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# Perceptions of the relationship between scenario planning and firm performance: A qualitative study

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## ABSTRACT

This paper presents research findings from the application of scenario planning in multinational firms that operate in competitive industries. We use exclusive and not publicly available data to investigate the link between scenario planning and firm performance from a qualitative perspective. The focus was primarily on firms that had real-life experiences with this strategic tool. Our research suggests that scenario planning is interwoven in how strategy is formulated and that it has a major influence on decisions taken by management. We also found that none of the firms reported formal efforts of assessing the success rate of scenario planning. Participants report that this is due to difficulties in measuring qualitative and quantitative outcomes and because standardized assessment tools are not readily available for this kind of strategic intervention. Overall, participants generally regarded scenario planning as an effective intervention with a positive contribution to the firms' performance. When pressed for more detail, participants revealed that scenario planning techniques were useful in exploring the business environment and future risks, isolating trends, understanding interdependent forces, and considering the implications of strategic decision-making.

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## 1. Introduction

Scenario planning has become an extremely popular strategic organizational tool. This is likely due to the increasingly complex environments in which organizational leaders must function and make decisions. While increased use is an indicator of the popularity of an organizational intervention, it does not necessarily indicate effectiveness. For all its use, there have been surprisingly few rigorous research studies or documentation of scenario planning efforts. To date, the bulk of what we know about scenario planning is found in anecdotes of success, and a few publications that document the cases that turned out well for scenario planning in Royal Dutch Shell and a few other companies.

A simple Internet search with keywords "scenario planning" provides more consultants than one can possibly make sense of. The situation can be characterized by the prolific sales and implementation of an intervention whose effects, outcomes and benefits are at best, not very well understood. Some research on the varying theorized outcomes of scenario planning is emerging based on case study methods [2,4] and quasi-experimental methods [3–6]. These studies are a good starting point, but given the extensive application of scenario planning, it is disappointing that in-depth research is lacking about the effects of this strategic tool.

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The research study presented in this paper uses a qualitative approach to research design, and begins with a simple idea that by understanding the experiences of scenario planning participants, we can learn much about the process as a whole and how it is perceived to benefit organizations that use it. In short, we set out to ask scenario planning participants if they felt that the process had an impact on their firm performance, and if so, what would they describe as evidence of that effect.

### 1.1. Problem statement and research question

The topic of firm performance as it relates to scenario planning has, in fact been explored previously. After their important study that attempted to quantify the impact of scenario planning on firm performance, Phelps et al. [7] concluded that scenario planning is related to improved financial performance, but given small sample sizes and the exploratory nature of their study, their conclusions were preliminary. Certainly, additional studies of this nature are needed that address the shortcomings outlined by Phelps et al. [7]. Chermack [3,5] also argued that improved financial performance (in terms of savings by avoiding mistakes, or in terms of profits due to identifying opportunities) should be a consideration of any scenario planning effort, even if only over the long-term view. Additional authors [1,2,8] have agreed that studies are needed to establish the ultimate effectiveness of scenario planning and firm financial performance undoubtedly lies in this domain. However, there have been no attempts beyond the Phelps et al. study [7] to verify or refute the relationship between scenario planning and firm performance.

A key problem in investigating the relationship between scenario planning and firm performance is a measurement issue. Deciding what to measure and how to link it to the intervention in question rather than a myriad of other possible explanations has been a troubling aspect of organizational research in general. In addition, financial statements in the annual report are the most common indicator of firm performance and while a commonly understood indicator, there may be additional factors that experienced scenario planning participants might identify as critical metrics concerning the effectiveness of scenario exercises. Given the difficulties in measurement encountered by Phelps et al. [7] this study takes a different philosophical approach to the same concepts by assessing the perceptions of executives experienced with scenario planning and its effects on their firms. We decided to ask them directly how scenario planning has or has not helped their organizations thrive.

Therefore, the aim of the paper is to explore the link between scenario planning and firm performance from a qualitative stance. The problem statement underlying this inquiry is that there is minimal evidence in literature that scenario planning affects firm performance.

Based on the problem statement the research question is as follows

To what extent can users of scenario planning provide evidence that scenario planning affects firm performance?

### 1.2. Theoretical framework

#### 1.2.1. Scenario planning

Scenario planning is an expensive effort. Moreover, scenario planning requires a substantial investment of resources beyond the financial sort. Executives expect that as a result of effective planning, they make more informed decisions, check their assumptions about what they believe to be true, and ultimately see the organization in a “different” position than it was prior to the planning efforts [9]. Executives also expect that their organizations will be better positioned to take advantage of the unexpected opportunities that may arise [10]. Scenarios generate energy, much more energy than they consume in time and effort during the process [9]. The overall expectation of improvement can be thought of as performance. The Phelps et al. [7] study is the only rigorous attempt at exploring the relationship between scenario planning and firm performance and this research is intended to build on their research, albeit from a different perspective.

#### 1.2.2. What is performance?

Performance has become one of the most talked about aspects of organizational efforts in recent years. Swanson's [11] discussion of performance improvement provided a broad yet well-defined perspective of performance along with the means to assess it, describe it, and explain it in more detail. While the performance perspective has received criticism on the grounds that it neglects the “human” elements in organizations and improvement efforts, “the best PI theory and practice will in the end validate the need for and contribution of human expertise to PI” [11, p. 4].

