Scenario-Based Strategy in Practice: A Framework

Louis van der Merwe

Abstract. This article documents the underlying principles of scenario planning considered best practice in its application. These principles have been learned directly over the past 15 years from the first- and second-generation pioneers of the scenario method. In this article, human resource development professionals wishing to gain expertise in the discipline of scenario planning will encounter a way of thinking about this work, some key processes having a track record of success, and an outline of the knowledge skills they need to develop to become competent practitioners. The first part identifies a number of key phenomena that led to the birth of scenario-based strategy as a method. The second part describes some of the essential process elements, their origins, and the competencies needed for facilitation and execution. The goal of this article is to provide a set of reliable "handrails" for practitioners and guidelines for identifying useful further learning resources.

Keywords: *scenario planning; best practices; scenario planning history*

Because of the increasing rate of change and complexity in the business environment, strategy making is moving toward a more emergent and learning-based focus (Mintzberg, Ahlstrand, & Lampel, 1998). An article in the *Harvard Business Review* by de Geus (1988) titled "Planning as Learning" marks the watershed between designing organizations and their internal processes from a command-and-control point of view to that of learning and responding to the emergent elements in the environment. This watershed article was in fact preceded by an earlier contribution by Michael (1973) titled "Learning to PLAN and Planning to LEARN."

Argyris (1999) defined learning as "detecting and correcting error" (p. 78). In the context of organizational strategy, learning serves precisely that purpose—that of detecting error in assumptions and decision making. The emergence of the "learning organization" as a breakthrough in organization

Advances in Developing Human Resources Vol. 10, No. 2 April 2008 216-239
DOI: 10.1177/1523422307313321

design and leadership, popularized in the best-selling series of field books by Senge and colleagues (Senge et al., 1999; Senge, Kleiner, Roberts, Ross, & Smith, 1994), can be directly linked to de Geus's far-sighted work. This shift has put the strategy-making process to specialists in learning, rather than leaving it in the realm of analysts, economists, and finance specialists.

Designing scenario-based strategy as a working process and facilitating such design with learning in mind fits closely with the competence of the human resource development (HRD) professional. Many of the processes as practiced by Wack (1985) lie firmly within the current remit of the HRD discipline, and an understanding of adult learning, group process, and a multitude of organization development processes is critical in successful scenario planning (Cummings & Worley, 2001).

The general framework provided in this article is a pathway that has been handed down from the first two generations of scenario-based strategy "masters." Traditionally, a novice practitioner would navigate this pathway under the tutelage and guidance of an experienced professional using a mentorship model for learning. However, masters of the scenario-based strategy method are relatively scarce. Practitioners who follow Wack's (1988) method as a guide to their approach are even more scarce. For the first time, this pathway, together with some of the most important principles, is documented in a publication in such a way that a novice practitioner may find his or her own way through this diverse landscape.

The Purpose of This Article

The purpose of this article is to provide a general framework for novice scenario-based strategy practitioners by outlining the essential principles and components of any scenario-based strategy effort. Scenario planning is a subtle and highly complex process, and it would be impossible for any single article to cover all of the important aspects of the method in great detail. This article provides guidance by drawing attention to key phenomena and by describing a practical framework for understanding and working through the major components of the scenario-based strategy process. The practice of scenario-based strategy varies between practitioners, and this variation provides aspirant practitioners with a richer repertoire from which to develop their own approach. However, practitioners should first understand and master the general framework used by the founders before inventing alternatives that may not necessarily improve the result.

The Structure of This Article

This article proceeds with two major sections. First, some basic approaches that apply to a strategy-making process, and specifically the scenario-based strategy process, are presented. These approaches are gleaned from more than

30 years of consulting in organizational strategy throughout the world. The major topics of this section include (a) problems with prediction, (b) systems thinking, and (c) strategy as "fit." The second part of this article—the larger of the two parts—focuses on some essential, more specific elements for emerging scenario planning practitioners. Elements in Part 2 include (a) generations of scenario pioneers and uses of scenarios, (b) a typical scenario development process, (c) quality criteria for scenarios, (d) using scenarios to test strategic robustness, (e) a competency profile for scenario planning practitioners, and (f) practitioner guidelines for facilitating scenario projects.

Part 1: Approaches in Scenario-Based Strategy Making

Three phenomena in strategy making that form the foundation for moving to the use and value of scenarios as base are (a) inherent problems with prediction, (b) the need for practical systems thinking, and (c) strategy as a continuous learning process.

Problems With Prediction

The most commonly used method for understanding what might happen in the future is studying what has happened in the past (Bartlett & Ghoshal, 2002) and using this as a basis for predicting the future. The central problem, however, with this approach is deeply buried in the principles of cognition. The problem is that the way in which people then observe the future becomes limited to a narrow band of variability (Schwartz, 1991). Schumacher (1978) reminded us that when faced with complexity, we tend to reduce this complexity to an "either/or" dialectic to cope. In addition, the official blessing that these predictions receive from top leadership often prevents people from seeing emerging forces and discontinuities outside of "the official future" (Schwartz, 1991; see Figure 1). This "blessing" (according to Brenard, a CEO of Shell) also changes the nature of the conversation from revealing risk to concealing risk.

People who have worked in large command-and-control organizations have surely experienced this phenomenon. The official future cuts across all forms of learning, information sharing, and decision making. The classical command-and-control organization requires that people in leadership roles support and adhere to the officially enunciated policy. Deviation from the norm is often seen as disloyalty and is sometimes sanctioned and corrected (Schwartz, 1991). In this type of organization, the thinking is usually done at the top of the organization, and managers are expected to act out these decisions (Porter, 1998). Learning is limited to the top. Reactions to changes in the environment are slow, and hesitation and delays can sometimes be fatal to the organization because it no longer fits with the environment in which it finds itself (Porter, 1998). One important purpose of scenario-based strategy is to address these issues.

