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Unlocking the Potential Barriers on SMEs' uptake of Scenario Planning

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Abstract

Purpose – *This paper aims to discuss the value of scenario planning to small and medium size enterprises (SMEs), and further examine the challenges constraining the uptake of scenario planning by SMEs.*

Design/methodology/approach – *A conceptual review of the literature on scenario planning in SMEs intended to unpack and capture the possible underlying reasons accounting for the limited uptake of scenario planning by managers/owners of SMEs has informed the formulation of this paper.*

Findings – *The study uncovered that SMEs' managerial mental models, SMEs' managerial time orientation, severe resource constraints, and industry complexity are some of the salient factors inhibiting the use of scenario planning among managers/owners of SMEs. We develop a framework of propositions that account for the complexity and challenges of scenario planning by SMEs for future empirical examination and validation.*

Originality/value - *The conventional wisdom is that scenario planning is carried out by large and established firms, and that SMEs are unable to adopt and practice the technique. This paper uncovers that SME have substantial needs for scenario planning, but are only able to engage in simple foresight activities such as brainstorming, desk research, networking and expert interviews to monitor their external environment. They are unable to effectively use scenario planning in its purest form as in large firms. By bringing together the reasons accounting for the difficulty of SMEs to practice scenario planning in its purest form as large firms do, the study therefore extends the limited discourse on scenario planning among SMEs. Implications are discussed and areas for future empirical studies provided.*

Keywords: Small and medium size enterprises (SMEs), scenario planning, industry complexity, organisational learning, managerial orientation

Unlocking the Potential Barriers on SMEs' uptake of Scenario Planning

Introduction

The global business environment has become complex, unpredictable, unstable and more fluid in terms of the acceleration of innovations at an incredible pace (Burmeister *et al.*, 2004; Calkins and Berman, 2004). Perceived at times as a mystery, the external business environment of firms is constantly changing (Cunha *et al.*, 2006). Uncertainty has therefore become an important issue in the globalised business environment with organisations being required to think through and anticipate potential problems, in order to map out possible ways of dealing with the changes (Johnston *et al.*, 2008). This brings to fore the criticality of firms anticipating changes in their external business environment and planning on how to manoeuvre through the unexpected challenges in the immediate, medium, and long term (Burt and van der Heijden, 2003; Chermack *et al.*, 2001). Organisations are therefore increasingly under heightened pressure to adopt a long-term and systematic view into the future to effectively make sense of the driving forces in the external environment, and strategically adapt to ensure survival or achieve competitive advantage (Amer *et al.*, 2013). The ability of firms to quickly adapt to major changes in the hostile and rapidly changing business environment can mean the difference between a thriving business and bankruptcy (Chermack *et al.*, 2001).

A number of techniques and methods have been developed and used by organisations to reduce the level of uncertainty and improve the possible predictability of the future with scenario planning emerging as one of such valuable techniques (Chermack, 2005; Paliokaitė *et al.*, 2014). Scenario planning can enable organisations to perceive plausible future changes

and challenges because of its usefulness in times of uncertainty and complexity (Chermack *et al.*, 2001; Amer *et al.*, 2013). This is notwithstanding the argument that the future is unknown and cannot be precisely predicted as there are multiple possible futures (Godet and Roubelat, 1996). The scenario planning method, as part of strategic planning, requires that firms' continually prepare for different eventualities in the external environment that they are likely to be exposed to in the future (Johnston *et al.*, 2008). This involves anticipating how the firm's external environment might change in the future and developing potential solutions that will address the negative aspects of that change in order to prevent them losing business.

Notwithstanding, the prevailing wisdom about scenario planning among scholars is that, it is practiced by larger organisations and at national levels (Chermack *et al.*, 2001; Saritas and Oner, 2004), and often carries the hallmarks of large-scale projects, which only large firms can do (Chermack *et al.*, 2000; Wack, 1985; Burt and van der Heijden, 2003). Moreover, the increasing trend of scenario planning in organisations has been noted (Rigby and Bilodeau, 2007) with some scholars reporting a link between scenario planning and innovation (Sarpong and Maclean, 2011). The association between the uptake of scenario planning and uncertainty, unpredictability and instability of the overall business environment has also been acknowledged (Amer *et al.*, 2013). Much of this scholarly work however is focused on large organisations. A handful of research has so far been dedicated to examining the use of scenario planning by SMEs (Burt and van der Heijden, 2003; Johnston *et al.*, 2008; Jannek and Burmeister, 2008).

