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Exploring the relationship between scenario planning and strategic flexibility and complexity

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Abstract: An organisation's ability to deal with uncertainty and to adapt to changes is a key strategic capability in dynamic environments. Thus, firms need a flexible planning in order to adapt and survive. Scenario planning is one of the tools that stimulates strategic thinking and offers strategic choices by creating multiple futures. However, little evidence is available about its effects on organisational competencies. This paper explores the direct contributions of scenario planning to strategic flexibility and complexity. A structural equation modelling (SEM) is used to evaluate the causal links between concepts. Data analysis derived from a sample of 108 European manufacturing firms.

Keywords: scenario planning; strategic flexibility; strategic complexity.

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1 Introduction

Organisational competencies such as strategic flexibility, innovation and strategic complexity result from the firm's ability to negotiate and capitalise on uncertainty and dynamism in its environment (Neill and Rose, 2006; Sinkula, 1994). Under such

conditions, firms need a flexible strategic planning in order to adapt and survive (Chakravarthy, 1997; Jarzabkowski and Balogun, 2009; Phelps et al., 2001; Titus et al., 2011; Wiltbank et al., 2006). Scenario planning is a tool for considering the future through the understanding of determinant factors and logical paths that orient strategic decision making. A large body of literature on scenario planning has focused on the widespread of this tool in companies and government (Derbyshire and Wright, 2014; Bowmen, 2015). The most cited literature presents scenario planning as an innovative activity that deals with uncertainties and thus improves strategic decisions.

While there is a wealth of literature in scenario planning (cf. Amer et al., 2013; Rawland and Sapaniol, 2017; Bowmen, 2015), research on the theory development and its benefits in practice have not yet become developed (Chermack, 2005; Derbyshire, 2016, Bouhaleb and Smida, 2018). In fact, a large body of research focuses on the description and improvement of different methods (see, for example, Amer et al., 2013; Bradfield et al., 2005). However, some progress has been made in addressing this issue, for example, Meissner and Wulf (2013), who examined its impact on biases and decision quality. Similarly, some researches have focused on scenario planning role on performance (Maarten and Chermack, 2009; Phelps et al., 2001). Yet, despite this, little is known about its effects on organisational competencies. In this paper, we address these questions and analyse the scenario planning's effect on strategic flexibility and complexity. As such, this work is designed to contribute to areas of scenario planning and strategic orientation in three ways. Firstly, in the relation to scenario planning, this study partially fulfils the recommendations of researchers who have suggested additional studies to better understand scenario planning outcomes (Bowmen, 2015; Chermack, 2004, De Smedt et al., 2013, Visser and Chermack, 2009; Meissner and Wulf, 2013). Secondly, in the relation to strategic orientation, it seeks to achieve an in-depth understanding of scenario planning's contribution to firm competitiveness by studying how this strategic tool shapes strategic flexibility and complexity. Thirdly, the strategic planning literature has received serious criticism based on reliance on empirical studies that investigated direct and bivariate relationships (Rudd et al., 2008). Our research addresses this criticism by investigating the mediating effect of strategic flexibility on scenario planning and strategic complexity.

This paper has the following structure. Section 2 presents the conceptual model and hypotheses. Section 3 outlines the study's methodological approach based on a sample of 108 European manufacturing firms. Section 4 offers results. Finally, section 5 and 6 present discussion and principal conclusions.