Performance has been defined as: “the valued productive output of a system in the form of goods or services” [11, p. 5]. Put simply, “performance is accomplishment and fulfillment, not potential or capability” [11, p. 1]. Performance is considered *mission-related* output, meaning that the goals of the system sponsoring the improvement effort will define the appropriate performance outputs [12]. Johnson and Scholes [13] added that the performance of an organization is judged, either internally or externally, on its ability to meet these goals.

#### 1.2.3. Levels of performance

Rummler and Brache [14] documented the concept of “levels” in organizations in their book *Improving performance: How to Manage the White Space on the Organizations Chart*. They stated: “The most powerful strategy implementation tools we have found are those that help us effectively design and manage performance at the organization, process and job/performer

levels” [14, p. 84]. The implication of this view is that changes in strategy necessitate changes in processes and individual job descriptions. Any discussion of performance improvement must consider its ramifications at multiple “levels” of activity in the organization.

*1.2.3.1. The organization level.* Performance can be defined at the organizational level in terms of three core variables, namely: (1) organization goals, (2) organization design and (3) organization management [14]. Organization goals frequently include a focus on productivity, cycle time, cost, and profit improvement efforts. Performance focused analysts “design an organization that enables the goals to be met” [14, p. 37], thus a focus on the input–output relationships within the organization allow a design that accommodates and supports the organization goals. Goals, performance, resources and interfaces between functions are all areas requiring frequent assessment “help identify what needs to get done (goals), the relationships necessary to get it done (design), and the practices that remove the impediments to getting it done (management) [14, p. 43]. The organization level of performance provides the foundation for understanding, analyzing and managing performance at the process and individual levels.

*1.2.3.2. The process level.* Commonly viewed as how work is accomplished, processes can be more specifically defined as value chains in which each step adds value to the previous step. Based on a view that effective processes produce effective organizations [14] it can be asserted that process goals, design, and management are the key variables to address for improving process performance. Process goals are considered sub-goals of organization goals, and should be designed to efficiently convert process inputs to process outputs. Managing, analyzing and adjusting processes goals, performance, resources and interfaces ensure the maintenance of high levels of process performance [14]. Targeted as the level with the greatest opportunity to contribute to performance improvement, the process level is largely ignored, and often misunderstood.

*1.2.3.3. The job/performer level.* Jobs must be designed to support process steps, enabling the achievement of process goals, and in turn, organization goals. Job goals must be aligned with process goals and jobs must be designed and structured such that the performer can achieve those job goals [14]. Job management is considered a function of (1) performance specifications, (2) task support, (3) consequences, (4) feedback, (5) skills and knowledge and (6) individual capacity. These components of job management, if effectively addressed, help job performers achieve process goals, leading to the fulfillment of organization goals.

#### *1.2.4. Performance improvement as an outcome of scenario planning*

When firm performance is referred to in the context of planning, there is a natural tendency to assume that this means financial performance. While this is certainly a variable of interest, it is one of the most difficult to measure, isolate, and attribute to the intervention, and is not the only performance-related variable that can be assessed. The theoretical framework that we have outlined here suggests that performance can be assessed in terms of its drivers. Scenario planning research indicates items such as learning, decision-making, individual mental models, leadership support and communications skills [1–3,5] are all things that aim to drive organizational performance improvement in the scenario planning process. Thus, an important question arises concerning participant perceptions of how these drivers may or may not have changed, or been affected through participation in scenario planning.

Again, our purpose in this study was to examine perceptions of how scenario planning may or may not have contributed to performance improvement at any level from a group of experienced practitioners.

## **2. Research method**

The following sections describe the research method, study design and data collection and analysis procedures.

### *2.1. Characteristics of qualitative research*

Because the goal of this research was to gain insight into the relationship between scenario planning and firm performance from the experiences of participants, a qualitative approach was most appropriate. This research was based on qualitative inquiry [15]. It is not the intent of this paper to engage in a lengthy debate on the matter of philosophical research orientation, however, a few points will clarify the approach undertaken. Specifically, the underlying premise of this research was not to develop predictive, controlling, or generalizable statements about the relationship between scenario planning and firm performance. Rather, our goal was to document and learn from the experiences, attitudes, intuitions and beliefs of the participants regarding any link between scenario planning and firm performance [15]. Stated another way, we wanted to gather evidence that scenario planning can be a method to affect and increase firm performance. In particular, this approach seemed a much needed addition to the literature, and our conclusions and insights for understanding the relationship between scenario planning and firm performance that are not necessarily dictated by revenues gained on the financial statements. The qualitative stance assumes that the researcher is inherently a part of the research process [15]. Our interviews followed the paths that the participants wished to explore and our own interests no doubt influenced follow-up questions [15].

