Scenario planning: what do definitions show about its purpose?

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ABSTRACT

Scenario planning methods have been used since the 1950s. However, there is not a widely used definition within this field of study. For this field to evolve adequately, a comprehensive understanding of an organization's purpose to use it is essential. This article aimed to present the purposes of scenario planning that were identified through a literature review of scenarios and scenario planning. Therefore, we carried out a research, in which we analyzed 33 scientific and technical documents whose authors have defined scenarios and scenario planning. The results show 15 different purposes for scenario planning, which we consolidated into six categories that represent different usages of this process. Then, we generated insights for both researchers and practitioners who seek a nuanced comprehension of the use of these methods.

Index terms: management, philosophy of science, scenario planning, strategic foresight.

Core ideas

- The study clarifies the use of scenario planning in organizations.
- The common purpose is using this planning in the strategic management process.
- The additional purpose is changing the mental model of the decision-makers.
- The article contributes to the creation of a unifying definition both for scenarios and for scenario planning.

Planejamento por cenários: o que as definições mostram sobre seu propósito?

RESUMO

Os métodos de planejamento por cenários têm sido usados desde a década de 1950. No entanto, não há uma definição que seja amplamente utilizada neste campo de estudo. Para que este campo evolua adequadamente, é essencial uma compreensão abrangente quanto ao propósito de uma organização ao utilizá-lo. O objetivo deste artigo foi apresentar os propósitos do planejamento por cenário, que foram identificados em revisão da literatura sobre cenários e planejamento por cenários. Assim, 33 documentos técnico-científicos foram analisados, cujos autores definiram cenários e planejamento por cenários. Os resultados mostram 15 finalidades diferentes para o planejamento de

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cenários, que consolidamos em seis categorias que representam diferentes usos desse processo. Em seguida, geramos *insights* tanto para pesquisadores como para profissionais que buscam uma compreensão aprofundada quanto ao uso desses métodos.

Termos para indexação: filosofia da ciência, gestão estratégica, planejamento por cenários, planejamento estratégico.

INTRODUCTION

The corporate world and other organizations have recognized the applicability of scenario planning. It has gained recognition since the 1950s. However, scenario planning is frequently underestimated as it is often used only as a decision guidance tool (Gordon, 2020). Despite that, studies show that this reality has been changing, especially from the year 2000 onwards (Chermack & Lynham, 2002).

The change in perception of its value should be examined in depth. Profound modifications in the environment and less focus on the refinement of this technique show a myriad of approaches (Gordon, 2020). Concepts and methods in scenario planning can be well used in the management of organizations in face of uncertainties about the future.

Economic, meteorological, social scientific models, among others, have shown the difficulty of ensuring credible solutions with project and forecast techniques, which is typical of mainstream planning. However, a new paradigm is underway, leaving footprints of rapid changes that represent the complexity of societies and the unpredictability of the future (Abranches, 2017). Thus, there are unforeseen circumstances and also uncertain outcomes. These are "liquid times," in the words of sociologist Bauman (2001), when nothing is stable; everything is fluid. Therefore, the unknown future has become an object of strategic planning. It has become evident that management should be based on several possible outcomes. It goes against the belief of projecting the future as a unique and linear unfolding phenomenon of what we know.

Scenario planning thrives in this environment. The literature available on foresight highlights the importance of convergence between theory and practice, and it identifies numerous purposes in its application. However, it shows a lack of understanding about its use and do, and how it contributes to achieving the objectives intended by organizations (Chermack & Lynham, 2002). Hence, it contributes to a blurry comprehension of its usefulness in the strategic management of future scenarios.

Some researchers see these multiple purposes due to a search for common ground between an organization's purposes and scenario planning. Managers often need a clear understanding from the future and from the fundamentals of uncertain and unforeseen events. However, they usually do not link purposes to theoretical, conceptual, and practical knowledge. If this congruence is critical for the strategic management of future events, its lack would be one of the main reasons for disregarding this tool in the decision-making process (Gordon, 2020).

Our findings suggest the need to limit this field area of action and research, in order to better understand it. An evaluation of the objectives and results of scenario planning should be carried out. In addition, to improve the performance of an organization and its members, it is vital to have an integrated view from the potential contributions of scenario planning. Therefore, the term analysis here refers to examining "what" this field of knowledge is for (Marcial, 2013).

