 1921). Crisis situations, as defined, are inherently uncertain, and a lack of knowledge of the efficacy of actions is a given under such uncertainty. Therefore, executives suffer from an inability to predict optimal behaviors, choices, actions, or responses to crisis events and whether outcomes relative to the organization's own actions will be positive or negative (McKelvie et al., 2011; Milliken, 1987; Pearson and Clair, 1998; Reymen et al., 2015).

Research into crisis and highly uncertain events, and the strategic management of such events, reveals some key ingredients for dealing with these situations: (i) rapid decision speed (Pearson and Clair, 1998; Sayegh et al., 2004); (ii) resource [re]deployments (Foss and Klein, 2012; Klein, 2008); (iii) taking action (Alvarez and Barney, 2005; 't Hart et al., 1993); (iv) strategic flexibility (Grewal and Tansuhaj, 2001; Perry, 1991); and (5) radical, second-order strategic changes (Huy, 1999; Sayegh et al., 2004), not tinkering around the edges of strategy with minor first-order modifications. Strategic decision-making is compromised in times of crisis, however, due to contextual challenges and the fact that executives are limited in the scope of their information-processing capabilities (Pearson and Clair, 1998). Executives need strategies and guidance for managing through crisis and for making and executing strategic decisions through such turbulent and uncertain times. We approach this problem by bridging thinking around crisis management with theories of strategic decision-making, thereby in part addressing Pearson and Clair's (1998) complaint that a lack of integration across theories has led to organizational crisis research on the periphery of theorizing in management.

A dominant paradigm in strategic management is decision theory, which has evolved over time to become entrenched into two camps: normative decision theory and descriptive

decision theory (Nemkova et al., 2012). Normative decision theory explains strategic decision-making as a rational outcome of optimization through systematic collection and analysis of information, option development, a detailed choice process, and so forth (Ansoff, 1965; Mintzberg and Lampel, 1999; Nemkova et al., 2012; Wiltbank et al., 2006). Such an approach stresses formalized strategic planning and control (Andrews, 1971; Brinkmann et al., 2010). Descriptive decision theory, which is also often referred to as the learning school, places emphasis on adaptation, rapid initiation of actions, and eschewing adherence to predefined or formalized strategic plans or actions (Brinkmann et al., 2010; Wiltbank et al., 2006). This stream of decision theory recognizes that executives can rarely make optimal choices or rational decisions due to cognitive limitations, constrained mental schema, unfamiliar context (e.g., crisis), and bounded rationality (e.g., Cyert and March, 1963; Haley and Stumpf, 1989; Simon, 1959).

The emphasis in the latter theory is for flexible, adaptive, and collaborative strategic decision-making (Reymen et al., 2015). Alvarez and Barney (2005) suggest that a more formal-based decision-making mode is most useful when information and data are abundant and reliable, as is the case in more benign or stable contexts. When information and data are less available and reliable, as would be the case in crisis situations and under uncertainty, such formal or normative, prescribed decision-making processes are limited (Brinkmann et al., 2010) and can be extremely dangerous (Courtney et al, 1997). This latter point is emphasized by scholars such as Alvarez and Parker (2009), Brinkmann et al. (2010), and Reymen et al. (2015) as past predictions and expectations are unlikely to reflect reality of current events.

A danger with the traditional normative approach is to view uncertainty in binary terms (certain/uncertain) (Courtney et al., 1997) without an acknowledgment that uncertainty varies

both in severity and duration. As a result, it has been argued that strategic decision-making approaches reflecting flexibility, experimentation, and adaptiveness fit better with uncertain decision-making contexts (e.g., Alvarez and Parker, 2009; Hodgkinson et al., 2016; Nemkova et al., 2012; Reymen et al., 2012). This proposition is intuitively appealing and sensible and reflects a strategic decision-making mode more commonly referred to as strategic improvisation (Perry, 1991). We propose strategic improvisation as a powerful means for executives to managing strategically through crises.

We bridge thinking around crisis management with theories of strategic decision-making and conclude that strategic improvisation is a vital mechanism to navigate the crisis landscape as a means of surviving, adapting or potentially thriving under challenging circumstances. From this, we discuss and theorize strategic imperatives that form the basis of our 10C Strategic Imperative Framework for improvisation readiness. This work, then, brings forward two important contributions to industrial executives. First, we develop IRIS—the Improvisation Readiness Index Score—as a means for executives to benchmark their organization for improvisation readiness against specific strategic imperatives. Second, we present a three-step guide for executives to consider for strategizing through crisis with improvisation and the strategic imperatives at its heart. Third, we illustrate the strategy improvisation challenges and correspond these with a series of modalities through a set of case vignettes. This allows executives to close the strategic improvisation gaps between their 'actual' and 'preferred' readiness. The more improvisation ready an organization is, the more strategic avenues become open for executives to exploit.

2. Theoretical Background

2.1. Strategic Decision-making under Uncertainty: Decision Theory and Logics

Since its earliest days, the field of strategic management has been preoccupied with developing rational and analytical models and theories (Hodgkinson and Healey, 2011). The development of decision theory, particularly in the management literature, has been focused predominantly on the rational, cognitive, and behavioral aspects of strategic decision-making under normal conditions (Sayegh et al., 2004). Yet, and in contrast, research into crisis management has long reached the conclusion that crisis decision-making appears to ask for *ad hoc* adaptation ('t Hart et al., 1993) more in line with the descriptive branch of decision theory.

As decision theory has branched into two streams, so too has a concurrent stream of literature arose on the logics of strategic decision-making that run parallel to this, more specifically: causation and effectuation logics (e.g., Sarasvathy, 2001). Causation logic takes a particular effect (or outcome) as given (and desirable for the executive) and requires the executive to determine logically the optimal course for achieving that effect (Sarasvathy, 2001). The choice of means or strategic actions, then, is driven by the effect that the decision-maker wants to create (Sarasvathy, 2001). Decision-making, under such logic, is most useful in static, linear, benign environments (Sarasvathy, 2001) where risks can be attributed to predict the likelihood of success (e.g., Vershinina et al., 2017). As such, information, knowledge, analysis, and evaluation of alternatives mean to achieve desired ends, and logical choice processes are inherent when following causation logic is in play (Sarasvathy, 2001). Such an analytical form of cognition is highly procedural, formal, and deductive in nature (e.g., Mahan, 1994). Sayegh et al. (2004) note that traditional discussions of strategic decision-making in management have been based on the premise of high reason (Klein, 1983; Simon, 1979), assuming that systematic knowledge generation and analysis (e.g., Cunningham et al., 2002) will result in the best

available solution for achieving the desired outcome. Indeed, the normative branch of decision theory assumes that the decision-maker pursues a logical strategy for producing valid inferences and strategic actions to meet particular ends (Simon, 1957).

Effectuation logic, in contrast, begins from the starting point that ends are not given and outcomes are inherently uncertain, but the means at one's disposal are not (Sarasvathy, 2001). That is, the bundle of available resources that can be allocated (Foss and Klein, 2012). An effectual decision-making logic describes how executives actively engage uncertainty by being responsive to available information and feedback, and, by leveraging existing means that may change over time (Read et al., 2009; Reymen et al., 2015; Sarasvathy, 2001; Wiltbank et al., 2006). An effectuation logic, then, compels executives toward adapting to events, relying on intuition (e.g., Vershinina et al., 2017) rather than adherence to prescribed processes of analysis, and to work with the context of contingencies executives find themselves in (Sarasvathy, 2001).

In strategizing through uncertainty, Foss and Klein (2012) advise, through theory, that strategic decisions are ultimately judgment-based decisions revolving around the allocation of available strategic resources. Judgments may be based on limited information and knowledge, or even gut instinct or hunches, as uncertainty (particularly so the closer the situation comes to being Knightian uncertain) reduces any chance of 'certainty' or 'predictability' in knowing in advance how effective resource [re]allocations may be. In situations of heightened uncertainty, such as crisis, there is no guarantee of positive outcomes from strategic responses due to the nature of crisis (as defined). A rational response (following normative decision theory and causation logic) to uncertainty, then, would be to seek to reduce risks and delay action until probabilities can be ascertained (Knight, 1921; Miller, 2007). In contrast, under the judgment-based view of Foss and Klein (2012), executives must act under uncertainty and judge where

best to allocate available strategic resources, as judgment is the means executives use to position their businesses for survival and to be placed to capitalize on future market conditions upon exiting the conditions of the crisis at hand. In accepting that strategic decisions are products of judgments, an effectuation logic, as is reflected in the descriptive branch of decision theory, would implicitly fit best with strategizing under uncertainty. Effectuation logic accepts outcomes are not predictable due to uncertainty and the focus instead is placed on capitalizing on the resources (and so forth) at the organization's disposal. Under uncertainty then, firms best placed to deploy what is at their disposal to respond to a crisis are better placed to succeed than those distracted by seeking to reduce risks or increase the 'certainty' of outcomes. Indeed, in crisis conditions, the use of intuitive decision-making processes (following descriptive decision theory and effectuation logic) may be the only feasible strategy when the executive is time pressured or when essential elements of the decision situation are hard to quantify or interpret (Agor, 1986; Polanyi, 1966). Such a conclusion is reflected in the work of Agor (1986) in his study of executives. Agor (1986) concluded that intuition-based decision-making was best suited when a high level of uncertainty exists, little previous precedent exists, when variables are less predictable, when facts are limited and are of little use, and when time is limited and there is pressure to act.