**Table 1**  
Overview of firms and participants.

Firms	Industry	Operating area <sup>a</sup>	Employees <sup>b</sup>	Type of manager <sup>c</sup>	Study background	Work experience
A	Strategy consulting	National	20	General	Economics and law	Strategy consulting
B	Cable/telecom	National	12,000	Financial	Business economics	Management consulting
C1	Airlines	Multinational	30,000	Strategic	Artificial intelligence	Strategy consulting
C2	Airlines	Multinational	30,000	Strategic	Law and business economics	Airlines
D	Management consulting	Multinational	100,000	Strategic	Economics	Strategy consulting
E	Real estate	European	25	General	Mining and petroleum engineering	Management consulting
F	Telecom	European	30,000	Strategic	Mathematics	Public sector
G1	Oil and energy	Multinational	100,000	General	Mechanical engineering and economics	Oil and energy
G2	Oil and energy	Multinational	100,000	General	Environment and business economics	Oil and energy

<sup>a</sup> Scaled by the number of countries in which the firm operates.

<sup>b</sup> Employee numbers are rounded, source: Annual reports 2006.

<sup>c</sup> Type of manager is derived from the participants' job description.

## 2.2. Description of participant recruitment

A large management consulting company in the Netherlands served as the gateway for recruiting interview participants from its client firms. This consultancy has had numerous clients that have used its consulting services, and participant selection began by identifying a list of clients from this organization and had a strong orientation towards the application of scenario planning in their own firms. The initial list yielded 20 potential participants where the focus was on multinational firms within highly competitive industries. This was a purposive sampling technique.

## 2.3. Sample

We then began to contact participants, who were all top-level managers or executives, from earlier client projects who were willing to engage in our research study. A final list of participants was developed after our targeted participants agreed or declined to engage in our research.

Nine respondents from seven organizations agreed to meet with us and share their perspectives on the outcomes of scenario planning. All respondents had been involved in the direction, facilitation and implementation of numerous scenario planning projects, however, they had a variety of backgrounds, positions, educational backgrounds and responsibilities. Additional descriptive details are provided in Table 1.

## 2.4. Data collection procedures

Upon follow-up contact with each voluntary participant, a time was scheduled for the interview. A set of nine face-to-face semi-structured interviews was used to examine the research question (to what extent can users of scenario planning provide evidence that scenario planning affects firm performance?). Most questions were focused on “how” and “what” questions [16]. The interview guide is provided in Appendix A. We were particularly interested in perceptions of a link between scenario planning and overall firm performance, so we probed with a specific question on this topic. The interviews were conducted during a period of 3 months and on location at the respective participant organizations. Each interview was scheduled for one hour, and each one of them exceeded that hour. This suggests a level of success in our research, as our participants were busy people with enormous responsibilities and long tenure in their organizations. The fact that they were willing to exceed their initial agreed upon timing for the interview suggests that they were compelled by the conversation and wanted to tell their stories [15].

Two researchers were present for each interview to enhance the creative potential of the study and team members often have complementary insights that add to the richness of the data and their different perspectives. This model increases the likelihood of capturing any novel insights that may be expressed in the interview [17].

To clarify, two researchers conducted each interview. One researcher asked the interview questions, while the other recorded notes and observations [17]. The interviews were in-depth interviews, and were guided conversations rather than structured queries [18]. The interviews were based on ‘non-threatening’ questions that allowed researchers to ask key respondents about the facts of a matter as well as their opinions about events [18]. To enhance the quality of the interview data, and so the reliability, the transcripts were sent back to the respondents for their feedback and approval. After receiving their approval we began the analysis.

## 2.5. Data analysis procedures

To ensure anonymity, as requested by the collaborating participants, the different interviews were processed into anonymous categories by organization. To clarify, the organizations and participants were labeled as “firm A–G”, to which we refer in the data analysis and later on in Section 3.

Because the interviews were captured with a digital memo recorder we were able to consider the data again numerous times after actual interviews took place. This provided the ability to revisit certain portions of the conversation that were not clear at first listen. From the interview recordings we created full transcripts to continue the data processing. However, we were not able to go back and ask follow-up questions for clarity and had to rely on each interviewee's confirmation that the interview transcription accurately captured their intended meaning.

With the use of 'pattern matching' several pieces of information from each interview could be related to theoretical propositions [18]. So data as acquired during each interview was linked to the model of scenario planning as found in our literature study.

The data as found in the transcripts was linked to several theoretical propositions and distributed amongst the different sub-questions. From this perspective we were able to get an overview of the answers on each question as provided by the participants.

### 3. Results

This section describes the research results. First we present descriptive data as it relates to the participants and their organizations. Then, we provide the results of our interview data analysis.

#### 3.1. Descriptive results—characteristics of participants and their organizations

The firms in which the participants function had in common that they were all service providers, although they operated in different specific industries. Three organizations operated worldwide and performed multinational activities. Two organizations explored activities in Europe, followed by two others that only operated on a national scale in The Netherlands.

Four of our participants were strategic managers. So their day-to-day work related to the organizations' strategy. The four other participants held more general management positions, which implies that they dealt with other tasks that were not always directly related to the organization strategy. One participant had a more financially orientated job, but from that position he also worked on strategic issues.

Five participants had working experience as consultants gained while working for worldwide operating strategy consulting firms. Three participants still work in the same industries in which they began their careers—the airline industry and the oil and energy industry. One other participant gained work experience in the public sector.

#### 3.2. Interview data results

First, to find out more about the definitions in practice we asked the participants what kind of image they had in mind for "scenario planning". They showed similarities; in almost every answer it is interwoven that scenario planning is about a firms' strategy, although some differences were made amongst the more in-depth fulfillment of this tool.

