

Formal and Informal Scenario-Planning in Strategic Decision-Making: An Assessment of Corporate Reasoning

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Purpose – The theoretical value of scenario-planning as a strategic tool is well recognized in literature. The research objective is to explore the corporate reasoning of formal and informal usage (or non-usage) of scenario-planning in strategic decision-making.

Design/Methodology/Approach – An overview of the relevant literature on scenario-planning as a strategic decision-making tool in the context of complexity and uncertainty is presented, in combination with 15 case studies on executives in the South African context.

Findings – The findings are based on a study in the emerging market context. From the case studies reported it is evident that industry, organizational and leadership related factors influence the effective use or non-use of scenario-planning.

Research limitations/implications – Empirical findings are reported, contributing to an assessment framework to revisit the usage of formal and informal scenario-planning in strategic decision-making. Further research to determine which supportive tools and technologies should be used for scenario-planning across multiple contexts is needed.

Practical implications – The study expands upon previous insights into the formal and informal usage (or non-usage) of scenario-planning in strategic decision-making based on an emerging market context.

Originality/value – This study contributes to understanding the value of scenario-planning in complex contexts that require strategic adaptability, and offers a hands-on toolkit and shortlist of assessment criteria to conceptualize the organizational reasoning and scholarly framing of formal, informal or non-scenario planning in strategic decision-making.

Keywords – Scenario-planning, Scenario thinking, Strategic choice, Formal and informal usage

Paper type – Research article

1. Introduction

Executives have a difficult task ahead as they make strategic decisions in a turbulent world. It is no secret that organizations face change, sometimes unexpected change (Yang and Lui, 2012), and in the absence of appropriate responses, even radical discontinuity (Ghezzi, 2013).

Theorists and practitioners alike have become aware that decision makers need to contend not only with uncertainty (Alvarez and Gibson, 2018), but also with dynamic complexity and turbulence (Lane and Down, 2010). The normal event patterns that decision makers are used to could thus be interrupted unexpectedly (Sargut and McGrath, 2011). Some argue that the levels of complexity, uncertainty and unanticipated risk are “increasing exponentially with time” (Lam, 2014, p. 2). Executives encounter many complex decisions, such as how to enter new markets, anticipate unexpected new competitors, respond to sudden market shifts, or stay abreast of the strategic implications of technological developments.

Lam (2014) explained that the complex system of business does not evolve linearly, but is characterized by “bifurcations.” These are critical points that lead to rapid and acute transitions to unexpected outcomes. If one also considers moments of crisis and emergency in business, the situation may be more than uncertain and complex – it may also be dynamic within the moment itself (Yu *et al.*, 2012). Given this turbulence in the business environment, proper strategic decisions and execution are prerequisites for the continued competitiveness of businesses, industries and countries (Lewis *et al.*, 2014).

The purpose of strategic foresight is to enable leaders and organizations not only to sense changes in the environment, but also to utilize these changes to align organizational assets to the external environment (Vecchiato, 2012). Scenario-planning, as a strategic foresight tool, has long been seen as one possible defense against future uncertainty (Chermack, 2004; Oliver and Parrett, 2018). In the oil and gas industry, Shell has had a long history of successfully using scenarios to develop strategic thinking about the social, political and economic forces of the future. Other strategies that organizations use to deal with uncertainty include the development of tolerance for uncertainty within the culture of the organization (Sikorski, 2017); strategic ambidexterity in response to market dynamism, which allows organizations to explore while exploiting (Andriopoulos and Lewis, 2009; Ikhsan *et al.*, 2017); and strategic competencies such as design thinking as part of a range of dynamic capabilities that a firm may develop (Teece and Leih, 2016).

From a strategy-as-practice perspective (Jarzabokowski and Kaplan, 2015), scenario-planning offers a useful strategic planning tool. Chermack (2004) specifically noted that scenario-planning can prevent decision failure resulting from human and contextual factors such as complexity and changing environments. A key premise of scenario theory is that if decision makers can anticipate possible futures, they may generate alternative responses and thus lessen the impact of uncertainty (Chermack, 2004).

In order for companies to survive, executives need strategic agility as well as organizational ambidexterity, which entails the ability to simultaneously take into account current responsibilities and future opportunities (Lewis *et al.*, 2014). Organizations are agile when they continue to thrive even though the environment is continually changing or unpredictable (Dove, 1999). By developing scenarios, executives are able to consider diverse viewpoints and forecasts of the future, and discover disparate priorities (Ringland, 2010). Many believe that strategic foresight deepens leaders’ understanding of complex systems and develops strategic

agility by preparing them for future threats and opportunities (Hammoud and Nash, 2014; Vecchiato and Roveda, 2010).

In light of this, one may wonder whether leaders operating in complex and ambiguous environments really make use of scenario-planning in their strategic decision-making. Wilburn and Wilburn (2011) argued that although business executives see the value of scenario-planning amidst the impact of global forces, a 2010 report revealed that executives do not act on the trends they see. The question thus remains: In what way, formally or informally, do strategic decision makers use scenario-planning?

The research objective was to explore the corporate reasoning of formal and informal usage (or non-usage) of scenario-planning in strategic decision-making. Formal scenario-planning in this study refers to strategic decision-making in favor of rules, procedures and more deliberate processes, while informal scenario-planning refers to intuitive processes in strategic decision-making. Organizational reasoning encompasses a wide scope of “values, ways of knowing and creativities” used in organizations (Marshall, 2000, p. 244), not limited to intuition, openness to patterns and contexts, and so on. For this reason, in this paper we define corporate reasoning as: “The processes of thinking, both rational and intuitive, used by organizations, or members of the organization collectively, to make strategic decisions.”