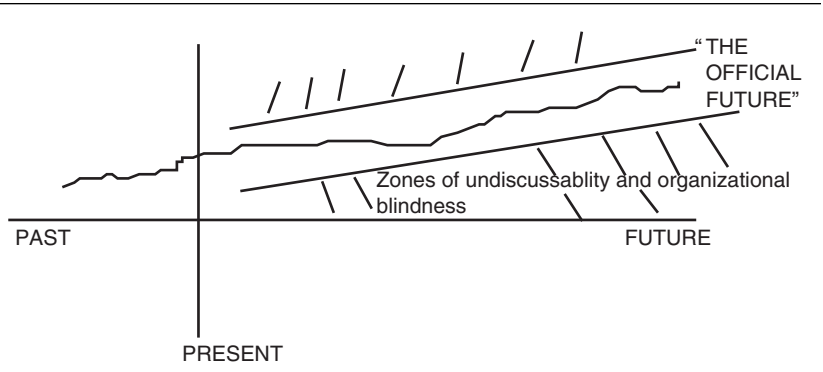

FIGURE 1: Predictions, Scenarios, and the Dangers of the Official Future

Wack's (1985) stated purpose of scenarios emphasizes the shifting of assumptions in the minds of decision makers.

> The most important purpose of the scenario building process is to shift the thinking of the leadership inside the organization about what might happen, in the future, in the external environment. (p. 72)

This purpose statement represents one of the key guidelines for practitioners when designing scenario planning workshops and clearly highlights a purpose consistent with avoiding predictions in planning. The further implication of this statement is that the scenarios must take the thinking beyond the current assumptions and beyond the official future. Wack (1985) was confronted with the tendency for decision makers to choose an official future, and his solution was to use the official future as a device to engage the decision makers to take ownership of the scenarios to learn about worlds beyond the boundaries of their assumptions. "It is useful," he wrote, "to encourage the decision makers to walk out into the official future and once there, (they will be willing) to consider other more divergent futures" (p. 95). "Our real target was the microcosms of our decision makers; unless we influenced the mental image, the picture of reality held by critical decision makers, our scenario would be like water on stone" (p. 83).

Increasing Complexity in the External Environment and Practical Systems Thinking

Much has been written about systems thinking in recent years (e.g., Kauffman, 1980; Senge et al., 1999; Senge et al., 1994). The term has become overused in many organizations and in organizational literature. However, the capability for seeing wholes and interconnections is absolutely

critical in scenario planning. Given the wealth of resources on systems thinking, this article will provide only a brief overview; however, the importance of understanding and seeing systems cannot be understated in scenario planning.

Systems thinking is the label for a worldview that focuses on interconnections and causal relationships rather than on snapshots and independent parts (Kuhn, 1970). This worldview aims to allow the individual to see that which is not immediately obvious. This perspective forms the foundation of building an organization capable of detecting error, learning, and self-correcting errors, as it pursues its goals and strategies also known as a learning organization (Argyris, 1999; Senge, 1992).

Systems thinking has been described as "uncommon sense" by Davidson (1983) in a book of the same title. When faced with complexity in the external or internal dynamics of an organization, the systems lens can enable decision makers to see beyond events and detect underlying patterns as well as the forces and causal relationships that hold these patterns in place. A systems worldview, together with tools and techniques to make structure visible, is important for building quality scenarios (Davidson, 1983).

The iceberg analogy (Kauffman, 1980) is a useful and practical way to enable practitioners and decision makers to adopt and use a systems perspective and start to appreciate how different variables are interconnected (see Figure 2).

We typically see the world at an events level (the visible part of the iceberg). We are predisposed as humans to notice events more easily. The media, for instance, talk of and look for a "who event" to write about or broadcast. When we look through this kind of lens, we are trapped in a reactive mode, because we see only a small part of the dynamic and react to counter this. Only when we start to look below the surface (the part of the iceberg that exists underwater and beyond obvious sight) to identify the patterns of behavior can we begin to better understand the events-level information and therefore build better scenarios about how a pattern may play out in the future. The key to even more substantial learning is in understanding the structural level of a dynamic, and scenarios create a forum in which decision makers can explore the structural level of various forces facing the organization.

Strategy as Fit

Describing strategy as a process of fit presents the ongoing process of detecting deviation from good fit and correcting for such deviation. The theory of fit suggests that when an organization fits with the future environment, it will prosper, and when it does not fit, it will falter and perhaps fail. Porter (1998) called this first order fit. Internal processes require what Porter (1998) called a second order fit, meaning that these internal processes have to fit with each other to provide the organization with optimum capacity to respond and create fit with changes in the environment.

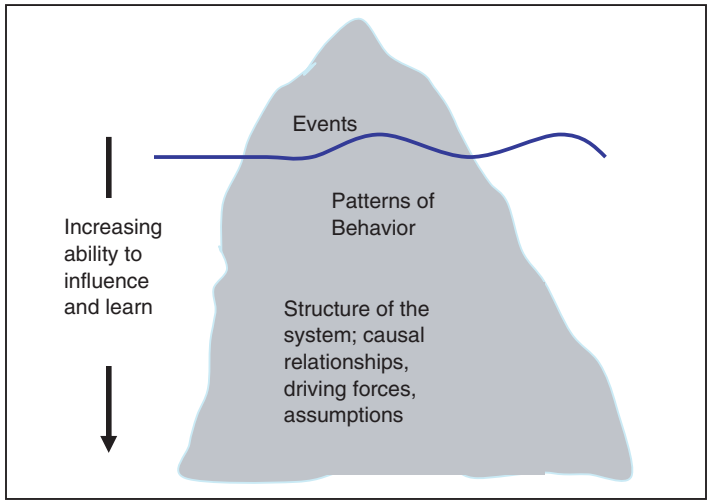

FIGURE 2: Systems Thinking—The Iceberg Analogy

Source: Adapted from Senge (1990).

Ensuring the internal fit of the various processes that affect strategy making and execution represents one of the key areas of design in which HRD practitioners already have expertise. For example, leadership development is often included in HRD academic and executive curricula, as well as change management, organization learning, and organization development (McLean, 2006). Although not an exhaustive list, these are four key areas in scenario-based strategy that fall directly in the domain of HRD and within the competence of the modern HRD practitioner. The point is that many processes critical to effective scenario-based strategy are currently within the remit of HRD and organization development (OD) practitioners, and as we continue to frame strategy as a learning process, the knowledge and skills related to adult learning will become the foundation of organization strategy.

It is beyond the scope of this article to discuss each of these key strategy-enabling processes in Figure 3 in detail. However, one process deserves mention because it is usually poorly executed. The area of performance management is often the key to connecting strategy to individual jobs and job descriptions (Brache, 2005; Porter, 1998; Rummler & Brache, 1995).