2 Conceptual model and hypotheses

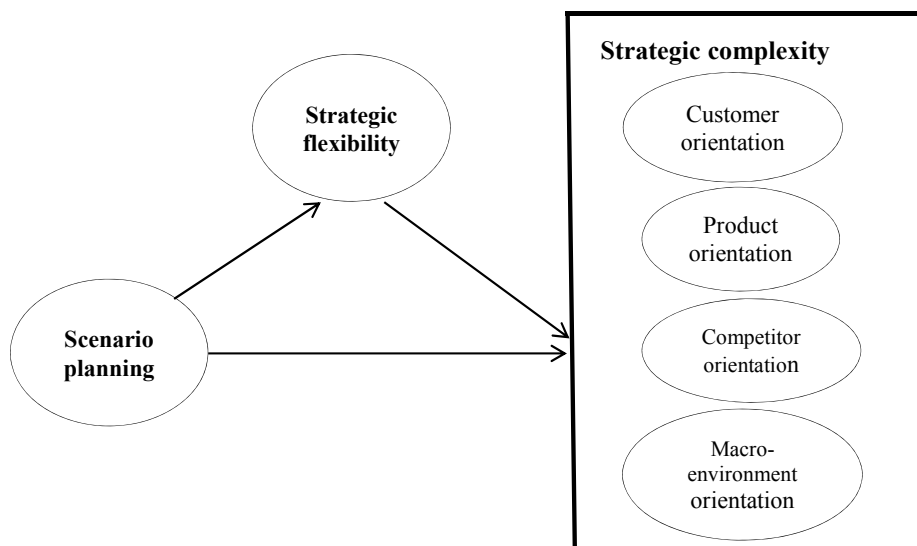
2.1 About scenario planning

Scenario planning literature increasingly emphasises on the strategic role of this tool. As a process, it contributes at various levels of the organisation by generating suitable inputs for planning and decisions and facilitating interaction between stakeholders (Becker, 1983; De Smedt et al., 2013). The composition of this process varies across authors and approaches (see, for example, Bradfield et al., 2005), but generally speaking they deal with three phases: a preparatory phase, a development phase and a use phase. The first stage is related to preparation, where the purpose is to identify driving forces. It deals with the macro-external environment using tools such as PEST or SWOT. The objective

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is to highlight crucial uncertainties that may impact the decision making process. The second stage deals with the generation and development of scenarios. In this vein, the purpose of scenario planning is to develop several features in order to assess strategic options and capabilities (Shoemaker, 1995). The last step concerns scenario use where the aim is to enrich strategic initiatives that lead to concrete action. As advocated by Chermack and van der Merwe (2003), scenarios are used to test decisions against a wide range of futures. Such framework promotes strategic thinking within firms. In fact, strategic choices are the result of interactions and dialogue that occur between stakeholders. O'briens and Meadows (2013) emphasise on the role of scenario planning on strategic thinking. They conclude that scenario role is oriented toward strategy development. Furthermore, the scenario planning process deals with environmental uncertainty and complexity, it combines the generation of stories and images about the environment and its potential evolution and the plausible scenario leading to strategic choices and actions. As such, it is seen as a tool for considering the future (Derbyshire, 2016) and supporting strategic decision making (Bootz, 2010). In this vein, Wilson (2000) suggested four types of link between scenario planning and strategy: the first is sensitivity/risk assessment in which the main role of these activities – particularly scenario work – is to evaluate a specific strategic decision. This approach is used to assess a specific strategic process by comparing the key environmental conditions such as market growth rate, technological developments and the future environment evolution with the decision. It is then possible to assimilate scenario's conditions with the desired future and make decisions. The second approach deals with strategy evaluation with scenarios as a tool to evaluate the viability of an existing strategy. The aim is to check the strategy's effectiveness in a range of business conditions, especially opportunities and threats. The third approach consists of selecting one of the scenarios as a strategic point in order to develop strategy; however, other scenarios are used to test the strategy's resilience. The fourth one focuses on strategy development, and aims at the development of a resilient strategy which is able to deal with variations and changes.

Figure 1 Theoretical model



2.2 Scenario planning and flexibility

Strategic flexibility refers to the extent to which organisations identify changes in their environment, commit resources to new courses of actions in response to these changes and be reactive when necessary to stop or invest their commitment of current resources (Simizu and Hilt, 2004). Flexible firms have diversity in strategic responses and rapid shifts from one strategic choice to another (Sanchez, 1995; Stalk et al., 1992). As argued by Santos-Vijandi et al. (2012), the increased rates of change in product and process technology and also in competitor's strategic actions make difficulties to build sustainable competitive advantages. Thus, to survive in such conditions, firms need flexibility in their strategic actions and planning (Cingoz and Akdogan, 2013; Eisenhart, 1989; Krupp and Davidson, 1996; Nadkarni and Narayanan, 2007; Sanchez, 1995; Zhang, 2006; Zhou and Wu, 2010). As such, firms' competitiveness depends on their ability to manage information and knowledge in order to innovate and to adapt to market through new products and services (Ferraris et al., 2017; Martinez et al., 2016).

The existing literature proposes two elements of strategic flexibility: resource deployment and competitive actions (D'aveni, 1994; Eisenhardt and Martin, 2000). Firstly, resource deployment concerns the firm's ability to allocate and control resources in order to adapt to changes and move quickly into new niches (Eisenhardt and Martin, 2000). Secondly, competitive actions are barriers through which firms protect their advantages. These actions determine the ability to respond quickly to competitor threats (Young et al., 1996).

By examining the strategic foresight literature, scenario planning is a suitable tool for promoting strategic flexibility. In fact, the use of scenario planning is intended to understand the business environment and to cope with uncertainty (Tapinos, 2012). Similarly, O'Briens and Meadows (2013) suggest that this strategic tool improves the portfolio of possible strategic initiatives that facilitates adaptation to environmental changes and action. It permits also to create new possibilities for actions and to develop a more comprehensive strategy (Wack, 1985, Schoemaker, 1995, Porter, 1985). Strategic flexibility is promoted through strategic conversation. Moreover, scenario planning is largely based on dialogue and strategic conversation. As mentioned by Chermack et al. (2007), the effectiveness of scenario planning is related to the ability of actors to dialogue and discuss alternative futures of their company. As a conversation tool, it permits to change current assumptions and manager's mental models, to improve decision making and to enhance human and organisational learning.