This study aims to describe the actual utilization or non-utilization of scenario-planning in a context where uncertainty and complexity prevail, namely the South African business environment. Barnard, Cuervo-Cazurra and Manning (2017, pp. 2-3) argued that Africa presents “a laboratory for modifying and extending current theories and models of organizations and international business.” Africa is characterized by ‘extreme conditions’ of constant turbulence, infrastructural inadequacies, and limited investment in scale and continuous growth. Understanding decision-making within these turbulent conditions holds implications for other emerging market countries that face the dynamism that geopolitical and sociopolitical changes bring.

This article offers a high-level overview of significant theoretical considerations of strategic decision-making and formal and informal use of scenario-planning in corporate reasoning. It then highlights the research methodology and key findings from this qualitative study on corporate reasoning about scenario-planning.

2. Theoretical framework

2.1 Strategic decision-making and scenario-planning

Organizational adaptability is at the core of a firm’s strategic positioning in business environments that are becoming increasingly dynamic. Adaptable organizations are ambidextrous, have dynamic capabilities, are innovative and collaborative, and have absorptive capacity within complexity (Uhl-Bien and Arena, 2018). Given the need for strategic adaptability, firms need to consider how they reason about strategic decision-making.

Decisions are strategic when they require great commitment from the firm (Ghemawat, 1991) and have substantial impact on the scope of the firm (Shivakumar, 2014). Strategic decisions are future-oriented and therefore necessitate insight into complexity, uncertainty, novelty and ambiguity (Schwenk, 1984). Early theories on the rationalistic paradigm of decision-making suggest that decision makers, in the face of uncertainty, should determine several potential outcomes of their decisions in order to choose the optimal direction to take

(Eisenhardt and Zbaracki, 1992). Unfortunately the possible alternatives are not always clear, as decision makers are unable to assess the impact of all market forces in complex systems (Hammoud and Nash, 2014). In a similar vein, the seminal work of Tversky and Kahneman (1974) indicated that decisions become biased in the face of uncertainty as decision makers use short cuts in their thinking. Mousavi and Gigerenzer (2017), however, found that heuristics, or simple rule of thumb, are more effective than calculated methods in contexts of uncertainty where quick decision-making is required. This research focuses on decision-making from the perspective of normative strategic planning in uncertainty however, rather than from a behavioral perspective.

Uncertainty in the business environment follows global shifts in world power, disruption, an accelerated rate of change, greater interconnectedness within and between systems (Ringland, 2010; Sargut and McGrath, 2011), as well as globalization and new technologies (Alvarez *et al.*, 2018). The complexity rather than the uncertainty of the current world does not allow for predictability in decision-making, as patterns in the complex system are easily disrupted and outcomes of decisions are uncertain (Harper, 2014).

Balarezo and Nielsen (2017) recognized that environmental uncertainty and the mental models within organizations are relevant both in strategy and scenario-planning. Bowan (2016) positioned scenario-planning as a strategic tool through which sense can be made of complexity.

Without the means to predict outcomes, and when faced with uncertainty, decision makers may use strategic foresight and scenario-planning (Ringland, 2010, Ramírez *et al.*, 2017). Strategic foresight refers to all available methodologies, processes and tools that assist leaders in future-oriented decisions and planning (Vecchiato, 2012). For example, Inayatullah (2008) regarded scenarios as one of six pillars of futures thinking. These are mapping shared histories and plausible futures; anticipating emerging issues and potential consequences; analysis of the level of control to change the future; exploring dominant worldviews and myths; creating alternatives, which may include scenarios; and finally, selecting a preferred future either through scenario-planning or creative visualization.

Scenario-planning may offer a tool to enhance decision-making comprehensiveness. Slotegraaf and Atuahene-Gima (2011) indicated that in strategy formulation, decision makers need to search for more and higher quality information to achieve decision-making comprehensiveness. Decision makers should use several approaches, potential courses of action and decision criteria when making strategic decisions or innovating (Mohan *et al.*, 2017).

A further reason for scenario-planning may be to encourage managers to think about other plausible business environments (Klein and Linneman, 1981). Wack (1985a) went as far as to say that the purpose of scenario analysis is not to plan, but to think innovatively about the future, and instead of relying on forecasts, to understand the forces within the system. Scenarios integrate analyses of reality but also shift the assumptions that decision makers hold (Wack, 1985b).

Others maintain that strategic decision makers need to explore what they already know, but must also expand their understanding of the interconnection of systemic factors, the cessation of trends, and the probability of unlikely events occurring. They further have to consider how the inter-reliant factors of the environment may evolve, and even estimate probabilities of

potential futures (Brauers and Weber, 1988). Porter (1985), for example, depicted scenarios as a planning tool of industry-specific probabilities, and ultimately competitive behavior, to prevent overly focused predictions. He defined scenarios as “an internally consistent view of what the future might turn out to be” (Porter, 1985, p. 447). Within this paradigm and specifically rational choice theory, a careful calculation of probabilities is the route to optimal decisions (Dean and Sharfman, 1996). Decision makers respond to risk by avoiding potential gains in favor of sure outcomes, and seeking risk in situations where losses are sure rather than probable according to prospect theory (Kahneman and Tversky, 1979).