Performance management is singled out not only because it is often poorly executed but also because performance is at the heart of the HRD contribution in any organization. Specifically in strategy execution, performance is heavily reliant on the quality of thinking, which in turn is dependant on the quality of

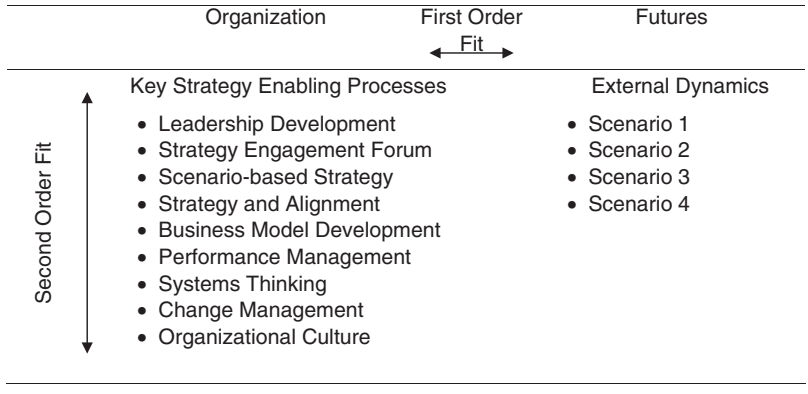

FIGURE 3: Strategy as Fit

the strategic conversation (van der Merwe, L. et al 2008). In general, the all-round capacity or competence of the people in the organization creates real strategic options. Lack of capacity places an immediate limit on the ability of an organization, as a human activity system, to execute strategy effectively. One key capacity that is usually absent is that of acting together and in the same direction, strategically. A real option is defined here as when there is a match between current competencies and emerging future external dynamics.

Although we constantly hear the mantra of "people are our most important asset," this area of building capacity to perform, together, is usually disconnected from the strategy-making and execution process (Brache, 2005). This is akin to being a captain at the helm of a ship, trying to navigate a difficult passage, with no connection from the ship's helm to the rudder! This is an area of expertise in which HRD and OD practitioners have a clear opportunity to add value to the performance of an organization (Brache, 2005), ensuring that roles are clear and that the performance management process is designed to connect the strategy and prioritization process directly to jobs and capabilities and that the reviewing process is done well (Rummler & Brache, 1995).

These three phenomena—(a) problems with predictions, (b) increasing complexity and systems thinking, and (c) strategy as fit—provide the basis for shifting to scenario-based strategy as the preferred mode of strategy making. The business environment has grown too complex for single line forecasting tools alone. Business problems are inherently complex and often require a synthesis view in addition to an analytic view. Furthermore, the various organizational processes must be in alignment with each other so that the organization may respond as a whole. This leads to the conclusion that yesterday's approaches to strategy are simply no longer adequate.

Part 2: Essential Process Elements, Founding Personalities, and Key Competencies for Scenario-Based Strategy Practice

The second part of this article provides a short history of the pioneering thinkers in scenario planning and a framework for practicing scenario-based strategy. Scenario-based strategy has been described as a divergent process (Chermack & van der Merwe, 2003; Schwartz, 1991), thus the framework provided is flexible and is intended to allow practitioners a degree of freedom so that they may bring their individual competencies to bear, as long as they respect underlying principles as outlined. That is, most scenario projects should include the elements described here in order to be called scenario planning as Wack (1988) intended. The depth and concentration on each element, however, will vary from project to project, and expertise in this art can truly only be gained through practice, preferably under the guidance of a competent practitioner. The remainder of this article provides some critical components and useful practitioner tips for practicing and developing scenario-based strategy competencies.

Knowing the Generations of Scenario Pioneers: Prioritizing Sources for Learning

In 2002, Shell International marked 30 years of scenario planning. Angela Wilkinson, under the directorship of Ged Davis, the then-head of Group Planning at Shell International, gathered together 30 scenario practitioners whom they considered the next generation of scenarists from across the world. It is significant that the Centre for Innovative Leadership (CIL) was among those invited to this celebration of the "coming of age" of the scenario method. This method has its roots deeply buried in the history of the Group Planning Department at Royal Dutch Shell.

It is generally accepted that the Shell scenario method is based on the early work of writer Herman Kahn (Kahn & Wiener, 1967). Wack was an early protégé of Kahn and took the tools they developed to "think the unthinkable" into a corporate setting when he became the head of long-range planning at Shell. Individual practitioners continued to learn, mainly from other practitioners and often within Shell. Some of the pioneers have written about the method in a way that informs practice (Schwartz, 1991; van der Heijden, 1996). Practice still varies widely among practitioners, and any formalized or standardized best practice or comprehensive theory is still elusive.

Art Kleiner, current editor-in-chief of the management journal *Strategy + Business*, provided a useful outline of the individuals and characters who pioneered the method during the 1970s and 1980s (Kleiner, 1989). The perspective that Table 1 provides enables potential practitioners to identify and

TABLE 1: Generations of Scenario Pioneers

First Generation	Second Generation	Beginning a Third Generation
Ted Newland	Arie de Geus	Graham Galer
Pierre Wack	Kees van der Heijden	Ged Davis
Napier Collyns	Stewart Brand	Guy Jillings
Peter Schwartz		30 international scenario practitioners—selected and acknowledged by Shell

prioritize their learning by using this table to identify further key resources. Table 1 also enables the elimination of contributions not close to the mainstream of the emerging body of literature.

Scenario-based strategy has grown up in applied practice. Given this, the process has not yet established clear academic roots and is often rejected by business schools that still hold the economic/analytic views of strategy (Mintzberg et al., 1998) and strive to emulate the practices of the Harvard Business School. Practitioners of the method, who are also expert in organizational learning, generally agree that scenario-based strategy provides the most sophisticated and proven organizational learning process, although this is only beginning to be explored and acknowledged through sound research (Burt & van der Heijden, 2002, 2003; Chermack, Lynham, & van der Merwe, 2006; Chermack, van der Merwe, & Lynham, 2007). Scenario-based strategy rightfully belongs among the processes through which the level of learning in an organization can be developed and enhanced.

Uses for Scenarios: A Methodology With a Wide Range of Applications

There are several different applications for scenarios (see Table 2). Although the general framework remains the same, the uses and applications can shift the timetable and depth and reduce or amplify other important components of the process. For example, using scenario-based strategy to examine and maintain fit with the external environment will look different from scenario-based strategy used to test the viability of investment in a new product line. These projects will use the same general steps, but each step may vary in its depth and intensity.