The meaning is clearly formulated by participant G1 who said that it is a tool to explore many complex business environments and factors that drive changes and developments in those environments. It is about the long-term view. G2 added that it is taking into account the things you do not know, to expect the unexpected and to prepare for uncertainty. C1 clearly stated the origin of scenario planning as being developed by Royal Dutch Shell as an advanced planning method, focused on the long-term. It is part of the strategic plan and is focused on technology, the environment and customer behavior. C2 agreed, but remarked that scenario planning is focused on 3 to 10 years into the future, because the future is insecure—although the goal is to describe possible futures and develop plans that are effective in the possible scenario outcomes.

A broader definition was given by C1 who said that scenario planning is a process aimed at creating shared vision about the organizational circumstances—for example defining the key uncertainties and strategic priorities. This makes it possible to take accurate decisions across the year. C2 remarked that the long-term view is limited and that scenario planning is a labor-intensive activity. It is a highbrow activity and an organization must be patient enough for it. Although it is a method to recognize risk, but also offers possible business opportunities.

Participant A said that when suggesting a new strategy implementation, a true variety of outcomes was explored to build the robustness of the strategy. Qualitative information is used because scenario planning relies on story-telling to get its message across. This method of story-telling is mentioned in another way by B because each scenario contains a vivid description of what the world could look like. Scenarios consist of market trends, analyses of competitor behavior, price changes, product changes, and customer changes. Strategic options are financially grounded as well.

The earlier mentioned story telling aspect was highlighted by D who stated that scenario planning is like an organizational radar—watching 360° around the organizational environment. It is toolbox method for formulating strategy about a variety of possibilities, including financial revenues. Again the term long-term view was mentioned, this time by E as he remarked that scenario planning is resource intensive and aims to develop long-term strategies that account for risk and optimize potential results.

A remarkable answer, in contrast to the other participants, came from F who said that scenario planning is an unstructured process about analyzing developments in the organizational environment. In this view it is impossible to avoid unexpected situations, so scenario planning is not a perfect tool, but it does help decision-makers think deeply about the future.

### 3.3. Interview data results—dimensions

While conducting the interviews we asked the participants about how scenario planning was applied in their organizations. Part of this question was how much time was spent on this intervention.

In firm B the process and dimensions of scenario planning are characterized as sessions that were organized by a strategy consultant. Enthusiastic, open and creative employees with different backgrounds and experiences were asked to think about the future. The purpose was to start the discussion about the future and the likely consequences. The outcomes were critiqued on quantitative basis.

A different approach was mentioned by participant A. Participant A described developing a best-case, a base-case and a worst-case scenario. In each of these scenarios a selected range of variables were used. Qualitative information was also used because scenario planning involves story telling—mixed the variables in a cohesive narrative story about the future. The drawbacks of this approach (best-case, base-case, and worst-case) are highlighted elsewhere in the literature but are worth stating again. Using this approach, the scenario planning effort is essentially stifled because no truly innovative thinking is developed. Anyone can quickly develop best-case, base-case and worst-case scenarios. Scenario planning, properly done, assess variables and their systemic structure. By doing this, scenarios provide novel insights, but such deep analysis requires time and immersion in the industry and its key variables.

According to C2, in the past three scenarios were used when developing business plans. The problem was that scenarios were introduced in the internal reports without any actions attached to them. In this statement a problem in the 'process level' was mentioned. As A said, it must be clear which actions should be taken based on the scenarios. This seemed to be lacking in organization C. Although scenario planning is part of the strategic planning process, C1 said that every year after the summer period a strategic planning session is organized. In this session, a 5-year plan is developed, and usually merely focuses on competitors in the different businesses. The similarities between C1 and C2 are that the scenarios are constructed with the focus on the business and its industry. The difference is that C1 was focused on new business plans and C2 focused on competitors in the businesses.

A clear method of application was mentioned by D who described an instance in which scenario planning was used when a team had an unclear view of the future or it was confused about its strategic direction. Scenario planning can be a method to encourage people to communicate with each other, but it needs guidance and facilitation to develop a shared understanding of the contextual environment and to develop useful scenarios. To stimulate this, experts were hired for these meetings and they tried to get the team out of their comfort zone, to think broader and make it more fun. In the past, a scenario planning exercise was done to define the organizations' strategy. They selected 120 participants amongst their own personnel to work on future scenarios during a few months.

In firm E two employees worked on scenarios. The focus was not on quantitative models but more on logical thinking. Scenario planning is not advocated as an exact discipline—there is no standardized model that will suite every organization in every industry. Scenario planning is largely an art and a mental exercise. In firm E, it was used to identify economic risks that were linked to the organizations' strategic goals. They analyzed the consequences if certain risks were not successfully overcome. The risks included behaviors from the government, the market, the consumers, the real-estate market, the private equity market and the consequences for their own business. Scenarios for long-term strategy were also used, and these were called global scenarios. However, firm E used the scenarios published by Royal Dutch Shell and a Swedish organization to set the context of global changes in the energy industry. Participants in firm E, then developed decision scenarios to examining the implications of a variety of actions they might take as an organization.