Scenario planning involves different steps that enable firms to accept uncertainty and incorporate it into the forecasting process (Tapinos, 2012). Therefore, it improves information processing activities that allow a more effective adjustment to changing environment and market conditions (Amer et al., 2013; Hiltunen, 2009; Shoemaker, 1991). Similarly, scenario planning reduces two major biases in strategic decision making: discounting and cognitive inertia. The discounting bias occurs when the decision making process is the result of a narrow focus on specific events and the ignorance of important environmental variables; it arises from the gaps between environmental factors and the strategic schemas adapted to interpret the environment. According to Weick (1995), "Organisations with access to more varied image will engage in sense making that is more adaptive than organisations with more limited vocabularies". Concerning cognitive inertia, scenario planning develops strategic flexibility by preventing firms from getting locked into cognitive inertia during strategic diagnosis and the consideration of alternative choices.

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In light of these arguments, our first hypothesis is as follows:

H1: Scenario planning relates positively with the development of strategic flexibility within firms.

2.3 Scenario planning as a tool for developing strategic complexity

Strategic complexity is the “range and concentration of concern and activities within a firm’s strategic repertoire” (Miller et al., 1996, p.863). It refers to the number of elements in a strategy and the interactions among these elements. The complexity of a strategy is a source of competitive advantage and constitutes a barrier to its imitation. It is mainly related to the strategist’s ability to find an effective combination of choices, reinforce interactions among decisions and create conflicting constraints (Rivkin, 2000). It is also associated with the firm’s effort in knowledge acquisition (Barney, 1991; Houghton et al., 2009), the firm’s distinctive competency (Hofer and Schendel, 1978) and the firm’s capacity to exploit its internal strengths through responding to different opportunities, to neutralise external threats and to avoid internal weaknesses (Barney, 1991, 1997; Reed and Defillibi, 1990). According to Miller (1993), organisations that simplify their strategies over long periods are likely to lose their competitive advantage. Thus, in order to cope with multidimensional challenges, firms must “complicate their selves” (Weick, 1979). He further states that “the importance of complication is difficult to overemphasize” (Weick, 1979, p.261).

Past researches have focused on two aspects of barriers to imitation. The first approach is grounded in the resource based-view and considers social complexity, causal ambiguity, tacit knowledge, economies of scale and scope, adjustment costs as factors that deter imitation (Barney, 1991; Dierickx and Cool, 1989; Lippmann and Rumelt, 1982). Second, the economic approach is mainly based on game theoretic models and explains the inimitability of strategies by the firm’s ability to undertake costly commitment that alters their own future incentives and fend off copy costs (Rivkin, 2000). Studies have shown that a complex strategic orientation improves decision making, while strategic orientations dominated by a single dimension are incomplete (Barney, 1991, 1997; Day and Nedundagi, 1994; Houghton et al., 2009). Strategically, complex organisations consider a variety of factors and trends in their decision making process, while decisions based on a partial understanding of the environment and predetermined trends are unable to survive in a turbulent environment. Thus, decision makers have to invest in promoting organisational learning, to adapt a more decentralised hierarchy, less formalised organisational structure, an innovative culture and open communication between actors (Neill and Rose, 2006).

Scenario planning is recommended in such conditions. Plausibly based scenarios are designed to deal with the complexity of a variety of environmental factors. Scenario planning methods constitute a suitable tool to understanding complexity by encouraging participants to analyse logical paths and develop strategic options leading to action (Wiklinson et al., 2013). As such, scenarios constitute a response to a more complex environment. Indeed, scenario builders include global aspects related to both micro environment and macro environment such as economic growth, inflation, interest rates and social indicators. As stated by Shoemaker (Shoemaker, 1991), good scenarios should stretch people’s beliefs, degrees of confidence and problem perceptions. Furthermore, it analyses competitor behaviour, industry structure and firms positioning (Phelps et al.,

2001). It requires interaction, debate, dialog and challenging different assumptions. As such, it is a method to figure out the actions, beliefs in a new cultural context without missing the present one.

In light of these arguments, our second hypothesis is as follows:

H2: Scenario planning has a positive impact on developing strategic complexity.