The knowledge field evolution and its good use require a clear comprehension of its objective and of the expected results with its adoption. However, it is important to observe several views for scenario planning raised by Gordon (2020). Even though it has been used for over 60 years, it has not been widely used in an integrative manner despite Chermack & Lynham (2002) attempts. Thus, to answer the questions about the use and purposes of scenario planning for organizations, we need a clear understanding of what this methodology should be used for.

Understanding its purposes is essential to delimitate its scope and contribute to creating a more unifying definition.

LITERATURE REVIEW

According to a survey conducted by Chermack & Lynham (2002), there are several definitions for scenarios and scenario planning. Therefore, it is crucial to have a unifying definition for its consolidation. The philosophy of science indicates that to obtain a clear understanding of any object and thus coin its definition, it is necessary to answer four questions: "What is it? Why is it? How is it? And what is it for?" (Marcial, 2013).

Focusing on the "what" leads us to other questions, such as: "why do we think what we think, say what we say, do what we do?" (Chauí, 2005, p.12, our translation), that is, what is the intention or purpose of what we think, say, and do? The "what for" elements designate the purpose, the factors of importance, or the most relevant aspects of a given area of knowledge.

For the scenario-planning field, even though a unifying definition has not been broadly used by the academic and practitioner community, several purposes have been identified in the literature. Recently, Gordon (2020) has presented a survey of purposes, uses, or benefits that organizations obtain using scenario planning methodology. He highlighted that these benefits could be obtained due to any part of their process, for instance, enhancing the decision-makers' strategic thinking.

The most common purpose identified in the literature is recognizing that scenario planning is a strategic management process. It helps executives to formulate a vision and make robust strategic choices. It also guides them to long-term competitive action, "enlightening" and improving decision-making in an uncertain environment (Wack, 1985; Van der Heijden, 1997; Bradfield et al., 2005; Cornelius et al., 2005; Varum & Melo, 2010; Wilkinson et al., 2013; Wright et al., 2013; Chermack & Coons, 2015; Lehr et al., 2017; Oliver & Parrett, 2018; Gordon, 2020).

This method also helps decision-makers manage the occurrences of disruption in uncertain business environments, by mentally preparing them to face multiple and uncertain futures. Moreover, it helps them evaluate various strategic options, develop deep thoughts and insights, and clear their minds. It also enables them to explore the business environment holistically, as well as to promote enhanced strategic conversations and think creatively while contributing to organizational innovation (Van der Heijden, 1997; Wilkinson et al., 2013; Chermack & Coons, 2015; Oliver & Parrett, 2018; Gordon, 2020).

Another purpose highlighted in the literature is to change the mental model of decision-makers and generate organizational learning. Its application also challenges and changes how decision-makers see the world because the process changes their mental models. By promoting such changes, scenario planning enables organizations to adapt quickly to environmental changes (Wack, 1985; Geus, 1997; Bradfield et al., 2005; Cornelius et al., 2005; Burt & Chermack, 2008; Varum & Melo, 2010; Wright et al., 2013; Chermack & Coons, 2015; Gordon, 2020).

There are still some benefits of side effects, as building new social capital and developing collaborative teams that can understand, reflect, and solve adverse problems. However, benefits can go beyond, such as to identify new issues and problems in advance and build shared mental models. These benefits contribute to the strengthening of strategic conversation in the organization, improving decision-making and enabling organizations to be more adaptable to uncertain environments (Van der Heijden, 1997; Bradfield et al., 2005; Varum & Melo, 2010; Wright et al., 2013; Chermack & Coons, 2015; Lang & Ramírez, 2017; Rhisiart et al., 2017; Gordon, 2020).

MATERIALS AND METHODS

The present research has its basis on a literature review and integrated analysis of the collected data, aiming to answer the question that guides this study: what is scenario planning used for? It is essential to mention that this question is part of a more extensive research, covering four

philosophical questions, whose answers contribute to the understanding and delimitation of any object: a) "What is it? b) What is it for? c) How is it done? Why is it done?", the last one covers a historical view of the topic. The other questions will be addressed to in future papers.

