



Organizational ambidexterity: Integrating deliberate and emergent strategy with scenario planning

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ABSTRACT

In this article we propose scenario planning as a tool for fostering organizational ambidexterity. The concept of organizational ambidexterity continues to gain attention, however, clear methods for developing this organizational ability are generally not offered. We therefore describe organizational ambidexterity and situate it in the general strategy literature. Key characteristics of organizational ambidexterity are provided, and the logical link to scenario planning is made. As the concept of organizational ambidexterity is relatively novel, our proposal highlights the use of scenario planning as a potential tool for developing this organizational “skill”, and clear next steps are described to examine our proposal as well as leverage the concept of organizational ambidexterity beyond that of a simple metaphor.

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Ambidexterity has become a popular metaphor for understanding certain aspects of organizational planning [1–4]. This metaphor has been developed and expanded upon at length by Tushman and O’Reilly [3]. At its core, the concept of organizational ambidexterity describes the ability of an organization to embrace and balance deliberate and emergent approaches to strategy at the same time. While the concept has been expanded upon in detail [1,2] few specific methods for developing ambidexterity in organizations have been proposed or identified.

1. Problem statement and research question

The use of metaphors has been prevalent in organizational literature [5–7], and some have criticized the use of metaphors [8] because while they can be helpful in the understanding of ideas, they cannot substitute for research questions and disciplined inquiry. Thus, the continued use of ambidexterity as an organizational metaphor is decidedly limited if it does not give rise to research questions that assist in helping organizations develop the ability to “use” their ambidexterity – or to balance deliberate and emergent approaches to strategy. Therefore the problem is that there is little direction in the organizational ambidexterity literature that points decision-makers to specific methods for developing ambidexterity. Thus, the research question we pose is as follows:

- 1) How can organizations develop ambidexterity and embrace both the deliberate and emergent properties of strategy?

1.1. Preview of the article

In this article we begin by providing a general introduction to strategy and then situating the concepts of deliberate and emergent strategy within it. We then explore the concept of organizational ambidexterity in depth, explaining its potential role in organization strategy and summarizing the current thinking on the topic. Finally, we argue that the organizational ambidexterity literature and research has not yet provided concrete suggestions and methods for how to develop this characteristic, and we

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suggest that scenario planning is a critical tool for developing ambidexterity and embracing the deliberate and emergent properties of organizational strategy.

2. Strategy

The strategy literature has become so diverse, complex, and vast, that any review would fall short of covering the entirety of perspectives, views, and positions. However, a sense of background is necessary for situating the context out of which the ambidextrous approach has grown and what advantages it is claimed to provide. The following overview of some general strategy principles and views is intended only to describe the main streams of thought that have given rise to the ambidexterity metaphor.

Strategy generally involves business goals, a vision, and usually an explicit plan to get to achieve the vision and accomplish the goals [1–4,9,10]. The notion of starting at point “a” and going to point “b” suggests a metaphor of strategy as either a roadmap to set direction or the link between an organization's present and its future. Roadmap strategists assert that firms need to “understand how they want to compete, where they will make money, and what organizational levers will enhance their performance” ([9], p. 302). Eisenhardt et al. [76] called this a resource roadmap. These strategists spring from a wide variety of “strategy schools” [10] and generally do not incorporate a time component into their strategy theories. They note that strategy helps set the organization's direction and ensure that its activities are aligned with the firm's mission [11]. Porter (cited in [12], p. 26) stated that strategy is the “pursuit of a unique way of competing – choosing to deliver a particular kind of value, rather than just trying to deliver the same kind of value better.”

Other authors agree that strategies need not have time components (present versus future). Eisenhardt et al. ([76], p. 159) argued that “in high-velocity markets, a strategic plan is an emotional rallying point and a resource roadmap. It is not anything more, and certainly it does not provide insight about the future.” Others who define strategy without a time component include Ghemawat [14], for whom business strategy is the conscious use of formal planning to positively control market forces, and Mintzberg et al. [10] for whom strategy is a plan, a pattern, a position, a perspective, and/or a ploy. Hunger and Wheelen [11] also avoided including notions of present or future orientation in their definition of a hierarchical strategic model: (pp. 7–8):

“Functional strategy is the approach taken by a functional area, such as marketing or research and development, to achieve corporate and business unit objectives and strategies by maximizing resource productivity. Business strategy emphasizes improvement of the competitive position of a corporation's products or services in the specific industry or market segment served by that business unit. Business strategies are composed of competitive and cooperative strategies. Corporate strategy describes a company's overall direction in terms of its general attitude toward growth and the management of its various businesses and product lines. It is composed of directional strategy, portfolio analysis, and parenting strategy.”