In uncertain contexts, then, decision-making needs to be adaptive over time and responsive to the change and instability inherent in such contexts (Reymen et al., 2015). Consequently, this leads us to the concept of strategic improvisation (Perry, 1991) that is a product of descriptive decision theory (Nemkova et al., 2012) that reflects flexibility, experimentation, and adaptiveness, which has been argued to fit better with uncertain decision-

making contexts (e.g., Alvarez and Parker, 2009; Hodgkinson et al., 2016; Nemkova et al., 2012; Reymen et al., 2012).

2.2. Improvisation: Circumscribing the Boundaries of the Concept

Improvisation has arisen in management literature as a means for strategic decision-making in time pressured (Miner et al., 2001), limited information processing capacity (Hodgkinson et al., 2009), turbulent and uncertain (Hodgkinson et al., 2016; Nemkova et al., 2012) settings. Improvisation is a fundamental management practice witnessed across the business arena globally (Hodgkinson et al., 2016) that enables organizational adaptation in response to exogenous shocks and changes (Eisenhardt, 1997). The occurrence of improvisation has been observed across new (Baker et al., 2003) and established firms (Zahra et al., 2006), with examinations of the phenomenon found across a wide variety of disciplinary fields including management (e.g., Barret, 1998; Hatch, 1997; Hughes et al., 2018a), innovation (e.g., Brown and Eisenhardt, 1997; Kamoche and Cunha, 1998), organizational theory (Weick, 1998, 1999), marketing (Moorman and Miner 1998a, 1998b), strategic management (Crossan et al., 1996; Eisenhardt, 1997; Hodgkinson et al., 2016; Perry, 1991), and organizational learning (Hughes et al., 2018b; Vendelø, 2009).

The breadth of its treatment across these fields is testament to the vital role improvisation is perceived to play in management practice. However, as a consequence of its reach across different disciplinary fields, improvisation is defined in different ways across the extant literature. For instance, improvisation is defined as (a) a conscious act that enables the manipulation of firms' emergent actions (Hadida et al., 2015); (b) intuition guiding action in a spontaneous way (Crossan and Sorrenti, 1997); (c) the simultaneous enactment of strategy

formulation (or composition) and implementation (or performance) by the same individual (Perry, 1991); (d) "as the spontaneous and creative process of attempting to achieve an objective in a new way" (Vera and Crossan, 2004: 733); or (e) "as the conception of action as it unfolds, drawing on available cognitive, affective, social and material resources" (Kamoche et al., 2003: 2024). Since there is agreement that improvisation is a deliberate act (Perry, 1991; Miner et al., 2001), rather than an unconscious emergence of decisions (cf. Mintzberg and Waters, 1985), it can feature in the strategic choices of the firm and, in turn, be a means to enhance firm competitiveness (Eisenhardt and Tabrizi, 1995; Perry, 1991; Vera and Crossan, 2004).

The focus in this current work is improvisation at the strategic level, termed strategic improvisation (Perry, 1991), and consistent with these conceptual features and recent extant literature (e.g. Hodgkinson et al., 2016; Kyriakopoulos 2011; Miner et al. 2001; Vera and Crossan 2004), strategic improvisation is defined here as the substantive merger of decision-making and execution outside the formal cycle of planning. The adopted definition emphasizes the temporality of action, such that strategic improvisation 'has a reduced temporal gap between the planning and implementation of unique actions…it applies to actions and decisions that are novel, or deviations from standard practices' (Bergh and Lim, 2008: 599). In synthesizing the literature, key features of strategic improvisation appear, then, to be decision speed, a capacity for strategic flexibility, enabling faster resource [re]deployments, creativity, experimentation, and motivating shifts in strategic direction outside of formal decision-making modes (e.g., Crossan and Hurst, 2006; Perry, 1991). As such, improvisation, at the strategic level, is a means to rapid response through reduced time to strategic decision-making and a reduced time to the subsequent execution of strategic actions. This is consistent with the descriptive theory of strategic decision-making.

Historically, improvisation research adopted artistic metaphors from jazz (Eisenhardt, 1997; Perry, 1991; Zack, 2000), improvisational theatre (Kanter, 2002; Vera and Crossan, 2004), and Indian music (Kamoche et al., 2003) to articulate the characteristics of improvisation inherent in the arts (Cunha et al., 1999). More recently, however, these metaphors have been judged to constrain and restrict the development of an organizational theory of strategic improvisation (Vendelø, 2009; Zack, 2000). In response to the need for increased positivist research of the phenomenon (Cunha et al., 1999), contemporary improvisation field research has sought to investigate the enablers of improvisation in organizational settings (e.g. Eisenhardt and Tabrizi, 1997; Hodgkinson et al., 2016; Hughes et al., 2018a, 2018b; Kyriakopoulos, 2011; Magni et al., 2009; Nemkova et al., 2012). The driving logic behind most improvisation studies is that "the higher the speed of the environment framing the organization, the higher the likelihood of it undertaking improvisational activities" (Cunha et al., 1999: 317). On this basis, uncertain and turbulent contexts such as high-technology and new product development settings have formed the cornerstone of recent investigation (e.g., Hodgkinson et al., 2016; Hughes et al., 2018a; Miner et al., 2001) because of the time pressures experienced (Miner et al., 2001) and the dynamism and uncertainty inherent in these settings.

Of course, more deliberate modes of strategic decision-making can also provoke speed of response, and there are numerous examples from the normative theory of strategic decision-making. Lindbolm's (1968) concept of muddling through is an early example of such, whereby plans are constructed to minimal effect good enough to provide further movement towards an objective. Extended under 'logical incrementalism', effective strategies here are deemed to "emerge step by step from an iterative process in which the organization probes the future, experiments, and learns from a series of partial (incremental) commitments rather than through

global formulations of total strategies" (Quinn, 1980: 53). In recognizing that deliberate and emergent strategy development are not diametrically opposed, Grant (2003) introduced the concept of planned emergence. The approach comprises bottom-up strategy making, where managers exhibit substantial autonomy and flexibility in strategy making, while simultaneously, formal planning systems provide parameters of control through the vision and mission statements, corporate initiatives, and performance expectations as set by corporate management. These aspects are characteristic of the generative planning model, as noted by Grant (2003). This body of work subsequently formed the basis for the development of new planning techniques such as rolling planning (e.g. Mankins and Steele, 2006), road-mapping (e.g., Bengtsson and Lindkvist, 2017), and blitzscaling (e.g., Kuratko et al., 2020; Sullivan and Hoffman, 2016). Similarly, as noted by Hodgkinson and Sadler-Smith (2018), the psychological micro-foundations of the dynamic capabilities perspective are based on a normative theory of decision-making. Yet, these are "assumptions that tend to downplay the potential role of affect and emotion as the fundamental ('hot') inhibitors or enablers of individual and collective ability to respond to the adaptive behavioral challenges of radical innovation and change" (p. 484). Such challenges are witnessed under crises and mark out strategic improvisation as a descriptive approach to decision-making that sits outside of normative decision models.