2.4 Mediating effects of strategic flexibility

Firms operate in a highly competitive environment where rapid changes in technologies, product innovation and customers' needs have influenced strategies and decision-making process (Oliver and Parrett, 2018; Santos-Vijande et al., 2012). This dynamic environment increases the need of flexible planning that enables managers to develop competitive strategy. Scenario planning is considered as management tool that permits to move away from a single vision of the future and in doing so develop strategic flexibility.

Strategic management literature argues that strategic flexibility enables firms to maintain competitiveness (Eisenhardt and Martin, 2000). Indeed, it contributes to competitive advantage at different levels. At a functional level, strategic flexibility is a tool that improves operations and manufacturing strategies, including time-to-market and operational excellence (Stalk et al., 1992; Byrd, 2001; Zhang, 2005). At the business level, strategic flexibility promotes market orientation by introducing new products and technologies and carrying out frequent strategic and organisational changes (Eisenhardt and Martin, 2000). At the corporate level, strategic flexibility is a means to involve constant improvement in the firm's organisational process, organisational learning and capabilities and skills (Zhang, 2005). From this perspective, this strategic tool enables firms to permanently renew their skills, to integrate, build and reconfigure internal and external competencies in order to deal with complex environments (Santos-Vijande et al., 2012). Grewal and Tansuhaj (2001) suggest that this dynamic capability enhance firms' ability to modify their operating routines and review their resources to achieve adequacy to a rapidly changing environment. Similarly, it is a tool with great potential to develop competitive strategies by enabling firms to have flexible resource pools and diverse portfolios of strategic options (Dreyer and Gronbaug, 2004). According to Nadkarni and Narayaman (2007), the ability of a firm to respond quickly and to change competitive posture promotes "action complexity".

As a conclusion, strategic flexibility is a tool to establish and protect a competitive advantage as well as eroding competitor's advantages (Ferrier, 2001; Ferrier et al., 1999; Young et al., 1996).

In light of these arguments, our third hypothesis is as follows:

H3: Strategic flexibility positively mediates the scenario planning-strategic complexity relationship.

3 Methodology and research design

3.1 Sample and data collection

The data used in this research come from a cross-sectional study that attempts to analyse the effect of scenario planning on strategic flexibility and complexity. Our sample

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consists of European firms operating in Tunisia. The sample of this research was identified using a list of firms obtained from different sources such as Enterprise Europe Network, CEPEX and CCI Tunisia. The criterion of selection is the international dimension of the firm. As such, 514 European firms in different industries are selected. After collecting information about their activities, their location and their managers, each firm were contacted in order to solicit their participation in this study. The aim was to explain our research purposes and to ask them questions related to the decision making process and if they have introduced scenario planning or scenarios activities in their decision-making process. Following this step, 213 firms are dropped from our sample because they affirm that they are not concerned with strategy formulation. Finally, we have received 108 valid responses. Respondents held the position of general manager (15%), chief financial officer (25%), exports sales director (30%), site director (27%) and production manager (3%). In terms of size, 11.1% had an employee base of between 1 and 50, 58.3% between 50 and 500 and the remaining 30, 6 % over 500 employees.

3.2 Measures scales

The questionnaire was developed after an extensive review of literature on scenario planning, strategic flexibility and strategic complexity. All constructs are measured using reflective indicators. Multi-item scales were used for each three constructs. The items are measured via a seven-point scale. The Appendix A presents these scales in full details.

The scenario planning scale includes six items derived from previous research by Malaska et al. (1984). Respondents were asked to rate to what extent their organisations are engaged in the environment diagnosis, the definition of the basic assumptions about the environment, the scenario development and strategy formulation on a seven-point scale (where 1 = strongly disagree and 7 = strongly agree). The strategic flexibility scale used in this study is developed and validated by Theoharakis and Hooley (2003), Tsai and Shih (2004), Vorhies and Morgan (2003) and Santos-Vijande et al. (2012). This construct was measured by asking respondents to rate the firm's level expertise to respond to environmental change. This dimension included six items measured via seven point scale (where 1 = strongly disagree and 7 = strongly agree).

Regarding strategic complexity, it is referring to the organisation's emphasis on its customers, competitors, products and macro-environment (Boulding et al., 1994; Houghton et al., 2009; Neill and Rose, 2006). The customer orientation concentrates on interests of target buyers. The competitor orientation focuses on current and potential competitors. The product orientation deals with product quality, value offering and innovation, and the macro-environmental orientation focuses on analysing and capitalising on issues and trends beyond the organisation's immediate environment. This construct was measured using an existing scale developed by Boulding et al. (1994). In fact, the customer and competitor orientation are developed by Narver and Slater (1990). The product and macro-environmental orientation are developed and validated by Neill and Rose (2006). Respondents were asked to rate their firm's level of orientation toward product, customers, competitors and macro-environment on a seven-point scale (where 1 = strongly disagree and 7 = strongly agree).