Conversely, some strategists emphasize a time component in their conception of strategy and therefore define a strategic plan as the blueprint for a firm's future [10,15,16] which is important because it necessarily allows firms to establish a feedback loop between their present and future status [17]. Brown and Eisenhardt [18] noted that: “successful firms link the present and future together through rhythmic, time-paced transition processes.” They stated further “successful firms rely on a wide variety of low-cost probes into the future, including experimental products, futurists, and strategic alliances. Neither planning nor reacting is as effective” (p. 1). Marginson and McAulay [19] agreed with and stated that “time is significant as a reference point for the strategic decision maker” (p. 273).

There are sharp differences between theorists who think of strategy as roadmap and those who feel that strategy must possess a present or future time component. There is no one unified grand strategy or unanimous version of strategic planning [20]. The strategy literature includes a multitude of different attitudes and thoughts regarding the relevance and usefulness of strategy [21]. Doz and Kosonen [22] assert that “being strategic evokes images of being strong but ponderous, and hence slow,” and Bolman and Deal [23] state that strategic planning “is an essential ceremony organizations conduct periodically to maintain legitimacy.” Mintzberg et al. [10] discussed 10 fundamentally different schools of strategy; each school focused on a particular method of strategy-making, such as positioning, organizational learning, and organizational culture amongst others.

2.1. Deliberate versus emergent strategy

Despite the wide variation in beliefs, the general discipline of strategy includes ideas of how and why organizations think about, plan, implement, manage and revise their strategies. In this article we use the term “strategic management” since it provides a broad definition of what strategy is and why it is useful. As defined by Nag, Hambrick, and Chen [24], strategic management deals with the “major intended and emergent initiatives taken by general managers on behalf of owners, involving utilization of resources, to enhance the performance of firms in their external environments.” This definition is important because it notes that strategy consists of both intended and emergent initiatives. Similarly, Mintzberg et al. [10] distinguished strategy as either deliberate or emergent (Fig. 1), and Mintzberg and Waters [16] noted that the more deliberate strategies tend to emphasize central direction and hierarchy, the more emergent ones open the way for collective action and convergent behavior.”

Deliberate strategy is the specification of intended actions the firm plans to take to achieve its goals. It may be successful or unsuccessful, resulting in goals being realized or unrealized and often new goals are developed. It is this aspect of strategy that may be perceived as “slow.” Deliberate strategy in organizations was popular in the 1950s through the 1980s, and it is a component of many of the early schools of strategy, including strategy as design, strategy as positioning, strategy as culture, and strategy as

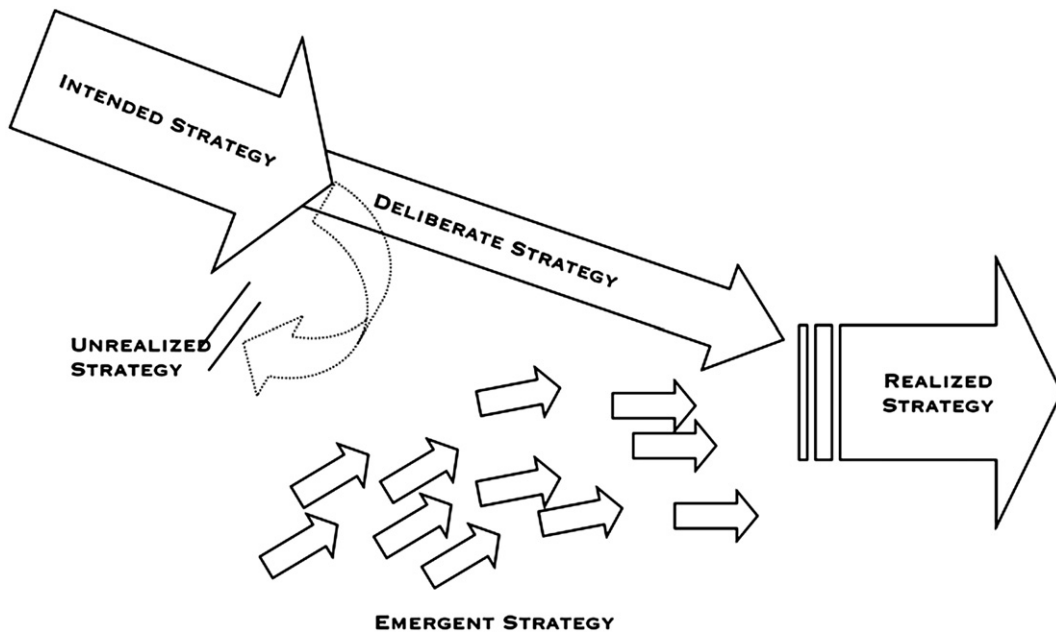


Fig. 1. Strategies deliberate and emergent ([10], p. 12).

organizational learning. But deliberate strategy is not about the future and “some management pundits have been sounding the death-knell of planning since the early 1980s” ([25], p. 86). Eisenhardt et al. ([76], p.158) argued that (deliberate) “strategic planning gives managers almost no help in gaining insight about the future. It is a passive approach that does not actively engage the future. And it can even be detrimental to managing the future when the plans are too rigid.” Goold and Quinn [26] agreed with this and suggested that “detailed and precise plans and strategies” don’t work very well for today’s companies, in view of the fact that decisions are often “messy and political” and firms need to be flexible enough to take advantage of new opportunities.