Within the growing body of research on improvisation, improvisational actions have been studied at different levels from the individual/team level (e.g., jazz music, improvisational theatre) (Eisenhardt, 1997; Zack, 2000; Kanter, 2002; Vera and Crossan, 2004), at the functional/project level (e.g. exporting, marketing, product development) (Kyriakopoulos, 2011; Miner, 2001; Moorman and Miner, 1997; Nemkova et al., 2012, 2015), and at the organizational/strategic level (Hodgkinson et al., 2016; Perry, 1991). The range of investigation

across levels is both a curse and a blessing for theory building. Improvisation at these different levels will take different forms. At the individual and functional levels most improvisation is task-oriented or operational, for instance. As such, improvisation here does not align to the conceptual definition of strategic improvisation as the substantive merger of decision-making and execution outside the formal cycle of planning. Yet, as an integrated body of work, these studies have also highlighted key antecedents that might enable strategic improvisation. For instance, studies have emphasized the relevance of time, bricolage, and mindfulness to improvisation (Crossan and Hurst, 2006) alongside alertness, resilience, creativity, spontaneity, an action-orientation, and 'making-do' with what is available (Madhok and Keyhani, 2012; Nemkova et al., 2012, 2015), as well as experimental culture, minimal structure, leadership, member's characteristics, memory-related factors, organizational configuration, and resources (Cunha et al., 1999; Hodgkinson et al., 2016; Hughes et al., 2018a; Perry, 1991). More recently, specific managerial characteristics (e.g., expertise), project characteristics (e.g., internal and external information flows, team memory attributes), and organizational characteristics (e.g., risk-taking, flexibility, organizational learning) have also been confirmed as key enablers of improvisation (Hodgkinson et al., 2016; Kyriakopoulos, 2011). Nevertheless, Hodgkinson et al. (2016: 380) point out that there is a need to "move theory beyond anecdotal, metaphorical, and theoretical propositions" for developing the utility of strategic improvisation for practicing managers and executives.

In reflecting on decision theory, effectuation logic, and judgment-based theory, executives acting through strategic improvisation can place themselves and their organization in positions to navigate through crises. Improvisation is not inherently good or bad (Vera and Crossan, 2004) and is not positioned here as a solution to all organizational and strategic

problems. The assumption that improvisation results in desired goals or positive performance outcomes is a misconception in the extant literature (Vera and Crossan, 2005). Rather, strategic improvisation is a means to enact the key ingredients previously identified for successfully dealing with crisis events: (1) rapid decision speed; (2) more responsive resource [re]deployments; (3) taking action; (4) fostering strategic flexibility; and (5) enabling radical, second-order strategic changes. In order for executives to capitalize on strategic improvisation and reap these benefits, then, we identify five strategic imperatives for executives that form the basis of being 'improvisation ready': resource fluidity, strategic leadership, strategic posture (intent), organizational resilience, and innovative proclivity. Improvisation readiness, thus, represents a means to allocate resources through judgment to deliver on strategic intent under uncertainty. It reflects a resilience to uncertainty that provides a pathway to strategic actions, and such strategic actions are very often different or innovative in nature to the traditional.

3. The Strategic Imperatives of Improvisation

The first and arguably the most important imperative for strategic improvisation is *resource fluidity*, which describes a firm's ability to redeploy resources and reconfigure operations by managing both capital and capabilities (Doz and Kosonen, 2010). To ensure that flexible options can be exercised, capital investment decisions need to mitigate risk and enable switching behaviors to take place. Equally, capital forms the basis of resource inputs to combinations of capabilities that firms then derive. Crucially, these capabilities need to be valuable, rare, non-substitutable, and inimitable, but, in addition, they need to avoid the capability trap so that organizational and strategic routines and practices can adapt to changing demands. Thereby, the value of capabilities can be maintained, as they are redeployed for different purposes. Without

this form of reconfiguration and in circumstances where strategic improvisation is necessary, capabilities can quickly become obsolete because of the capability trap, which is where a firm is competent in a routine that is no longer valuable.

In times of crisis, employees, customers, shareholders, and supply chain distribution networks seek strong *strategic leadership*. While this takes many forms, we contend that strategic leadership is reflected in terms of strategic cognition (how do leaders make strategic decisions that confront them) and the confidence with which they determine their responses. Strategic leadership, in that sense, reflects leaders exercising judgment under uncertainty (e.g., Foss and Klein, 2012) and doing so continuously and dynamically (Packard et al., 2017). Instinctive responses when executives face uncertainty is inertia, which arises from seeking further information, explaining away the extent of the threat due to cognitive biases, maintaining or escalating a commitment to the strategic *status quo* in order to more clearly demonstrate commitment to the current strategy. However, what is often sought of strategic leadership confronting crises is quite the opposite: acting as a priority and with urgency, communicating clearly and consistently with all parties to ensure transparency, identifying responsibilities and taking decisions that address and tackle (e.g., through resource allocations) the scope and entirety of the problems faced (and not merely partial responses to issues on tactical basis), and maintaining a constant effort to remain updated and prepared to modify courses of action when and immediately required (Kerrissey and Edmondson, 2020). It is often said that strategic leaders are forged in a crisis (Koehn, 2017), and cognition and confidence of actions demonstrate effective hallmarks of purposeful leadership.

The third strategic imperative is *strategic posture*. This reflects the clarity of strategic intent along with the coordination principles to deliver on this clarity. Evidence indicates that

firms who improvise strategy begin with a strategic intent. That is, with clarity on strategic posture and coordination among actors (Perry, 1991). The ideal, according to Perry (1991: 51) from a strategic improvisation perspective, is "realized when different managers improvise successful strategies around a common intent." Strategic posture is akin to the iteration between strategy formulation and execution, whereby cycles of plans are ideated and each mapped forward to test their execution potential. Given that 44% of strategies fail in execution (Economist Intelligence Unit, 2013), developing a strategic posture toward improvisation allows the focus of strategic effort and coordination to become honed. Although strategic clarity can emerge and change through cycles of iteration as the firm improvises, within each stage there is a clear critical path of strategic direction and clarity that synthesizes this effort (Lewin, 1947). Indeed, today agile methodologies are based on these principles (Knapp et al., 2016).

The fourth strategic imperative is *organizational resilience*. Lengnick-Hall et al. (2011: 243) suggest that, "resilient organizations thrive despite experiencing conditions that are surprising, uncertain, often adverse, and usually unstable. We propose that an organization's capacity for resilience is developed through strategically managing human resources to create competencies among core employees, that when aggregated at the organizational level, make it possible for organizations to achieve the ability to respond in a resilient manner when they experience severe shocks." Resilience, we advance, is a strategic imperative for improvising, and the literature attributes the roots of this resilience to various practices and contextual phenomena that we distil to attributes of organizational climate and collaboration. Managers all too frequently believe strategies and the processes of developing them are deeply rigorous and scientific. The evidence, however, indicates otherwise (Lafley et al, 2012). Strategies are heavily aligned and interdependent with, as well as being a product of, the organizational climate from

where they are derived. The relationship between disaster, crises, and organizational resilience has been clear for some time (Wildavsky, 1991, Manyena, 2006). From many frameworks that have emerged, it is clear that, "contextual integrity … and organizational resilience leads to organizational evolvability as its outcome" (Kantur and Iseri-Say, 2012: 762). Thus, these behavioral processes of collaborations and the contextual dimension of organizational climate are critical to establishing resilience (Lengnick-Hall et al., 2011).

The final strategic imperative is *innovation proclivity*, which we assert is underpinned by the firm's creativity and relentless focus on customer centricity. This has been echoed in the strategic improvisation literature with Baker et al. (2003: 255) identifying creativity as being "novelty or deviation from existing practices." Further, different forms of creative innovation practices within the firm have been found to bear strong relationships with improvisation (Sarooghi et al., 2015). In seeking to instill creative practices in developing strategy, Brandenburger (2019: 221) finds that creative strategic improvisation has the customer at its heart and is developed from four principles: "(1) Contrast. The strategist should identify—and challenge—the assumptions undergirding the company's or the industry's status quo; (2) Combination. Steve Jobs famously said that creativity is "just connecting things"; many smart business moves come from linking products or services that seem independent from or even in tension with one another. (3) Constraint. A good strategist looks at an organization's limitations and considers how they might actually become strengths. (4) Context. If you reflect on how a problem similar to yours was solved in an entirely different context, surprising insights may emerge." Complementing creativity with customer centricity, Vera and Crossan (2005: 210) observed that, "[all] targeted teams worked in an environment where improvisation was likely to occur—that is, in jobs with direct contact with external customers or jobs in which teams dealt

with one or more of the following: unexpected or novel events, resource scarcity, and urgency."
This theme is clear and consistent across the extant literature that customer needs evolve often in
unpredictable ways, and so a creative and relentless focus on this invokes the need for
organizations to be able to improvise.

4. Improvisation Readiness Index Score: 'IRIS'

To enable executives to benchmark the improvisation readiness of their organizations, we
develop the Improvisation Readiness Index Score based on a 10C Strategic Imperative
Framework. The 10C Strategic Imperative Framework is an amalgamation of core factors that
are implicitly and/or explicitly discussed in extant literature as enablers of strategic
improvisation and reflect key ingredients for managing through crisis events. The 10Cs map in
pairs across the strategic imperatives for being improvisation ready. We action the 10C Strategic
Imperative Framework for executives through a series of directed prompts that executives should
use when completing IRIS.