F said that their process differed from the structured Royal Dutch Shell process and it is more a process in which continuous meetings are held with the board about developments. Every 6 weeks a separate session with the board is held about long-term developments. In this approach, an agenda is continually formulated involving subjects that are important according to the strategy department and the board. These important trends are then incorporated in scenarios that capture different actors in the market and potential shifts according to their strategic moves and actions. Again the focus on the market is mentioned, as was mentioned earlier by other participants.

G1 argued that they have been producing global scenarios for more than 30 years. These scenarios are different from forecasts in that they provide a tool that helps them to explore the many complex business environments in which they work and the factors that drive changes and developments in those environments. This answer provided a focus on the complex business environment.

The mentioned characteristics of applied scenario planning resulted in [Table 2](#) which provides a more general overview of the whole scenario picture within the firms.

From this table, it can be derived that six participants discussed solely insiders as being the writers of scenarios. On the other hand we have three firms in which the scenarios are developed in collaboration with outsiders, e.g. consulting firms, or based on scenarios created by outsiders. In the case of the outsiders the Royal Dutch Shell scenarios were also mentioned as a principle for a scenario planning exercise.

When it comes to the time span of scenario planning we found that this differed substantially, meaning from a short-term focus of about 4 years to a long horizon of 25 years. As found in literature, scenarios should be aimed at the long-term to offer the possibility to think broadly. It is also remarkable that scenarios created with the help of outsiders tend to have a longer horizon. This could be explained by the fact that outsiders (the consultants) had more experience in performing scenario planning exercises.

**Table 2**  
Characteristics of applied scenario planning, including developed scenarios.

Firms	Industry	Authors <sup>a</sup>	Time frame	Type of data used	Scope	Accessibility <sup>b</sup>
A	Strategy consulting	Insiders	5–10 Years	Qualitative and Quantitative	Industry	Management
B	Cable/telecom	Insiders and Outsiders	25 Years	Qualitative and Quantitative	Global	Employees and Relations
C1	Airlines	Insiders	5 Years	Qualitative and Quantitative	Global and Industry	Management
C2	Airlines	Insiders	3–10 Years	Qualitative	Global and Industry	Management
D	Management consulting	Insiders and Outsiders	3–20 Years	Qualitative	Global and Industry	Management
E	Real estate	Insiders (with outsider scenarios)	10–20 years	Qualitative	Global and industry	Management
F	Telecom	Insiders	4 Years	Quantitative	Industry	Management
G1	Oil and energy	Insiders	20 Years	Qualitative	Global	Employees and relations
G2	Oil and energy	Insiders	20 Years	Qualitative	Global	Employees and relations

<sup>a</sup> Refers to the writers of the scenarios as developed for the firms.

<sup>b</sup> Level of accessibility of the scenario planning outcomes.

Also there seems to be a relationship between the scope of the scenarios and the time frame. Six participants answered that when the scope of the scenarios was 'global' there was a long-term view of at least 20 years involved. This could mean that global scenarios tended to have a wider and longer-term focus than with a narrower scope (e.g. industry). This seems logical as global scenarios have boarder impact on today and future worlds.

In six firms the outcomes of scenario planning were only accessible for management, which usually created them. Only in two different firms the outcomes are made public, consisting of employees and relations of the firm. In these firms the scenarios were constructed as global scenarios, suggesting that the focus is not on the company itself but much wider as the scenario planning theory in fact describes.

### 3.4. Interview data results—scenario planning measurement

Our results reveal that scenario planning is applied with different characteristics in each of the firms we worked with. But if they applied scenario planning, did they measure the (possible successful) outcomes as well?

The answer from participant A provides a clear statement about the measurement of applied scenario planning. He said that post-scenario planning assessment is not a routine exercise. They checked the business case, as developed for a client in a more general sense.

The most important follow-up question according to A is what to do about things they have not foreseen. So, no real comparison between constructed scenarios and actual developments in the contextual environment is performed in this organization. C1 agreed with this because there is no standardized form of measurement to verify if the strategic planning was successful, and development of assessment tools is extremely time consuming.

Participant D stated another reason for the lack of evaluation effort—the simple fact that the effects are difficult to measure. This is confirmed by G2 because to a certain extent scenarios are an insurance against surprises. This means that it is indeed difficult to measure the outcomes. In particular, this is true if the scenario planning effort is successful at helping the organization avoid some detrimental situation—if it never occurs, its successful avoidance cannot be known.

Finally an important remark was made by G1 who said that there is no measurement, it is just a method how they plan and work. From this statement can be derived that measuring of scenario planning is not part of the method at all. This is confirmed by a review of the literature. There are no published methods for evaluating scenario planning efforts and their outcomes. For certain, this would be a difficult task, but it is clearly one of the most important facets of scenario planning for future development.

### 3.5. Interview data results—role of management

The role of management in determining the future strategy, as found in literature, is clearly described by A. It is important to involve top-level managers and ask for their vision. Scenario planning projects are designed to elicit the wisdom of the crowd; ask a large group for input about a case. In this organization it is management who makes decisions about strategy. Further, it is generally acknowledge in the organization science literature that change efforts are not successful without top management support and this is not different with regard to scenario planning.