The limited research on scenario planning in the context of SMEs is unfortunate and leaves us less knowledgeable about the challenges SMEs encounter in their attempt to use scenario planning technique as large firms; and how they co-evolve within their dynamic external

environment or posture themselves for their long-term survival and superior performance. This paper thus examines the challenges that SMEs encounter in scenario planning; the factors inhibiting the uptake of scenario planning by SMEs; and the benefits of scenario planning to SMEs. We explore these issues and develop propositions for empirical examination by future research projects.

Research Methodology

To identify published contributions on scenario planning in SMEs, we used key words such as SMEs, scenario planning, and scenario planning in SMEs, to search electronic databases such as ProQuest, EBSCO Business Source Complete, Emerald, ScienceDirect, and JSTOR to track and trace published studies on the subject. A number of articles focusing on the topic were identified and a conceptual review the resulted in the organisation of the rest of the manuscript. First, we discuss the definition of scenario planning and the impact on firms as captured by the literature. Second, the benefits of scenario planning to SMEs are discussed. Next, the challenges inhibiting SMEs from taking up scenario planning as an important technique to their survival are explored and propositions developed. Implications are discussed which finally lead to recommendations for future research areas and a conclusion drawn on the paper.

Scenario Planning: Definition

Several varied definitions of scenario planning have been proffered. Scholars consider scenario planning variously as a method (Schoemaker, 1995), tool (Ringland, 1998), strategic planning tool (Bradfield et al., 2005), process (Johnston *et al.*, 2008), and sometimes as an activity equated with foresight (Bishop, Hines, Collins, 2007). Yet, others refer to it as a capability, competence or skill (Wack, 1985; Schwartz, 1991). Schoemaker (1995) defines

scenario planning as a methodology for imagining possible futures and making organisational decisions based on these possible futures. Ringland (1998) also suggests that it is a tool for managing the uncertainties of an organisation's future in the strategic management process. Johnston *et al.*, (2008) refer to it as the process of firms preparing for different eventualities in the future external environment. Bishop *et al.* (2007) further define scenario planning as a comprehensive organisational activity that can be equated with foresight. Others elaborate further that scenarios are not predictions or forecasts, but are aimed at challenging current thinking and generating attention on aspects that would have otherwise been overlooked (Chermack *et al.*, 2001; Schoemaker, 1995). Chermack *et al.* (2006, p. 769) clarified further that “scenario planning is a multi-faceted organizational intervention aimed at recognizing the fact that the business environment is uncertain” and based on both external and internal analyses, identifying key driving forces in the business environment and mapping out how to deal with them.

These varied definitions underscore the difficulty in finding “crisp definitions that capture the true meaning of scenario planning” (Chermack *et al.*, 2001, p. 8). Notwithstanding, these definitions altogether acknowledge the complexity, dynamism and uncertainty of the business environment, and underscore the necessity for firms to develop interventions or solutions through an effective technique, towards dealing with future eventualities in their external environment. The link between business failure and the lack of perceiving or planning for future changes in the business environment through scenario planning has been acknowledged (Burt and van der Heijden, 2003). The central idea of scenario planning is creative and systematic thinking about possible complex and uncertain futures (Peterson *et al.*, 2003). Chermack *et al.* (2001, p. 16) thus underscore that scenario planning forces managers to ‘think the unthinkable’, ‘to consider paradigms that challenge their current thinking’ and

‘open the firm’s eyes to a vast future landscape’. There are many different approaches to scenario planning (Peterson et al., 2003), but Chermack *et al.* (2006) explain that scenario planning occurs over multiple workshops to identify key driving forces in the business environment based on both internal and external analyses, as well as the main concerns of both managers and executives. Accordingly, a distilled list of issues is compiled from the multiple workshops and ranked according to impact on business agenda and uncertainty and an impact-uncertainty matrix produced. Elements ranked high in the matrix are explored further as core elements of the scenarios which inform the strategic agenda of the firm (Chermack *et al.*, 2006). This suggests that firms’ ability to survive and remain in business depend, to a large extent, on their ability to think and make sense of future events and trends in the uncertain external environment.

The importance and uncertain nature of the future external environment has therefore resulted in organisations using scenario planning to make sense of the future, and an increasing number of studies examining the relevance, methods and many other aspects of the scenario planning process (Chermack *et al.*, 2001). Chermack (2005) reveals that these studies have not yet established an explicit theoretical foundation for Scenario planning as the research area is still developing and not yet matured. Notwithstanding, there are a number of theoretical perspectives that can be adopted to make sense of how firms prepare and act to overcome the potentially devastating effects of the unstable forces in the external environment in order to survive.