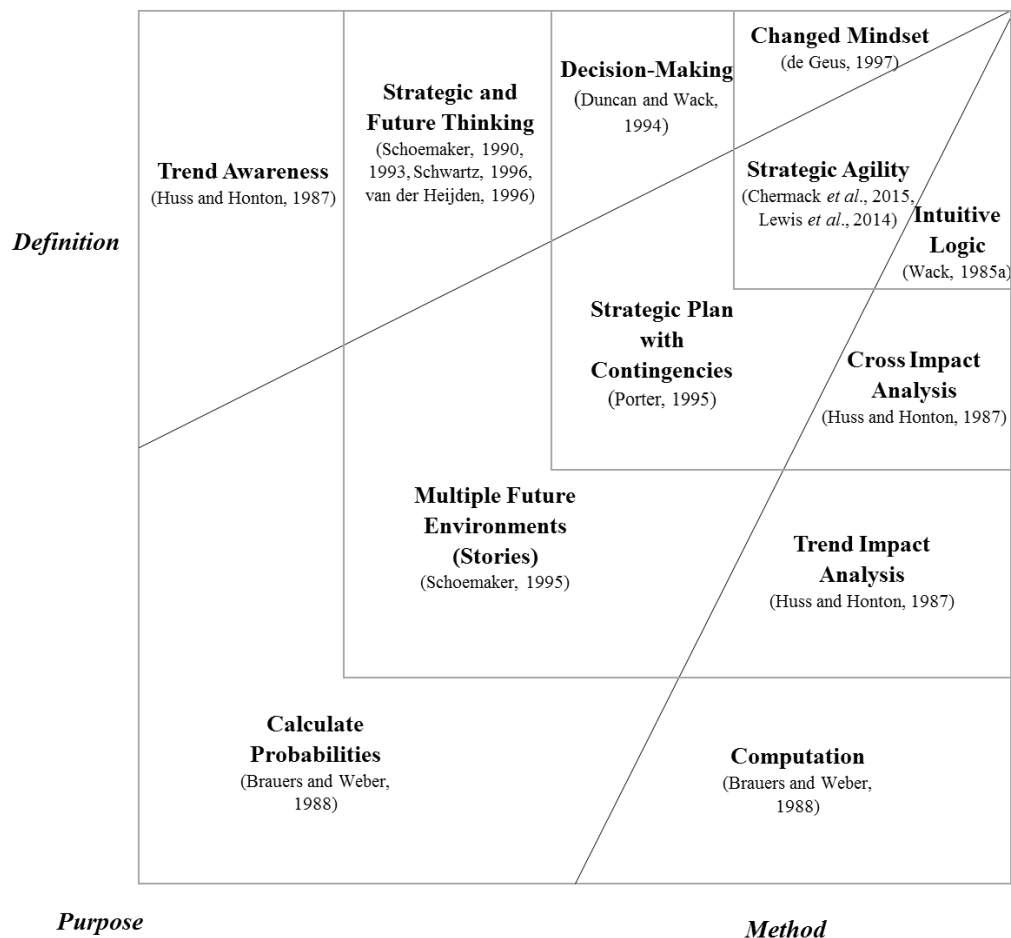
According to Duncan and Wack (1994), beyond the probabilities viewpoint, scenario thinkers should consider driving forces, facts, predetermined events with unknown consequences, untenable factors, impossible incidents and ‘un-researchable’ events. Schoemaker (1990, pp. 549-50) defined scenarios as a narrative “script-like” and detailed depiction of a future, emphasizing “causal connections, internal consistency, and concreteness.”

Chermack’s (2005) proposed components or units of scenario theory include scenarios as (a) dreams about the future; (b) learning in scenario-planning systems; (c) mental models or assumptions about the organization and its environment; (d) a means of decision-making; and (e) performance drivers. In the theory, each of the units interact with the next with an additional feedback loop between decisions and learning.

Scenario-planning offers a way of strategic thinking in the context of uncertainty, interdependence, complexity and discontinuities in the system (Schoemaker, 1990, 1993). Yet instead of yielding estimates of complex probabilities (Huss, 1988), scenario-planning gives decision makers a radar of the environment, enabling them to see possible futures they may have overlooked and therefore opportunity to adjust before “discontinuities” happen (Schoemaker and van der Heijden, 1992, Schoemaker, 1995). Instead of a planning purpose, de Geus (1997, p. 46) emphasized “a change in the mindset of the people who use them.” Scenario-planning results in “deeper thinking” about environmental forces, explained Chermack *et al.* (2010).

Figure 1 shows that there is a wide spectrum of seminal views on the definition of scenarios: taking a long view of the world and “rehearsing the future” (Schwartz, 1996); a strategic thinking tool (Schoemaker, 1995); an ongoing strategic conversation for improving insight and action (van der Heijden, 1996); and a tool for “thinking about the future in a structured” way (Ringland and Schwartz, 1998). Over time the theoretically perceived purpose of scenario-planning has varied from probability calculations to a method of generating multiple future stories. In the 1980s, Porter viewed it as a way to create strategic plans with contingencies, while more recent literature recognizes the value of scenario-planning in creating strategic agility. Figure 1 also shows that the dominant scenario-planning methodologies span a spectrum ranging from rational computational methods to intuitive logic.

Figure 1: Framework of scenario approaches



2.2 Formal and informal skills in scenario-planning

In order to make sense out of complex environments, humans need to build formal or informal connections or “scaffolds” between tacit or new knowledge and codified knowledge, to which meaning has already been assigned (Brockmann and Anthony, 2002). The scenarios tool introduces leaders to tacit knowledge that expands their viewpoints and enables them to assign meaning to it. This process develops decision makers’ anticipation abilities and “foresight attitude” (Bootz, 2010, p. 1589). In simple terms, this means that decision makers question their own assumptions, frames of reference and knowledge sources. As knowing is a prerequisite of scenario-planning, it is significant that not everything is knowable.

Snowden’s (2003) Cynefin model differentiates between categories of what is known, where cause and effect is understood and predictable; what is knowable, where sufficient data would move it into the realm of the known; what is complex, where in social systems the cause and effect can only be deciphered after the event; and what is chaotic, where cause and effect are not recognizable. This seems to suggest that the value of formal or informal scenario-planning may only be discerned after events have taken place, as most scenarios are developed for social systems.

One may argue that the ability to formally or informally anticipate and think about multiple futures enables strategic agility or the ability to have “flexible, mindful responses to constantly changing environments” (Lewis *et al.*, 2014, p. 58). In fact, organizational ambidexterity requires the use of new alternatives and knowledge (exploration), as well as the expansion of existing knowledge (March, 1991; Jansen *et al.*, 2009).