Decision scenarios. Decision scenarios are used to improve the quality of decision making by focusing on particular decisions that the organizational leaders are entertaining. They are therefore based on deep analysis and research. Full-time planning staff provide the capability to track specific trends and driving forces and renew the scenarios every 3 to 4 years.

TABLE 2: Uses of the Scenario Method

Type/Description	Purpose
1. Decision scenarios	to test decisions for robustness
2. Normative scenarios	to push a community toward a specific perspective
3. Community dialogue problem solving, conflict	to engage a community of leadership to explore the future management
4. Policy alignment	to enable various ministries to easily align policies with each other
5. Organization alignment and engagement	to provide an umbrella focus, for strategic conversation and alignment, within the organization and strategic support for organization development
6. Environmental scanning	to enable the organization to learn about and take a position on specific assumptions on which strategy is based
7. Scenario thinking	a way of thinking embedded in all decision making or choices
8. Leadership coaching using scenarios	stimulating a personal inquiry on which to base personal strategies

Note: Examples of these different uses of scenarios are often not publicly available. This table has been compiled by the author to provide practitioners with a sense of the wide range of uses of the scenario method.

Normative scenarios. Normative scenarios are used to push their readers in a specific direction. The "high road, low road" scenarios used during the South African transition in 1994 helped all South Africans to look into the abyss of the "low road" scenario and start the work of building the "high road" (Sunter, 1987, p. 107).

Community dialogue. Scenarios provide a neutral space within which a wider strategic conversation can take place. When participants enter a way of thinking where the future is plural, they will seriously consider and talk about a wider range of futures. The danger is that these conversations lack the rigor of decision scenarios and often miss important dynamics. For example, the Mont Fleur Scenarios from the early 1990s were silent on the crime dynamics in the South African society (Kahane, 2002).

Policy alignment. The Singapore government invests substantially in developing and continually updating a set of scenarios for its own use. It then insists on using them in all the ministries to test decisions and national policy for robustness. This has the benefit of enabling each ministry to function as autonomously as it wishes, in policy making, yet by testing policy in a

common set of scenarios, ministries across government are automatically aligned with each other.

Organizational alignment. Organizational alignment can be defined as the capacity to act as one (McLean, 2006). Working from a common set of planning assumptions, embedded in the minds of decision makers, automatically ensures alignment of decisions and actions across an organization.

Environmental scanning. The focus of scenario development is always aimed at the external dynamics and how they might unfold over the next number of years. Tracking and continuously updating the scenarios, and focusing on specific key driving forces (KDFs) within the scenarios, keeps decision makers using the most up-to-date scenarios on all important dynamics that may affect their decisions.

Scenario thinking. Scenario thinking represents a perspective that uses this way of thinking for all decision making. This perspective includes at least two important components, seeing the future as plural and unpredictable beyond the confidence horizon for predicting. Scenario thinking can be used to guide many things, including career decisions within the family context, decisions in small businesses and work teams, complex decisions in a multinational corporation, and decisions relevant to national and global policy.

Leadership coaching using scenarios. Scenario thinking provides a useful and comprehensive framework for coaching leadership. Whereas personal strategy is often an intensive, introspective process, scenario thinking compels leadership to reflect on dynamics in their context, which may affect them in the future.

A General Scenario Development Framework

Optimal learning during the application of the scenario method occurs in two important components of the process, namely, (a) building scenarios and (b) embedding scenario thinking as a way of thinking and operating in a particular organization (Chermack et al., 2006; Chermack & van der Merwe, 2003; Chermack et al., 2007). Strategic learning in this approach to strategy is thought to occur with involvement in developing scenarios as well as involvement in testing strategy with the wind-tunneling process (de Geus, 1999).

A typical scenario-based planning project usually unfolds over a period of 6 to 9 months and is made up of several general phases. These general phases are included in Table 3 and are as follows: (a) interviews, (b) feedback, sorting, and structuring of external dynamics, (c) rigorous analysis, (d) building capacity for strategic conversation, (e) constructing a scenario workbook or Web site, (f) sustaining strategic conversations, and (g) documenting noticeable results. Each phase is briefly described.

TABLE 3: A Scenario Development Framework

Interviews (conduct, document, analyze, feedback)

Conduct 10-25 interviews, two tranches. First tranche, with decision makers; second tranche, next generation of decision makers and informal leadership.

Feedback, Sorting, and Structuring of External Dynamics

(Optional) Initiate internal dynamics work with function head, start with feedback of internal dynamic analysis.

Rigorous Analysis and research punctuated by (3-4) two-day work in sessions ($W_I - W_{IV}$) to consolidate and integrate a set of 2-3-4 scenarios.

Building Capacity for Strategic Conversation

Ranking space, use of tools such as systems loops & links, story maps, ladder of inference, left and right column, etc. See also conversation quality checklist (van der Merwe et al., 2008).

Challenge the assumptions and stretch the logic of the scenarios

By using outside contributions from people who may hold different views, also called "Remarkable People" or "Thought Leaders." These contributions will raise the quality of thinking and logic of the scenarios, exclude blind spots and raise the credibility of the scenarios.

Scenario Workbook, Web Site, or Other Media

Develop a workbook that attends to the learning of the decision makers.

Reflect both rational aspects as well as aesthetic aspects. Use a wide variation of tables and illustrations to reflect both explicit and implicit aspects of the storylines. Make them memorable using a set of vivid titles.

Embedding Scenario Thinking Among Decision Makers

Integrate the use of scenarios into the planning cycle as a wind-tunneling process.

Develop processes that integrate the use of scenarios into the decision maker's routines.

Sustaining and continuously improving the quality of the Strategic Conversations

Assemble a Strategic Engagement Forum or a regular basis to talk about how the strategy is working, tracking emerging dynamics in the external environment and identifying capacity limits in the organization. By including Performance Management as part of the Strategic Conversation we can continuously improve this conversation during each cycle of assessment of performance.

Documenting Noticeable Results

Survey scenario effect reflecting both quantitative and qualitative dimensions. Administer other metrics; conversation quality, strategic thinking, trust, etc.

Note: This table forms part of the Centre for Innovative Leadership (1994) training course for scenario practitioners. During this training, they are assisted by this framework to develop a company-specific plan for a scenario project. This table reflects the important phases.