Emergent strategy is therefore an absolutely critical element in the current turbulent business environment [27]; it cannot be overlooked, and organizations must create space for emergence to occur. Companies cannot sustain any form of competitive advantage without attention to and space for emergent strategy. Emergent strategy happens when companies engage in actions that evolve unplanned from past patterns or newly recognized patterns in the business environment. According to Mintzberg and Waters [16], “openness to emergent strategy enables management to act before everything is fully understood – to respond to an evolving reality rather than having to focus on a stable fantasy.” If an action is explicitly planned, it cannot be emergent. Moncrieff [21] asserted that emergent strategy “creates deliberate responses to issues emerging within the competitive environment. They are the result of deliberate decisions to marshal and focus resources in order to pursue a new direction, modifying or replacing some aspects of earlier strategic intent” (p. 273).

For example, rather than pursue an explicit integration strategy, a hospital may make a decision to buy a Long Term Care facility. It then buys an Assisted Living facility. It continues to expand and buys some physician practices. These actions were taken one at a time, but they culminated as a pattern in which the hospital became integrated with other healthcare organizations. Eisenhardt et al. ([76], p. 56) pointed out that an emergent strategy can arise from an improvisational approach. “It comes from quickly spotting the temporary advantage provided by the confluence of strategy and luck, acting rapidly to take advantage of the competitive opening created, and building from this advantage a platform for combining advantages into a rule-breaking killer strategy.” Holland [28] described further the notion of emergence:

“The hallmark of emergence is this sense of much coming from little. This feature also makes emergence a mysterious, almost paradoxical, phenomenon smacking of “get rich quick” schemes. Yet emergence is a ubiquitous feature of the world around us. Mundane activities such as farming depend on rules of thumb for emergence – for example, knowing the conditions that influence the germination of seeds. At the same time, human creative activity, ranging from the construction of metaphors through innovation in business and government to the creation of new scientific theories seems to involve a controlled invocation of emergence.”

Mintzberg et al. ([10], p.11) noted that: “few, if any strategies are purely deliberate, just as few are purely emergent. One means no learning, the other means no control. All real-world strategies need to mix these in some way: to exercise control while fostering learning.” Jett and George’s [29] simulation study found that “superior emergent processes have some elements of deliberate strategy embedded in them”... “and that decision processes benefit from an ongoing interplay between deliberate and

emergent processes” (p. 408). Mintzberg and Waters [16] explained further that the aforementioned interplay is the best strategic management policy for companies operating in a highly uncertain environment. They called this deliberately emergent strategy, one in which management sets general boundaries but not the details.

It is this mixing phenomenon that forms the treatise of this article. We discuss the construct of ambidexterity and describe its relevance to organizations with respect to deliberate and emergent strategy. Scenario planning theory and methods are then reviewed and it is argued that scenario planning practices are suited to help organizations in fostering their ambidexterity. Finally, we discuss the roles of ambidexterity and scenario planning in helping companies develop strategies that are at once deliberate and emergent.

3. Ambidexterity

Ambidexterity is usually defined as the ability of individuals to use both of their hands with equal skill; individuals who are neither “right-handed” nor “left handed.” According to the Oxford English Dictionary [77], ambidexterity has the root “ambi” (meaning both) and dexter, meaning “right” or favorable. Thus, “ambidextrous” is literally “right on both sides,” or the ability to be equally skilled with each hand rather than being either “right-handed” or “left handed.” Organization theorists have adopted this trait as a metaphor to describe organizations [1–3,31–36]. In this sense, ambidexterity refers to how an organization “wears the hat” of the job it does today while at the same time “wearing the hat” of the job it will do tomorrow. The problem, as defined by Brunner, Staats, Tushman, and Upton [37] is that for the highly disciplined organization, “the pursuit of efficiency in the near term tends to undermine the capabilities required for survival in the long term.”

3.1. Ambidexterity as an organizational metaphor

Can these two opposing orientations really be reconciled? Some say they cannot be. Moore [34] argued “the best strategic moves for a company are ones that supplement rather than complement that company’s current dominant business model.... A better metaphor would be to say that companies should favor their dominant hand” (p. 64). Moore [34] brought out the fact that ambidextrous organizations are rare, and that it is important to “recognize that organizations have a handedness — a deep-rooted predilection for either volume operations or complex systems” (p. 72).