The sample used in the research is represented by scientific articles and book chapters containing definitions coined by renowned authors in the scenario planning field. This cutout may be considered as a restriction of the present research, since it focused only on documents that have definitions for this field of knowledge. However, when a definition for scenario or scenario planning is coined, its goal is usually also presented. The choice seemed to be the most direct path to study the variety of approaches and sought an understanding of what is the use of the scenario planning process for, considering the results obtained by the analyzed authors. As reflected by Chermack & Lynham (2002, p.369): "This variety of approaches can also be found in the available definitions and espoused dependent or outcome variables of scenario planning".

To define the population object of this research, we started from the work done by Chermack & Lynham (2002), who proposed a unifying definition for scenario planning, taking as a basis 18 definitions also collected by the literature review. The recent work conducted by Soares et al. (2019), who surveyed methods in scenario planning, was also considered because they did an intense literature review and also pointed out important scenario planning's definitions, such as those by Chermack & Lyham (2002), and by Jouvenel (2000), a significant name in scenario planning from France. Finally, the article by Amer et al. (2013) – mentioned as a significant contribution, in a review on scenario planning by Soares et al. (2019) – was also considered. The present research found 12 more definitions in addition to those raised by Chermack & Lynham (2002), bringing to the list the vision of scenarios and scenario planning by renowned names in the area, from other five different countries (Australia, Germany, Spain, Finland, and Italy), forming the research population.

From this initial list of papers, we consulted the reference section and selected other articles, based on their authors' curricula. We considered only articles written by experts of prospective area and published in relevant academic journals.

From all analyzed articles, 33 documents – scientific articles and book chapters – were identified and constituted this research population. As the basis for the present research, we took into consideration the works of the following authors: Kahn & Wiener (1967); Porter (1985); Schnaars (1987); Schoemaker (1991); Schwartz (1991); Simpson (1992); Fontela & Hingel (1993); Bloom & Menefee (1994); Collyns (1994); Thomas (1994); Schoemaker (1995); Godet & Roubelat (1996); Geus (1997); Van der Heijden (1997); Alexander & Serfass (1998); Fahey & Randall (1998); Ringland (1998); Kahane (1999); Kloss (1999); Tucker (1999); Coates (2000); Godet (2000, 2001); Jouvenel (2000); Wilson (2000); Martelli (2001); Chermack & Lynham (2002); Bishop et al. (2007); Pillkahn (2008); Barber (2009); Hiltunen (2009); Saliba (2009); and Wilkinson (2009).

It is noteworthy that 46% of the authors have institutional links with universities, mainly in the United States (68%), where the term "scenario" was appropriated by the field in the 1950s by Herman Kahn, according to Van der Heijden (1997) and Fahey & Randall (1998). However, there are also articles from France, England, Australia, Germany, Spain, Finland, the Netherlands, and Italy.

For each selected article, a group of 10 researchers[6] did a survey and an inventory of all mentions related to which scenario or scenario planning was used. The answers were not restricted to the identified definitions. The entire content of the document, in which the definition was present, was analyzed for whether it was a scientific article or a book chapter; the objective was to analyze the context in which the definition was used.

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[6] A group of masters and doctors affiliated to the NEP-Mackenzie – the research and prospective study group from Mackenzie Brasília College.

For the present article, specifically, five researchers focused on the qualitative data collected for the question "What are scenarios and scenario planning for?", in order to understand their purposes. Based on similar results, these researchers summarized their findings by answering only the question: "What is scenario planning used for?"

We analyzed the collected data to comprehend the essence of their meaning. Next, we organized them into unified concepts, and identified the main ideas in the collected data. We narrowed down these key ideas, integrating similar concepts and analyzed the results, which allowed us to create suggestions for each category. This process resulted in a first proposal that was reexamined, which allowed of a new grouping of summary categories, as presented in the next section.

RESULTS AND DISCUSSION

Initially, researchers surveyed 443 indications of "what scenario planning is for ?" from documents belonging to the study's focus population. The data analysis resulted in 15 subcategories listed below:

1) Stimulating creativity and imagination.

2) Stimulating systematic strategic thinking about the future.

3) Producing and providing information on the future and the environment, while anticipating changes.

4) Identifying and seizing opportunities.

