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Advances in Developing Human Resources 2008; 10; 166 originally published online
Feb 22, 2008;
DOI: 10.1177/1523422307313311

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Scenario Planning: Toward a More Complete Model for Practice

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Abstract. Numerous approaches to scenario planning exist. In fact, as a discipline that has grown more in practice than in any other domain, much about the process is not fully understood. This has led to extreme variety in method and process for conducting scenario projects. The authors begin the task of investigating the elements that appear common to multiple models and processes with intent of aggregating these elements toward a best practice approach. In this article, the authors present and describe several prominent scenario planning models in detail, highlighting the strengths and areas for improvement in each. They then discuss opportunities for solidifying best practices in terms of a sound approach to scenario planning in addition to offering the basis of a unifying model for moving the study of scenario planning forward. Conclusions and suggestions are provided for organizational decision makers and researchers.

Keywords: scenario planning models; integrated scenario planning model; best practice

The truth of de la Rochefoucauld’s statement that the only thing constant in life is change has held true over time and for many organizations around the world. Change is a painful process because of a lack of preparation or awareness of impending change. One way organizations have tried to cope with change is to predict the future and work toward that predicted future. However, as Ogilvy (2005, p. 337) succinctly put it, “The future is not predictable . . . If the future were predictable, then planners would be out of business.” It is the very fact that the future cannot be predicted or conveniently viewed in a mystical crystal ball that some organizations use scenario planning as a planning tool. The purpose of this article is (a) to present several scenario planning models highlighting model strengths and areas of improvement, (b) to discuss
opportunities for solidifying best practices in terms of a sound approach to scenario planning, and (c) to present the basis of a unifying model for moving the study of scenario planning forward. Finally, we offer conclusions and suggestions to organizational decision makers and researchers.

Scenario Planning Explained

Scenario planning is a distinctly different planning tool than the predict the future and work toward it approach. Scenario planning does not focus on accurately predicting the future (Hodgkinson & Wright, 2002) but rather is a process that produces a number of possible futures that are credible and yet uncertain (Brauers & Weber, 1988; Schoemaker, 1995; Schwartz, 1996; Simpson, 1992; van der Heijden, Bradfield, Burt, Cairns, & Wright, 2002). These possible futures are then conjunctively used to develop sound organizational strategies that can better prepare organizations for an uncertain future (Brauers & Weber, 1988; Mylonopoulos & Doukidis, 2003).

An early adopter of scenario planning, Royal Dutch Shell, attributes much of its success to a scenario planning mentality for strategy development. Royal Dutch Shell’s success in using scenario planning is well documented (see Cornelius, van de Putte, & Romani, 2005, for a good overview). Other successful users of scenario planning include land use planners, the airline industry, tourism, and even government (Davies, Moutinho, & Hutcheson, 2005; Foa & Howard, 2006; Kahane, 2002; Khakee, 1991; Song, Ding, & Knaap, 2006; Xiang & Clarke, 2003; Yaro & Hiss, 1996; Yeoman & McMahon-Beattie, 2005).

The apparent successful use of scenario planning by organizations is encouraging. However, a complete, clearly defined and standardized process by which scenario planning leads to these successes has not emerged. This lack of a complete scenario planning model requires the introduction of a generic model of scenario planning (see Figure 1). An extensive search of the scenario planning literature did not produce a single model of scenario planning that included all the phases found in Figure 1, although Schwartz (1996) did present the team composition phase of scenario planning along with the scenario building phase. One reason for the lack of a complete scenario planning model may be because “established scenario planners are reluctant to completely disclose their methodologies” (Chermack, Lynham, & Ruona, 2001, p. 24). Regardless of the reasons, the lack of a complete model prevents researchers from understanding the process of organizations reaping the potential benefits from scenario planning. Thus, this article intends to provide a roadmap to the development of a complete scenario planning model.