Interviews. An important question concerns who should be interviewed and who should be included in the scenario-building team. Ideally, the same people should participate in both processes. Typically, as much of the top leadership as possible, selected on a hierarchical basis, should be interviewed. This usually amounts to between 6 and 15 interviews. In addition, there is a second group of people who

are important to engage. They are the informal leaders who are normally scattered at the middle levels of the organization. The informal leadership may not occupy senior positions but are often gatekeepers between the lower levels of the organization and the top leadership, and vice versa (Kleiner, 2003; Stephenson, 2003).

Informal leadership should be included in the interviews and involved in all learning processes that are part of developing and using the scenarios. The maxim here is that the informal leadership is often mistrustful of top leadership, and by including informal leadership in important organizational processes, buy-in can be developed and people in these informal leadership positions feel ownership and stake in the organization. Engaging informal leadership in the scenario-based strategy process opens a doorway for building trust, and informal leadership will often shift their own position as they learn more about how the external environment might affect the organization.

Conducting interviews to establish the natural strategic agenda. Shell developed a series of questions used to guide the interviewer. They are referred to by practitioners as the so-called "seven questions." The interviewer is trained to write down what is said without filtering. Examples of these questions are as follows: "If I [the interviewer] were an oracle and could answer any question about the future you had, what would you ask?" and "If you could write your own epitaph, what would you write?" On analysis of the responses, the interviewer looks for the key concerns and uncertainties on the minds of the decision makers who were interviewed. This can also be called the natural strategic agenda (de Geus, 1999). Interviews naturally yield information on both External Dynamics as well as Internal Dynamics. While the External Dynamics are used to build the scenarios the Internal Dynamics can be used to assess and improve the capacity of the organisation to execute strategy.

Feedback, sorting, and structuring of external dynamics. The contract with decision makers to feed back the results of the interviews must be obtained before the interviews commence. This contracting follows standard survey feedback principles (French & Bell, 1984). Interviews provide crucial information about the natural concerns of the decision makers as well as provide a basis for building a relationship with the organization. Interviews are confidential and recorded verbatim, usually by two practitioners working as a team. Interview data are examined for common themes among interviewees. Decision makers are engaged to sort these forces by relative effect on decisions and relative uncertainty about how a particular force will play out over the scenario period.

Rigorous analysis and building capacity for strategic conversation. A series of scenario-building workshops should be individually designed to meet organizational needs and desired results. There is, typically, a series of 3 to 4 workshops of 2 days each, set 6 to 8 weeks apart to allow deep analysis and critical reflection time. A typical first-generation scenario development process for a medium to large organization will follow a number of phases over a period of

months. Table 6 outlines these phases as a guideline. The capacity for strategic conversation should be regularly tested, starting with baseline measurements at the beginning of the process and then again at regular measurement at set intervals until the process is completed.

Scenario workbook, Web site, or other media. The scenario workbook is the media through which the scenarios can be viewed as a set. The scenarios must be memorable. The scenario stories should travel among decision makers in the organization as a kind of "oral history of the future." Often, the benefits of scenarios are restricted to key decision makers at the apex of the organization. The leading edge scenarios attend to widening their use among the various layers and learning styles of the decision makers across the organization down to middle management levels. This is being done through providing a more user-friendly workbook or by enabling wider participation by placing the information from the scenario workbook on a Web site. Key components of the workbook are a memorable set of names, the ranking of the KDFs used in the scenarios, proto scenarios made up of 8 to 10 bullets reflecting the key themes in each scenario, a list of contributors, and a brief description of methodology. For the individual scenarios, components included a memorable name for each scenario that captures the key theme of that scenario, a brief description of that theme, a summary, a story map, internally consistent details of each part of the story map, key patterns across the storyline, and a systems diagram showing the dynamics at work in the storyline.

Embedding scenario thinking among decision makers. One of the key ways to embed scenario thinking among decision makers is to structure the strategy process so that scenarios cannot be avoided during the strategy-making process. Using the scenarios as "wind tunnels" together with building scenarios is where the rich learning takes place among contributors to these processes (Chermack & van der Merwe, 2003).

Sustaining strategic conversations. Building infrastructure for strategic conversation is essential to sustaining and improving the quality of this conversation (van der Merwe, et al., 2008). The natural way to do this is to establish a strategy engagement forum that contains this conversation. Such a forum needs to be designed and well run to sustain itself beyond three or four meetings. A successful forum will focus the attention of the organization on key dynamics and continue the process of building alignment. The main goal of effective dialogue is an "inside conversation" with the leadership where current dynamics affecting the organization and concerns are on the agenda.

Documenting noticeable results. Scenario-based strategy builds assets in the organization that could be called intangible. It is essential to measure where possible and to document the results that flow from this process. The CIL has as standard practice documentation of specific dimensions and has developed a range of instruments to measure these dimensions. Instruments exist for

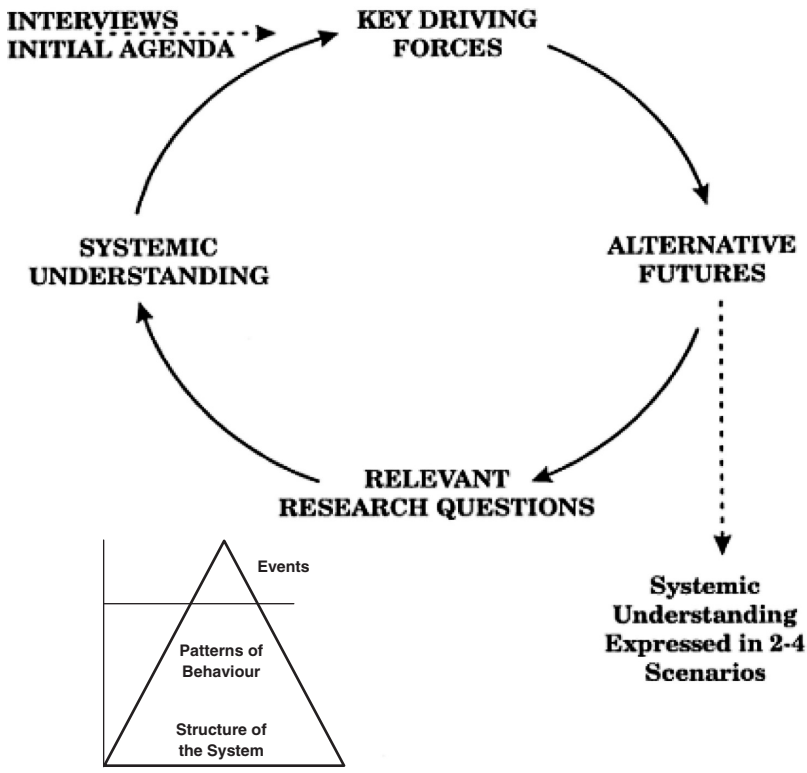

FIGURE 4: The Pierre Wack Scenario Approach: Building Multi-Generational Scenarios