5) Generating better results than forecasting, preparing organizations for the changes of today and tomorrow.

6) Identifying and managing environmental complexity, uncertainty, and risk.

7) Clarifying and making strategic choices by building a consistent and shared vision of the future, as well as of the desired future.

8) Formulating and testing strategies on the basis of distinct future types, before executing them.

9) Questioning, evaluating, and reviewing strategies and plans in place.

10) Establishing goals, and performance measures.

11) Promoting and enhancing strategic management and decision-making.

12) Making organizations flexible, resilient, and adaptable.

13) Generating organizational learning by challenging and changing mental models.

14) Enhancing and promoting strategic communication and conversation.

15) Serving as a guide for monitoring.

The integrated analysis of these subcategories resulted in six summary categories regarding the question "What for" planning is carried out by scenario (Figure 1).

The first major category is "producing and providing information on the future and the environment while anticipating changes". Several authors highlighted that the purpose of scenario building is to have anticipated information on the future as a subsidy to the scenario planning process (Porter, 1985; Simpson, 1992; Schoemaker, 1995; Godet & Roubelat, 1996; Fahey &
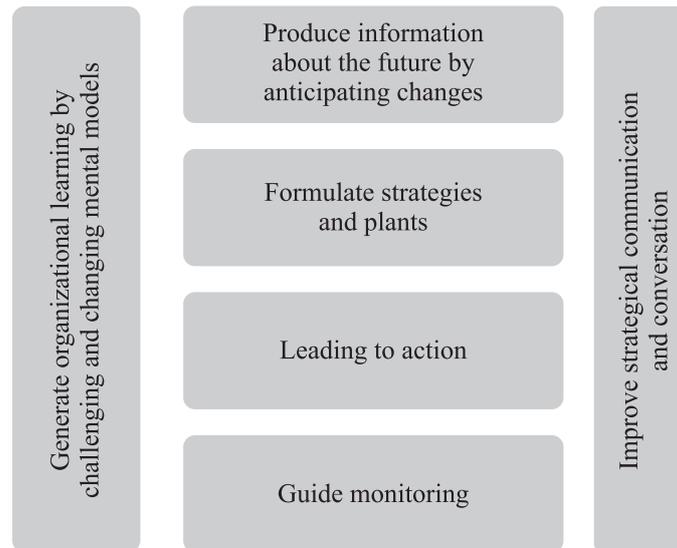
Figure 1. Purpose categories to build scenarios and to use scenario plannings ("what for?").

Randall, 1998; Ringland, 1998; Kloss, 1999; Tucker, 1999; Coates, 2000; Godet, 2001; Barber, 2009; Saliba, 2009). Generated information provides better results than forecasting, better preparing organizations for today's and tomorrow's changes (Schnaars, 1987; Schoemaker, 1991; Jouvenel, 2000; Pillkahn, 2008; Wilkinson, 2009).

It is necessary to identify and investigate the possible future types the company may face to be better prepared (Ringland, 1998). This way, both individuals and companies can respond to emerging futures (Chermack & Lynham, 2002). Decision-makers can become aware of assumptions about the future, thereby reexamining them and considering their implications (Coates, 2000). Bloom & Menefee (1994) warn that anticipation enables better-structured decision-making. This process stimulates creativity and imagination as well as systematic strategic thinking about the future, as advocated in all analyzed files (Porter, 1985; Schwartz, 1991; Thomas, 1994; Schoemaker, 1995; Godet & Roubelat, 1996; Geus, 1997; Fahey & Randall, 1998; Godet, 2000, 2001; Chermack & Lynham, 2002; Bishop et al., 2007).

As shown in all analyzed files, scenario building can be used to identify the existing complexity in the environment and opportunities, and the main uncertainties and risks involved especially strategic ones. Furthermore, the scenario planning process helps decision-makers to face uncertainty and complexity in each environment. By challenging traditional paradigms, it draws attention to neglected aspects in ordinary planning (Chermack & Lynham, 2002). The process should lead decision-makers to think about what they had not thought about before, to plan about it (Bloom & Menefee, 1994).