Furthermore, the design of formal or informal scenarios gives insight into diverse and even conflicting perspectives and forecasts of the future, and brings to the fore contrasting priorities for executives (Ringland, 2010). Thus, formal or informal scenario-planning at the individual level brings about new insights and anticipatory thinking, and at the collective level challenges set knowledge frames.

Several formal and informal skills are required for scenario analysis. Chermack *et al.* (2010) believed that the process encourages “deeper thinking” regarding environmental forces in events, while Wilson and Ralston (2006) described intuition, creativity to generate alternatives, and curiosity about the environment and opportunities as scenario requirements. To explicate, intuitive thinking comprises fast and emotionally charged judgements outside conscious awareness and reasoning (Smith, 2008). This is essential as no amount of analysis will offer a decision maker a clear answer in the complex system of business.

Interestingly, Chermack and Nimon (2013) found that decision makers shift from rational decision-making styles (formal) to intuitive styles (informal) after scenario-planning. Creative thinking may thus occur through the scenario process when the imagination is stretched (Ringland, 2008). Litman and Spielberger (2003) argued that curiosity is the aspiration to obtain new knowledge or experiences, which in turn stimulates exploration.

One may furthermore argue that during scenario exploration phases, analytical thinking skills are also required, especially with the use of tools such as SWOT and internal analysis (Chermack, 2011), therefore analytical (formal) and intuitive (informal) reasoning have to complement each other (Evans, 2014).

Scenario-planning systems consist of inputs, processes and outputs, which take place within a performance system that in turn forms part of the organizational and contextual environment. Scenario-planning skills are applied in different ways across five scenario-planning processes: environmental scanning, scenario building, scenarios, contextual sharing and dissemination, and active monitoring (Balarezo and Nielsen, 2017). Scenario planning may take place chronologically, but with iterations or recurrences of some of the phases (Rowland and Spaniol, 2017).

In sum, a high level overview of the pertinent literature reveals the theoretical value of formal and informal scenario-planning in strategic decision-making. Although there are several premised strategic and behavioral benefits thereof, contextual and process-related variables, as well as thinking skills such as creativity and analytical thinking, determine the usefulness of scenario-planning.

3. Methodology

The study sought to answer the question: What is the corporate reasoning of the utilization of formal and informal scenario-planning by strategic decision makers operating in a complex business context?

Research design and sample

An inductive qualitative design was employed to provide rich insights (Eisenhardt, 1989) as the research purpose could best be met through exploratory open enquiry. The research focused on the population of executives in South Africa with strategic decision-making responsibility, who were likely to practice strategic foresight tools in large companies and industries such as mining, services, manufacturing and energy, to enhance the dependability of the data obtained from the sample. As these executives represented organizations that could be or were listed on large local or international securities exchanges, we could enhance the transferability of the results. A selection of 15 strategic decision makers within these organizations was achieved through non-probability purposive sampling (see Table 1). They represented expertise in the domain of strategic decision-making, having overall firm level responsibilities (e.g. chief executive officers, managing directors, executive chairmen), or in the case of the larger organizations, strategic departmental oversight (e.g. group head, deputy director, senior manager strategy). This offered sufficient opportunity to gather high-quality and credible data to develop novel insights into corporate reasoning of strategy and scenario-planning.

Table 1: Demographics of informants

Case	Gender	Age	Occupational Level	Organization	3 Year Average Turnover (Amounts in Millions)	Location of Operations	Number of employees	Industry
1	M	64	CEO/Managing Director	Logistics provider. JSE and listed	1,851 ZAR	South and southern Africa	2,493	Services
2	M	65	Group Head of Function	Mining company with global presence	22,969 USD	Australia, Canada, South Africa, Colombia	69,000	Mining
3	M	52	CEO/Managing Director	Manufacturing division of large JSE listed group	75,956 ZAR	South and southern Africa	117,705	Manufacturing
4	M	36	Deputy Director Operations	Insurance company. Division of a JSE listed company	42,747 ZAR	South Africa, the UK, the US and China	7,453	Services
5	F	37	Head of Function	Financial services group operating across Africa and other emerging markets. JSE listed	121,300 ZAR	Currently operates in 20 countries in sub-Saharan Africa	48,322	Services
6	M	52	CEO/Managing Director	Industrial division of large JSE listed group	75,956 ZAR	South and southern Africa	117,705	Manufacturing
7	M	32	Head of Function (Growth)	Division of a large JSE listed financial services conglomerate	111,974 ZAR	South and southern Africa	44,916	Services
8	M	59	Executive Chairman	Investment company. JSE listed	830 ZAR	South and southern Africa	287	Mining & Manufacturing
9	M	47	Head of Function	Financial services group operating across Africa and other emerging markets. JSE listed	121,300 ZAR	Currently operates in 20 countries in sub-Saharan Africa	48,322	Services
10	M	43	Head of Function	Top four bank in South Africa. JSE listed	69,380 ZAR	South and southern Africa	31,887	Services
11	M	57	CEO/Managing Director	Manufacturing company part of large JSE listed group	75,956 ZAR	South and southern Africa	117,705	Manufacturing
12	M	57	Manager Commercial Area	South Africa-based global oil company	79,664 ZAR	26 countries across sub-Saharan Africa and the Indian Ocean Islands	3,485	Energy
13	M	43	CEO/Managing Director	South African subsidiary of a UK-based group inter alia manufacturing	Privately owned but expected to list on Euronext Paris by the end of 2018	Over 25 countries worldwide	3,000	Manufacturing
14	F	38	Senior Manager (Strategy)	South Africa-based international integrated chemicals and energy company operating globally	176,872 ZAR	Southern Africa as well as United States and Eurasian (Europe and Asia) Operations	30,900	Energy
15	F	42	CEO/Managing Director	Large corporate and business services company in South Africa	75,956 ZAR	South and southern Africa	117,705	Services