3.3 Common method variances

Our sample is potentially impacted by common method bias because we used a single key informant approach (Podsakoff et al., 2003). To deal with this bias, we used several survey design methods. Thus, we have guaranteed anonymity and full confidentiality of information collected. In addition, we adapted the structure of our survey by changing the order of independent, mediator and dependent variables. Furthermore, we tried to keep questions simple and avoid vague concepts in order to minimise item ambiguity (Tourangeau et al., 2000).

3.4 Reliability and validity

This study uses the following measures: scenario planning, strategic flexibility and strategic complexity. Following Churchill (1979) and Gerbing and Anderson (1988) recommendations, the assessment of measures employs three steps: first, an exploratory factor analysis; second, a confirmatory factor analysis; and third, an examination of the psychometric properties.

The measurement model analyses were performed using the robust maximum likelihood (ML) estimation in order to avoid issues related to normality. Item reliability is insured if Cronbach's alpha coefficient exceeds the suggested value of 0.7 (Cronbach, 1971; Nunnally, 1978). Regarding composite reliability, it is verified through the Average Variance Extracted (AVE) where values greater than 0.5 are considered significant (Fornel and Larcker, 1981). All constructs meet the requirement of construct reliability, since their Composite Reliability (CR) and Cronbach's alpha coefficient are greater than 0.7 (see Table 1).

Table 1 Measures used: summary statistics

Variable name	Mean	CA	CR	AVE	1	2	3	4	5	6
1. Scenario planning	3.76	.814	.85	.500	1.00					
2. Strategic flexibility	4.61	.83	.75	.501	.428*	1.00				
3. Product orientation	5.11	.826	.75	.500	.002*	.35*	1.00			
4. Customer orientation	4.95	.806	.74	.500	.028*	.21*	.522*	1.00		
5. Competitor orientation	5.15	.838	.80	.505	.046*	.09*	.397*	.537*	1.00	
6. Macro environment orientation	5.16	.842	.83	.500	.049*	.32*	.488*	.571*	.482*	1.00

Notes: *Significant result 0.01 level.

CR = Composite reliability, CA = Cronbach's alpha, AVE = Average variance extracted.

In a next step, convergent validity was assessed through an examination of the average variance extracted (AVE) where value is greater than 0.5 are considered significant to demonstrate convergent validity (Chinn and Brewer, 1998). All measures were found significant (see Table 1). Furthermore, discriminant validity was assured by using Fornell and Larcker approach (1981), where AVE must exceed the sum of the measures squared correlations. In fact, for every pair of latent variables, the square root of the AVE exceeded the correlations between the latent variables, demonstrating the discriminant

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validity of the model (see Table 2). In summary, by interpreting statistical tests of measure reliability, validity and fit, all measures are considered significant for the theory development purposes.

Table 2 Discriminant validity

<i>Constructs</i>	<i>Sum of the measures squared correlations</i>
Strategic flexibility → scenario planning	$(0.52)^2 = 0.27$
Strategic complexity → scenario planning	$(0.03)^2 = 0.0009$
Strategic complexity → strategic flexibility	$(0.34)^2 = 0.11$

Finally, we used bootstrap procedure (Efron and Tibshirani, 1993). This procedure is used where the sample size is insufficient for straightforward statistical inference. It offers a way to take into consideration the distortions caused by the initial model that may not be fully representative of the population ($n = 108$). The idea behind Bootstrap is to insure the stability of the results by resampling the sample data and performing inference on (resample → sample). Bootstrapping is used to estimate proprieties for an estimator such as variances, correlations, etc. It enables to control and check the stability of results. Based on the results obtained after resampling (2000 samples), we find that the risk of instability of the model is very low because all regressions weights and variances are significant with $p < 0.005$.