In firm B, management role differs because the scenarios were constructed following a bottom-up approach. In this case the knowledge from the business came from the different divisions themselves. Because of the difference in creativity amongst management some of them were able to develop more surprising and provocative scenarios than others. Divisional management presented their plans to the board of the organization. These plans were discussed in the executive team, but at the end, the board decided what would be the most likely and useful scenarios. This answer makes apparent that management can also deliver input for the scenarios which may lead to future strategy. But this answer ended with the same message as mentioned by A, the board decides which scenarios are used. When the most likely scenarios are chosen, the purpose of scenario planning is defeated.

When it comes to firm C, management is also involved in the process. According to C1 strategic planning involved management decisions exclusively; the strategic management team is fully involved in the planning cycle and in fact, they drive the planning process. So, similar to organization B, management delivered input. C2 added the same message as in the organizations mentioned before—in the process of strategy formulation top-level management makes the final decisions about which scenarios are considered and why. Before decisions are made, some preliminary work is done. This consists of several management sessions and a strategic seminar organized for the top 40 managers. An interesting remark made by C2 was that top-level managers were not really interested in the objective world, as it exists in reality—they are more interested in their own visions.

Again the role of management is confirmed, as E stated that the board is responsible for the decision-making process. The outcomes of the global scenarios were discussed with the supervisory board. Questions were asked about the robustness of the strategy against the unexpected changes in the future. G1 agreed with this statement and said that the board is responsible for setting the strategy. G2 added to this that management determines the future strategy and that the role of scenarios is generally to provide valuable input like other managerial tools.

Contrasting the earlier answers, D said that the role of management in scenario planning is more decision-making than exploring and developing. In the past they learned that the view from the 'top' is not always appropriate because it is perched and not consistent with the business at the 'bottom'. So there is little or no input from management to construct the scenarios, they are the deciders, and the input is delivered by other employees.

### 3.6. Interview data results—*influence from scenario planning on management decisions*

Now that the role from management in determining the future strategy is defined, the question is: to what extent does scenario planning influence management decisions? Participant A said that if scenarios are constructed in the right way, which means aimed at actions, they have an enormous impact on management decisions. This is caused by the internal discussion in organizations about what could happen in the future. Resulting in the fact that the organization is prepared for the future, because it forces management to consider what to do if a particular scenario unfolds.

The influence on decisions is limited according to B because at the end, strategic planning is an intuitive, gut-feeling process, but partly based on quantitative analysis. This is described differently by C1, who stated that without the strategic planning process there would still be an organizational strategy, but they would miss many opportunities that arise when managers must talk with each other to formulate their strategic vision.

C2 mentioned that scenario planning has considerable influence, as a scenario really affects management decisions by providing a forum to explore uncertainty and judgment. In most situations the common thought is too one-track minded and not outside-in. So scenario planning could provide better decision making in this way. Another reason is clearly stated by participant D as it is provoking and shows management the total picture. This is confirmed by E who said that decisions taken by management are influenced by the outcomes of scenario planning. Scenarios have great impact on the long-term strategy as scenarios are a method to test the organizational strategy. In addition, the outcomes for short-term risks resulted in assessment and planning for real actions. F said that the influence on top-level management decisions is tremendous. Although the influence from business-line management and middle management is limited since they are focused on short-term results.

The answers from all participants indicate a perception that scenarios are useful in managerial decision-making. This is also mentioned by the participants from organization G. As G1 firmly described, the influence from scenarios is high. G2 added that strategies are tested against the scenarios to create robustness, and new strategies often find their roots in scenarios from a creative brainstorming process.

### 3.7. Interview data results—*performance*

Seen in the perspective of overall expectations of improvement in firms, we asked the participants to what extent scenario planning influences firm performance. According to participant A scenarios can contribute a lot to the performance of organizations when the organization is able to link the different scenarios to actions. Although the risk is that scenario planning can sometimes result in an academic exercise. Therefore the scenarios should be aimed at a limited number of variables and must be based on relevant concerns of the managers for whom they are intended. This is shared by B who argued that the weakness of strategic planning is that it is too generic and that the total market size and developments are not used in the process. Seen in this perspective scenario planning contributes to the performance of an organization because it provides a comprehensive analysis of key driving forces in the external environment and performance and insight is created and enhanced in the organization.

According to C1: the fact that strategy is being developed in the organization contributes directly to its performance. It forces top management to think together and share opinions about strategy, so strategy influences the organization performance. As B said, the insight into the organization is similar to the thinking and sharing process which is referred to by C1 and is inherent in the scenario planning process. According to D scenario planning is more a roadmap than a decision grid.

E said that scenario planning exercises can have an enormous impact on the performance on the long-term. It enables the possibility of checking the robustness of a strategy, which no other strategic process features. F agreed on this because thinking about the future is essential for the continuity of an organization and so it contributes to the overall performance. G1 said something more specific, it helps to balance their portfolio and risks; this enhances the financial performance and



**Table 3**  
Impact from scenario planning on firm performance in participating firms.

Firms	Organization level <sup>a</sup>
A	Link different scenarios to actions.
B	Comprehensive analysis of key driving forces and insight in own organization.
C1	Strategy development contributes directly to performance. Management must think together and share opinions about strategy.
C2	Difficult to prove, must fit in the organization and must not lead to bureaucracy and decisiveness.
D	A roadmap, no decision grid. Unable to control variables directly that influence performance.
E	Focused on long-term goals and checking the robustness of a strategy.
F	Thinking about strategy is essential for the continuity—contribution to overall performance.
G1	Balance portfolio and risks—enhancing financial performance and reducing overall company risk.
G2	Shareholders value the long-term view, scenarios minimize regret costs of bad investments. Influence on performance is difficult to measure.