The Resource Fluidity Imperative:

- Capital: are strategic resources accessible and can be readily [re]deployed?
- Capability: do we have agile and flexible decision practices?

The Strategic Leadership Imperative:

- Cognition: how do we make strategic decisions?
- Confidence: are we confident to act under uncertainty?

The Strategic Posture Imperative:

- Clarity: how does strategic intent govern action?
- Coordination: who has input into strategic decision-making?

The Organizational Resilience Imperative:

- Climate: what are the key features of our workplace climate?

- Collaboration: how do we organize for collaborative working?

The Innovative Proclivity Imperative:

- Creativity: are we creative thinkers in this organization?

- Customer Centricity: what roles do customers play in our strategic decision-making?

The Resource Fluidity Imperative speaks to the resource, or *Capital*, base of the organization and the *Capability* of executives and the organization for strategic decision-making (flexible, discovery-oriented, laden with expertise, and so forth). These parameters directly reflect important elements to strategic improvisation and provides insights into resource and capability capacity for enabling strategic improvisation. A wealth of resources is not needed for strategic improvisation to occur, but, by the same token, a greater abundance and ability to [re]deploy capital and capability, by definition, increases one's ability to exercise strategic improvisation.

The Strategic Leadership Imperative conveys both managerial cognition and senior management team confidence. *Cognition* reflects the approach to strategic decision-making and whether extensive evaluation of multiple strategic options are required, if a base of evidence is needed and favored above intuition, and whether executives embrace different interpretations of strategic events such that they tolerate ambiguity and uncertainty in strategic decision-making. *Confidence* is a belief in oneself that the manager possesses that allows him or her to believe that s/he can handle the uniqueness of the current crisis (Sayegh et al., 2004). It enables the executive to trust his/her hunches, the judgment of what can be done with skills and means available to them (Sayegh et al., 2004), and then to act (Agor, 1990). Research has shown that individuals

who report perceptions of high personal confidence cope better when faced with change (Hill et al., 1987) and persist through adversity (Lent et al., 1987), thereby providing a catalyst for strategic improvisation in crisis times.

The Strategic Posture Imperative reflects strategic intent and inputs into strategic decision-making. As Perry (1991: 63) noted, "strategic improvisation requires companies to assume that there's always a better way." *Clarity* implies executives can deviate from prior implemented strategies, show willingness to make modifications to strategy, and are action oriented and not easily distracted from executing strategic decisions with rapidity when required. *Coordination* speaks to who has input into strategic decision-making and the coordination of these different inputs (for instance, across stakeholders). As is implicit in improvisation research, greater aptitude in this enables a climate for strategic improvising (cf. Perry, 1991).

The Organizational Resilience Imperative articulates the internal conditions for strategic improvisation. An internal organizational *Climate* that accepts the unconventional and decisiveness provides a fertile ground for strategic improvisation to occur. Building on this, fostering *Collaboration* between individuals, teams, groups, departments, and functions provides a breeding ground for experimentation and the potential for novel ideas and strategies to arise.

The Innovative Proclivity Imperative captures the propensity of the organization to create and direct creative and new interventions to deliver customer value. As advised by Perry (1991: 63) "companies need to be active experimenters" and *Creativity* and a belief in *Customer Centricity* are important ingredients to this. *Creativity* reflects experimentation and a willingness to embrace new solutions and ideas even under uncertainty and time pressures. A *Customer Centricity* is a willingness to see customers as individuals and centralizing customers and the marketplace in strategizing. This, with strategic improvising, reflects what Haeckel (2004)

suggests as a 'sense-and-respond' approach such that strategic actions taken should have greater immediacy and impact in the market as per outside-in strategic thinking (Quach et al., in press).

Executives should use the Improvisation Readiness Index Score (IRIS) to determine their organization's improvisation readiness, and we recommend this evaluation be undertaken by as many strategic decision-makers as possible. A series of opposing statements along a 5-point scale is used to gauge improvisation readiness and these map onto the various strategic imperatives and corresponding Cs in the 10C Strategic Imperative Framework. By providing a response on each item across each of the 10Cs in the Index, the maximum possible score for improvisation readiness is 250. IRIS provides a means for evaluating the organization's readiness against specific strategic imperatives, and the strategic imperative sub-scores reflect the organization's readiness footprint in each respective strategic imperative. A sub-score, then, is calculated under each strategic imperative consisting of the respective Cs that reflect them, and the maximum possible score under each C is 25 and for each strategic imperative is 50. As discussed, the strategic imperatives form the foundations for strategic improvisation and subsequent action. The higher the score in IRIS for each strategic imperative, then, the more an organization can improvise strategy within the parameters of those imperatives. Strengths in particular strategic imperatives, then, should form the foundations for strategic improvising. For example, in scoring highly only on resource fluidity and innovative proclivity imperatives, appropriate strategic options that capitalize on strategic resource [re]deployments, creativity, and innovation become more appropriate for executives (as opposed to strategic options that are more in line with high scoring on strategic posture or resilience imperatives).

The greater the overall score on IRIS (the closer an organization scores to 250), the greater the number of potential strategic options, or implementable strategic actions, become

available to executives for strategizing through crises. Executives are asked to divide their score by 250 to obtain a normalized improvisation readiness score in IRIS of between 0 and 1. The normalized IRIS score is used as last step to indicate the organization's overall stage within the continuous of 'Survive–Adapt–Thrive'. Organizations scoring highly on IRIS (> 0.8) are best placed to ride out the storms of crisis and can adapt to changing conditions, thereby positioning the organization for future success. Organizations scoring in the mid-range of > 0.6 to ≤ 0.8 fall into the 'Adapt' category. Any score equal-to or below 0.6 indicates an organization is in the 'Survive' category and is hamstrung in its ability to improvise in strategy. We discuss these further in section 5.1. To operationalize IRIS, we set out clear instructions for executives and fellow C-suite members to implement IRIS and gauge their organization's improvisation readiness (see Tables 1a through 1c).

… Insert Tables 1a, 1b, and 1c here …

5. Strategic Improvisation Case Vignettes

To go hand in hand with the Improvisation Readiness Index Score, IRIS, we identify and discuss several current real-world examples of organizations that initiated different strategic responses to the COVID-19 pandemic and exhibit different degrees of improvisation readiness. We have manually assessed and categorized these case vignettes across corresponding improvisation readiness modalities of *survive*, *adapt*, and *thrive*. The strategy transformation challenges posed by COVID-19 and transformation actions pursued by organizations are illustrated through the set of case vignettes that are shown in Tables 2, 3, and 4.

We advance a three-step approach for executives to move forward through the COVID-19 pandemic, or any future crisis event, with IRIS. Step 1 is the 'reality check' of what the

current state of improvisation readiness is. It is also important to undertake this reality check

through IRIS to ascertain if there is a disconnect between the reality of the organization's

improvisation readiness and what executives assumed the situation to be prior to IRIS evaluation.

The true state of improvisation readiness affects the nature of strategic improvisation and the

strategic responses that executives can employ with any prospect of a degree of success. Step 2 is

the crisis response implementable because of being, or otherwise, improvisation ready. Step 3 is

to increase sustainability and use Gap Analysis to plot means to increase improvisation readiness

for future events. Each step is deliberated in turn, and our discussion of the case vignettes

specifically speak to Step 2.

5.1. Step 1: The Reality Check

Executives must first determine their organization's improvisation readiness profile with IRIS.

This process is explained in section 4 and in Table 1a. The total score gives you your readiness

to improvise, and whether you can describe your organization as surviving, adapting, or thriving.

Those scoring highly on IRIS (thriving) are best placed to adapt during the crisis, ride out the

storm, and so position the organization for future success. Such organizations will be scoring

highly across multiple strategic imperatives and corresponding Cs in the 10C Strategic

Imperative Framework. In so doing, their capacity to improvise in strategy is high, and they can

pursue several potential strategic avenues as a result. We illustrate these further in section 5.2

under Step 2. 'Thrive' does not imply thriving in terms of profitability, but rather thriving in their

potential to improvise, change, and weather the storms of the crisis. Organizations grading on

IRIS as 'adapt' are less improvisation ready overall, but have some strengths across strategic

imperatives that can be leveraged. Those imperatives, and respective Cs that the organization

scores most highly on reflect their readiness footprint in each respective strategic imperative. As such, these should form the bases for any strategic improvisation. Those organizations falling into the 'survive' category do so because they are the least improvisation ready and have limited strategic options for change and adaptation to the prevailing crisis conditions. Step 1, naturally, can be conducted at any time during, or ideally prior to, a crisis. The imperative for executives, however, is to understand rapidly their degree of improvisation readiness so that strategic responses can then be actioned.