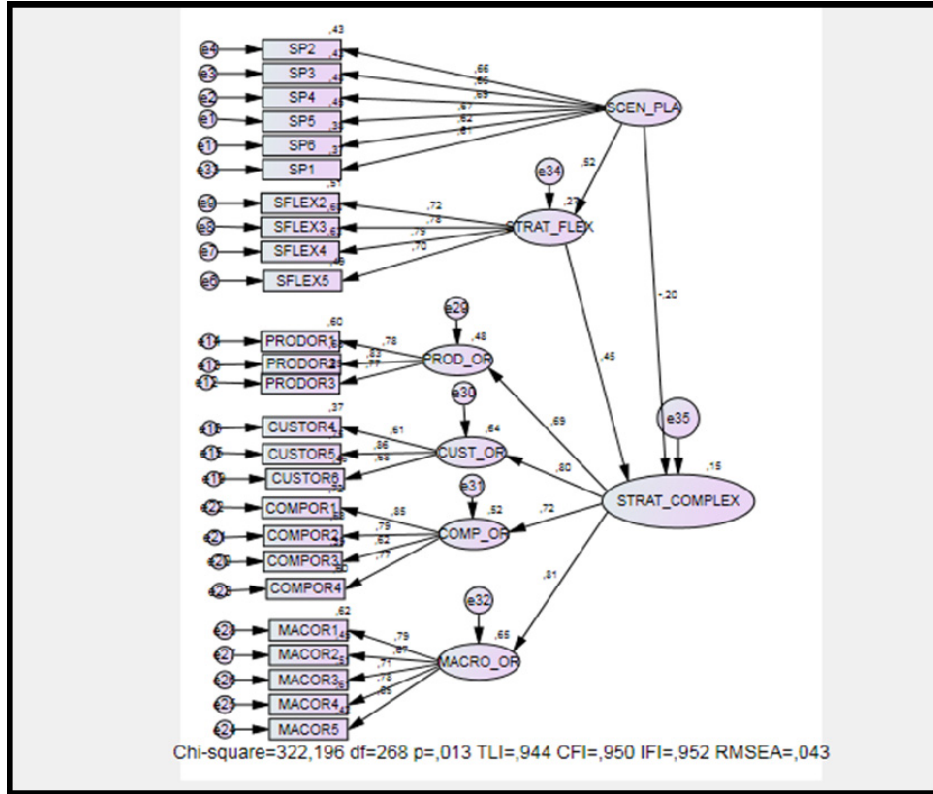
4 Model testing

4.1 Results

The model and hypotheses were tested using structural equation modelling in Amos 20, using bath analysis (Hoyle, 1995). The analysis includes maximum likelihood estimation techniques to test the hypotheses. Different indices were used to evaluate the fit of the measurement of the model such as Incremental Fit Index (IFI), Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). The results suggest that the theoretical model is a good representation of the data collected. In fact, measures of absolute fit are acceptable, ($\chi^2 = 322.196$, $df = 268$, and $p = .001$) and (CFI = 0.950, IFI = 0.952).

To provide greater confidence in the model, Table 3 demonstrates the findings of testing the theoretical model (M0) against an alternative model (M1) that treats strategic flexibility as an intermediate variable between scenario planning and strategic complexity, and omits the direct effect of scenario planning on strategic complexity. Anderson and Gerbing (1988) suggest this method; they recommend the use of chi-square difference test (CDT) to test the following null hypothesis: $M0 - M1 = 0$. A non-significant CDT would lead to acceptance of the more parsimonious M0. Table 3 reports a change in chi-square between the proposed model (M1) and the theoretical model (M0). Compared to the alternative model (M1), theoretical model (M0) presents a significantly best fit. So M0 is preferred as a better alternative.

Figure 2 Structural model



Notes: SP = Scenario Planning, SF = Strategic flexibility, STRAT_COMPLEX = Strategic complexity, PROD_OR = Product orientation, CUST_OR = Customer Orientation, COMP_OR = Competitor Orientation, MACRO_OR = Macro environment orientation.

Table 3 Sequential chi-square tests

Model	Chi-square	Degrees of freedom	Chi-square difference	Degree of freedom difference	Probability
Proposed Model (M0)	322.196	268	+1.895	1	0.000
Alternative Model (1)	324.091	269			

Table 4 lists the standardised path coefficients and critical ratio (C. R). Thus, a value of 1.96 or higher indicates significance at the customary of 5% level. In our confirmatory factor analysis, the critical ratio tests indicate that the first loading is significant with a value of 3.474 (Scenario planning → Strategic Flexibility). Whereas, the second loading related to the positive effect of scenario planning on strategic complexity is not significant with a value of -1.356. Finally, the third loading (Strategic Flexibility → Strategic Complexity) is significant with a C.R value higher than 1.96. The results

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support hypotheses H1 and H3 relating to the positive effect of scenario planning on strategic flexibility and the impact of strategic flexibility on strategic complexity, while H2 is not supported. Scenario planning is associated negatively with the strategic complexity with a correlation (−0.182) and a critical ratio of −1.356 (CR < 1.96) (Table 4).