* JSE = Johannesburg Securities Exchange

Data collection

Face-to-face, semi-structured, in-depth interviews were conducted to gain individual perspectives. As this was an exploratory study, the interviewees were asked about their understanding of, and methods used in, strategic decision-making, including tools used, how they make use of them, and their perceptions of the value of these tools. They were also probed regarding whether they used scenario-planning, and if they did, how they used it, how their

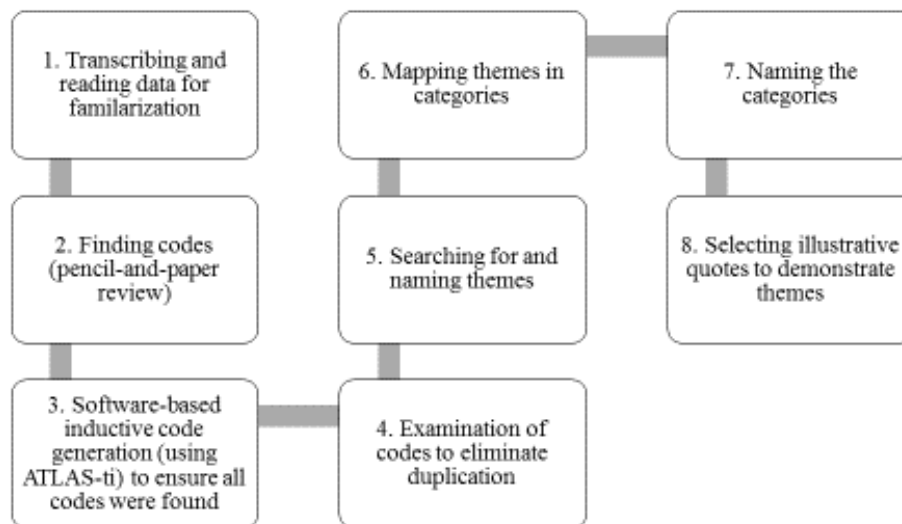
scenarios were created and reviewed, and what they considered to be the advantages and disadvantages of scenario-planning in their strategic processes.

The average duration of each interview was 50 minutes, with a total duration of 744 minutes. With the consent of the participants, the interviews were recorded and transcribed independently to ensure data integrity. As very few new codes occurred after the 12th interview, data saturation was obtained. Nevertheless, the data of all 15 interviews were included in the analysis.

Data analysis

We adapted Braun and Clarke's (2006) steps in thematic analysis to generate codes, themes and categories (see Figure 2).

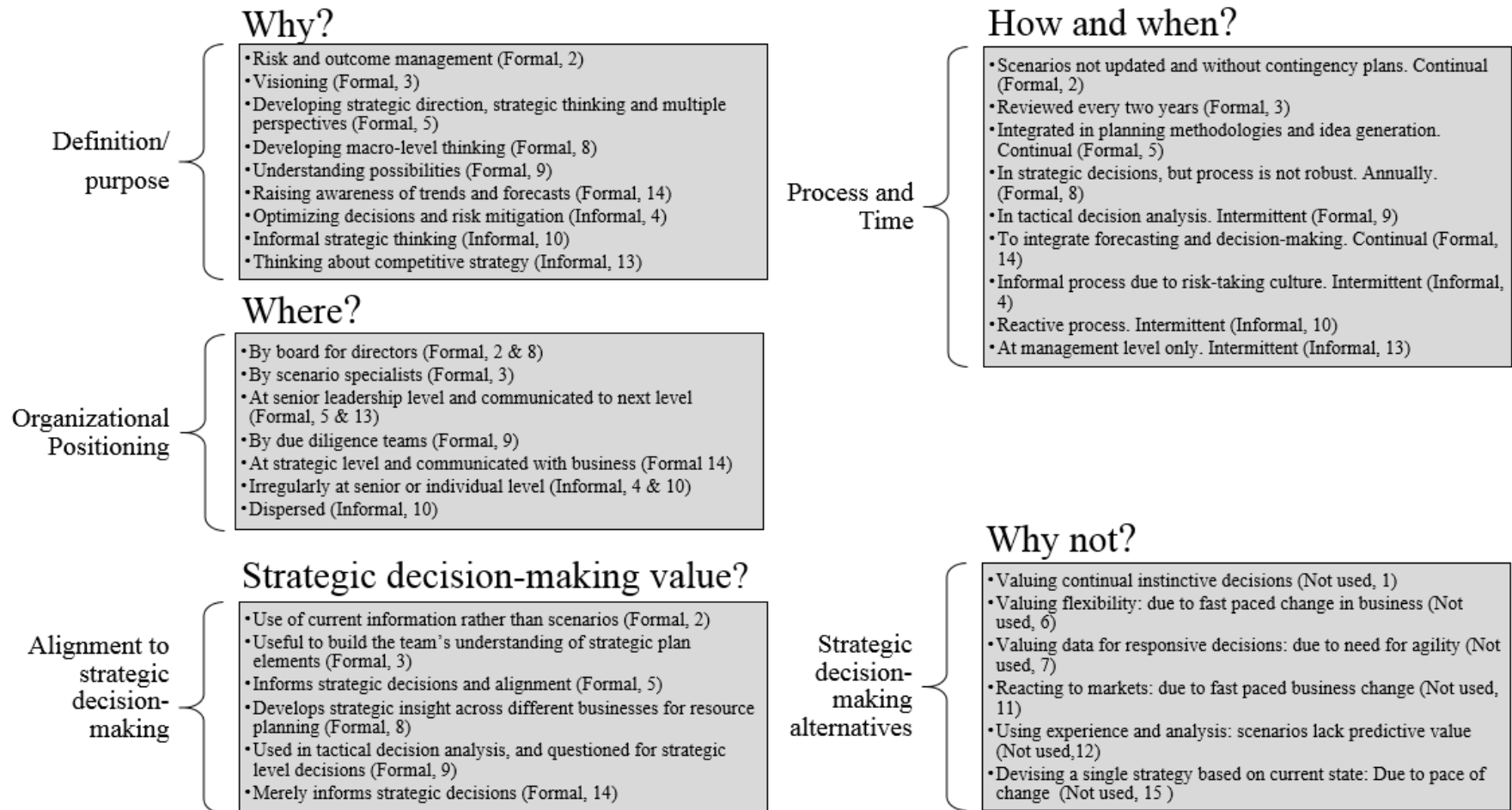
Figure 2: Methodological procedure of data analysis