5.2. Step 2: Crisis Response

The sub-scores along the strategic imperatives and associated Cs in the 10C Strategic Imperative Framework, which is operationalized through IRIS, indicate areas of strategic improvisation strength for prioritizing and so provide a focus for taking strategic actions and responding now to the crisis. The strategic responses initiated and implemented, of course, vary across the contextual situations that executives face and their capacity to improvise (as determined by IRIS). We illustrate these through a series of strategic improvisation case vignettes in Tables 2, 3, and 4 that have been grouped under the strategic improvisation modalities of Thrive, Adapt, and Survive, respectively.

… Insert Tables 2, 3, and 4 here …

5.2.1. Thrive

Philips, Signature Brew, and Velo3D are examples of organizations that have thrived during COVID-19 due to strategic changes and responses initiated that leverage across a series of strategic imperatives.

Philips responded with rapidity to the COVID-19 crisis while it was still mostly prevalent in China. From late January 2020 onwards, consumer-level production lines were reoriented towards professional-level imaging and ventilator products given the scale of demand and necessity for these in China. This positioned Philips well for the spread of COVID-19 globally. This strategic shift was followed in the coming weeks with the creation of internal task forces across the world to bring the company closer to customers. Increasing global demand for Philips products necessitated rapid creation of strategic partnerships with companies such as Flex Health Solutions and Jabil to leverage their ability to scale up production volumes of professional-level products and reduce lead times. Philips has also put more focus into increasing adoption of its tele-care platform, for example, in conjunction with University of Kentucky. As a result of clarity and coordination in strategic posture, confident strategic leadership, leveraging resource fluidity, and organizational resilience, these rapid strategic shifts were able to occur and sent Philips in strategic directions that otherwise would not have been pursued in non-crisis times.

Signature Brew, a B2B alcohol business based in London, saw their business crash overnight with a government-mandated lockdown of its markets and customers. Of course, many other organizations suffered the same, but Signature Brew was able to improvise its strategy and make significant pivoting to enable the company to thrive. Displaying a proclivity to innovate, with clear strategic leadership and strategic posture, Signature Brew shifted from a B2B to B2C business model by moving away from its traditional customers of pubs, bars, music venues, festivals, and events and instead targeted stay-at-home customers and the public at large that still wanted to experience their weekly 'night out'. Signature Brew created a radically different and entirely new offering of a 'Pub-in-a-Box' that includes beer, gins, glasses, a Spotify playlist, and a music-based pub quiz. To rapidly build a distribution network, Signature Brew, cognizant of

the situation of many in related industries, employed furloughed and unemployed musicians to act as delivery drivers for them. This degree of pivoting was only possible through leveraging strengths across strategic imperatives to improvisation with speed to position their business to survive and thrive in this during this time of uncertainty.

Despite the shutting down of manufacturing in many countries across the globe, Velo3D, developer of a metal composite 3D printing technology, raised US$28 million during the pandemic and used this additional resource fluidity to capitalize and strengths in other strategic imperatives to drive forward their business despite COVID-19. The firm is initially known as the contract supplier of 3D printers to SpaceX and is in the process of significant strategic pivoting towards developing new applications for end-use component manufacturing. Relying on resource fluidity and strategic leadership, the firm's capital and established technical and manufacturing capabilities enable the firm's ultimate transformation goal: to offer 3D printers that will enable users to build components that were previously sourced through complex supply chains. Organizational resilience is evidenced further through the firm's collaboration enhancements: The novel manufacturing processes, enhanced software, and hardware capabilities are developed in collaboration with PWR, a global supplier of cooling solutions to NASCAR racing. Velo3D's strategy is to use the new capital, as well as the existing resource fluidity and enhanced collaboration resilience to expand its product portfolio despite the pandemic.

5.2.2. Adapt

Many organizations are in a position to adapt to crises through strengths in some strategic imperatives that enable a degree of strategic improvisation to occur, but are not as well positioned to thrive as Philips, Signature Brew, and Velo3D. Thriving is very much not the norm

during the COVID-19 pandemic, and so the scale or extent of strategic changes from improvisation readiness are typically less. We identify several cases of organizations that have adapted to an extent during the COVID-19 pandemic, but the extent of their strategic improvisation has been restricted.

Twitch and Zoom have capitalized on resource fluidity, strategic posture, and customer centricity to adapt their strategic choices during the pandemic. Twitch has positioned itself beyond its traditional videogame streaming focus by expanding towards supporting musicians who cannot generate revenue from live gigs and touring due to the COVID-19 pandemic. The platform has pivoted towards hosting and monetizing online live music events, thereby creating a source of revenue for new users and for itself. Twitch has sought to enable this transition and expansion by acquiring key additional capabilities through top management hiring (e.g., executives from Spotify, XITE) and collaboration with external stakeholders (SoundCloud, Bandsintown). Zoom has focused less on pivoting its target users, as this has grown naturally because of the pandemic, but instead has placed emphasis on other aspects in strategy in the immediate term. For example, with fears of prevalent products such as Teams and Skype coming to the fore, as well as historical neglect of cyber-security and negative publicity surrounding it, Zoom is under both time- and demand-based pressures to change its strategic focus from growth to respond to online security, data privacy, and strengthen its cloud infrastructure and to do so rapidly lest competitors regarding ground in the marketplace. The organization has leveraged existing technical teams to address security and pursued a strategic partnership with Oracle enabling cloud infrastructure growth. The opportunities afforded by COVID-19 to Zoom were met by changes in strategic focus to capitalize on these events, but did not involve any large-scale strategic improvisation overall.

American Roots, as with many apparel manufacturers, were impacted severely by the coronavirus pandemic and subsequent shutting down of retail due to lockdowns. Unlike many apparel manufacturers though, American Roots reopened rapidly just five days after furloughing its staff by improvising its strategy and pivoting factory production reoriented towards personal protective equipment (face shields, masks, etc.), colloquially referred to as PPE. However, for this improvisation to be successful, the manufacturer also needed to address challenges related to supply chain and sales distribution management with relevant customers and stakeholders (mainly hospitals and governments). American Roots created a strategic partnership with another US-based apparel manufacturer, Flowfold, to provide additional mitigation of these challenges. By moving quickly to reorient strategy around PPE sales and partnering with Flowfold, American Roots is positioned to capitalize on the pandemic within its improvisation capacity.

While Uber is a relatively successful company in the ride-sharing arena, COVID-19 has had a dramatic effect on travel and demands for such services, which has meant lay-offs across this arena. In pivoting away from this and in leveraging aspects of the 10C Strategic Imperative Framework, Uber launched an On-Demand Work Platform based around the concept of labor sharing. Through Uber's Work Hub, Uber drivers can connect with other Uber platforms (e.g., Uber Eats, Uber Works, Uber Freight) to find work. In addition, strategic collaborations with a growing number of companies using Uber's system including McDonald's, PepsiCo, UPS, FedEx, and Walgreens are linked to the On-Demand Work Platform. This strategic shift capitalizes on existing strengths in strategic imperatives (e.g., resource fluidity and resilience) and allows Uber to support its platform users in finding access to alternative work during crises.

5.2.3. Survive

Organizations limited in their capacity to improvise or, put simply, are not improvisation ready, face the toughest battles to survive during crises. Most organizations will likely fall into this category and predominantly due to lacking strength along the key strategic imperatives associated with being improvisation ready. Take, for example, HG Walter, a company akin to Signature Brew in being a B2B business reliant on supplying other businesses that have been shut down due to COVID-19 initiated lockdowns. HG Walter of London is a meat wholesaler and supplier to Michelin-starred restaurants, high-end retailers (e.g., Harrods), and hotels (e.g., The Dorchester). Similar to Signature Brew, they have improvised in strategy to pivot towards a B2C model, albeit temporarily, but the extent of their strategic improvisation has been far less, with no novel offerings beyond 'survival packs' of vegetables along with vacuum-packed meat. Their main offering is simply selling small volumes of meat (e.g., burgers) to prospective end consumers.

Organizations such as call center businesses and universities have all struggled to move strategy much during the pandemic. Call centers and universities have moved to remote home-working over network connections leveraging coordination and collaboration. Call centers have faced challenges revolved around integrating systems, coordinating across cyberspace, and ensuring all staff can access systems remotely. This has been problematic for some with systems and connections being unreliable. Artificial intelligence systems are likely to become more in-demand in this industry in the future to reduce fundamental costs and provide agility for such businesses.