Other authors say they must be reconciled. Raisch and Birkinshaw [2] posed a model of organizational ambidexterity which notes that its antecedents consist of structure, context, and leadership. This leads to the idea that organizational ambidexterity is best viewed from the multiple frameworks of organizational learning, technological innovation, organizational adaptation, strategic management and organizational design. The authors then pointed out that environmental dynamism, competitive dynamics, market orientation, resource endowment and firm scope moderate the firm’s ability to be ambidextrous.

3.1.1. Context

Gibson and Birkinshaw [32] noted that organizational ambidexterity only occurs within an organizational context. Context is defined as “the environment on which an organization operates” ([30], p. 359). Gibson and Birkinshaw [32] defined context as the features an organization possesses, and further stated “organization context is the systems, processes, and beliefs that shape individual-level behaviors in an organization.” (p. 212). Although ambidexterity is a characteristic of a business unit as a whole, Gibson and Birkinshaw [32] argued that it manifests itself in the specific actions of individuals throughout the organization. They concluded that contextual organizational ambidexterity is best achieved by “building a set of processes or systems that enable and encourage individuals to make their own judgments about how to divide their time between conflicting demands for alignment and adaptability” (p. 210). The authors (2004, p. 213) cited Bartlett and Ghoshal ([38], p. 151) definition of organizational context as the “yin and yang of continuous self-renewal” — a balance between a pair of hard elements (discipline and stretch) and a pair of soft elements (support and trust).” The notion of renewal is important to an ambidextrous organization. Dougherty [39] pointed out that

“an essential skill in a renewing firm is the ability to understand what is valuable to customers, to ferret out unmet needs, to appreciate how that firm’s technological capabilities might meet those needs, and to work with fellow explorers from other areas of expertise.”

3.1.2. Exploration and exploitation

Ambidextrous organizations are frequently depicted using a variety of oppositional concepts. For example, some authors conceive of ambidexterity as exploration versus exploitation. These organizations are capable of exploiting their existing competencies while exploring new opportunities at the same time [1,35,40]. March [40] referred to this as the “exploration of new possibilities and the exploitation of old certainties.” Exploration and exploitation have been conceptualized as contradictory forces [41] that cannot be mixed, because exploration activities include innovation and risk-taking and exploitation activities focus on incremental change to create value through existing competencies [41–43].

Exploration requires significant investments with uncertain payoffs [44]. Exploitation focuses on incremental change to create value through existing competencies, and thus poses less risk to the organization. Exploitation is an orientation to the short-term whereas exploration has a more future-based, or long-term focus [43]. Exploitation activities may be directed toward gaining efficiency while exploration activities promote flexibility in the organization. Interestingly, He and Wong [43] pointed out that the

exploration versus exploitation construct has been used in a “wide range of management research areas, including strategic management, organization theory, and managerial economics” (p. 481).

The precise amount of exploitation or exploration a company needs is not specified in the literature. Levinthal and March [45] asserted that although too much time spent on exploration can drive out exploitation, the more common situation in organizations is that “exploitation tends to drive out exploration” (p. 107), due to focus on daily operations. This is likely due to March's [78] observation that “an organization cannot survive in the long run if it fails to survive in the short run” (p. 205). Yet, Mintzberg ([79], p. 15) laments the fact that “the long term simply does not count in most real-world planning, figuratively as well as literally.”

3.1.3. Other nuances and perspectives

Other authors use different words to attribute similar oppositional meanings of the concepts relevant to the notion of organizational ambidexterity. Thompson ([80], p. 150) stated “the paradox of administration involves the dual searches for certainty and flexibility.” Adler, Goldoftas, and Levine [46] agreed that ambidexterity is an acceptable solution to the battle between efficiency (exploitation activities) and flexibility (exploration activities). Veliyath [25] believed that strategic planning activities can be anticipatory or hindsight in orientation. Anticipatory activities seek to proactively take advantage of the future in order to reduce the organization's environmental uncertainty. Hindsight activities rely on “ex-post analysis of events and information to prepare for the future” ([25], p. 87), but firms that pursue both anticipatory and hindsight actions at the same time enable managers to “exercise better strategic control and optimize the firm's short-run performance as well as long-term prospects” (p.86). Vinekar, Slinkman, and Nerur [4] depicted ambidextrous organizations as those able to reconcile agility and stability. In their view, an agility approach is suitable for projects with high levels of uncertainty and risk and frequently changing environments. A stability approach is appropriate for projects in which “the requirements are stable and predictable, and when the project is large, critical, and complex” (p. 33).