The resource based view of the firm (RBV) for instance, suggests that firms do not need to be overly concerned about the external environment, and read meaning into possible changes in the future, but should concentrate on developing their resources and capabilities which are

critical to the survival and sustenance of competitive advantage (Penrose, 1959; Barney, 1991; Mahoney and Pandian, 1992). This line of reasoning presupposes that developing an organisation's internal resources and capabilities effectively will enable firms to meet any potential shocks and changes in the external business environment either in the short, medium, or long-term. The resources or capabilities of the firm can be leveraged into new business lines, product lines, methodologies, or ways of marketing to meet the times. Scholars perceiving scenario planning as a capability, competence or skill (Wack, 1985; Schwartz, 1991) emphasise less on the overall complexity and uncertainty in the present and future external environment. They consider it as a method of creating, enhancing, and improving the learning organization which is a valuable capability for competitive advantage (Chermack *et al.*, 2006). Managers of firms subscribing to this theoretical lens thus tend to pay less attention to the changes in the external environment as compared to building and enhancing the quality of their resources and capabilities.

The industry organisation (IO) perspective (Tirole, 1988; Grant, 2013) on the other hand suggests that globalisation has gone into overdrive and so too is the dynamism of the external business environment of firms. There is complexity in the business environment making the future uncertain and unpredictable (Amer *et al.*, 2013). Firms are therefore required to engage in adaptive sense making of the environment if they are to survive and succeed. Thus they need to comprehend and adapt to what is happening in the present business environment, anticipate a future environment and its impact on the firm, and how they can adjust their activities to moderate/mediate this impact. The literature on strategy and strategic foresight reveal four key characteristics of the external business environment (Burt and van der Heijden, 2003; Johnston *et al.*, 1999). These include dynamism, certainty of future change, uncertainty of the nature and state of the future change, and unpredictability of the future

(Amer *et al.*, 2013). These aspects are also well captured by the complexity theory which underscores that the external business environment is full of many and varied factors impacting, mediating and moderating each other and actors in the environment (Stacey, 1995). This leads to dynamism, certainty of change in future, but uncertainty of the direction or level of change, and finally unpredictability of the future (Stacey, 1995). The uncertainty of the future environment is usually based on the lack of information and knowledge, lack of understanding, and the inability to predict changes in the future (Johnston *et al.*, 2008). Yet, Chermack *et al.*, (2001) accentuate the importance of organisation leaders using tools to make sense about potential massive political, environmental, economic and/or societal changes which are very relevant to their survival.

Scenario planning as a foresight technique embodies both resource based view and industrial organisation theoretical lenses in its proper implementation. Accordingly, scenario planning enables a firm to examine and obtain relevant information in the external environment, anticipate future changes, and allowing firms to match the internal organisational competencies to the external environment it anticipates in the future (Johnson *et al.*, 2008). Furthermore, scholars underscore that learning is a key component of scenario planning, as individuals and groups learn something new about the organisation, its past and present; and its environment both internal and external (Chermack, 2005; De Geus, 1988; Godet, 2000, Wilson, 1992). In line with this, Cummings and Worley (2001) suggest that organisations are open systems and should endeavour to achieve the best possible fit with the external environment. Paliokaitė *et al.* (2014, p. 165) also acknowledge and underscore the relevance of integrating “derived future-oriented, knowledge-based information” from the external environment and the effective deployment of resources and capabilities normally distributed

throughout the organisation, in order to meet its future visions and challenges. Understanding the nature and dynamics of the external environment is thus critical.

Scenario planning is thus suggested as an effective tool among other approaches to perceiving future changes and developing solutions in anticipation of such changes (Chermack *et al.*, 2001). The technique enables organisations to question their future, prepare for the futures, deal with uncertainty and take decisions, actions, and engage in activities to innovate for the futures (Hiltunen, 2009). Furthermore, scenario planning is effective at identifying ‘blind spots’ in the dynamic external environment, and allowing firms to match the internal organisational competencies to the external environment it anticipates in the future (Johnson *et al.*, 2008). The process of scenario planning starts from the explicit assumption that the future is fundamentally unpredictable (Burt and van der Heijden, 2003). Accordingly, there are multiple possible futures, and the one to finally materialise is not known and cannot be predicted (Godet and Roubelat, 1996). Scenario planning technique helps organisations highlight implications of possible future, identify nature and timings of these implications, and project consequences of a particular choice or policy decision (Strauss & Radnor, 2004). Amer *et al.* (2013) underscore that scenario planning are used in technology planning, forecasting, strategic analysis, and in clarifying thinking about the future (Amer *et al.*, 2013). Thus, the central theme in the conversation on scenario planning is that, it involves the process of firms preparing for different eventualities in the external environment that they are likely to be exposed to in the future (Johnston *et al.*, 2008). This perspective of scenario planning places this important strategic activity squarely on events in the external environment and in the quality of internal resources and capabilities. This involves analysing the vast number and range of forces in the external environment, anticipating how these forces may change in the future and the potential impact it may have