Table 4 Structural model: standardised path coefficients and critical ratio

<i>Hypotheses</i>	<i>Path specified</i>	<i>Expected sign</i>	<i>Estimates</i>	<i>S.E</i>	<i>CR</i>	<i>P</i>
H1 supported	– scenario planning – strategic flexibility	+	0.35	0.101	3.951	***
H2 unsupported	– scenario planning – strategic complexity	–	−0.182	0.126	−1.356	0.175
H3 supported	– strategic flexibility – strategic complexity	+	0.587	0.208	2.727	0.005

4.2 Mediating effect testing

Additional testing was conducted in order to test the potential mediator effect of strategic flexibility on the scenario planning- strategic complexity relationship using Baron and Kenny approach. Baron and Kenny (1986) recommended structural equation modelling (SEM) in order to introduce measurement error and validate the absence of statistical bias. This approach is based on three steps: (1) the impact of independent on mediator; (2) the impact of independent on dependent; (3) and the impact of both the independent and mediator on dependent. In order to identify mediation, (a) the independent variable must influence the mediator; (b) the independent variable must influence the dependent variable, and (c) the mediator must influence the dependent variable. Furthermore, the effect of the independent variable on the dependent variable must be less in the third test than in the second. The results of mediation test are summarised in Table 5. According to our results; the mediating effect predicted in hypothesis 3 is not supported.

Table 5 Results of testing for mediating effects

<i>Variables</i>	<i>Condition 1</i>		<i>Condition 2</i>		<i>Condition 3</i>			
	<i>Independent on mediator</i>		<i>Independent on dependent</i>		<i>Independent on dependent</i>		<i>Mediator on dependent</i>	
	<i>Path co-efficient</i>	<i>t-values</i>	<i>Path co-efficient</i>	<i>t-values</i>	<i>Path co-efficient</i>	<i>t-values</i>	<i>Path co-efficient</i>	<i>t-values</i>
Strategic flexibility	0.53	3.92*	−0.201	−1.75	−0.16	−1.35	0.35	2.727*

5 Discussion

Scenario planning is a tool for considering the future and developing strategic options. Yet, despite this, there has been a little work examining its outcomes and benefits (Bouhaleb and Smida, 2018; Bowmen, 2015; Jarzabkowski and Kaplan, 2015; Meissner and Wulf, 2013). In this paper, we have tried to fill this gap by presenting scenario

planning benefits in practice. Thus, the primary purpose of this research is to provide evidence on scenario planning on the development of organisational competencies such as strategic flexibility and complexity. In fact, the predicted positive relationship between scenario planning and strategic flexibility is supported. Our results demonstrate that this strategic tool enhances the firm's ability to respond to environmental contingencies. In particular, the use of multiple futures strengthens the firm's ability to quickly act to new business opportunities or threats. Notably, our findings offer insights about scenario planning benefits in firms. As a practice scenario planning contributes to the enrichment of strategic choices and enables decision makers to be more flexible in their actions. As advocated by Rowe et al. (2017), scenario planning is a strategic foresight tool that is designed to deal with uncertainty by exploring and anticipating changes. As such, strategic flexibility is enhanced through the formulation of strategies that takes into consideration the consequences of current actions, the anticipation of important shifts and events and the development of scenarios.

Our finding extends the work of Hit et al. (1998) and Santos-Vijande et al. (2012) who indicated that the success of a company is mainly related to its ability to learn quickly and to be flexible in order to anticipate changes and face unpredictable conditions. In fact, empirical evidence on the antecedents of firm's strategic flexibility is scarce (Schoemaker, 1991). Only Santos-Vijande et al. (2012) who consider the mediating effect of firm's strategic flexibility on the organisational learning, competitive strategy and performance relationship, and also Rudd et al. (2008) who consider strategic flexibility as mediator in the strategic planning- performance relationship. These authors focus on the importance of managerial ability to consider unfamiliar decisions and uncertainty. They confirmed that strategic flexibility requires a strong managerial ability, a decentralised structure and innovative culture, characteristics in which scenario planning has a considerable role (Dibrell et al., 2013; Tapinos, 2012).

This study also shows that strategic flexibility enhances the firm's ability to deter imitation through its strategic complexity. This tool enables them to concentrate on the development of new products, processes, organisational arrangements, customer's needs and competitor behaviour. Indeed, dynamic forces in hypercompetitive environment call organisations to be proactive, innovative and flexible. Addressing these competitive forces is related to the firm's ability to introduce internal and external adjustments, to precipitate intentional changes and respond to unanticipated events. Our results are consistent with Houghton et al. (2009) work that suggest that richer management capabilities would be reflected in more competitive strategy, as measured by strategic complexity. Our finding contributes also to the managerial cognition literature which suggested a positive relation between strategic complexity and strategic flexibility through the consideration of multiple dimensions of environment, diverse strategic alternatives and speedy diagnosis (Nadkarni and Narayanan, 2007). Such finding reinforces this relationship by considering strategic flexibility as an antecedent of strategic complexity.

Finally, the predicted positive relationship between scenario planning and strategic complexity is not supported. The finding contradicts the rationale of the primary hypothesis which suggested a positive relationship. Results demonstrate empirically that scenario planning worsened the strategic complexity. Our finding is consistent with Wilkonson et al. (2013) work that confirms that scenario planning methods (for example, the intuitive logics school) are an on-ramp to complexity thinking.