Gibson and Birkinshaw [32] defined the trade-offs between alignment and adaptability as foundational to organizations and describe organization ambidexterity as the capacity to simultaneously achieve alignment (excellence in daily operations) and adaptability (referring to the organization's ability to innovate and change in response to changing demands in the environment). Tushman and O'Reilly [3] described the oppositionality of 2 types of change; incremental change versus discontinuous innovation and change. To them, organizational ambidexterity is “the ability to simultaneously pursue both incremental and discontinuous innovation and change.” To accomplish this, Benner and Tushman [47] noted that “senior teams must develop techniques that permit them to be consistently inconsistent as they steer a balance between the need to be small and large, centralized and decentralized, and focused both on the short term and long term, simultaneously” (p. 248).

Nadler and Tushman [48] argued that ambidextrous management is the “ability to maintain superior performance in established businesses while managing innovation in targeted areas.” They noted further (p. 53) that the “organization of the future will have to be more than just ambidextrous; in a sense, it will have to become polydextrous.” These authors extend the notion of ambidexterity, whereby organizations operate both in the present and the future, to polydexterity which will require firms to coordinate businesses that are both complementary and competitive in the current marketplace at the same time.”

Whether ambidexterity or polydexterity, Macintosh and Maclean [49] pointed out that “many of the dichotomies with which the strategy literature seems to be increasingly concerned (e.g., static vs. dynamic, process vs. content, positioning vs. resources, planning vs. emergence) could be symptomatic of the decreasing relevance of current conceptions of strategy in the so-called ‘knowledge age’.” Vermeulen [50] also lamented the lack of relevance in much organizational research, relating it to the fact that academia values rigor rather than relevance.

3.1.4. A common theme

And yet, a common theme emerges as these concepts are explored. Ambidexterity eliminates the need for organizations to choose between opposites or to focus on “trade-offs.” Ambidexterity is a paradoxical concept, where “either/or” thinking has given way to “both/and” or paradoxical [81] thinking. Paradoxical thinking is an example of the “genius of the and” prevailing over the “tyranny of the or” ([52], p. 48). Paradoxical thinking allows managers to “counteract their tendency to over-rationalize and over-synthesize by simultaneously holding and even exploring opposing views” ([13], p. 704).

Raisch and Birkinshaw [2] agreed that researchers have come to “recognize the importance of balancing seemingly contradictory tensions.” Even Moore ([82], p. 72) noted that “organizational handedness is a concept that may help management teams pull together.” Benner and Tushman [47] stated that “ambidextrous senior teams must develop processes for establishing new, forward-looking cognitive models for exploration units, while allowing backward-looking experiential learning to rapidly unfold for exploitation units” (p. 248). Levinthal and March [45] concur “the basic problem confronting an organization is to engage in sufficient exploitation to ensure its current viability and, at the same time, to devote enough energy to exploration to ensure its future viability” (p. 105). Bourgeois and Eisenhardt [51] continued this line of thought as they argued:

“There are a series of paradoxes which successful firms resolve and unsuccessful firms do not: We have found an imperative (1) to make strategic decisions carefully, but quickly; (2) to have a powerful, decisive chief executive officer (CEO) and a simultaneously powerful top management team (TMT); and (3) to seek risk while executing a safe, incremental implementation.”

It is clear that companies need to be dually focused, both on today's needs and tomorrow's opportunities. Managerial myopia [19], the tendency to focus on the short-term at the expense of the long-term must be avoided, despite the fact that “pressing

current organizational problems are the most salient motivators or organizational search, not future-oriented considerations" ([53], p. 693). Smith and Tushman [41] asserted that "sustained performance is rooted in simultaneously organizing for short-term efficiency as well as long-term innovation" (p. 522), as they urged companies to find methods to deal with strategic contradiction. Indeed, in the 21st century, organizations must "find creative ways to design and implement new organizational architectures in half the time required by current processes without sacrificing the benefits traditionally associated with deliberate planning and appropriate participation" ([48], p. 49). Companies must be able to quickly respond to market needs at the same time as they are attending to the short-term value that is created by present-day operations [31,32,35]. Organizational ambidexterity thus allows strategists to create relevance as well as change conceptions of what strategy really does mean in the knowledge age.

4. Scenario planning

So how do organizations foster ambidexterity? We propose that scenario planning is a critical tool for balancing the ability to "see" new opportunities, while maintaining a focus on current operating advantages. Scenario planning is like organizational radar, allowing decision-makers to develop an early warning system for potentially devastating market conditions, competitor developments, and other industry shifts. Much has been written about scenario planning in recent years [54–61,63,64,74]. Likely a result of dissatisfaction with outdated planning tools and methods, perhaps organizational leaders have become frustrated to the point that the need for forecasts, concrete answers, and other false assurances has finally subsided. To be sure, those men at Shell were onto something back in then 70s, and perhaps we have finally decided to heed their warnings about the nature of planning based on predictions and forecasts – mainly that "sooner or later they will fail – and just when they are needed most" ([67,68], p. 23).