Phase I: Engaging in Scenario Planning

A study by Klein and Linneman (1981) indicated that between 8% and 22% of Fortune 1000 companies used some form of scenario planning, whereas
Allio (2006) suggested that “some form of scenario planning is now a staple of every contemporary strategy formulation process” (p. 7). However, one must be cognizant that simply deciding to engage in scenario planning does not guarantee the development of successful strategies. Therefore, Phase I of the generic scenario planning model, as a tool for organizational strategy development, should provide the means by which organizations can determine if scenario planning is applicable or feasible. Schoemaker (1991) identified a number of external factors that indicate when scenario planning may be appropriate for an organization. However, internal factors such as organizational culture, time frame, and leadership issues (Galer & van der Heijden, 1992; Hanson, 2003; Wack, 1985; Wilson, 2000), although mentioned, have not been discussed as factors in the decision to use scenario planning. Both external and internal factors need to be identified and fleshed out to allow organizational decision makers to determine whether or not scenario planning is the appropriate tool for strategy development.

Organizational culture. Hodgkinson and Wright (2002) and Korte and Chermack (2007) pointed out that scenario planning is a systematic yet highly flexible approach that is highly participative. Therefore, for organizational decision makers and those who research this area, organizational culture could affect the successful use of scenario planning as some cultures may not be equipped to readily make use of scenario planning for strategy development, whereas others will naturally accept its use. Thus, it is important to identify what types of organizational culture best support the use of scenario planning.

Time frame. Pollard and Hotho (2006) suggested that a focus on short-term returns may be a factor impeding organizations from adopting scenario planning. Again, for organizational decision makers and those who research this area, to get the most out of scenario planning organizations must be willing to adopt a long-term perspective (Schwartz, 1996). However, what constitutes a long-term view and what is considered a reasonable time period for a return on a scenario planning investment needs to be defined.

Leadership. As with any endeavor within an organization, the support of top management in scenario planning is critical for success (Hanson, 2003; Wack, 1985). However, senior managers are often resistant to scenario planning because it undermines the facade of confidence produced by the old predict the
future and work toward it approach. This undermining occurs because scenario planning requires managers to admit to organizational stakeholders that they cannot predict the future or confidently provide clear-cut answers to questions pertaining to future operations (Verity, 2003; Wack, 1985). Thus, recognizing levels of resistance may be an important consideration in the decision process to use scenario planning because senior managers play a significant role in the proper execution of scenario planning.

As noted, organizational culture, time frame, and leadership are only three of the possible factors that organizations should consider before deciding to use scenario planning as a strategy development tool. Other factors such as cost, industry dynamics, or organizational structure are other factors available to organizations that allow them to make a more informed decision as to whether or not scenario planning should be used as a strategy development tool. After all, according to Phillips (2003, p. 83), “scenario planning is a useful tool . . . but it is not for the faint hearted!”

**Phase II: Team Composition**

Phase II of the generic scenario planning model should provide guidance to organizations about the makeup of the scenario planning team; one that is capable of creating credible, realistic scenarios through a wide range of insights and perspectives because the success of the entire scenario process hinges on the team members (Pollard & Hotho, 2006; Verity, 2003). However, the literature contains very little information about the composition of scenario planning teams.

The scant information that is available about building scenario planning teams is fairly consistent. Teams should consist of a wide variety of participants with different intellectual and cultural backgrounds, including key decision makers within the company, employees at varying levels within the organizations with knowledge of each functional area, and professional or industry experts from outside the company (Davies, Moutinho, & Hutcheson, 2005; Ogilvy & Schwartz, 1998; Schwartz, 1996; Tucker, 1999). Furthermore, Ogilvy and Schwartz (1998) pointed out that inclusion of unorthodox, challenging thinkers is absolutely essential for scenario planning to be successful.

In addition to choosing across a wide spectrum of individuals based on position and knowledge, Verity (2003) suggested that teams be balanced with regard to thought processes to develop more robust scenarios. Graetz (2002) examined the effect of right- and left-brain thinking in scenario planning and determined that a delicate balance of right- and left-brain thinking is necessary to consistently produce creative, plausible scenarios.