on the firm, and developing potential solutions from the resources and capabilities that will address the negative aspects of that change in order to prevent them losing business (Grant, 2013; Johnston *et al.*, 2008). To do this, firms will need to obtain the right type and quantity of information at the right time in order to make sense of the dynamic business environment as well as base future decisions (Bogner and Barr, 2000).

This presupposes that, for survival and superior performance, or better still the sustenance of competitive advantage, focusing on the external environment and its dynamism is a very essential thing for firms to do. This is in line with the Industrial Organization (I/O) view that factors in the firm's external environment are very important to a firm's effort to achieve competitive advantage. The global economic recession's impact on both strong and weak firms which resulted in thousands of internally strong firms disappearing in 2008-2009, may have added credence to this notion (Grant, 2013). In particular, radical and unanticipated change can force companies into bankruptcy and demise. Notwithstanding, internal organisational environment as underpinned by the resource based view is equally critical to the effective application of scenario planning in organisations.

SMEs and Scenario Planning

Small and Medium size Enterprises (SMEs) are defined based on the revenue, sales volume or number of employees and these definitions vary with different contexts. In the European context, specifically in German context, Jannek and Burmeister (2008) referred to small and medium size enterprises as companies employing between 1 and 1000 people. These groups of companies are found to be very important to the health of the global economy as well as domestic economies of both developed and developing countries (Demirbag *et al.*, 2006; Smallbone *et al.*, 2010; Obeng *et al.*, 2012). Yet, majority of SMEs do not survive beyond the

early stages of their own life-cycle (Tepstra and Olson, 1993) with structural difficulties and lack of both planning and foresight suggested as primary factors accounting for this widespread failure (O'Neil and Duker, 1986; Bianchi, 2002). The high failure rate of SMEs in the short to medium term places the issue of strategic planning as a necessary activity that could assist them examine both internal and external environment and strategically adapt to the ever changing and challenging business environment to survive..

Some scholars suggest that SMEs are incapable of strategic planning and demonstrated empirically, the perils of SMEs engaging in strategic planning (Robinson and Pearce, 1984). Others however reject this notion and acknowledge that SMEs do plan for the future, but reveal that their planning process is simplistic which results in their weak understanding of the sophisticated and uncertain future business environment (Bianchi, 2002). Arguably, even large and established firms that use structured and sophisticated strategic planning techniques are sometimes surprised by their inability to anticipate some major economic, political, environmental and societal changes (Chermack *et al.*, 2001). As a result, it is argued that scenario planning technique, which covers a variety of plausible future occurrences, should form the basis for strategic planning.

Scenario planning has therefore emerged as another school of thought on strategic planning which may be a feasible activity of SMEs within their severe constraints (Chermack *et al.*, 2001). To do this, SMEs will need to obtain the right type and quantity of information, at the right time in order to make sense of the dynamic business environment as well as base future decisions (Bogner and Barr, 2000). This will also allow them to take actions with the purpose of matching their internal competencies or develop the right competencies to match the external environments it expects in the future.

Benefits of Scenario Planning

A number of arguments have been advanced in the literature in support of scenario planning within organisations. These can broadly be perceived from two angles: organisational and managerial. The first argument suggests that scenario planning leads to a number of desirable organisational outcomes. Accordingly, scenario planning enhances organizational learning at the individual, team/group and organisation level which is a valuable capability for competitive advantage (Chermack *et al.*, 2006; Chermack, 2005; De Geus, 1988; Godet, 2000, Wilson, 1992). Moreover, the process leads to the construction of several plausible narratives about the future allowing uncertainty and ambiguity in the contextual environment to be acknowledged and implications for strategy development to be considered (Burt and van der Heijden, 2003). In this respect, scenario planning affords organisations the opportunity to examine the external environment, identify multiple future eventualities and then develop possible solutions that can address each of the possible futures (Schoemaker, 1995; Amer *et al.*, 2013). The idea of multiple futures opens up the possibility to imaginatively explore the potential impact of contextual driving forces in the environment, something that is difficult to do if only one possible future is considered (Burt and van der Heijden, 2003). Thus scenario planning can be said to be very useful in highlighting implications of possible futures, as well as the nature and timings of these implications (Amer *et al.*, 2013).