Scenario planning is an approach that attempts to harness uncertainty, accept it, and build it into the planning process. Scenario planning involves intuition, creativity, the ability to wonder about the environment and its possibilities, as well as a deep understanding of industry trends, competitor actions and global forces that drive economic, social, and political systems. Most of all, scenario planning allows organizations to balance deliberate and emergent approaches to strategy.

Scenario planning evolved from Herman Kahn's methods to "think the unthinkable" [66] in the 1950s. The scenario approach recognizes the inherent weaknesses in forecasts, and single-outcome methods that essentially aim to predict the future. Instead, scenario planning makes use of multiple scenarios or stories of different futures to underscore the fact that the future is unpredictable, unstable, and inherently filled with uncertainty. Reframed as tools for learning, scenarios are intended to "shift the thinking inside the organization" ([67], p. 34) and help managers and decision-makers re-perceive the organizational situation and consider numerous ways in which the future might unfold.

Pierre Wack translated Kahn's ideas into a corporate setting in his years as the head of long range planning at Royal Dutch/Shell. Wack spent most of the 1970s experimenting with and refining his methods and he credited Shell's ability to anticipate the oil shocks of the mid 1970s and 80s to this new technique. Eventually, he published Shell's successes with scenarios in the *Harvard Business Review* [65,67,68]. Wack's work at Shell served as the foundation for the modern scenario planning methods used and sold through the Global Business Network (www.gbn.org) – the organization most commonly sought for expertise in scenario practices today.

4.1. A general scenario planning process

While there are numerous variations on how to conduct a scenario planning exercise, all are variations on a theme. That is, all have certain elements in common. Wilson and Ralston [69] provided a comprehensive and detailed process for developing and using scenarios. Their process involves 18 steps, which are provided in Table 1. Each step in this process is a critical point of adding value and exposing mental models and assumptions during the scenario project. These 18 steps are also in four general phases of scenario planning, namely, 1) "getting started, 2) laying the environmental analysis foundation, 3) creating the scenarios, and 4) moving from scenarios to a decision" ([69], p. 25).

Steps one to six are all related to starting up the scenario project and these steps are meant to define the scope of the project and assemble the scenario project team. Steps seven to ten are concerned with exploring the internal and external environments

Table 1

A step by step approach to developing and using scenarios.

Step 1 – Develop the case for scenarios	Step 10 – Conduct focused research on key issues, forces, and drivers
Step 2 – Gain executive understanding, support, and participation	Step 11 – Assess the importance and uncertainty of forces and drivers
Step 3 – Define the decision focus	Step 12 – Identify key "axes of uncertainty"
Step 4 – Design the process	Step 13 – Select scenario logics to cover the "envelope of uncertainty"
Step 5 – Select the facilitator	Step 14 – Write the story lines for the scenarios
Step 6 – Form the scenario team	Step 15 – Rehearse the future with scenarios
Step 7 – Gather available data, views, and projections	Step 16 – Get to the decision recommendations
Step 8 – Identify and assess key decision factors	Step 17 – Identify signposts to monitor
Step 9 – Identify the critical forces and drivers	Step 18 – Communicate the results to the organization

Note: From *Scenario Planning Handbook: Developing Strategies in Uncertain Times*, by I. Wilson and W. Ralston [69], p. 25. Belmont, CA: Southwestern Educational Publications Copyright 2006.

and putting these together in a cohesive picture. Steps 11 to 14 focus on developing the scenarios themselves based on all of the work done in the previous steps. The final phase includes steps 15 to 18 and these steps cover the use of the scenarios to examine current strategies and decisions. Wilson and Ralston's [69] text provides a detailed road map through each of these steps with specific instructions and practitioner tips.

4.2. Characteristics of ambidexterity fostered by scenario planning

There are three key capabilities described in the ambidexterity literature that are reflected in the scenario planning process. These capabilities are described as Teece's [62] tripartite taxonomy of sensing, seizing and reconfiguring. "Ambidexterity requires a coherent alignment of competencies, structures, and cultures to engage in exploration, a contrasting congruent alignment focused on exploration, and a senior leadership team with the cognitive and behavioral flexibility to establish and nurture both" ([35], p. 13).

4.2.1. Sensing

The ability to sense opportunities and threats requires scanning, searching, and exploration. "In organizational terms this involves a set of resources and routines such as a strategy-making process associated with variation, resources devoted to competitive intelligence and tracking technological change, and forums for discussions of new opportunities" ([35], p. 13). The ability to sense new opportunities is based on a balance between centralized and decentralized control such that feedback delays about decision outcomes are necessarily shortened [35]. In other words, sensitive organizations have mechanisms in place to give them quick and constant updates about what is happening in the external environment both as a result of decisions they make, and that occur autonomously [70].