Note: This figure forms part of the Centre for Innovative Leadership (1994) training in scenario building. The cyclical or multi-generational nature of scenario development was learned from Pierre Wack directly and encourages practitioners to build infrastructure for ongoing scenario thinking in their organization (see also van der Heijden, 1996).

such dimensions as the quality of conversation and the effect of the scenario work. Typically, baselines are established at the beginning of the process and then measured annually on a regular basis throughout the process. In addition, qualitative results are assessed using state-of-the-art qualitative research methods (Denzin & Lincoln, 2000).

It is essential that practitioners of the method see scenario planning as a multi-generational process. First-generation scenarios are useful, but it is only with second-, third-, and fourth-generation scenarios that the deeper learning and understanding develops. It is only with repeated use, research, and analysis that new and innovative opportunities, as well as risks and discontinuities, can be uncovered (see Figure 4). Wack (1985) was adamant about this point. Continued use and rigorous analysis are at the heart of learning in the scenario method.

Quality Criteria for Scenarios

A major anchor for scenario practitioners includes the quality criteria provided in Table 4. Quality criteria provide a basis on which the scenario team can assess the likelihood that their work will actually get through to managers and provoke new perspectives. Three key quality criteria have emerged informally from the scenario literature (although Walton, 2008, has shed light on the possible roots of these criteria in this issue of *Advances in Developing Human Resources*) and the first- and second-generation scenario practitioners. These criteria state that any given scenario must be relevant, challenging, and plausible for it to be useful and elicit buy-in from managers. These three criteria have been sequenced in a specific order to emphasize a logical structure and are usually evaluated at the conclusion of each generation of scenario development.

Relevant. The scenarios must be anchored in the current concerns and, at the same time, take the thinking beyond the current assumptions. The relevance criterion lays the foundation for ownership by decision makers. When the relevance criterion is met, decision makers recognize their specific concerns immediately within the scenarios. These are usually presented as feedback from interviews with decision makers in one of the early scenario development workshops. Because decision makers see their specific concerns in the scenarios, they are more likely to take ownership of a set of scenarios that will shed light on their specific concerns.

Challenging. Each scenario must provide a story that is in some way surprising. Given Wack's (1985) stated purpose to "shift the thinking" (p. 84), scenarios must allow users to see things differently from how they currently do. When the scenarios are too challenging, decision makers simply won't engage in or seriously entertain the content of the scenarios. When the scenarios are not challenging enough, decision makers can be bored or disappointed at having invested time and energy on a set of scenarios that provides no novel insights or information.

Plausible. The plausibility of scenarios is based in deep analysis and research. Scenarios must be able to stand up to scrutiny in terms of the accuracy of the storylines. This is also referred to as internal consistency (Schwartz, 1991). Scenarios must be realistic in that the internal assumptions and events must be possible. When scenario-based planning is criticized for being too "soft" (Mintzberg et al., 1998), it is because there has not been a multi-generational scenario process in place, and there has not been enough analysis and research to support the foundation of each scenario. Deep data-driven analysis is one cornerstone of high quality, high utility scenarios.

TABLE 4: Quality Criteria for Scenarios

Criterion	Effect	Practitioner Tip
Relevant to the concerns of the decision makers	deepens ownership by sponsor(s) and decision makers through feedback of external dynamics and internal dynamics (optional)	independent in-depth interviews done by outside practitioners; uncover both external dynamics and internal dynamics feedback and joint action planning
Challenging to current assumptions	expands thinking beyond current knowledge; changes assumptions	use of outside thought leaders and remarkable people to challenge and enrich thinking and documentation
Plausible because they are based on deep analysis and research and are internally consistent	creates credibility for storyline(s) because they can stand up to scrutiny	deep analysis and research into key dynamics to understand key variables that support them; ensure that the scenarios are internally consistent

In short, scenarios must be relevant in that they capture the elements that are of concern to the managers who will use them, challenging in that they stretch the internal thinking of the decision makers, and plausible in that they are well-researched and provide detail and data to support the events in the storylines. Wack insisted on a further acid test for quality scenarios: Having lived through the scenario period and looking back, did the scenarios miss any important dynamic? For instance, the Mont Fleur Scenarios that were used to engage the incoming political leadership in South Africa prior to the 1994 elections said nothing about the crime dynamics in post-apartheid South Africa. The result of this omission was that the government and business leadership were caught unaware by this damaging dynamic and are still struggling more than 10 years later to deal with it effectively. Finally, in the case of multi-generational scenario use, hindsight provides a valuable learning tool in that things that may have been left out of previous generations of scenarios can be included in future iterations.

Testing Strategies for Robustness: Wind Tunneling

The term *wind tunneling* is used because of the similarity between testing a strategy in a given set of scenarios and testing the design of an aircraft in a wind tunnel. A wind tunnel varies the operating conditions to which the

aircraft is subjected to expose design errors or successes. Scenarios represent the different future conditions within which the strategy, business model, or other decisions must fit. Wind tunneling is used to test decisions for robustness and for exposing opportunities and risks. An important additional benefit of wind tunneling is that the leadership engaged in wind tunneling are continually adjusting their assumptions as they enter the different worlds described in each scenario. As leaders check their decisions or business models in the various scenarios, they are often required to adjust their thinking based on evidence of flawed assumptions. This process is filled with critical learning opportunities in the scenario-based strategy framework and draws highly on constructivist learning principles (for a detailed description of the cognitive processes at work in scenario planning and wind tunneling, see Chermack & van der Merwe, 2003).

The key to the intense learning in this process is for the decision makers to suspend reality, much as one does in a good theater performance, and enter the world being described by the scenario. This will only happen in well-crafted scenarios that are relevant, challenging, and plausible to those who are trying to use them. The key question that triggers this learning is, "What will I do if . . . ?" This question triggers what has been called "future memory." It is this future memory that enables decision makers to recognize discontinuities earlier than competitors (Chermack & van der Merwe, 2003; see Table 5).

