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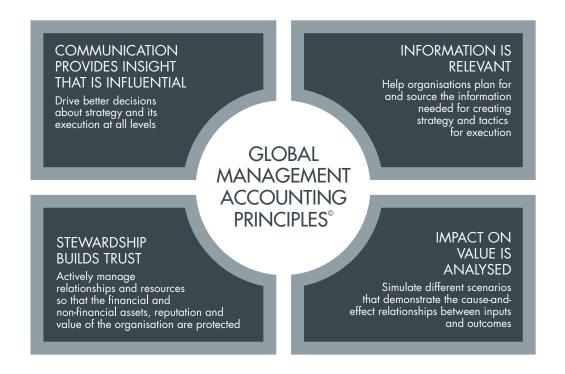
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EXECUTIVE SUMMARY

Scenario planning is a management tool that is designed to allow organizations to evaluate the efficacy of strategies, tactics, and plans under a range of possible future environments. In short, it is a perfect tool for today's increasingly uncertain and volatile world.

Quality decision-making has never been more important — or more difficult. Competition is relentless, new innovations disrupt the status quo, and torrents of information add to the increasing complexity of business. The Global Management Accounting Principles prepared by the Chartered Institute of Management Accountants (CIMA) and the American Institute of CPAs (AICPA) are intended to help organizations extract value from this increasing volume of available data.



No organization has the luxury of locking into a single view of what the future may look like and placing all their bets on that outcome. The level of global economic interdependence, advances in technology and changing business models are increasing complexity and hence uncertainty for all organizations. Those that fail to adapt to the new realities will stumble and ultimately fail. Those that are able to act quickly to rapidly changing circumstances and mitigate threats or seize opportunities will thrive.

Scenario planning allows organizations to plan for an uncertain future enabling them to react with greater speed and confidence. By simulating different scenarios that demonstrate cause-and-effect relationships an organization can create the insight necessary to understand the impact of potential decisions on generating and preserving value.

INTRODUCTION

WHAT IS SCENARIO PLANNING?

In simple terms, scenario planning provides a structured method for organizations to evaluate alternative views of what may happen in the future as an aid to strategic, operational and financial planning.

A scenario is a cohesive set of assumptions that describes a view of the future that is then used to develop a forecast or test a strategy, plan or decision. Scenario planning is largely focused on answering two questions:

1. What could happen?

2. What would be the impact?

Scenario planning is a means for managers to visualize the future and assess how they will respond in different situations. As agility, flexibility and responsiveness have become more prized capabilities, scenario planning has become an integral part of the overall planning and risk management process for many organizations.

Scenario-planning techniques are being used to help organizations better understand the implications on a broad range of decisions affecting business strategy, investment prioritization and operations. Of particular note to management accountants is that many organizations are looking to integrate aspects of scenario planning into near-term management processes such as risk management, business case development, budgeting, forecasting and competitive analysis. Examples include:

- Capital investment decisions such as building new plants, opening new retail outlets and upgrading equipment
- Market strategy decisions regarding market entry and exit, marketing spend by segment, and channel strategy
- Financing decisions based upon scenarios surrounding credit quality/availability, interest rates and equity valuations
- Human resource decisions regarding location, sourcing, pay practices and benefits costs

Scenario planning has value in any situation in which there is significant uncertainty about aspects of the future that could materially change an organization's strategy, plans or decisions.

To be effective, scenario planning must be focused — ideally around a material question or issue that needs to be answered or understood. These can be very specific such as "Should we enter the Chinese market?" or relatively broad such as, "What are the implications of reducing the reliance on fossil-based fuels?" In either case, there are many variables that could shape the future making it difficult to construct a single scenario upon which decisions can be made.

SCENARIO PLANNING IN ACTION: SHELL

Shell has contributed much to the literature on the use of scenario planning. The company publishes its scenarios on its website (shell.com/global/future-energy/scenarios.html). Shell Scenarios ask "what if?" questions to explore alternative views of the future and create plausible stories around them. They consider long-term trends in economics, energy supply and demand, geopolitical shifts and social change, as well as the motivating factors that drive change. In doing so, they help build visions of the future.

Jeremy Bentham, Head of Scenarios, Strategy and Business Development, Royal Dutch Shell, is quoted as saying that "our goal is not to predict the future but to enable policymakers to make richer and better decisions involving the future, as a result of having a deeper grasp of key drivers and key uncertainties."

The company goes on to describe how scenarios are used:

Scenarios help decision-makers reconcile apparent contradictions or uncertainties, such as how political change in one region affects global society. They also have the potential to improve awareness around issues that could become increasingly important to society, such as increased urbanization, greater connectivity or loss of trust in institutions.