Scenario planning is designed to foster a constant and consistent read of the external environment as well as the internal. Because scenarios explore multiple possible futures rather than a single, most likely future, participants are attuned to possibilities and signals that mark the turning of events toward a variety of options. In short, scenario planning forces decision-makers to adopt a continuous change thinking perspective that demands a consistent level of attention to forces at work in the external and internal environments and what they indicate for strategic business decisions and initiatives currently underway [71].

For example, Shell's well-known scenarios were constantly examining oil prices, and actions and decisions that could affect oil prices. Early scenarios at Shell were concerned with producers, suppliers, and consumers of oil, and so the usefulness of scenario planning was explicitly in the ability of decision-makers to use the technique to stay on top of what was happening in the global oil business environment [65,67,68,72]. In short, scenario planning was initiated and adopted at Shell specifically because it allowed decision-makers to develop a system for sensing shifts in the external environment, such that opportunities could be exploited more quickly when compared to competitors who had no such sensory system.

4.2.2. Seizing

The ability to seize opportunities comes first from the recognition that they exist. Without sensing, there is no seizing. Seizing opportunities is about executing strategic insight that leads to strategic action [83]. "In more concrete terms, this involves developing a consensus among the senior team about the strategic intent, avoiding the decision traps that path dependencies and mindsets bring, and aligning the business model and strategy" ([35], p. 15).

van der Heijden [73] discussed a tool he called the business idea, which he likened to Drucker's "theory of the business" or business model. The purpose of this tool in scenario planning projects is to articulate the business model, which can then be tested in a variety of scenarios later in the process. An additional purpose is to share the mental models of the senior management team about precisely what the business model is supposed to be. Once this model is agreed upon, alternatives can be discussed and additional perspectives can be invited into the process to challenge the conventional mindset. To be sure, scenario planning is designed specifically to counter the "groupthink" phenomenon through the use of external experts not related to the content under question. Finally, since scenarios pose multiple plausible future worlds that might actually unfold, strategic decisions can be examined in a variety of contexts prior to implementation. In the scenario literature, this is known as testing the strategic "robustness" which essentially aligns the business model and strategy [64], but takes one additional step in that it does so in a variety of potential environments.

4.2.3. Reconfiguring

"The key to sustained profitably growth is the ability to recombine and reconfigure assets and organizational structures as market and technologies change ([62], p. 38). The ability to reconfigure resources, assets and structures, we argue, is purely a function of human resource capability. While the need, desire, and strategic advantage of reconfiguring certain organizational components is brought about by sensing and seizing, reconfiguration is usually a large task, and requires the efficient and effective shifting of resources. We argue that only a highly competent management team with effective communication can carry out this task in strategic contexts. However, we cannot overstate that this capability is an important one.

We also link this capability to scenario planning in that its execution would logically be faster in an organization that has visited multiple varying possible futures, rather than a single one. For example, one key purpose of entertaining multiple futures is specifically that resource allocation can be shifted more quickly due to a) the identification of signals that major shifts are occurring, or are about to occur, and b) the demand of scenario planning that decision-makers have already thought about where, how, and under what provisions, the resources would be re-directed.

The ability to reconfigure is precisely what made Shell famous for its scenarios. Because they were able to anticipate oil prices skyrocketing and bottoming out, they were able to react faster than their competitors, and to this day recall the initiation of scenario planning in the 1970's as a major reason for their current market position.

5. Implications and conclusions

The purpose of this article has been to describe a method for fostering organizational ambidexterity. While the concept of organizational ambidexterity has been popular in describing an organization's abilities to focus on multiple options for potential strategic leverage, there has not yet been a "user's manual" for developing organizational ambidexterity. In addition, as the metaphor of ambidexterity has been a useful one, our purpose was to further the dialogue and to propose a potential method for actually developing this trait in organizations.

Our proposal, however, remains an untested hypothesis and as the scenario planning research continues to develop [54–61,63] there are opportunities to examine our hypothesis and continue adding to the knowledge base of classic strategic problems.

5.1. Additional research

Given the novelty of ambidexterity as an area of organizational research, varying methods must be considered in order to adequately address the questions that naturally arise. From a theory development perspective:

The construction of a theory proceeds in three stages. It begins with a description of some phenomenon we wish to understand. In physics, the phenomenon might be the behavior of high-energy particles; in business, it might be innovations that succeed or fail in the marketplace...to improve understanding beyond this stage, researchers need to move to the second step; classifying aspects of the phenomenon into categories...this sorting allows researchers to organize complex and confusing phenomena in ways that highlight their most meaningful differences. It is then possible to tackle stage three, which is to formulate a hypothesis of what causes the phenomenon to happen and why. And that's a theory ([75], p. 2).