Thematic analysis is useful for uncovering patterns in data by systematically observing ideas that are repeated through multiple readings of the transcripts (Hawkins, 2017). We followed the recursive analysis to ensure data dependability, making use of both pencil and paper and software enabled analyses. We used an inductive approach to provide rich new information on various facets of the formal and informal use of scenarios.

It should be noted that as we sought to understand the informants' own meanings and experiences of reality, our research philosophy was contextualism rather than realism. In other words, our aim was not to obtain transferable findings, but instead to explore what the informants themselves valued (King and Brooks, 2018). During analysis, codes, or indexes of text, were created and then grouped into themes. See Figure 3 for themes built from the data. Even though our aim was not transferability, the themes offered the opportunity to compare actual practices in scenario planning with theoretical expectations.

Figure 3: Data categories and themes for formal and informal usage of scenario-planning



The trustworthiness of our data required rigorous data gathering and analysis processes. We confirmed the credibility of the data by representing different viewpoints in emerging market contexts. The inclusion of strategic decision makers from multiple large organizations also offered a degree of transferability (although this was not our aim) and offered an indication of the thoughts of decision makers in similar contexts.

4. Discussion and analysis of results

Figure 3 depicts the themes and subthemes built from the data. Contrary to expectations, we found that executives do not make use of scenario-planning purposefully. In fact, less than half of the informants (six cases) acknowledged using scenario-planning in their strategic decision-making. Three cases used the techniques of scenario-planning informally and almost half of the executives admitted to never using it at all. This echoes scholarly claims that organizations use scenario-planning in different ways (Ramírez *et al.*, 2017), but raises questions as to how and why this foresight tool is used in practice.

Definitions and purpose of scenario-planning in practice

We identified a number of key differences in the formal use of scenario-planning. Figure 1 above depicts the range of academic definitions of scenarios, each of which entail a different purpose. As the use and purpose of scenarios differed amongst those interviewed, our study offers a different understanding in practice. The purposes of formal scenario usage in practice are: (a) a risk and outcome management tool; (b) a visioning exercise; (c) a trend awareness activity; (d) a means for developing strategic thinking through multiple perspectives; (e) a way to understand different futures; and/or (f) a way to think about the macro picture. For instance, one respondent said:

So to my mind scenario analysis would look at universe of possibilities. It would narrow it down typically through frequency and severity and then you would unpack it. (9)

In addition, the purposes of informal scenario usage are risk mitigation or informal strategic thinking. For instance:

I think we practically do it by saying if competition comes into the market what are we going to do? That is the efficiency planning. If we get competition in S.A., how are we going to survive? Thus the importance of looking into African territories. It's not something formalized. (13)

The way executives perceive scenario-planning in practice expands on the theoretical points presented in Figure 1. It also seems that the calculation of probabilities is not top of mind in either the formal or informal processes.

Positioning within the organization

We found that scenario-planning does not occur at the same level for all organizations. Most of the organizations using scenario-planning develop scenarios at board level, and only a few communicate these to other organizational levels. One interviewee described making use of scenario specialists to develop scenarios, in contrast to the theorized benefit of ongoing strategic conversation during scenario-planning (van der Heijden, 1996). In other words, the strategic benefits of scenario-planning are implicitly being lost as it takes place in silos. We can thus infer that the value of scenario communication processes are not sufficiently utilized.

Time and process dimensions of scenario-planning

There are notable differences in the adequacy of how and when the scenario tools are being used. One case uses it intermittently for micro-level decisions, three cases use it continually, and another every second year. The interviewees offered very little evidence of multi-phase scenario processes being used, and neither the formal or informal processes used align to best practice. This suggests that the processes are inadequate overall, but that there are various ways in which organizations can still apply scenario-planning when the context is more dynamic as in emerging markets. Moreover, the cases that use scenario-planning informally mentioned only intermittent use, rather than a structured or constant use. This is contrary to the best practice seen in the Shell example in the 1980s, which highlights that scenario planning is not effective as an episodic approach (Schoemaker and van der Heijden, 1992).

Strategic value of scenario-planning in practice

Whereas Figure 1 shows that in theory scenario-planning has strategic value, for instance by offering strategic agility (Chermack *et al.*, 2015), leaders in practice do not always use it as a strategic decision-making or foresight tool. Only four of the cases use scenario-planning in strategic decision-making as a source of information and alignment of thinking in the business. Another case uses it specifically for micro- rather than macro-level decisions (Harris, 2014). Again, this shows that the theoretical strategic benefit of scenario-planning is lost in practice, but at the same time has further value for tactical decisions not fully explored. This then raises questions why some organizations fail to use scenario-planning formally, and why some fail to use it altogether.