<sup>a</sup> Refers to the theoretical framework [14].

reduces overall risk for the company. G2 added that shareholders may value the long-term view and/or those scenarios minimize regret costs of bad investments and stimulate choices in favor of robust strategies.

After these opinions some criticism was provided by C2 who said that the influence on performance is difficult to prove, scenario planning must be done properly, it must fit in the organization and it must not lead to bureaucracy and decisiveness. Although some organizations are forced to use scenario planning because they need to be more prepared for the unexpected. This opinion was shared by participant D because, according to him, performance means that one can control the organization directly based on different variables, which is impossible with scenario planning. Also G2 admitted that it is difficult to say that scenario planning influences firm performance because of the lack of measurement and assessment tools. An overview can be found in Table 3.

### 3.8. Firm specific overview

To get a better understanding of the different methods of scenario planning in the firms, the following tables provide an enhanced overview (Tables 4–12).

**Table 4**  
Scenario planning in firm A.

Firm A	
<b>Industry</b>	Strategy consulting
<b>Process</b>	Developing a best-case, a base-case and a worst-case scenario
<b>Measurement</b>	Post-scenario planning measurement is not a routine exercise Only checked the business case generally as developed for the client
<b>Management</b>	Ask top-level management for their vision Management makes decisions about strategy
<b>Influence</b>	If scenarios are aimed at actions than they have enormous impact on management decisions
<b>Performance</b>	Link different scenarios to actions

**Table 5**  
Scenario planning in firm B.

Firm B	
<b>Industry</b>	Cable/telecom
<b>Process</b>	Sessions organized by a strategy consultant
<b>Measurement</b>	There is no measurement of the outcomes of the scenarios
<b>Management</b>	The board decides which scenarios are used (and delivered input as well)
<b>Influence</b>	Influence is limited, it is an intuitive, gut-feeling process
<b>Performance</b>	Comprehensive analysis of key driving forces and insight in own organization

**Table 6**  
Scenario planning in firm C1.

Firm C1	
<b>Industry</b>	Airlines
<b>Process</b>	Every year a strategic planning session is organized
<b>Measurement</b>	No measurement as there is no standardized form to check if the strategic planning was successful, it is extremely time consuming
<b>Management</b>	Exclusively involvement of management
<b>Influence</b>	Large influence, without strategic planning process many opportunities would be missed
<b>Performance</b>	Strategy development contributes directly to performance Management must think together and share opinions about strategy

**Table 7**  
Scenario planning in firm C2.

<b>Firm C2</b>	
<b>Industry</b>	Airlines
<b>Process</b>	Scenarios were used when developing business plans
<b>Measurement</b>	Measurement is not a part of scenario planning
<b>Management</b>	Top-level management makes decisions about which scenarios are considered as likely
<b>Influence</b>	Considerable influence, scenarios affect management decisions by providing a forum to explore uncertainty and judgement
<b>Performance</b>	Difficult to prove, must fit in the organization and must not lead to bureaucracy and decisiveness

**Table 8**  
Scenario planning in firm D.

<b>Firm D</b>	
<b>Industry</b>	Management consulting
<b>Process</b>	Scenario planning when a team had an unclear view about the future Experts were hired to facilitate these sessions
<b>Measurement</b>	The effects are difficult to measure
<b>Management</b>	Role of management is more decision-making than exploring and developing the scenarios
<b>Influence</b>	It is provoking and it shows management the total picture
<b>Performance</b>	A roadmap, no decision grid Unable to control variables directly that influence performance

**Table 9**  
Scenario planning in firm E.

<b>Firm E</b>	
<b>Industry</b>	Real estate
<b>Process</b>	Used the public Shell scenarios and scenarios from a Swedish organization to set the context of global changes in the energy industry
<b>Measurement</b>	No measurement afterwards
<b>Management</b>	The board is responsible for the decision-making process Global scenarios are discussed with supervisory board
<b>Influence</b>	Management decisions are influenced by the outcome of scenario planning The influence is large on long-term strategy
<b>Performance</b>	Focused on long-term goals and checking the robustness of a strategy

**Table 10**  
Scenario planning in firm F.

<b>Firm F</b>	
<b>Industry</b>	Telecom
<b>Process</b>	Every 6 weeks meetings are held with the board to discuss (future) developments These are incorporated into scenarios that capture actors in the market and potential shifts
<b>Measurement</b>	No real measurement, only actions bases on real developments
<b>Management</b>	Strictly top-level management involvement
<b>Influence</b>	Tremendous influence on top-level management decision Limited influence on business-line and middle management as they are more focused on short-term
<b>Performance</b>	Thinking about strategy is essential for the continuity—contribution to overall performance

**Table 11**  
Scenario planning in firm G1.

<b>Firm G1</b>	
<b>Industry</b>	Oil and energy
<b>Process</b>	Producing global scenarios for more than 30 years To explore complex business environments and the factors that drive developments
<b>Measurement</b>	There is no measurement, it is just a method how they plan and work
<b>Management</b>	The board is responsible for setting the strategy
<b>Influence</b>	The influence from scenarios is high
<b>Performance</b>	Balance portfolio and risks—enhancing financial performance and reducing overall company risk