Universities have faced significant strategic disruptions and time pressured demands for strategic change. Universities have been forced, in the immediate term, to pivot to total online engagement and delivery of programs, corporate education, research with corporations (e.g.,

involving qualitative work, lab-based experiments, and work), recruitment, stakeholder engagements, and so forth, but remain strategically limited in their immediate options for attending to COVID-19 and its aftershocks. Scaling down, a clearer focus on valued offerings and abandoning outdated concepts of propping up failing schools and outdated programs are likely to become important along with leveraging the research expertise of staff to rapidly produce innovative programs that can be offered as online options in forthcoming terms.

Notwithstanding the case examples highlighted here, there are many examples of very similar companies that have responded in very divergent ways depending on their improvisation readiness. For example, many eateries or food vendors have improvised strategy towards food trucks, offering take-outs, or pre-packaged foods for local delivery. Others such as Panera Bread have broadened their services beyond these to also enabling customers to order groceries (the Panera Grocery initiative) online along with ordering their sandwiches and salads through the Panera Bread portal. This has enabled Panera to adapt and not just survive. Similarly, and as is the case with most airlines around the world, All Nippon Airways (ANA), a Japanese traditional B2C airline, have had to drastically reduce all international and domestic routes while furloughing staff to keep the company afloat. As an improvised strategic response to attempt to offset losses, Japan-region ANA flights that are still flying now also carry cargo in both the aircraft hold and in empty seats (e.g., large boxes of facemasks) in lieu of passengers as a revenue generator (without having to fully adopt a B2B airline model). ANA are adapting as opposed to just surviving in comparison to similar airlines.

Ultimately, the survival case vignettes are examples of organizations that need build strategic improvisation through IRIS to evolve their business models, develop resource fluidity,

resilience, and an innovative proclivity, for instance, to move beyond the restricted strategic

options that they currently have.

5.3. Step 3: Gap Analysis and Strategic Improvisation Sustainability

It is well recognized that improvisation does not just 'happen', nor is it an intrinsic gift, as

observed by Vera and Crossan (2005: 203): "managers risk confusing improvisation with

random moments of brilliance and conclude that either you have this ability or you do not." Such

a misconception has the potential to undermine the architecture of effective strategic

improvisation. Step 3 is to prepare managers for future crises by identifying where weaknesses

may be present in their organizations' improvisation architecture. As is frequently paraphrased

from the works of Thomas Reid (1843), "you are only as strong as your weakest link." Following

the observations of Vera and Crossan (2005), strategic, collective, or organizational

improvisation not only builds on activities and conditions at the micro-level, but also is

influenced by the characteristics of the collective system. This is akin to the observation that to

improve decision-makers' intuitive judgments, one must understand the necessary conditions

under which it is acquired and succeeds (Akinci and Sadler-Smith, 2012). The IRIS serves to

identify strengths and weaknesses across levels (individual, interpersonal, and organizational) of

strategic improvisation (e.g., Hadida et al., 2015), as categorized between the strategic

imperatives, which enables a verdict to be made on the sustainability of the organization's

improvisation architecture. Doing so allows executives to target management intervention by

building and developing areas of 'architectural weakness', while consolidating areas of

'architectural strength' (as signaled by the IRIS sub-scores). This dual-management action serves

to ensure the long-term viability and sustainability of strategic improvisation for future crises events and optimal strategizing.

It is necessary and urgent for executives to conduct a Gap Analysis (Figure 1) to identify gaps in improvisation readiness that reflect a deficit between current or actual improvisation readiness and the desired level of readiness. In so doing, focal areas for building improvisation readiness for future crises can be factored into the strategic thinking of executives. Similar to the application of IRIS by multiple executives across the organization, the Gap Analysis should also be conducted among the executive team to build a comprehensive picture of improvisation readiness, the preferred readiness state, where deficits exist, and what corrective actions need taking (in terms of investment, development, etc.) to build improvisation readiness.

…Insert Figure 1 here…

6. Conclusions

Crises are frequently protracted and exhaustive, with stress cumulating over time (Rosenthal and Kouzmin, 1997). Indeed, all signs are that the COVID-19 pandemic is likely to be so. Rosenthal et al. (1994) and Boin et al. (2004) caution that the worst challenges of crisis events often happen after the initial event has already occurred, the so-called "crisis after the crisis" effect (Boin et al., 2004). Moreover, 't Hart et al. (1993) caution that some crisis responses themselves may be negative as well over time. It is not a given that strategic responses will have positive effects or be successful (this is the nature of uncertainty and crisis after all), be they improvised or otherwise, but not taking strategic decisions or actions is not realistic options in crisis times (cf. D'Aveni and MacMillan, 1990; 't Hart et al., 1993). Strategic improvisation is not inherently good or bad, but we conclude from synthesizing research and theory from crisis management and

strategic management literatures that it can equip firms and their executives to manage crises more effectively. Executives, then, must be conscious of maintaining and improving improvisation readiness into the future and maintain vigilance in strategic decision-making and action so that issues and problems attended to during the crisis event are not allowed to resurface so terribly as the organization forges its way out of it.

We end by emphasizing that by no means is strategic improvisation a haphazard process. It "should not be viewed as "anything goes" or "winging it". Instead, it should be accepted as a process governed by both freedom and form" (Perry, 1991: 51). We advance strategic improvisation as a means to strategize through the COVID-19 crisis, and future crises, with an emphasis on exploiting strategic improvisation now while building sustainability for future capacity for improvisation readiness so that future dynamism, turbulence, or crises can be navigated. Consequently, we implore executives to gauge their improvisation readiness and act on it as the best means to means to enact the key ingredients identified for successfully dealing with crisis events: (1) rapid decision speed; (2) more responsive resource [re]deployments; (3) taking action; (4) fostering strategic flexibility; and (5) enabling radical, second-order strategic changes.

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Figure 1: 10C Strategic Imperative Framework Gap Analysis

10Cs	Strategic Imperative	Actual State	Desired State	Deficits	Corrective Actions
Capital / Capability	Resource Fluidity				
Cognition / Confidence	Strategic Leadership				
Clarity / Coordination	Strategic Posture				
Climate / Collaboration	Organizational Resilience				
Creativity / Customer Centricity	Innovative Proclivity				

We recommend this analysis be undertaken by as many strategic decision-makers as possible in your firm, ideally capturing diverse strategic decision areas at the top management team level (e.g., across the C-suite such as: CEO, CFO, CSO, COO, CMO, CLO, CIO). Please ask each member of your top management team to complete all sections in the gap analysis as this will ensure that your analysis is as comprehensive as possible. We recommend your ask at least four raters to complete this exercise.

Be as thorough as possible in completing each section of the gap analysis. Data from your IRIS evaluation can be used to feed into the 'actual state'. Think carefully about your 'desired state' and what is realistic for your firm. The 'deficit' is the gap between your actual current state and where you wish your firm to be in terms of improvisation readiness. These deficits are best through of in terms of each of the 10Cs across the strategic imperatives. From here, identify positive actions you can take as executives and as a top management team to bring your firm to the desired level of improvisation readiness.

Table 1a: The Diagnostic Tool to Identify an Organization's Improvisation Readiness Index Score (IRIS)

Instructions and Guidance

Times of crisis harbor significant challenges for strategy decision-making, while also placing considerable demands on top management team information processing and sensemaking. Strategy improvisation becomes a priority, as improvisation enables the top management team to steer the firm towards specific strategic imperatives. The focus and form of strategy improvisation required depends on the firm's readiness level across a range of strategic imperatives. The Improvisation Readiness Index Score (IRIS) provides a means for evaluating the firm's readiness against such specific strategic imperatives based on our 10C Strategic Imperative Framework.

We recommend this evaluation should be undertaken by as many strategic decision-makers as possible in your firm, ideally capturing diverse strategic decision areas at the top management team level (e.g., across the C-suite such as CEO, CFO, CSO, COO, CMO, CLO, CIO). Please ask each member of your top management team to complete all questions in the evaluation (cf. Table 1b), scoring each question from 1 to 5. The reason we suggest that your firm generates responses from these multiple C-suite 'raters' is to ensure that your IRIS is as representative as possible of your firm. We recommend you ask at least four raters to complete this exercise. We often find in research that the data can be prone to a range of biases if you rely on one or a small number of C-suite raters.