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Besides, empirical implications may emerge from the current research. A challenge for managers is to combine the benefits of scenario planning and flexibility to deal with uncertainty. This alignment should strength the firm's ability to quickly respond to environment threats and opportunities. As a strategic tool, scenario planning allow practitioners to move from a single forecasts of the future to a more competitive strategies based on environmental evolution. This research also proposes scenario planning as an important determinant of strategic flexibility. Thus, to promote this strategic tool (Tapinos, 2012) within firms, managers have to engage in changes related to organisational structure such as decentralisation and communication between different departments.

In addition, an implication of our finding is that managers in international contexts should develop strategic competencies in order to survive. In fact, multinational firms operate in changing and unpredictable market. Their strategic decision-making largely depends on local context. Thus, they should not rely on their home country practices (Bos-Nehles et al., 2017). Finally, the specificities of the Tunisian context (emerging countries) require organisational skills that facilitate the adaptability to best meet stakeholders' exigencies. It is safe to say, however, that the results of this study are a contribution to managers as they define how to make decisions in a hostile environment. They encourage them to opt for flexible planning and to question projective and deterministic techniques.

6 Conclusion and direction for further research

Scenario planning is one of the tools used by firms and government to consider the future and to enrich their strategic decisions. In this paper we have focused on the scenario planning benefits in practice. We began our analyses with a review of the extant literature describing scenario planning relation with other organisational competencies such as learning, innovation and performance. We then presented an empirical data, using structural equation modelling approach, in order to test the relationship between scenario planning, strategic flexibility and complexity. The overall conclusion driving from this research is that scenario planning enhances the firm's ability to adapt to environmental changes. This work fills the gap by providing empirical evidence on how firms may use scenario planning in order to develop flexibility and strategic complexity orientation. It is also a response to calls for examining strategic complexity antecedents (Neill and Rose, 2006). Drawing from these findings, we have proposed a framework that could serve as a guide for future works on scenario planning outcomes and benefits.

The present research findings should be treated in light of several limitations. In fact, the impact of scenario planning on organisational competencies in European firms is analysed. The results are however, hypothetical and explorative and require further studies to generalise them. One limitation is that the study is based on collecting answers from one person per organisation. We require them to transform their perceptions on seven-point scale. Further researches have to seek confirmatory and negative answers from different respondents in the same organisation in order to achieve significant conclusions.

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Appendix A: Study measures

Definitions, dimensions measurement scales and illustrative studies for the key constructs

<i>Frame of references</i>	<i>Measurement scale</i>	<i>Studies that used similar measurement scales</i>
<p><i>Measurement of scenario planning</i></p> <ul style="list-style-type: none"> - Setting goals and criteria for the business activities and spelling out the basic assumptions about the environment. - Drafting of multiple scenarios. - Evaluating draft scenarios and selecting one for strategy formulation. - Formulation and appraisal of strategy - Cross-checking strategy against other scenarios - Final selection of strategies for operations 	<p>This construct was measured by asking respondents to rate their firm's level of expertise in scenario development and strategic choices on a seven-point scale (where 1 = strongly disagree and 7 = strongly agree)</p>	<p>Malaska et al. (1984)</p>
<p><i>Measurement of strategic flexibility</i></p> <ul style="list-style-type: none"> - Entry of new competitors - Change of customers' product/ service preferences - Radical technological changes or the anticipated obsolescence of current technologies - Important economic changes - Detection of new business threats - Detection of new business opportunities 	<p>This construct was measured by asking respondents to rate the firm's level expertise to provide a quick response in the face of environment changes on a seven-point scale (where 1 = strongly disagree and 7 = strongly agree)</p>	<p>Theoharakis and Hooley (2003), Tsai and Shih (2004), Vorhies and Morgan (2003), Santos-Vijande et al. (2012)</p>
<p><i>Measurement of strategic complexity</i></p> <p><i>Product orientation</i></p> <ul style="list-style-type: none"> - We are always seeking ways to improve the delivery of our services - Our organisation is constantly seeking process improvements - Our business objectives are driven towards producing the highest quality services 	<p>This construct was measured by asking respondents to rate their firm's level of orientation toward product, customers, competitors and macro-environment on a seven-point scale (where 1 = strongly disagree and 7 = strongly agree)</p>	<p>Boulding et al. (1994), Narver and Slater (1990), Neill and Rose (2006)</p>
<p><i>Customer orientation</i></p> <ul style="list-style-type: none"> - We constantly monitor our level of commitment to serving customer's needs 	<p>Disagree and 7 = strongly agree)</p>	