Scenario-based strategizing: Advancing the applicability in strategists' teams

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ABSTRACT

For over 40 years, scenarios have been promoted as a key technique for forming strategies in uncertain environments. However, many challenges remain. In this article, we discuss a novel approach designed to increase the applicability of scenario-based strategizing in top management teams. Drawing on behavioural strategy as a theoretical lens, we design a yardstick to study the impact of scenario-based strategizing. We then describe our approach, which includes developing scenarios and alternative strategies separately and supporting the strategy selection through an integrated assessment of the goal-based efficacy and robustness. To facilitate the collaborative strategizing in teams, we propose a matrix with robustness and efficacy as the two axes, which we call the Parmenides Matrix. We assess the impact of the novel approach by applying it in two cases, at a governmental agency (German Environmental Ministry) and a firm affected by disruptive change (Bosch, leading global supplier of technology and solutions).

1. Introduction

Established organisations typically have well-rehearsed strategic decision-making methods that work well in stable environments. Through tenure, they have learned the rules of the game in their respective industries; through day-to-day competing, they have learned how to gain competitive advantages; and through regular benchmarking exercises, they have learned how to develop their business towards a winning configuration. When, however, the stable environment is disrupted and radical market and/or technology shifts occur, organisations can quickly find themselves in situations where their traditional strategy formation methods fail (Gavetti and Rivkin, 2007; Ringland, 2010). Such radical changes may lead to what Schumpeter would refer to as 'creative destruction', and dealing with these changes requires more than traditional strategy formation processes and tools (Schumpeter and Opie, 1934).

In shifting environments, firms prosper that are able to find and successfully compete for superior opportunities. The scenario technique has been advocated for its ability to inform strategic decision-making in environments that are both complex and uncertain (Gausemeier et al., 1998; Schoemaker, 1993; Walsh, 2005). Examples include business model, site- or production-planning, product portfolio-planning,

negotiation, or market-entry strategies in the private sector and sectorial policy development, crisis/conflict prevention, and international development strategies in the public sector. We add that for the scenario technique to be truly impactful, we need to improve its applicability in collaborative strategizing, in particular in top management teams that have limited time. We argue that the success of novel strategies that permit attainment of superior positions in the industry will ultimately depend on the level of shared understanding and commitment in the top management team. Hence, we need approaches that facilitate direct participation of the management team that is responsible for setting the course of action.

One of the first and to-date best documented applications of the scenario technique is Shell's scenario exercises in the 1970s. These exercises permitted Shell to foresee and prepare its business for a potential rise in oil prices. When a sharp oil price increase occurred, as a consequence of the Israeli-Arab conflict, Shell was better prepared than its competitors and able to significantly improve its competitive position (Jefferson, 2012; Wilkinson and Kupers, 2013). Following the inspiring example of Shell, many firms started to adopt different variants of the scenario method (Malaska et al., 1984; Linneman and Klein, 1983). In most of these examples (including Shell), the scenario planning is run by specialized staff units that tend to work independently and share the

final outcome with decision makers.

Henry Mintzberg likes to make the point that strategy is ultimately about creativity (seeing the options) and synthesis (deciding on a superior course of action) and not about analysing data (Mintzberg, 1994a). In consequence, planners (i.e. the staff units collecting data, providing analysis, etc.) should support the process, but forming strategy should be left to the managers (Mintzberg, 1994b). The role of the scenario technique (possibly supported by planners) would thus be to boost the ability of (top) managers to identify superior courses of action that are different from the status quo and to foresee the consequences (Gavetti and Menon, 2016).

In line with other recent authors, we define strategizing '*as a process of inference, resembling multiple hypotheses formation and the selection of one or more alternatives from an infinite range of options*' (Calabrese and Costa, 2015). Whilst much of the literature on strategizing refers to 'the leader' as the object of research, our approach focuses on team-based strategy formation (Calabrese and Costa, 2015; Poarc and Thomas, 2002; Gavetti, 2012). Hence, we will use the term 'strategizing team' as the entity of our approach.

In this article, we set out with the assumption that scenario planning needs to be further improved to allow the strategizing team to self-run or at least participate more actively in the process, rather than leaving it to the planners (Mietzner and Reger, 2005). It has also been emphasized that in general, scenario planning and strategy formation should be further integrated (Wright et al., 2013; Tapinos, 2012). In this article, we introduce a novel variant of scenario-based strategizing, which we call the 'Parmenides Matrix' approach. We present the generic approach, discuss two application cases, and assess the benefits of the approach. It permits the direct involvement of private or public sector managers, which we will call strategists from here on, in the analysis process, and it provides the platform on which strategy formation can be built by using external data, tacit knowledge, and the intuition of the strategists.