Although properly composing a scenario planning team seems fairly complex, neither real guidance is given as to how individual team members are to be selected nor are the necessary measures to be taken to ensure an adequate level of diversity and balance in the team provided. Furthermore, once team
TABLE 1:  Schwartz’ 8-Step Scenario Building Model

1. Identify focal issue or decision
2. Identify key factors in the local environment which influence the decision
3. Identify driving forces that influence key factors in the local environment
4. Rank by importance and uncertainty
5. Select scenario logics
6. Flesh out scenarios
7. Consider implications
8. Selection of leading indicators and signposts


TABLE 2:  Schoemaker’s 10-Step Scenario Building Model

1. Define the issues you wish to understand better in terms of time frame, scope, and decision variables (e.g., prices of natural gas over the next 5 years in the Far East). Review the past to get a feel for degrees of uncertainty and volatility.
2. Identify the major stakeholders or actors who would have an interest in these issues, both those who may be affected by it and those who could influence matters appreciably. Identify their current roles, interests, and power positions.
3. Make a list of current trends or predetermined elements that will affect the variable(s) of interest. Briefly explain each, including how and why it exerts an influence. Constructing a diagram may be helpful to show interlinkages and causal relationships.
4. Identify key uncertainties whose resolution will significantly affect the variables of interest to you. Briefly explain why these uncertain events matter, as well as how they interrelate.
5. Construct two forced scenarios by placing all positive outcomes of key uncertainties in one scenario and all negative outcomes in the other. Add selected trends and predetermined elements to these extreme scenarios.
6. Next assess the internal consistency and plausibility of these artificial scenarios. Identify where and why these forced scenarios may be internally inconsistent (in terms of trends and outcome combinations).
7. Eliminate combinations that are not credible or impossible, and create new scenarios (two or more) until you have achieved internal consistency. Make sure these new scenarios bracket a wide range of outcomes.
8. Assess the revised scenarios in terms of how the key stakeholders would behave in them. Where appropriate, identify topics for further study that would provide stronger support for your scenarios, or might lead to revisions of these learning scenarios.
9. After completing additional research, reexamine the internal consistencies of the learning scenarios and assess whether certain interactions should be formalized via a quantitative model. If so, use this model to run some Monte Carlo simulations after obtaining subjective uncertainty ranges (or entire distributions) for key independent variables.
10. Finally, reassess the ranges of uncertainty of the dependent (i.e., target) variables of interest, and retrace Steps 1 through 9 to arrive at decision scenarios that might be given to others to enhance their decision making under uncertainty.

When members are selected, there is no indication of the type of training required before they can actively engage in productive scenario planning. Addressing these issues is important so that organizations can build appropriate scenario planning teams and move to Phase III of the generic scenario planning model.

**Phase III: Scenario Building**

Phase III of the generic scenario planning model involves the actual creation and development of scenarios by the team formed in Phase II. Unlike the previous phases, the scenario building phase has received significant exposure in the scenario planning literature. Although the general framework for scenario building is consistent from model to model, the number of steps used to outline the process varies. For example, Schwartz (1996) presented an 8-step model (see Table 1), Schoemaker (1993) a 10-step model (see Table 2), and Avin (2007, chap. 6) a 12-step model (see Figure 2).

Each of the earlier models begins with understanding or defining the issue at hand followed by a systematic identification of stakeholders, trends, constraints, and other issues that may influence. These items are then ranked by importance and uncertainty. At this point, the models diverge slightly. Schwartz (1996) suggested plotting scenario drivers to develop different scenarios. Schoemaker (1993) differed by advising the initial construction of two extreme scenarios—one positive and one negative—and then building additional scenarios from
them. Avin (2007, chap. 6) promoted a third approach using the combination of possible and desired futures as the basis for building scenarios.

The emergence of three different suggested methods could indicate that scenario planners should not rely on one specific method for developing potential scenarios. It could also suggest that none of the prescribed methods adequately work, and a more robust model is required. It is at this point in the scenario building process that the crossroad described by Ogilvy (2005, p. 345) occurs, “the science of what is and the art of what might be come together in sets of scenarios.” That is, different methods can be used to arrive at the same destination, which is the actual development of scenarios.