Another important positive of scenario planning is its ability to stem decision failure. According to Chermack (2004) decision failures are inevitable in organisations as a result of natural errors in decision making, as well as in managers' inability to see the significance of highly relevant information which go unnoticed (Chermack, 2004). Managers tend to get

locked into one way of perceiving the turbulent business environment and filter out much of the relevance of what is going on (Burt and van der Heijden, 2003). Thus, the fact that there will always be natural errors in decision making is illustrative of the importance of scenario planning to prepare for future eventualities. In this sense, scenario planning enables managers to avoid the repetition of erroneous courses of action that may not be helpful to the survival or success of the organisation (Chermack, 2004).

Schoemaker (1995) further articulates that, scenario planning restricts managers and organisations from under-prediction and over-prediction of change, both of which are two common errors in decision making of organisational leaders. Through this process, organisations are able to chart a middle ground, and prevent them from “drifting into the unbridled science of fiction” (Schoemaker, 1995, p. 27). It is further suggested that many organisations think about the future while ignoring the accelerating rate of change in the macro and globalised business environment. But, scenario planning which expands the range of organisation’s possibilities tends to account for this rate of change.

Additionally, the process allows organisations to make sense of the dynamics and changes occurring in the external environment and reduce the amount of uncertainties in the future (Amer *et al.*, 2013). Curry (2009) further articulates that the use of scenario planning enable organisations and managers to perceive the present differently, and encourage the exploration of new possibilities and unique insights. Hiltunen (2009) therefore submits that the process helps organisations to prepare and innovate for the future. Organisations are able to navigate the dangerous and choppy future events, and effectively adapt themselves to ensure their survival, and in many cases superior performance. Other scholars point out that scenario planning leads to adaptive learning, improved decision making, and creativity by firms

(Chermack, 2004; Fuller and Warren, 2006; MacKay and McKiernan, 2010). Sarpong and Maclean (2011) further emphasise that scenario planning enhances the abilities of firms to innovate.

The suggestion of a clear association between business failure and the lack of scenario planning may have some validity. According to Burt and van der Heijden (2003), a closer examination of companies that failed is likely to reveal a situation where the managers tend to focus largely on events (usually operational issues and short term targets) instead of spending time thinking about underlying systemic driving forces. This phenomenon is particularly acute in SMEs where managers tend to be caught in a state of fire fighting, with little time to reflect on the past or the future as they focus mostly on the day-to-day events and on-going operations of the business. This detracts organisational managers from thinking about the future. As a result they fail to see important longer-term patterns of change that impact their business. Scenario planning serves as an appropriate planning tool that move users on from the event focus towards more systemic underlying factors (Bur and van der Heijden, 2003).

On the other hand scenario planning is said to benefit the individual managers involved in the process itself. Chermack (2004) for instance, underscores that one of the key outcome of scenario planning is the improvement of organisational leaders' decision making capabilities. The scenario planning process naturally expands and extends managers' perspectives as it leads to new learning for managers and enables them to expand their planning horizon beyond the short term. According to Cunha *et al.* (2006), managers involved with scenario planning process tend to develop patience and courage which are essential attributes, required by managers to look beyond their comfort zones and into the uncertain distant future. Amer *et*

al. (2013) further note that the process stimulates strategic thinking by managers and help them overcome thinking limitations. Through detailed and precise research as well as decision making, the process also helps managers to act with more confidence in the face of uncertainty and ambiguity and to develop a problem solving mind-set (Burt and van der Heijden, 2003).

In the macroscopic business environment of hypercompetitive and complex interactions, thinking about the future is beneficial for managers as individuals and organisations, as it enable them to make sense of the present, and minimise uncertainty in the future (Cunha *et al.* (2006). Notwithstanding these potential benefits of scenario planning to both organisations and managers, it is suggested that SMEs are unable to practice the technique in precisely the form practiced by large organisations. As a result, many SMEs are unable to adapt to the changing environment and end up collapsing within few years of their establishment. We examine next the factors inhibiting SMEs from using scenario planning in the form practiced by large firms.