The IRIS is comprised of five strategic imperatives, which combine to create our 10C Framework with each imperative being derived from two 'Cs'. The scores for each strategic imperative (e.g., 1a and 1b; 2a and 2b; etc) should be added to calculate a respective sub-score (to be entered at the top right section of each strategic imperative section). Importantly, please ensure to reverse the score for those questions indicated as such (see Table 1b's subscript note). Once the scores are obtained from all your C-suite raters, the scores should be calculated to create an average (mean score) for score for each strategic imperative.

The Strategic Imperative Scores reflect the firm's readiness footprint for each respective strategic imperative. Each Strategic Imperative Score will be a minimum of 10 and a maximum of 50; based on ten questions on the five-point scale.

The Total Improvisation Readiness Score is then calculated by adding all five strategic imperatives scores together. This means that the minimum Total Improvisation Readiness Score will be 50 with the potential maximum being 250.

To calculate your firm's IRIS, you then normalize the Total Improvisation Readiness Score on a 0-1 scale. This is done by dividing the Total Improvisation Readiness Score by the maximum value of this score, which is 250. This normalized Improvisation Readiness Score is therefore your firm's IRIS. This is used as last step to indicate your firm's overall stage within the continuous of 'Survive – Adapt – Thrive.

Table 1b: IRIS Questionnaire.

1a. Resource Fluidity Imperative: *Capital*						**Total Score** (determined by your scoring from the five questions below):
The organization is slow to redeploy resources to change strategic direction	1	2	3	4	5	The organization can rapidly redeploy resources to change strategic direction
*We possess an abundance of financial resources to pivot the organization	1	2	3	4	5	We lack the financial resources to pivot the organization
We lack the knowledge to pivot the organization	1	2	3	4	5	We possess the knowledge to pivot the organization
We lack the necessary personnel to pivot the organization	1	2	3	4	5	We possess the necessary personnel to pivot the organization
We lack the necessary skills to pivot the organization	1	2	3	4	5	We possess the necessary skills to pivot the organization
1b. Resource Fluidity Imperative: *Capability*						**Total Score** (determined by your scoring from the five questions below):
*The top management team has a diverse breadth of expertise across many domains	1	2	3	4	5	The top management team has specialist expertise across a few domains
Our strategy-making process is rigid and calendar driven	1	2	3	4	5	Our strategy-making process is flexible and issues oriented
We accept that our business model is robust to all conditions	1	2	3	4	5	We actively reshape our business model when required
The future typically surprises us	1	2	3	4	5	We discover the future ahead of our competitors
We rely on structured routines to guide strategic decision-making	1	2	3	4	5	We encourage questioning of a structured approach to strategic decision-making

2a. Strategic Leadership Imperative: *Cognition*						**Total Score** (determined by your scoring from the five questions below):
We decide on strategy after evaluating all strategy alternatives	1	2	3	4	5	We decide on strategy without evaluating many alternative options
Our strategic decision-making is primarily evidence-based	1	2	3	4	5	Our strategic decision-making is primarily driven by intuition and gut feeling
*We rely heavily on our strategic intuition to understand events	1	2	3	4	5	We rely on reasoned judgements to understand events
We prefer consistent interpretations of strategic events	1	2	3	4	5	We embrace different interpretations of strategic events
We take time to understand priorities and process strategic events	1	2	3	4	5	We are typically quick to judge our priorities to strategic events
2b. Strategic Leadership Imperative: *Confidence*						**Total Score** (determined by your scoring from the five questions below):
We are highly confident in our ability to follow a set course of action	1	2	3	4	5	We are highly confident in our ability to deviate from a set course of action
As an organization we place high value on caution	1	2	3	4	5	As an organization we place high value on confidence
We are more confident from acting cautiously	1	2	3	4	5	We are more confident when acting quickly
*We challenge our fundamental assumptions	1	2	3	4	5	We stay true to our fundamental assumptions
We shy away from acting on hunches and gut-instincts	1	2	3	4	5	We are confident to act on hunches and gut-instincts

3a. Strategic Posture Imperative: *Clarity*						**Total Score** (determined by your scoring from the five questions below):
We find it hard to deviate from our chosen strategy	1	2	3	4	5	We are able to deviate from our chosen strategy
Modifications to my organization's chosen strategy are typically minimal	1	2	3	4	5	Modifications to my organization's chosen strategy are typically extensive
We are very poor at driving through our chosen strategies	1	2	3	4	5	We are very persistent in seeing through our chosen strategies
We tend to be distracted when actioning strategic decisions	1	2	3	4	5	We do not tend to be distracted when actioning strategic decisions
*We are action-oriented and execute chosen strategies as intended	1	2	3	4	5	We find it difficult to execute chosen strategies as intended
3b. Strategic Posture Imperative: *Coordination*						**Total Score** (determined by your scoring from the five questions below):
*We do not rely on past experiences in our strategic decision-making	1	2	3	4	5	Reflecting on past experiences is important to us in our decision-making
We favor the status quo in our organizational life	1	2	3	4	5	We are always looking to improve as an organization
Strategic decision-making is decentralized in this organization	1	2	3	4	5	Strategic decision-making is centralized in this organization
Our organization struggles to cooperate effectively with stakeholders	1	2	3	4	5	Our organization cooperates effectively with stakeholders
We fail to cooperate effectively when we collaborate with stakeholders	1	2	3	4	5	We achieve a high degree of cooperation when we collaborate with stakeholders

Table 1b: Continued.

4a. Organizational Resilience Imperative: *Climate*						Total Score (determined by your scoring from the five questions below):
We take a comprehensive approach prior to action	1	2	3	4	5	As an organization we are decisive to act despite uncertainty
We frequently adopt familiar responses to unprecedented challenges	1	2	3	4	5	We frequently adopt unconventional responses to unprecedented challenges
*We strongly encourage individual hardiness among our workforce	1	2	3	4	5	Our workforce thrives on stability
We analyze events in depth prior to action	1	2	3	4	5	We are quick to capitalize and act on events
Decision-making is based on hierarchical position rather than expertise	1	2	3	4	5	Decision-making is based on expertise rather than hierarchical position
4b. Organizational Resilience Imperative: *Collaboration*						Total Score (determined by your scoring from the five questions below):
We rarely check how well people work together within the organization	1	2	3	4	5	We regularly evaluate how well people work together within the organization
We encourage functions to concentrate on their own specialisms	1	2	3	4	5	We actively encourage cross-functional work
We do not canvas for employee suggestions in strategic decision-making	1	2	3	4	5	Employee suggestions are important ingredients in strategic decision-making
*Cross-functional teams are typical in this organization	1	2	3	4	5	In-function teams are typical in this organization
We struggle to resolve conflicts and disagreements through collaboration	1	2	3	4	5	We are successful at resolving conflicts and disagreements through collaboration

5a. Innovative Proclivity: *Creativity*						Total Score (determined by your scoring from the five questions below):
*We always try new solutions to problems	1	2	3	4	5	We rarely try new solutions to problems
New ideas seldom occur in this organization	1	2	3	4	5	New ideas flow freely and openly in this organization
Differing viewpoints are discouraged in decision-making	1	2	3	4	5	We embrace different viewpoints in decision-making
We favor the 'familiar' when making decisions	1	2	3	4	5	We embrace uncertainty when making decisions
We struggle as an organization when under time pressure	1	2	3	4	5	We thrive as an organization when under time pressure
5b. Innovative Proclivity: *Customer Centricity*						Total Score (determined by your scoring from the five questions below):
We focus on creating and selling what we believe the market wants	1	2	3	4	5	We continually adapt to meet the changing needs of customers
Delivering value for our business is our imperative	1	2	3	4	5	Delivering value for our customers is our imperative
*We continually seek new opportunities in the marketplace	1	2	3	4	5	We are happy to stay as we are in the marketplace
Our resources are the starting point of strategizing	1	2	3	4	5	Our market and opportunities are the starting point of strategizing
We do not differentiate between individual customers	1	2	3	4	5	We see customers as individuals

* Please ensure that the score for the specific question is reversed before adding to calculate total for strategic imperative (e.g. a score of 1 becomes 5, 2 becomes 4, 4 becomes 1, and 5 becomes 1, while 3 stays unchanged).