Once potential scenarios have been developed, the models converge toward similarity by suggesting that the scenarios should be tested or evaluated through qualitative and quantitative means. Qualitative testing is accomplished through the revisiting of initial identification of stakeholders, trends, constraints, and other issues that may influence. Quantitative testing occurs through the use of analytical models (Avin 2007, chap. 6). For example, Schoemaker (1993) recommended the use of Monte Carlo simulations for testing scenarios, which allow the inclusion of multiple variables and provide users a wide spectrum of possible outcomes (Foa & Howard, 2006) and the ability to function under conditions of uncertainty (Erdem & Keane, 1996).

After being evaluated and tested, the scenarios are then used by the organization to guide decisions for the uncertain future. Schwartz (1996) advised identifying specific signposts or events that might promulgate the occurrence of a specific scenario. Schoemaker (1993) and Avin (2007, chap. 6) both suggested that the scenarios developed should be provided to decision makers to help guide decision-making processes.

The previous models provided specific steps for practitioners to follow in the scenario building process but do not address theoretical considerations. Chermack (2005) explored the theoretical side of scenario building. Although Chermack did attempt to capture some of the nuances involved in the scenario building process, the model constitutes a more theoretical explanation of how scenario planning works at the individual level rather than a detailed depiction of the procedure (see Figure 3).

**Phase IV: Decision Process**

As mentioned earlier, models of scenario building are prevalent in scenario planning literature. The guidelines are relatively clear, and organizations can easily make use of the existing models to develop scenarios of possible futures. However, the scenario building models fall short when it comes to presenting the developed models to decision makers in a form that is most useful. The reason for this failure may be the perception that because key decision makers should be actively involved throughout the scenario planning process, they automatically have the ability to use the information provided. However,
the involvement of key decision makers in previous phases should not be misconstrued as the actual decision process phase. Previous phases provide means to glean important information to support decision making through scenarios. At the end of the day, organizational leaders have to sit down, review available information (e.g., possible scenarios), and make decisions about future operations as individuals.

Thus, the scenarios developed in the scenario building phase must be presented to key decision makers in ways that readily support the decision process. Chermack (2004) presented one of the few models that specifically outlines how scenario planning can improve the decision-making process (see Figure 4). Chermack’s (2004) model relied on several items to improve decision making: reduced bounded rationality, the consideration of exogenous and endogenous variables, reduced information stickiness, increased knowledge friction, and alternative mental models.

Bounded rationality purports that individuals are limited in their ability to make complex decisions because they lack the information processing and computing ability to consider every possible choice and the consequences of those choices (Simon, 1957). Exogenous and endogenous variables can be likened to external and internal environmental factors. Stickiness refers to the cost associated with the transfer of information or knowledge (Von Hippel, 1994). Friction involves the effect of social interaction to keep errors from being committed. Mental models are the cognitive pathways by which individuals view, process, and make use of information available to them (Chermack, 2004).

FIGURE 3: A Theoretical Model of Scenario Planning
Source: Chermack (2005).
A large part of Chermack’s (2004) model takes place within the scenario building phase. For example, the consideration of exogenous and endogenous variables is clearly addressed during the scenario building phase. The reduction of bounded rationality, reduction of information stickiness, and the increase of knowledge friction are not clearly addressed in the scenario building phase. However, the scenario building phase addresses these issues implicitly. By its very nature, the entire scenario planning process reduces bounded rationality because input is obtained from a variety of people working together on a specific issue, thus increasing the information processing and computing ability available for producing scenarios. Information stickiness is reduced because the scenario planning team members can learn or pass information from one another quickly with little cost. Friction also comes into play because the team members are required to focus intensely on the issue at hand from various perspectives increasing the potential for conflicting viewpoint, which should lead to a more critical analysis of scenario outcomes. Together, all these items should contribute to the development of credible and realistic scenarios.

Although for the developed scenarios to be useful to decision makers, they must be presented in a manner that fits within the decision maker’s personal mental model or be presented clearly enough that the decision maker is jolted

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**FIGURE 4: Conceptual Model of Improved Decision Making Through Scenario Planning**

*Source: Chermack (2004).*

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from a familiar thought mode and forced to consider specific scenarios that reside outside normal comfort zones (Chermack, 2004). Exposure to the other members of the scenario planning team should provide some foundation for organizational leaders to step out of their usual mental models through what van der Heijden (2005) called strategic conversations. Essentially, interaction with individuals voicing differing viewpoints and perspectives about issues in a non-hostile environment can cause decision makers to be more susceptible to considering options outside previously held mental models (Schoemaker, 1993).