Factors inhibiting SMEs' use of scenario planning

Resource constraints of SMEs

Extant literature points out that scenario planning requires extensive time, well qualified and dedicated human resource, intense involvement, attention to detail, and financial resources (Burt and van der Heijden, 2003). To be able to effectively practice scenario planning, a firm should not experience lack in any of these areas. Evidence of companies that have used scenario planning reveals that mainly large and financially secured companies such as Shell, BA, IBM, are able to pursue scenario planning in its purest form (Amer *et al.*, 2013; Chermack *et al.*, 2001; Burt and van der Heijden, 2003). Arguably, the process entails not

just identifying potential future occurrences, but also employing various and substantial resources to map out possible solutions to cater for these future occurrences. This underscores the relevance of the resource-based view in scenario planning. Additionally, scenario planning is not supposed to be just an episodic intervention but an on-going way of thinking in the organisation about the future, and goes beyond the limits of strategic planning (Burt and van der Heijden, 2003). Notwithstanding, firms still have the multiple challenges of running the day to day activities, dealing with current challenges and competitive strategies of competitors within the industry. Many managers in organisations also feel overstretched to consider adopting scenario planning.

SMEs on the other hand lack behind established and large firms in many areas such as managerial, human, financial and technological resources which inhibits them from scenario planning (Bianchi, 2002; Will, 2007). As a result, they are said to depend on developing network ties in order to understand the external environment and be able to react to changes in the external environment (Gilmore *et al.*, 2001; Wu, 2011). Jannek and Burmeister (2008) reveal that SMEs find it difficult to use more complex foresight methods such as scenario planning and Delphi surveys, and therefore often use a variety of simple foresight methods such as brainstorming, desk research and expert interviews for studying, monitoring and analysing the business environment in order to develop foresight knowledge. Johnston *et al.*, (2008) also notes that SME owner/managers use informal forums such as non-competitive networks that are internal and external to their firm, for rehearsing possible futures of the external environment. Notwithstanding, Jannek and Burmeister (2008) suggest that internal resource constraints such as budget and manpower capacity limitations place restrictions on SMEs ability to use systematic and complex foresight approaches like scenario planning.

The limitations of resources therefore place a double difficulty and an onerous challenge on SMEs to effectively scan the external environment, and use scenario planning to develop strategies to better adjust to potential future occurrences in the external environment. This is thus suggestive that, SMEs find it difficult to engage in scenario planning because of the limitations of resources. Jannek and Burmeister (2008) observed that scenario planning is even unknown to SMEs in some cases. Based on this argument we propose that:

Proposition 1: *There is a negative association between resource constraints and the use of scenario planning by SMEs.*

SME manager/owner's time orientation

SME manager/owner's time orientation is another internal organisational factor that can inhibit scenario planning in such organisations. Many SME managers/owners have inherent and natural entrepreneurial flair, but find it difficult to readily embrace structured thinking approaches (Burt and van der Heijden, 2003). Moreover, they tend to focus more on internal operational issues and the interaction with its customers, competitors, suppliers, government agencies, and perhaps trade unions as these activities are considered to lead to their survival (Gilmore *et al.*, 2001; Wu, 2011). While thinking and interacting with their network ties is relevant to understanding trends and events in the external environment (Roubelat, 2000), it is not a complete representation of scenario planning and cannot substitute for scenario planning. As a result, SMEs tend to neglect the broader contextual environment and fail to manage the interdependencies between the internal and external environmental issues. Burt, & van der Heijden (2003) thus observe that once an SME is past the initial "get the business established" problem-solving phase of the product life cycle, a mismatch in management skills may become apparent, resulting in a lack of appropriate management structure necessary for scenario planning that supports the growth of the business.

Secondly, it is suggested that SMEs managers tend to focus on the short term survival and the development of internal capabilities of the firm (Amer *et al.*, 2013). Time dimension is a relevant component of scenario planning. It requires moving from analysing of the present contingencies to future contingencies and analysing courses of actions for a desired future state a degree ahead in time (Amsteus, 2011). Thus the key aspect of managerial time orientation is the movement of analysis across time (Amsteus, 2008). SME managers/owners focus on short-term and internal issues distracts them from thinking about the external environment, its dynamics, and the potential changes in the future. SME managers are therefore said to be caught in a vicious cycle of focusing on short-term and internal issues. According to Amer *et al.* (2013), scenarios are generally used for a long range planning of 10 years or more. Thus if SME managers/owners in their decisions making, do not think about issues in the long term horizon, then scenario planning process will not be favourably embraced. This argument leads to our second proposition that:

Proposition 2: *An SME manager/owner's orientation towards short-termism is negatively related to the adoption of scenario planning by the firm.*

SME manager/owner's mental view

Systematically probing and examining the business environment is a subjective process as it involves individuals interpreting and making sense of data gathered and considered to be relevant in understanding both the firm's present and future external environment (Amsteus, 2011; Paliokaitè *et al.*, 2014) . In addition, the way a firm views its external environment is based on its managers' mental models as it determines how and what they perceive in the external environment (Johston *et al.*, 2008). Chermack (2004, p. 301) defines mental models as "the lenses through which we see the world". Mental models incorporate biases, values, and beliefs about how the world works, and include deeply ingrained assumptions,

generalizations, or even pictures or images that influence how one views and understands the world, and how action is taken (Chermack 2004, Chermack, Lynham, and van der Merwe, 2006). Johnston *et al.* (2008) further underscore that the ability of individuals' to adequately predict future eventualities is dependent on a number of personal and influential factors such as experience, moral values, beliefs, age, managerial level, and strategic focus of the manager which constitute his mental models. This situation is suggestive that managers would always interpret the external environment differently, and perceive future eventualities differently depending on their mental models. This depicts the complexity of correctly perceiving the future and developing scenarios to address those future eventualities.

Managers' mental models are dynamic and change in response to interpretation and further understanding of the environment (Johnston *et al.*, 2008). Accordingly, changes to managers' responses to interpretations occur as their experiences, age, values and the other factors change over time. Thus, while managerial mental models can influence the uptake of scenario planning by SMEs, scenario planning can also enhance managerial reflection and reconstruction of their mental models by expanding their abilities to consider possibilities (Franco *et al.*, 2013; Chermack *et al.*, 2006).

However, the main challenge in this information age where there is overload of information would be how to properly determine the right scope and source of information, searching for the information and finally interpreting and making sense of the obtained data (Johnston *et al.*, 2008). This process can be an extensive job and a monumental challenge particularly for SMEs with limited resources of time and finances. SME managers may also be confronting the uncertainty and complexity of the external environment for the first time in their career, which is likely to trigger discomfort, anxiety and fear of engaging with the external

environment, and fear of the future, failure or success (Cunha *et al.*, 2006; Burt and van der Heijden, 2003). Thus:

Proposition 3: *An SME manager's mental model of the future as dynamic and requiring systematic examination is positively associated with scenario planning adoption by the SME.*

Lack of Divergent Views

Arguably, uncertainty in the future is something that many SME managers are well aware of. But, instead of thinking about possible multiple futures states, they tend to be concerned about looking for the 'best single answer' for the future. This perspective is based on what Johnston *et al.* (2008) refer to as a predictive or forecasting view whereby managers believe the future can effectively be predicted in order to develop solutions to address the future situation. This approach hampers the SME manager from proper scenario planning and the projection of several potential futures. In this case, managers' decisions are based on their experiences and desire to play it safe and avoid uncertainty.

Another major hindering aspect of SMEs' adoption of scenario planning is the unhealthy degree of 'groupthink, and the lack of awareness of the need for requisite variety in views within the firm (Burt and van der Heijden, 2003). Developing and sustaining healthy divergent views is considered relevant to developing potential different future states and a number of solutions to address those potential futures and cope with the change. However, SME managers tend to think along the same lines or follow the thought patterns of the owners rather than embracing diversity as a basis for understanding the complexity of opportunities and threats in the environment. In some cases, the responsibility of decision making and planning rests on a single manager or the owner. This does not encourage the generation of divergent views. Therefore:

Proposition 4: *The generation of divergent views within an SME is positively correlated with the use of scenario planning.*

Industry dynamics and complexity

Uncertainty is one important issue confronting managers in the globalised and very dynamic business environment. By industry dynamics and complexity we mean the frequency of change in an industry, the level of uncertainty or unpredictability of change, and the density of information and variables that should be carefully examined by organisations in order to compete, take preventive actions or shape the future. According to literature, the adoption of scenario planning correlates with uncertainty, unpredictability and instability of the overall business environment (Amer *et al.*, 2013; Malaska *et al.*, 1984). However, the degree of dynamism differs between industries. The speed of change in certain industries is much faster than other industries. Also the level of complexities in certain industries is also much deeper than other industries. Thus, firms operating in a less volatile and less uncertain industry may therefore not see the necessity to use scenario planning as possible future occurrences could potentially be predicted and potential solutions developed to address them. It is thus arguable to suggest that the more uncertain, unstable and unpredictable an SME industry is, the more likely it will adopt scenario planning.