Stated another way, decision makers can use scenarios to consider the important organizational elements. For example, useful questions would include the following: "Will the current strategy hold up in scenarios 1, 2, 3, and 4?" or "Is the current strategy only viable in a single scenario?" The same questions can be asked around organization structure, culture, leadership competencies, business plans, and specific decisions, among other elements. Using this process allows decision makers to see where and under what conditions certain organizational elements may need to be revised in order to build robustness.

The Competent Scenario-Based Strategy Practitioner

The foundation for competence in scenario-based strategy naturally exists within the HRD and OD professions (Cummings & Worley, 2001; Torraco & Swanson, 1995). The required additional competencies need to be assessed and developed at an individual level. Although it is possible for an individual to develop personal expertise in scenario planning through experience, the far more efficient method remains to work under the tutelage of an accomplished scenario planning practitioner. Table 6 reflects a selection of key competencies that enhance the performance of an aspirant practitioner.

TABLE 5: Testing Strategies for Robustness: Wind Tunneling

How to wind tunnel	scenarios = different future operating conditions key question to ask as you enter these different worlds: "What will I do if . . . ?" look for both opportunities and risks list for each scenario—look for patterns across scenarios for the scenarios as a set: important conclusions, challenges, opportunities, questions for further analysis
What to wind tunnel	consider each of the following elements in each scenario: strategy, business model, business plans, specific decisions, leadership development program, organization structure, senior leadership succession, others

Common Mistakes and Traps: Practitioner Guidelines

The final section of this article provides a series of guidelines for practicing scenario-based strategy. These guidelines generally include a number of common mistakes in developing scenarios, problems associated with assigning probabilities, an additional quality criterion, and the need to ensure that scenarios are used for considering important aspects of the business.

Some common scenario development mistakes. The following are mistakes made by learner practitioners in constructing scenarios that novices should avoid:

- Putting all the good news in one scenario and all the bad in another.
- Best-case, worst-case, and status quo scenarios.
- Developing unrealistic, implausible scenarios.
- Assuming that scenarios are the product of a brainstorming process.
- Falling into the probability trap.
- Don't stop when the scenarios are done; engage the organization in strategic conversation and measure the effect of the scenario work.

Good news, bad news. By putting all the good news in a scenario and the bad news in another, we start to move toward identifying preferences and influencing the user of such scenarios to consider only the good scenario. This is good practice for normative scenarios (see Table 2) but not for decision scenarios, where all the scenarios should be equally plausible.

Best case, worst case, and status quo. Best case, worst case, and status quo as a set of scenarios usually lack deep analysis to uncover counterintuitive, plausible turns in how the scenario may unfold in the future. This type of range is more akin to sensitivity analyses than good scenario work.

TABLE 6: A Competency Profile: Scenario-Based Strategy Practitioner

A.	Knowledge:
	Business sustainability knowledge, distinctive competence, competitive advantage
	Strategic planning process
	Business planning process
	Scenario practice and application
	Theory of the business (business modeling)
	Systems thinking, worldview, and mapping of structure
	Adult learning
	Conflict resolution
	Organization development
	Group process
B.	Skills:
	Process design
	Facilitator
	Conversation quality and engagement
	Visual representation
	Systemic representation
	Organizing
C.	Attitudes:
	Role versatility
	Intellectual versatility
	Attention to detail
	Continuous improvement

Source: Centre for Innovative Leadership (CIL, 1994).
Note: This competency framework is part of the work done by the CIL. So far, it has remained unpublished. It is included in the CIL training for practitioners.

Unrealistic, implausible scenarios. Scenarios that are seen as unrealistic or implausible will not be taken seriously by decision makers. Scenarios that are the result of brainstorming lack the deep analysis required to provide a plausible basis for the storylines reflected. Bear in mind, constantly, that quality criteria for scenarios, reflected in Table 4, are essential if the scenarios are to be taken into the decision-making process.

Good scenarios enable what actors and script writers refer to as "suspending disbelief." The reader mentally and emotionally enters the story and treats it as reality. This is an essential property if the scenarios are to influence and change assumptions in the minds of decision makers.

The probability temptation. Most managers and executives are trained to establish some amount of certainty. There exists a natural temptation for analytically

trained managers to want to assign probabilities to each scenario. Once probabilities are assigned, the most probable scenario will be seen as the official future, the other scenarios will be left behind, and the purpose of shifting the thinking will be lost. Often, novices inadvertently imply that a specific scenario is more probable than another. This destroys the plausibility of the scenarios as a set.

It is not expected that any given scenario will unfold in reality as told. However, it is important that the scenarios as a portfolio of stories about the future contain a full range of variability for all key forces identified in the various workshops and interviews. The iterative, multi-generational scenario-based strategy process represents an important framework for contracting with organizations considering using this method.

Moving beyond scenario development—don't stop there. Engage the organization in a continuous strategic conversation. Because the scenario workbook is often the most tangible part of the deliverables, it is often mistakenly thought of as the product or final deliverable. It is therefore essential to contract, from the outset, for both developing the scenarios and putting them to use to test strategy and decisions for robustness. A scenario project is never really complete but must not end with the production of scenarios. The practitioner must contract for an iterative multi-generational approach to scenario development from the outset. The scenarios are most useful if they are used for learning, which is solidified in using the scenarios to consider critical decisions of the business. Embedding scenarios as a process for regularly testing decisions usually entails restructuring the strategic planning cycle to include the robustness testing process part within the cycle.

Conclusion

This article has provided some key reference points and practitioner "handrails" in strategy making as well as a general framework for scenario-based strategy. In addition, quality criteria for scenarios and a competency profile for a scenario planning practitioner have been presented. Whereas the scenario method has traditionally been taught through an apprenticeship approach, current demand for competent scenario-based strategy professionals is growing. When one considers how long it is taking to get important issues such as climate change into the minds of decision makers, it is essential that the scenario method be adopted as widely as possible, in both the public and private sectors as well as nongovernmental organizations and civil society in general. One key purpose of this article has been to provide guidance to novice scenario planning practitioners so that we may expand the capacity to support the development and use of scenario-based strategy to improve the quality of decision making and leadership.