**Phase V: Increased Performance**

The relationship between scenario planning and performance is not clear. The often cited success of Royal Dutch Shell’s performance as a result of using scenario planning (Cornelius, van de Putte, & Romani, 2005; Wack, 1985) does not provide conclusive evidence that scenario planning leads to increased organizational performance. Phelps, Chan, and Kapsalis (2001) explored the impact of scenario planning on financial performance and found that scenario planning did appear to improve financial performance. However, it was noted that small samples and the lack of other control variables made the findings tenuous.

The lack of empirical evidence supporting the ability of scenario planning to enhance performance could make it difficult to convince organizational leaders to value scenario planning. This is primarily because organizational leaders often limit the measurement of performance in terms of financial performance. This view is detrimental to the adoption of scenario planning because its ultimate purpose is not directed at increased financial performance but rather to improve the effectiveness of decision making by organizational leaders (Davies, Moutinho, & Hutcheson, 2005; Schwartz, 1996; Wack, 1985; Wright, 2005). However, one windfall by-product of better decision choices could be increased financial performance. But the attempts to isolate performance improvements as a direct result of particular improved decisions poses numerous measurement problems for researchers that are often exceedingly difficult to overcome.

Because organizational leaders are under pressure to justify the investment of resources, some type of criterion needs to be developed that shows a clear link between scenario planning and performance. One possible step in providing this link may lie in establishing the actual effect scenario planning has on the decision-making process.

**Conclusion**

The process of scenario planning involves the construction of teams that develop scenarios to help guide decision makers toward better decisions. However, scenario planning literature generally fails to provide organizations the information they need to properly undertake scenario planning. Although
models of scenario building have been developed and disseminated, a lack of
guidance concerning the feasible use of scenario planning exists. Furthermore,
if an organization determines scenario planning is feasible, very little direction
has been provided concerning the composition of successful scenario planning
teams. Another aspect of the scenario planning process that requires further
development lies in the actual use of scenarios for the decision-making process.
Initial efforts by Chermack (2004) have been made to address this area of sce-
nario planning, but the work is strictly conceptual and considerably more work
is necessary. Finally, communicating the value of scenario planning to organiz-
izational leaders is hindered because specific measures reflecting the contribu-
tion of scenario planning to organizational success are not available, although
some efforts are clearly being made in this direction (Burt, 2006a, 2006b; Burt
& van der Heijden, 2003; Chermack, Lynham, & van der Merwe, 2006;
Chermack, van der Merwe, & Lynham, 2007).

Before these shortcomings can be addressed individually, an overall model
of scenario planning needs to be developed. The generic model (see Figure 1)
provided in this article is intended to serve as a springboard for the develop-
ment of a more comprehensive scenario planning process model. Once a com-
prehensive scenario planning process has been outlined, researchers should be
able to explore specific aspects of the overall process and ultimately help orga-
nizations make better decisions.

References

(Eds.), Engaging our futures: Tools for effective planning practices, Lincoln Institute
of Land Policy: Cambridge, MA.
Burt, G. (2006b). Pre-determined elements in the business environment: Reflecting on
the legacy of Pierre Wack. Futures, 38, 830-840.
Burt, G., & van der Heijden, K. (2003). First steps: Towards purposeful activities in
scenario thinking and future studies. Futures, 35, 1011-1026.
Chermack, T. (2004). Improving decision-making with scenario planning. Futures, 36,
295-309.
Chermack, T. J. (2005). Studying scenario planning: Theory, research suggestions and
hypotheses. Technological Forecasting and Social Change, 72(1), 59-73.
between scenario planning and perceptions of learning organizations characteris-
tics. Futures, 38, 767-777.


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This refereed journal article is part of an entire issue on scenario planning. For more information or to read other articles in the issue, see Chermack, T. J., & Burt, G. (2008). Scenario planning: Human resource development’s strategic learning tool [Special issue]. Advances in Developing Human Resources, 10(2).