So, we have begun with a description of the desire to somehow combine and balance the deliberate and emergent aspects of organization strategy. Descriptions of what this would look like are available as the primary contribution in the ambidexterity literature as is recommended in the first stage of theory development. There have also been classifications into the key characteristics of ambidexterity, namely, sensing, seizing and reconfiguring [62]. While cursory, these categorizations and classifications into characteristics provide a basis on which to judge what is, and what is not organizational ambidexterity, and may fulfill the requirements of stage two. Admittedly, additional descriptive and classification work can always be expanded and developed.

Which leads us to stage three; formulating a hypothesis of what may cause the phenomenon and why. Certainly, there are other hypotheses to be formulated on the topic, and the more hypotheses that are formulated and investigated, the more we will learn about the nature of ambidexterity as an organizational characteristic. However, having developed a hypothesis, the logical next step is to gather information and evidence to support or refute the hypothesis. While there are several approaches to testing our hypothesis, case study, and qualitative research will be the best options based solely on the difficulties in measuring organizational ambidexterity. Because there is no defined measure of organizational ambidexterity that is valid and reliable, first steps should be in locating, describing, and documenting organizations that exhibit Teece's [62] characteristics of sensing, seizing, and reconfiguring. We have proposed that organizations using scenario planning would exhibit these characteristics, thus, our next steps in terms of research will be to use organizations engaged in scenario planning as case studies for organizational ambidexterity.

In short, the investigation of organizational ambidexterity is in its early stages, and while our proposal seems a logical fit based on the ambidexterity and scenario planning literatures, there remains a lack of evidence linking these two phenomena. Rigorous inquiry will be the only way to more fully understand organizational ambidexterity and to move the concept beyond the realm of a useful metaphor.

5.2. Practical considerations

From a more practical lens, the ability to harness the advantages of both deliberate and emergent forms of strategy would be a useful skill no doubt. Historic cases of scenario planning such as those from Shell [65,67,68] clearly highlight the practical utility of being able to "see" ahead into the future, and to consider the implications of present actions well beyond what is practiced as a standard. The process is designed to force participant reflection on their decisions and actions. In a similar way, the process also forces participants to examine what they know, make it clearly conscious, and find the hidden opportunities among the shared perceptions of a group of individuals.

At a minimum, our proposal suggests a new way of looking at scenario planning and considering Teece's [62] tripartite taxonomy as another frame for understanding and dealing with uncertainty in the business environment. Facilitators of scenario planning might also consider this frame as an additional basis for their projects. For example, scenario planning workshops could easily be organized into three phases of sensing, seizing, and reconfiguring. In fact, the entire scenario planning project could be

organized according to these phases, with clear intent of realizing what is deliberate about an organization's particular strategy, and leaving room for non-prescribed strategies to emerge. That is the basis of Mintzberg's [84] treatise — that there must be room for the “un-thought-ofs” to occur.

Neither organizational ambidexterity nor scenario planning are new concepts. The contribution of this article is in its synthesis of two concepts that have not yet been tied together. What is new, then, is the use of one of these concepts to highlight the other — the synergy that comes about by bringing these two concepts together to form a new idea, or to view an old idea in a new way. While some might call both organizational ambidexterity and scenario planning faddish ideas in management, more than ever, business leaders are struggling with managing uncertainty. For example a recent article in *The New York Times* presented a “return to scenario planning” in U.S. based corporations [85]. This trend of returning to scenario planning indicates continued frustration with an inability to manage uncertainty — and repeated judgment failures in an environment growing in complexity.

Another contribution of our proposal is to suggest that most new ideas in management are relatively undeveloped. By framing scenario planning as a process or tool for fostering organizational ambidexterity, we have certainly raised additional questions (i.e., how do these concepts fit together? How can scenario planning be used to integrate deliberate and emergent strategy? How would scenario planning processes need to be modified to take advantage of knowledge gained from the emerging body of knowledge around organizational ambidexterity?). In addition to raising questions, we have also attempted to provide something of practical utility by suggesting the use of structuring a scenario planning project around Teece's characteristics of sensing, seizing, and reconfiguring. This practical application also raises questions — namely, does it work? So we are currently investigating this application and will continue to disseminate the knowledge we gain by combining existing topics and ideas in new ways.

In conclusion, our purpose was to highlight the potential for scenario planning to foster organizational ambidexterity. We have situated the notion of organizational ambidexterity in the general strategy literature and accounted for its evolution as an organizational concept. We then described scenario planning and how this might be a tool for developing organizational ambidexterity by providing details from both the scenario planning and organizational ambidexterity literatures. We have explored the overlap in detail, and suggested several opportunities for exploring and developing the potential link between these two phenomena.

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