Reasons for informal and lack of use of scenarios

The informal usage cases were those who use it “now and again”, “behind the scenes” or without further communication or alignment (“the scenarios are just for me”). As the themes in Figure 3 show, the reason for this informal use is because these leaders prefer a quicker approach than formal scenario-planning; they mentioned “agility in doing” without formal planning, reactive planning (for instance when facing legislative changes), or responding to market focused forecasts. At least one of these argued that formal scenario planning goes against their organizational culture:

[Company X] has a very aggressive culture. A bit of cowboys. The reality is ... you do try and formalize it to a certain degree, but it is not a massive think tank, two day workshops in the bushveld somewhere. (4)

In line with this, Werner (1990, p. 55) argued that “a scenario planning system that does not also give sufficient attention to the political and cultural realities of an organization is unlikely to be efficient.” The reasons for the informal utilization of scenarios are therefore due to a need for agility, quick reactivity, responses to market changes and even organizational cultural requirements. This offers a deeper understanding and several different reasons for why some organizations in dynamic markets will not embark on full scenario-planning processes. To build on this, one might have expected several of the interviewees to make use of these tools, but they did not. For instance, the CEO of the industrial division of large JSE-listed group said:

I don't think in business I have ever used scenario-planning. On a formal basis. (6)

Another said:

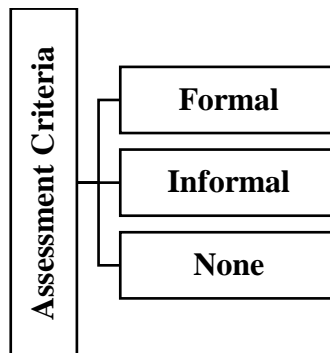
I don't think we are an organization that has the time to sit down with these formal scenario-planning sessions. I think we do it every now and again at some macro level but we are... way too aggressive to sit down and plan this. (4)

Perceptions of the reasons for not using scenario-planning included that it detracts from flexibility and agility and that they prefer other decision-making approaches, such as using instinct, experience or analysis; basing decisions on current data; or following a singular strategy due to the pace of change. For instance, one leader said:

I think they are a waste of time, especially in a country like this where things are changing so radically. You waste so much time developing this five year plan and something comes about which makes it turn like this or turn like this. (11)

These findings question the widely held acceptance of the notion that scenario-planning increases agility (Hammoud and Nash, 2014). Instead, there seems to be a need to better describe the requirements and value of scenario-planning in dynamic contexts such as emerging markets. This could entail the development best practice for scenario-planning as a more agile tool for different situations. The findings also highlight the shortcomings of corporate reasoning about the purposes, processes and decision-making value of both formal and informal scenario-planning. Based on the results and the discussion of the results, Figure 4 provides a framework of assessment criteria of scenario-planning in strategic decision-making.

Figure 4: Assessment framework of scenario-planning in strategic decision-making



Scenario Planning in Strategic Decision-Making			
Organizational Reasoning of Usage or Non-Usage			
Assessment Criteria	Formal	Informal	None
	Definition of scenario-planning		Absence of scenario planning
	Organizational positioning		Justification
	Alignment to strategic decision-making		Alternatives of strategic decision-making
	Temporal use		
	Adequacy of process		

5. Research implications

Looking through the lenses of organizational adaptability theory and related complexity theory (Uhl-Bien and Arena, 2018), there has been a need to better understand the practice of strategic decision-making. Strategic foresight enabled through scenario-planning is a well-recognized method for dealing with uncertainty (Ringland, 2010; Ramírez *et al.*, 2017), however it has not been clear whether in the complexity of the current business environment practitioners use formal or informal scenario-planning. We have thus begun to address the corporate reasoning behind the use of scenario-planning as a strategic decision-making method, given the need for organizational adaptability and strategic agility.

The findings contribute to a more in-depth understanding of scenario-planning in strategic decision-making specifically. Where organizations use scenario-planning formally in strategic decision-making, it is used along with immediate information, raises corporate insight into elements of strategy, provides better alignment to strategy, enables resource planning and due diligence processes, and/or guides decisions through the business. In cases where it is used informally, scenario-planning aids strategic decision-making by helping businesses to anticipate and plan for potential events and competitive forces. However, given that many of the cases were skeptical of the value of scenario-planning, this reveals a different requirement in complex contexts, i.e. strategic decisions need to be continual, flexible, relevant to the current moment, based on data that are immediate, and/or be experience and analysis-based. Therefore, although the value of scenario-planning has been suggested for uncertainty and complexity (Bowan, 2016), this exploration shows that future research should empirically examine the value of scenario-planning in complex contexts.

The study, its subsequent empirical findings and the assessment framework in Figure 4 also offer a foundation to revisit and reassess the corporate reasoning behind other organizations' usage (or non-usage) of formal or informal scenario-planning in strategic decision-making. Figure 4 provides a set of key assessment criteria that are relevant to understand the organizational reasoning and use of formal and informal scenario planning in strategic decision-making. For example, one can ask:

- What is the nature of the organizational reasoning and how can an organization that applies formal or informal (*presence of*) scenario planning in strategic decision-making be empirically characterized and theoretically defined?
- What is the nature of the organizational reasoning and how can the *organizational positioning* (where it occurs in the organization) of formal or informal scenario planning in strategic decision-making be empirically characterized and theoretically classified?
- What is the nature of the organizational reasoning and how can the *alignment* (correspondence with strategic thought) of formal or informal scenario planning in strategic decision-making be empirically characterized and theoretically classified?
- What is the nature of the organizational reasoning and how can *the temporal use* (regularity and pattern of use) of formal or informal scenario planning in strategic decision-making be empirically characterized and theoretically classified?
- Finally, how can *the process adequacy* (in relation to best practice) of formal or informal scenario planning in strategic decision-making be empirically characterized and theoretically classified?

In summary, these assessment criteria provide a hands-on toolkit to conceptualize the organizational reasoning and scholarly framing of formal or informal scenario planning in strategic decision-making.