2. Challenges in scenario-based strategizing

2.1. Fundamental challenges

When Henry Mintzberg calls for strategy formation to be driven by creativity rather than reliance on past data, he emphasizes the need to overcome the formal rationality, often the norm in traditional strategic planning exercises (Gavetti and Menon, 2016). The call also resonates with the observation from Cyert and March, in their 1963 book, that managers emphasize short-term, feedback-based learning rather than aiming to anticipate long-term events and their consequences (Cyert and March, 1963). Strategizing in uncertain environments has to build on strategic foresight, i.e. the ability to identify a superior course of action, which is different from the status quo, and foresee its consequences (Gavetti and Menon, 2016). Based on the seminal work of Cyert and March, the behavioural strategy identifies three bounds that need to be overcome to form a superior strategy. In our article, we use these bounds to measure the impact of scenario-based strategizing (Gavetti, 2012):

- The *rationality bound* results from dominant representations within industry clusters. In other words, firms within an industry tend to perceive the world around them similarly and, in consequence, tend to see the same opportunities, which are then not sufficiently attractive as all competitors are targeting the same market position. In scenario-based strategizing, we expect that the systematic identification of change drivers and strategic options will help to overcome the rationality bound.
- The *plasticity bound* results from inertia, which can have cognitive or physical roots, i.e. firms might fail to act on opportunities because they fail to see how they could (cognitive inertia), and organisations could lack the resources and capabilities to act on the opportunity

(action inertia). Scenario-based strategizing may help here by providing strategists with a platform to engage in cognitive search, which is not bound by what is feasible and what is known (Gavetti and Levinthal, 2000).

- The *shaping-ability bound* is tied to the inability to legitimise both the conceptualization of the environment and/or the new course of action. Scenario-based strategizing can help to enhance the shaping ability and, through participation, create a shared future outlook and a sense of ownership in the strategizing team.

At this point, we conclude that scenario-based strategizing, if executed effectively, may contribute to overcoming the three cognitive bounds. There are, however, additional procedural challenges to consider.

2.2. Procedural challenges

Goodwin and Wright (2001) present five general conditions that a formal strategy evaluation procedure should meet: transparency, ease of judgement, versatility, flexibility, and theoretical correctness. The notion of *theoretical correctness* not only covers mathematical and conceptual ('model-theoretic') correctness, but also the effective reduction of cognitive biases (Armstrong et al., 2015; Ehrlinger et al., 2016). Education of decision makers has shown not to be sufficient to compensate for potential negative effects from cognitive biases (Hodgkinson et al., 1999). Scenario planning can help and has been attributed a positive effect on decision quality compared to more traditional tools (Meissner and Wulf, 2013).

Scenario planning reduces different types of decision-related biases, such as confirmation bias and overconfidence (O'Brien and Meadows, 2013). When groups collaborate to make decisions, we also have to deal with the (stochastic) bias and the general discussion bias that favours preference-consistent information (Schulz-Hardt et al., 2006; Mojzisch et al., 2008). Harries (2003) notes that scenario-based decisions create '*understanding of the interaction between the actions, goals and knowledge of the individual organisation and the environment in which they are operating*' and thus can be expected to contribute to enhancing decision quality. In addition, the vested self-interests of group members or dominant group leaders may favour poor alternatives. From practical experience, transparent step-by-step and group-based evaluation procedures that require fact-based argumentation are means to control such behaviour.

From a meta-cognitive perspective, a decision-making approach needs to maximise the likelihood that all relevant accessible insights in all of their manifestations (such as data, perceptions, stakeholder or employee experience, and knowledge) have been utilised. Furthermore, in order to stay *transparent*, the approach needs to provide information about where the different insights have been used.

Ram and Montibeller (2013) highlight the need for more group decision-making methods that also work across hierarchical levels. Decision-making problems in scenario planning typically involve subjective evaluations. Subjective evaluations are frequently criticised for their lack of traceability. Groups have been associated with a reduction of decision quality (Schulz-Hardt and Mojzisch, 2012), particularly due to the lack of intensity of discussions and information processing (Schulz-Hardt et al., 2006). Structuring discussions has shown to have a positive effect.

Visualising discussion content in groups has a facilitation effect on the solution of hidden profiles (situations where the 'correct' choice is not evident from the beginning) and can positively influence the decision time and cognitive costs/benefits (Stasser and Titus, 1985; Gettinger et al., 2013; Comi and Epler, 2011). Orzechowski and Necka (2011) demonstrated that parallel information processing can compensate for cognitive limitations such as memory capacity or attention resources. Nassi and Callaway (2009) carve out the neuroscientific basis of the visual system's parallel processing mechanisms. Larkin and Simon