"Formulating strategies and plans on the basis of distinctive futures" is the second category. This category is a purpose identified in all documents. The authors cited it as a purpose, either on scenario building or on scenario planning process (Kahn & Wiener, 1967; Porter, 1985; Schnaars, 1987; Schoemaker, 1991; Schwartz, 1991; Simpson, 1992; Fontela & Hingel, 1993; Bloom & Menefee, 1994; Collyns, 1994; Thomas, 1994; Schoemaker, 1995; Godet & Roubelat, 1996; Geus, 1997; Van der Heijden, 1997; Alexander & Serfass, 1998; Fahey & Randall, 1998; Ringland, 1998; Kahane, 1999; Kloss, 1999; Tucker, 1999; Coates, 2000; Godet, 2000, 2001; Jouvenel, 2000; Wilson, 2000; Martelli, 2001; Chermack & Lynham, 2002; Bishop et al., 2007; Pillkahn, 2008; Barber, 2009; Hiltunen, 2009; Saliba, 2009; Wilkinson, 2009). It is perceived as having great importance, often seen as the primary objective of the process.

Indeed, virtually all authors considered in the present study mention that aiding the decision-making process by showing strategic choices is deemed the basis of scenario building and planning. It is often considered the primary objective of the process. There are still those who argue that, in addition to formulating, the purpose of scenarios is to enable the testing of the strategy, before it is executed (Fontela & Hingel, 1993; Thomas, 1994; Schoemaker, 1995; Van der Heijden, 1997; Fahey & Randall, 1998; Coates, 2000; Hiltunen, 2009). For Bloom & Menefee (1994), scenarios allow managers to "experience" the future, so that they are able to adapt rather than react to changes.

Some authors state that the purpose of scenario planning aims to question, evaluate, and review strategies and plans. If needed, plans should be revised due to changes in the environment (Thomas, 1994; Schoemaker, 1995; Godet & Roubelat, 1996; Geus, 1997; Fahey & Randall, 1998; Ringland, 1998; Tucker, 1999; Godet, 2000; Martelli, 2001; Barber, 2009; Wilkinson, 2009).

Chermack & Lynham (2002) mention that the goal is to formulate strategies for organization planning, while selecting the most resilient one in various situations. In this aspect, it is also necessary to establish goals and performance measures, as advocated by Thomas (1994), Coates (2000), Jouvenel (2000), and Bishop et al. (2007).

The third category is "leading to action," that is, putting into practice the defined strategies, preparing the organization for today and tomorrow changes. The leading proponent of this category is Godet (1993, 2000, 2001). He advocates that scenario planning is a field of prospective thinking, which is based on the anticipation, action, and appropriation tripod. Thus, leading to action is the main objective, also advocated by other authors, such as Schwartz (1991), Simpson (1992), Schoemaker (1995), Geus (1997), Van der Heijden (1997), Fahey & Randall (1998) and Ringland (1998). In this respect, the main objective is to promote and enhance strategic management and decision-making, building a flexible, resilient, and adaptable organization, apart from managing the complexity of the environment, uncertainty, and risk, as presented by all authors.

The fourth category is "guiding monitoring." One of the aims of scenario building is to supply organizations with the necessary number of informational subsidies to focus on monitoring both the environment and strategy. According to Bloom & Menefee (1994), scenarios work as a guide for monitoring activities. Fahey & Randall (1998) emphasize the need to monitor strategies; they state that scenarios provide views on the future, which are necessary to focus on the monitoring and evaluation of the world around them. Furthermore, setting up and executing the monitoring of the strategy and the environment constitute the final stage of many scenario-based planning processes, according to Schwartz (1991), Godet (1993), and Marcial & Grumbach (2008).

Two other crosscutting categories were defined, as they affect all others and are interrelated: "generating organizational learning by changing mental models," and "enhancing strategic communication and conversation."

Thomas Chermack and Arrie de Geus are strong proponents of the idea that the primary purpose of scenario building and its use in the scenario planning process are the creation of organizational learning. Geus (1997) presents in his book "The Living Company" several arguments on how scenarios can generate organizational learning. For instance, scenarios enable learning by accommodation, for allowing executives to test strategies before executing them. Such learning leads these executives to reflect on and register issues that have not yet been considered, especially those related to blind spots, which permits to eliminate or reduce the ones that may exist in the organizations.