Figure 4 also outlines a set of key assessment criteria that are relevant to understand the organizational reasoning of non-scenario-planning in strategic decision-making. For example:

- What is the organizational reasoning and how can an organization that does not apply (*absence of*) scenario planning in strategic decision-making be empirically characterized and theoretically classified?
- What is the organizational reasoning and how can an *organization's justification* to not apply scenario planning in strategic decision-making be empirically characterized and theoretically classified?
- Finally, what is the organizational reasoning and how can an *organization's alternatives* to scenario planning in strategic decision-making be empirically characterized and theoretically classified?

In summary, these assessment criteria provide a hands-on shortlist to conceptualize the organizational reasoning and scholarly framing of non-scenario-planning in strategic decision-making.

6. Managerial implications

The empirical findings reported here indicate several managerial implications. For example, trend-focused probability computations in scenario-planning (Brauers and Weber, 1988) may have become superfluous for most executives making decisions in a complex world that necessitates adaptive capabilities (Uhl-Bien and Arena, 2018). Instead, strategic decision makers require growth in scenario thinking competencies that cultivate awareness and challenge preconceived mindsets to develop strategic agility (Lewis *et al.*, 2014) for organizations through practices of, *inter alia*, intuitive logic (Wack, 1985a).

The findings show that the corporate reasoning of companies encompasses a wide range of adaptive strategies beyond scenario-planning that may be relevant in complex, dynamic, emerging market contexts. New findings emerged in practice that only partially align to the theorized purpose of scenario-planning depicted in Figure 1. Very few organizations formally apply the full range of scenario-planning processes, whether linearly or iteratively (Balarezo and Nielsen, 2017; Rowland and Spaniol, 2017). Using a practice perspective on strategic decision-making, we see from this research that there are diverse definitions of scenario-planning in organizations. In addition, there are significant variations in how they align to strategic decision-making, where they are developed in the organization, when they are made, and whether the processes used are thorough or not. Even though scenario-planning is useful in strategy (Bowan, 2016), some organizations do not recognize the usefulness thereof for agility, favoring instead instinctive, quick decision processes.

The findings suggest that there may be a need for simplified methodologies and practical tools to allow decision makers to better prepare for uncertain futures.

Given the time constraints of scenario processes, organizations can consider time-saving software solutions for the computational, trend and cross impact analyses to free executives to practice scenario thinking and agile decision-making. For example, Voudouris *et al.* (2014) demonstrated how the innovative computational software-based ACEGES model enables continuous scenario development specifically for the natural gas industry. We propose that

similar artificial intelligence models will prove useful for strategic decision-making and newly devised agile scenario processes.

Frequent decisions may prevent the inertia that follows from multiplying options. Therefore, organizations can use ‘un-smart’ technology that presents continual and relevant information to decision makers to help support an agile, future-oriented mindset. Research may be conducted into the development of differential scenario tools for continual environmental scanning, pre-strategic planning and post-execution analysis to help overcome the limitations of formal scenario-planning found in practice in this study.

Beyond trend-based software solutions, executives need to develop intuitive logic and strategic agility. The findings suggest that agility is critical to the executives and for many is based on taking a series of smaller decisions and continually scanning the environment, rather than large scale decisions based on a number of stories about the future. This responds to the proposition that mental models are antecedents to scenario-planning, as “individuals and organizations are unlikely to timely update their mental models in the face of dynamic environments” (Balarezo and Nielsen, 2017, p. 6).

Practitioners may also focus on the development of simple exercises that shape intuitive logic. Such activities should support the maintenance of the community benefits of scenario development, and the exercises may be integrated into board and managerial meetings and communication, rather than once-off strategy sessions. The sense-making value of scenario-planning in story-telling to develop strategies in complex systems may be particularly useful (Bowman, 2016).

While there are benefits of formal scenario-planning, the costs are already evident. Yet strategic decision makers should not rest on a false sense of homeostasis or a belief that future changes will be predictable. It is important to remember that where executives opt to not use formal scenario-planning, scenario thinking remains a significant competence requirement.

Wilburn and Wilburn (2011) offered an abbreviated process of scenario thinking, arguing that it should go beyond a process and become a way of engaging with all complex business situations.

Strategic decision makers need to develop a cluster of thinking skills that becomes part of their habitual decision-making. This returns to Wack’s (1985a) premise of scenario analysis as a thinking tool instead of a process. It is proposed that instead of being ignorant of forces impacting their organizations, strategic decision makers should begin by raising awareness and anticipation of multiple plausible futures through scenario thinking (Wilburn and Wilburn, 2011). This too may strengthen organizational reasoning.

7. Concluding thoughts and suggestions for the future

The empirical findings reported from this study are based on an emerging market context. From the case studies reported it is evident that industry, organizational and leadership-related factors influence the effective use or non-use of scenario-planning in strategic decision-making.

This study provides insights into the formal and informal usage (and non-usage) of scenario-planning in strategic decision-making, and expands the understanding of the strategic value thereof in contexts where organizational adaptability is required. It also contributes to an assessment framework to revisit the usage of formal and informal scenario-planning in strategic decision-making. In turn, the assessment framework contributes to a hands-on toolkit and shortlist of assessment criteria to conceptualize the organizational reasoning and scholarly framing of formal, informal or non-scenario planning in strategic decision-making.

A suggestion for further research is to expand the depth of investigation into each case by triangulating the interview responses of strategic decision makers with other methods of observation in individual cases. Moreover, we suggest that further research explore supportive tools and technologies to use scenario-planning across multiple contexts. Another suggestion is to focus on time-saving software solutions for the computational, trend and cross impact analyses to free executives to practice scenario thinking and agile decision-making. A further suggestion is to examine how ‘un-smart’ technology that presents continual and relevant information to decision makers could be of benefit. A final suggestion is the development of differential scenario tools for continual environmental scanning, pre-strategic planning and post-execution analysis.

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