Table 1c: IRIS Scoring Calculation Template

Strategic Imperative	Scoring Totals				Final Scores (Average across A, B, C, and D)
	Executive A	Executive B	Executive C	Executive D	
Resource Fluidity Imperative: *Capital*					
Resource Fluidity Imperative: *Capability*					
Total for Resource Fluidity Imperative†					
Strategic Leadership Imperative: *Cognition*					
Strategic Leadership Imperative: *Confidence*					
Total for Strategic Leadership Imperative†					
Strategic Posture Imperative: *Clarity*					
Strategic Posture Imperative: *Coordination*					
Total for Strategic Posture Imperative†					
Organizational Resilience Imperative: *Climate*					
Organizational Resilience Imperative: *Collaboration*					
Total for Organizational Resilience Imperative†					
Innovative Proclivity: *Creativity*					
Innovative Proclivity: *Customer Centricity*					
Total for Innovative Proclivity Imperative†					
Total Improvisation Readiness Score*					
Normalized Improvisation Readiness Score**					
Improvisation Readiness Stage	IRIS ≤ 0.6: **Survive**		0.6 > IRIS ≤ 0.8: **Adapt**		0.8 > IRIS ≤ 1: **Thrive**

† The total score for each strategic imperative should feed into your strategic thinking. These scores reflect the firm's readiness footprint for each respective strategic imperative. The strategic imperatives you score most highly on should form the foundation for strategic improvising and action.

* Total Readiness Score (IRIS) is calculated by adding the scores from all strategic imperative totals and it serves to indicate the firm's overall readiness for strategic improvisation.

** To calculate the Normalized IRIS score, please divide the Total Improvisation Readiness Score by the maximum value (250).

Table 2: Strategic Improvisation in Practice (High Improvisation Readiness: Thrive)

Strategic Improvisation Vignette	Strategic Improvisation Context	10C Strategic Imperative Framework	
		Strategic Imperatives	Other aspects of 10C Framework
Philips	The outbreak of COVID-19 significantly disrupted the Chinese business of Philips but presented opportunities within China and then globally if they could respond decisively. Philips were quick to respond from late January 2020 by reorienting production lines of consumer-level products to boost production of professional-level imaging and ventilator products for healthcare providers. The company set up internal task forces across the world to work with closely with customers; Philips partnered with manufacturers Flex Health Solutions and Jabil to reduce lead times and scale up production volume of ventilators; and partnered with University of Kentucky, to implement tele-care systems.	Resource Fluidity (Capital, Capability) Strategic Leadership (Cognition, Confidence) Strategic Posture (Clarity, Coordination) Organizational Resilience (Climate, Collaboration)	Customer Centricity
Signature Brew	Signature Brew, based in London, UK, the outbreak of COVID-19 saw the bulk of its business crash overnight due to its reliance on wholesaling to pubs, bars, music venues, and festivals. Signature Brew pivoted from B2B to a B2C model creating a new 'Pub-in-a-Box' offering that includes beer, gins, glasses, a Spotify playlist, and a music-based pub quiz. To rapidly build a distribution network, Signature Brew employs unemployed musicians to act as delivery drivers for them.	Strategic Leadership (Cognition, Confidence) Strategic Posture (Clarity, Coordination) Innovative Proclivity (Creativity, Customer Centricity)	Capability Climate
Velo3D	Velo3D is a digital manufacturing firm using a Sapphire 3D production process for metal printing solutions. The firm became well known for earning the contract to supply 3D printers to SpaceX. In addition, and despite fundraising in the middle of a worldwide pandemic and the global shutdown in manufacturing, the firm managed to raise $28 million in funding. Amidst the challenges of the COVID-19 pandemic, the firm pursued significant strategic pivoting to develop new applications and manufacture end-use components that will benefit industries such as the oil services. One such solution aims to enable the manufacture of an oil field drilling component that is currently manufactured with five subtractive processes and assembled. Velo3D is harnessing existing technical and manufacturing capabilities to enable the consolidation of new parts and processes. The firm's ultimate transformation goal is to offer 3D printers that will enable users to build components that were previously sourced through complex supply chains.	Resource Fluidity (Capital, Capability) Strategic Leadership (Cognition, Confidence) Organizational Resilience (Climate, Collaboration)	Clarity Customer Centricity

Table 3: Strategic Improvisation in Practice (Moderate Strategic Improvisation Readiness: Adapt)

Strategic Improvisation Vignette	Strategic Improvisation Actions	10C Strategic Imperative Framework	
		Strategic Imperatives	Other aspects of 10C Framework
Twitch	Though Twitch is primarily known as platform for online game streaming, it has recently began expanding towards supporting musicians who are struggling to generate revenue from live gigs and touring due to the COVID-19 pandemic. The firm is taking advantage of existing capabilities as well as developing and acquiring new competencies to pivot the established platform towards hosting and monetizing online live music events. Twitch possesses some of the resources and capabilities needed for such a transformation, but it is also expanding and acquiring key additional capabilities and competencies through top management hiring (executives from Spotify, XITE) and collaboration with key stakeholders (SoundCloud, Bandsintown).	Resource Fluidity (Capital, Capability) Strategic Posture (Clarity, Coordination)	Climate Customer Centricity
Zoom	Zoom has benefited greatly by the exploding demand for video conferencing solutions during the COVID-19 pandemic and the ensuing lockdown, reaching over 300 million meeting participants per day. This sudden success has led to time and demand provision pressures both from a cloud infrastructure capacity, but also online security and data privacy perspectives. The firm has leveraged existing technical and customer focus capabilities but to address the significant challenges, it has pursued a redeployment of technical capabilities and a strategic partnership with Oracle enabling cloud infrastructure growth.	Resource Fluidity (Capital, Capability) Strategic Posture (Clarity, Coordination)	Collaboration Customer Centricity
American Roots	American Roots, a US-based fleece apparel manufacturer (hoodies, vests), suffered significant earnings drop due to the coronavirus pandemic lockdown. The firm's initial response to the crisis focused on severe cost management by curtailing its workforce by 80%. The firm then initiated a strategy pivot by redirecting factory production to face shields, masks and other PPE (personal protection equipment) categories. While the firm possessed significant resources and capabilities necessary for such a transformation, it soon faced several challenges related to supply chain and sales distribution management with the relevant customers and stakeholders (mainly hospitals and governments). A strategic partnership with another US based apparel manufacturer, Flowfold, provided some additional mitigation of the pivot challenges it faced.	Resource Fluidity (Capital, Capability) Innovative Proclivity (Creativity, Customer Centricity)	Coordination
Uber	Following the Coronavirus drastic impact on personal transportation and ride-sharing services, Uber initiated a strategy pivot towards an on-demand labor-sharing strategy. Uber already possesses significant capabilities (technology, big data, knowledge management) and resources (infrastructure, members, market share), which are being leveraged to pivot	Resource Fluidity (Capital, Capability) Organizational Resilience (Climate, Collaboration)	Coordination Customer Centricity

the existing business model towards a labor-sharing offering. Uber's pivot strategy aims to allow all its existing vetted workforce access to alternative platforms (such Uber Eats). The pivot additionally rests on several collaborations with staffing agencies as well as other service firms (McDonald's, UPS, and FedEx among others), enabling matching between available workers with alternative work opportunities beyond Uber's existing platforms.

Table 4: Strategic Improvisation in Practice (Low Strategic Improvisation Readiness: Survive)

Strategic Improvisation Vignette	Strategic Improvisation Actions	10C Strategic Imperative Framework	
		Strategic Imperatives	Other aspects of 10C Framework
Call Centers	Call Centre businesses (e.g., insurance, financial services, travel agents etc.) have faced significant disruption from social distancing and home-working protocols introduced globally. These businesses had to move to remote working tied into corporate call center management systems over network connections. Challenges have revolved around integrating systems and coordinating across cyberspace and ensuring all staff can access systems remotely. This has been problematic for some with systems and connections being unreliable.	Organizational Resilience (Climate, Collaboration)	Coordination
HG Walter	Meat wholesaler based in London, UK, and supplier to Michelin-starred restaurants and high-end retailers (e.g., Harrods) and hotels (e.g., The Dorchester). Focused on survival by pivoting temporarily to B2C sales by creating new offers such as 'survival packs' (including vegetables and vacuum-packed meat) and 'patty & bun burger kits'.		Capability Clarity Climate
Universities	Universities have faced significant strategic disruptions and time pressured demands for significant strategic change. Universities have been forced to pivot to total online engagement and delivery of programs, corporate education, research with corporations (e.g., involving qualitative work; lab-based experiments and work), recruitment, stakeholder engagements, and so forth.		Capability Coordination Collaboration
Virtual Madrid Tennis Open	The cancellation of the 2020 Madrid Tennis Open due to the coronavirus pandemic, instigated a strategy pivot effort, replacing traditional tennis with virtual competition. One of the key goals was to raise funds for struggling players, specifically those in lower tiers, who greatly depend on tournament winning fees. This pivot strategy relied on the firm's existing resources (market reach, high profile players' participation, brand reach, etc.) but faced significant technological challenges due to streaming data bandwidth demands as well as rights conflicts between streaming platforms.		Capital Cognition Coordination Climate Creativity