HRD professionals can use the overview presented in this article as an orientation to some of the foundational principles, as well as some of the classic practitioner pitfalls of scenario planning. Together with the remaining articles in this issue of *Advances in Developing Human Resources*, the novice, or emerging scenarist, can glean the necessary components to begin the scenario planning journey. Scenario planning is aimed at examining ill-defined problems that are usually highly complex. Like any advanced organizational activity, scenario planning is an ongoing learning process that takes years to master, and each project will present varied challenges. This article has provided some general guidelines and a framework that can be applied to scenario planning in any context, no matter the challenges.

References

Argyris, C. (1999). *On organisational learning*. London: Blackwell.

Bartlett, C. A., & Ghoshal, S. (2002). Building competitive advantage through people. *Sloan Management Review*, *43*(2), 34-41.

Brache, A. P. (2005). *How organizations work: Taking a holistic approach to enterprise health*. New York: John Wiley.

Burt, G., & van der Heijden, K. (2002). Reframing industry boundaries for structural advantage—the role of scenario planning. In G. Ringland (Ed.), *Scenarios in business* (pp. 223-232). New York: John Wiley.

Burt, G., & van der Heijden, K. (2003). First steps: Towards purposeful activities in scenario thinking and future studies. *Futures*, *35*(10), 1011-1026.

Centre for Innovative Leadership. (1994). *Thinking and Acting with Scenarios* (*TAS*). Amsterdam, Netherlands: CIL Ltd.

Chermack, T. J., Lynham, S. A., & van der Merwe, L. (2006). Exploring the relationship between scenario planning and perceptions of learning organization characteristics. *Futures*, *38*(7), 767-777.

Chermack, T. J., & van der Merwe, L. (2003). The role of constructivist learning in scenario planning. *Futures*, *35*(5), 445-460.

Chermack, T. J., van der Merwe, L., & Lynham, S. A. (2007). Exploring the relationship between scenario planning and strategic conversation quality. *Technological Forecasting and Social Change*, *74*(3), 379-390.

Cummings, T. G., & Worley, C. G. (2001). *Organization development and change* (6th ed.). Cincinnati: South-Western College Publishing.

Davidson, M. (1983). *Uncommon sense: The life and thought of Ludwig von Bertalanffy (1901-1972), father of general systems theory*. New York: J. P. Tacher.

de Geus, A. P. (1988). Planning as learning. *Harvard Business Review*, *66*(2), 70-74.

de Geus, A. (1999). *The living company: Growth, learning and longevity*. Boston: Harvard Business School Press.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2000). *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.

French, W. L., & Bell, C. H., Jr. (1984). *Organisation development* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Kahane, A. (2002). Civic scenarios as a tool for societal change. *Strategy & Leadership*, *30*(1), 32-37.

Kahn, H., & Wiener, A. J. (1967). The next thirty-three years: A framework for speculation. *Daedalus*, *96*(3), 705-732.

Kauffman, D. L. (1980). *Systems 1: An introduction to systems thinking*. Minneapolis, MN: Future Systems.

Kleiner, A. (1989). *Consequential heresies: How "thinking the unthinkable" changed Royal Dutch/Shell*. Retrieved January 4, 2008, from http://www.well.com/user/art/PDF%20Files/gbnshelloil.pdf

Kleiner, A. (2003). The man who saw the future. *Strategy and Business*, *30*, 1-5.

Kuhn, T. S. (1970). *The structure of scientific revolutions* (3rd ed.). Chicago: University of Chicago Press.

McLean, G. N. (2006). *Organization development: Practices, processes, principles*. San Francisco: Berrett-Koehler.

Michael, D. N. (1973). *Learning to PLAN and planning to LEARN* (2nd ed.). San Francisco: Jossey-Bass.

Mintzberg, H., Ahlstrand, B., & Lampel, J. (1998). *Strategy safari: A guided tour through the wilds of strategic management*. New York: Free Press.

Porter, M. (1998). *On competition*. Boston: Harvard Business School Press.

Rummler, G. A., & Brache, A. P. (1995). *Improving performance: How to manage the white space on the organization chart*. San Francisco: Jossey-Bass.

Schumacher, E. F. (1978). *A guide for the perplexed*. New York: Harper-Perennial.

Schwartz, P. (1991). *The art of the long view*. New York: Doubleday.

Senge, P. M. (1992). *The fifth discipline*. New York: Doubleday.

Senge, P., Kleiner, A., Roberts, C., Ross, R., Roth, G., & Smith, B. (1999). *The dance of change: The challenges to sustaining momentum in learning organizations*. New York: Doubleday.

Senge, P. M., Kleiner, A., Roberts, C., Ross, R. B., & Smith, B. J. (1994). *The fifth discipline fieldbook: Strategies and tools for building a learning organization*. New York: Doubleday.

Stephenson, K. (2003). *The quantum theory of trust: Power, networks and the secret life of organizations*. Upper Saddle River, NJ: Prentice Hall.

Sunter, C. (1987). *The world and South Africa in the 1990s*. Cape Town, South Africa: Human and Rousseau Tafelberg.

Torraco, R. J., & Swanson, R. A. (1995). The strategic roles of human resource development. *Human Resource Planning*, *18*(4), 3-38.

van der Heijden, K. (1996). *Scenarios: The art of strategic conversation*. New York: John Wiley.

van der Merwe, L., Chermack, T. J., Kulikowich, J., & Yang, B. (2008). Strategic conversation and engagement: assessment of a new measure. *International Journal of Training and Development, 11*(3), 241-221.

Wack, P. (1985). Scenarios: Uncharted waters ahead. *Harvard Business Review*, *63*(5), 72-89.

Wack, P. (1988). *The gentle art of re-perceiving*. Unpublished manuscript.

Walton, J. S. (2008). Scanning beyond the horizon: Exploring the ontological and epistemological basis for scenario planning. *Advances in Developing Human Resources*, *10*(2), 147-165.

Louis van der Merwe is the founder and managing partner of the Centre for Innovative Leadership (www.cil.net), an organization specializing in scenario-based strategy, large-scale organizational renewal, and leadership development/coaching. He consults in the above areas, internationally, with large companies, governments, and nongovernmental organizations. He builds capacity to do the work he does within his client organizations. He has taught scenario-based strategy, strategic HR, and systems thinking in MBA programs and in public executive education programs in the United States, Canada, Australia, South Africa, Netherlands, and Ireland. He is an associate professor in the Leadership Centre at the University of Kwazulu-Natal in South Africa. His contributions have appeared in *Futures*, *The Dance of Change*, and *The Fifth Discipline Fieldbook*.

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).