Chermack & Lynham (2002) argue that scenario planning should involve transforming people in the organization through ongoing strategic conversations. This category promotes a more comprehensible organizational learning and results in a shared conception of mental models. Ringland (1998) adds that this can be used to convince skeptical decision-makers to create more up-to-date mental models. Several authors also present it as one of the purposes and outcomes of using

the scenario planning method for organizational learning (Porter, 1985; Schwartz, 1991; Simpson, 1992; Thomas, 1994; Van der Heijden, 1997; Fahey & Randall, 1998; Kloss, 1999; Coates, 2000; Martelli, 2001; Hiltunen, 2009).

Challenging and changing mental models, especially those of decision-makers, is another purpose of scenario building. Its use in the scenario planning process is perceived to be essential, as some authors advocate. For instance, Geus (1997) argues that it is only by challenging and changing mental models that learning takes place; scenarios play this role in generating learning, his arguments are based on the works on neurobiology by Ingvar (1985), and by Senge (1990) in "The fifth discipline: The art and practice of the learning organization". Other authors also present this theme as being one of the purposes of scenario building and scenario planning (Porter, 1985; Schwartz, 1991; Simpson, 1992; Thomas, 1994; Schoemaker, 1995; Van der Heijden, 1997; Fahey & Randall, 1998; Ringland, 1998; Kloss, 1999; Tucker, 1999; Wilson, 2000; Barber, 2009; Hiltunen, 2009).

The increased awareness, created during the scenario planning process, causes managers or decision-makers to think of strategies for when events go differently than planned (Bloom & Menefee, 1994).

"Enhancing and promoting strategic communication and conversation" is the last category. One of its leading advocates is Kees Heijden, who dedicated a book to this theme: "Scenarios: The art of strategic conversation" (Van der Heijden, 1997). For Van der Heijden, scenarios are the best language available to provide strategic conversation, elevating the conversation within the organization to the strategic level and leading the discussion of strategic issues.

Some authors emphasize that scenarios create a common language about the future by facilitating strategic conversation, strategy formulation, and decision-making (Schoemaker, 1991; Ringland, 1998; Godet, 2000, 2001; Wilkinson, 2009). Others present this subcategory as one of the goals of investing in scenario planning (Porter, 1985; Simpson, 1992; Thomas, 1994; Schoemaker, 1995; Godet & Roubelat, 1996; Kloss, 1999; Martelli, 2001; Chermack & Lynham, 2002; Bishop et al., 2007; Hiltunen, 2009; Saliba, 2009).

CONCLUSIONS

Based on our literature review, we came up with a list of categories for the primary objectives of scenario planning. This classification indicates an essential contribution to the delimitation of this knowledge field concerning its action and research field. Furthermore, it contributes to the understanding of scenario planning in improving organization performance. These findings corroborates those by Gordon (2020). In addition, this work contributes to the conception of a unifying definition for scenario planning.

The six proposed categories summarize and clarify the purpose of scenario planning, filling this gap in the literature. However, further research is necessary to determine whether this assumption is valid.

Due to several definitions found in the literature and the necessity to create a unifying definition for it in this field of study, it is suggested that the other criteria presented by the philosophy of science be analyzed. Future studies should expand the scope by taking into consideration texts not included in this research. This way, it can contemplate other authors, including those not often cited.

The importance of knowing "what an object is for" becomes evident, highlighting its purpose. This knowledge helps to understand which results are to be achieved when using scenario planning.

The analysis presented in this article also contributes to understand which results are achieved when using scenarios. It should be emphasized that the file selection we analyzed was based on the literature related to scenario definitions and scenario planning. Considering that scenario planning presupposes the preparation of scenarios, the results presented are helpful to answer to "what for" – a question that can be more specifically addressed to in future work. Comprehending what scenarios and scenario planning are for avoids creating expectations outside the scope of this area.

This research offers contributions to both science and organizations, when producing reflections that sought to generate value for researchers and professionals who seek to better understand the use of these methods. The main contributions of this work to science are related to the production of inputs for creating a unifying definition for both scenarios and scenario planning, and to the assistance in the delimitation of the area. Another contribution is to show which strategic organizations' objectives can be achieved by building scenarios and using them in the scenario planning process.

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