**Table 12**  
Scenario planning in firm G2.

Firm G2	
<b>Industry</b>	Oil and energy
<b>Process</b>	Creating global scenarios
<b>Measurement</b>	Scenarios are an insurance against surprises therefore difficult to measure the outcomes
<b>Management</b>	Management determines the future strategy Scenarios provide valuable input like other managerial tools
<b>Influence</b>	Strategies are tested against scenarios to create robustness New strategies derive from the creative scenario brainstorming process
<b>Performance</b>	Shareholders value the long-term view, scenarios minimize regret costs of bad investments Influence on performance is difficult to measure

#### 4. Conclusions and implications

This paper has attempted to report new insights on the performance aspect of scenario planning. As stated in the introduction, current research on the practical application of scenario planning is severely lacking. Therefore our qualitative study, consisting of collected data from top-level managers and executives provides a new approach to assessing scenario planning, and evidence that users of scenario planning perceive it to have an impact on firm performance.

All participants were able to provide a suitable definition of scenario planning. Although the definitions differed a lot, most of them emphasized the long-term character of scenario planning and a discussion about the future and environmental change. The biggest differences in definitions were caused by different opinions about whether scenario planning was strictly qualitative or also quantitative.

In all researched firms scenario planning is applied, although the difference among the methods of applying the process are considerable. While one has a special department for developing scenarios, another organization has performed the scenario planning exercise just once. The most common answer was that scenario planning is interwoven in how strategy is formulated. The majority of the developed scenarios was aimed at a global level, this suggests that the theory was applied correctly as scenario planning is about thinking broadly.

Regarding the outcomes of scenario planning, none of the organizations reported a means or practice of assessing the possible success or failure of the scenario planning process. This is remarkable, but is explained by the participants as a problem, and that evaluation is not a common or standardized part of the process. The most commonly reported reason for this was that it is difficult to measure the outcomes and to check afterwards.

All participants mentioned that management has a role in determining the future strategy, although there were slight differences in the nature of management's role. Some participants reported that decisions were generally taken by the board. So, all participants agreed that scenario planning has influence on decisions taken by management. This could explain why the developed scenarios are merely accessible for management in most of the firms. Although from a literature perspective scenario planning is an exercise from which the whole organization could benefit, not exclusively management.

Finally, there was discussion amongst the participants about the influence of scenario planning on the performance of an organization. Two out of nine argued that is doubtful. These two argued that it is difficult or even impossible to measure the influence on performance, as it is hard to define. Secondly it is difficult to prove that there are measurable outcomes, particularly in cases in which scenario planning was successful. The majority, seven participants, argued that scenario planning does affect firm performance due to its powerful exercise and future risk identifying elements. Compared to the literature, as Wack [9] said, scenarios generate energy, much more energy than there has been consumed during the process to create them. To some extent, we conclude that this is a contribution to a positive performance outcome.

The results found in the analysis were an interpretation of what was meant by the participants. Although some validation and reliability is provided with the interview transcripts and with the approval for the transcripts by the participants, the analysis still remains an interpretation. It is difficult to ground these opinions and interpretations scientifically, although we conducted this research within the framework of a qualitative inquiry. Given that qualitative assessment of scenario planning is exactly what is lacking in the body of research about scenario planning, we believe this study makes a valuable contribution. Only Phelps et al. [7] have inquired into the relationship between scenario planning and firm performance, and our study is intended as a follow-up and complementary study to their 2001 work. It may be difficult to ever achieve an objective evaluation and assessment of scenario planning as one of the participants said "it is just how we plan and work". The qualitative approach has allowed us to capture the views and experiences of seasoned scenario planning users, and thus we have captured some of the artfulness of scenario planning in some major organizations. Additional studies are needed to explore the nuances that are perceived to aid in the effectiveness of scenario planning processes.

To make a statement about the relationship between scenario planning and firm performance it is necessary to have more studies in both the quantitative and qualitative approaches. For certain, there is still much to be learned about what makes scenario planning valuable for organizations, and how to maximize that value in a variety of industries. We intend that our study is an example of an alternative approach to studying the variables and outcomes of scenario planning that reveals insights that cannot be gained from a quantitative stance. Overall, further inquiry into the relationship between scenario planning and firm performance will help managers and practitioners get the most out of this popular strategic tool.

## Appendix A

This appendix shows the interview questions as used for the case study interviews. The questions were based on a format about 'the future', 'the present' and 'the past' [16, pp. 195–197].

- Name of the organization?
- What is your position and what are your responsibilities?
- How many people does your organization currently employ?
- What is the success formula of the organization (right to exist)?
- What is in your opinion scenario planning (what kind of image do you have in mind)?
- How is scenario planning applied in your organization?
- How much time is spent to scenario planning in your organization?
- How to measure to what extent and how successful scenario planning is applied?
- What is the role of management in the determining of the future strategy?
- What are the main decisions to be taken? [16, p. 196]
- To what extent influences scenario planning management decisions?
- To what extent influences scenario planning firm performance?

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