Moreover, Amer *et al.* (2013) reveal that majority of the organisations that use scenario planning operate in capital intensive industries such as aerospace and petroleum. However, negligible number of SMEs can afford the capital required to operate in such industries. Also, it is found that the level of innovation in an industry also influences the adoption of scenario planning by firms in that industry (Sarpong and Maclean, 2011). SME managers/owners are also said to perceive the destiny of their industry to be in the hands of outsiders or other

actors they have no control over. This perspective may discourage them from engaging in scenario planning. We therefore argue that the nature of the industry in which an SME operates will influence the adoption of scenario planning by SMEs. Hence:

Proposition 5: *The more dynamic and complex the industry of the SME is, the higher will be the likelihood of managers adopting scenario planning.*

[Insert Figure 1 here]

Discussions and implications

In this article, we have sought to examine both the value and barriers of scenario planning to SMEs. Based on extensive review of literature, we observed that scenario planning is relevant to SMEs as it enables SME managers/owners to develop a macroscopic view of themselves and their environments (Cunha *et al.*, 2006). We further uncovered that the essence of scenario planning which involves monitoring and evaluating changes and their effects in the external environment is practiced by SMEs but in a simple way (Jannek and Burmeister, 2008). They employ brainstorming, desk research and expert interviews for scanning to monitor and analyse their business environment. Moreover, we uncovered that owner/managers of SMEs use their networks to identify, interpret and understand key signals in the external environment in order to rehearse possible futures (Johnston *et al.*, 2008).

We also uncovered that, while SMEs have substantial needs for scenario planning; they are unable to practice it in its purest form as in large resource rich companies. We captured factors both in the external and internal environments of the firm. Specifically the internal inhibiting factors identified include SME manager/owner's time orientation, SME manager/owner's mental view; SMEs' resource constraints and the lack of divergent views among managers in SMEs. The only factor in the external environment that restricts SMEs

from scenario planning is the level of industry dynamics and complexity. Figure 1 depicts a conceptual proposed model of these factors. These findings have a number of implications.

First, the study has pulled together two theoretical lenses not previously employed in the scenario planning literature to examine this issue. The integration of two different theoretical perspectives to identify the underlying inhibiting factors of scenario planning to SMEs underscore that scenario planning is a multi-facet technique that can and should be examined from different theoretical angles to enhance our understanding. Moreover, it reveals that not only the complexity, uncertainty and dynamism of the external environment necessarily triggers scenario planning, but also the adequacy and quality of internal organisational factors.

Secondly, the findings in this paper present a comprehensive picture and understanding of the potential challenges SMEs face with regards to scenario planning. Based on this, the paper does not only show that past scenario planning research has provided a solid foundation for understanding the challenges of scenario planning among SMEs, but also underscores new and potential challenges scattered in the literature and not empirically tested. This extends both the SMEs and scenario planning literature.

Finally, the findings in this study imply that scenario planning is relevant for SMEs but both internal and external factors hampers their ability to implement the technique in the purest form as practice by large firms. Majority of these factors are internal and managerial factors. To overcome some of these challenges, SMEs can collaborate with their competitors in the same industry. By collaborating, they can pull resources together to address the resource constraints factor, and also enable them generate divergent views necessary for effective scenario planning.

Conclusion and recommendations

The study has captured the main constraints or barriers to SMEs effectively and fully taking up scenario planning. These factors include the cost involved in scenario planning and the resource constraints of SMEs; SME manager/owner's time orientation, SME manager/owner's mental view; the level of industry dynamics and complexity; and the lack of divergent views among managers in SMEs. We therefore posit that four main internal organisational factors and one main external environmental factor impact SMEs ability to use scenario planning in the form practiced by large firms.

Despite the articulation that these factors make scenario planning in its purest form difficult for SMEs to implement, it is worth examining further and empirically testing to validate these propositions developed. Moreover, future studies could explore and map out the various forms scenario planning as practiced by SMEs, and how different these are to what large companies do. This will further enhance our understanding of how scenario planning is perceived by SMEs, and the factors inhibiting the process within such organisations. Additionally, it is worth examining empirically, how SMEs can navigate through these difficulties and use scenario planning. As global complexities and changes are likely to intensify, SMEs will have to find a way of developing capabilities that will enable them better examine the forces of change and also anticipate possible solutions to potential problems.

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Figure 1: Proposed Theoretical Model