By exploring plausible, as well as predictable, outcomes, scenarios challenge conventional wisdom. Organizations using scenarios find it easier to recognize impending disruptions in their own operating environment, such as political changes, demographic shifts or recessions. They also increase their resilience to sudden changes caused by unexpected crises like natural disasters or armed conflicts.¹

BUILDING A SCENARIO PLAN

Scenarios are a way of understanding the forces at work today (e.g., demographics, globalization, technological change, environmental stewardship and biotechnology) that will shape the future. Scenarios can be organized into four broad categories:

- **1. Social** What are the implications of increasing obesity, or the widespread efforts to combat it?
- **2. Economic** What is the effect of slower growth of the Chinese economy on global markets?
- **3. Political** What is the likelihood and impact of European Central Bank measures to improve the uneven economic recovery?
- **4. Technological** What will be the impact of the "Internet of things" on the rate of change in an industry or particular business?

Like most other management techniques, scenario planning is not just about the quality of the results that accrue from the exercise. Scenario planning can serve as a powerful educational tool for managers who participate in the process by increasing awareness of the impact of uncertainty and allowing them to envision how their behavior and decision-making will change under different conditions.

There are two basic models for organizing a scenario-planning exercise:

- 1. Expert A small group completes the scenario-planning process, often led by the strategic planning team possibly supported by external consultants and other subject-matter experts.
- **2. Collaborative** A small core team leads the exercise, but the organization seeks input and participation from a broad cross-section of people from inside and outside the organization.

The expert approach has the advantage of usually being quicker and more focused than the collaborative approach but much of the organizational learning and personal development opportunities are sacrificed. The collaborative approach is likely to ensure a more productive process and deliver more widely understood outputs, but requires careful planning, disciplined management and the commitment of time by senior management.

Regardless of the approach adopted, the steps needed to build a scenario plan are straightforward. While there are numerous methodologies that have been created for building scenario plans, they all follow the same basic approach (see figure 1).

Figure 1: Scenario planning work approach

 Define the Issues, decisions or key variables that need to Define scope, issues be evaluated • Set the scope of study and time horizon • Agree on an appropriate time horizon for the scenarios • Identify key internal and external drivers that are likely to influence future scenarios **Define key drivers** Establish critical relationships • Collect quantitative, qualitative and expert opinion data as inputs to the scenario definition process Collect and analyze data Assess the materiality and volatility of the key drivers Analyze key relationships that will affect the future • Construct a series of cohesive and logical scenarios and develop a narrative description for each **Develop scenarios** • Test the scenarios against the quantitative and qualitative data and expert opinions • Update scenarios as appropriate • Test strategies, plans, forecasts and decisions under each scenario as appropriate **Apply scenarios** • Develop action/contingency plans for each scenario where needed • Communicate to all constituencies • Define leading indicators and key performance metric; integrate into the performance reporting process Maintain and update • Update scenarios as appropriate over time • Repeat the process as needed

STEP 1: DEFINE SCOPE, ISSUES AND TIME HORIZON

Before embarking upon a scenario-planning exercise, it is essential to be clear about the issue that you are seeking to address and then define the appropriate scope and time horizon for the scenarios to be constructed. Answering the following questions can assist:

- What issues or decisions are being evaluated?
- Is there a high degree of uncertainty about the future environment?
- What is the time horizon for making decisions and then executing against them?

For example, an oil company may have a 15-year time horizon from initial exploration to full production of a new oil field; a pharmaceutical company may focus on a 20-year time horizon that matches the patent protection period for newly approved drugs; a fashion retailer may only focus on a six- to nine-month window, which equates to the next two (spring and fall) selling seasons.

EXAMPLES OF FRAMING ISSUES

Figure 2: Framing issue questions

"What would be the impact on our strategy and business plans for the next three years if oil prices averaged:

- 1. \$55 a barrel
- 2. \$110 a barrel
- 3. \$175 a barrel"

"How is the increasing affluence of the Chinese middle class likely to affect demand for our products over the next five years?"

"What will be implications of a strong dollar and fluctuating foreign exchange rates on our plans for next year?"

"How will cloud computing affect competition in the software as a service marketplace?"

STEP 2: DEFINE KEY DRIVERS

The heart of an effective scenario plan is to identify the right drivers around which to construct the scenarios. In the context of scenario planning, drivers are internal and external factors that could influence the future environment. This definition is very broad so it is important to develop reasonable criteria for identifying those that are material to the organization or issues being addressed.

Figure 3 provides examples of drivers that may be integrated into the development of scenario plans.

Figure 3: External drivers and internal variables

EXTERNAL DRIVERS

- GDP growth
- Demographic change
- Market size and growth
- Commodity prices
- Consumer spending patterns
- Rate of technological innovation
- Inflation
- Exchange rates

KEY BUSINESS VARIABLES

- Access to capital
- Market share/acceptance
- Customer satisfaction/loyalty
- Productivity
- Quality
- Cost structure
- Business model
- Talent attraction/retention
- Time to market

STEP 3: COLLECT AND ANALYZE DATA

In traditional planning processes, much of data collected are of a historic nature. When embarking upon the development of scenario plans, the data collection net should be cast wide. Numerous types of data can be collected, including traditional historic trends, future projections and forecasts, insights as to potential sources of disruption, alternative hypotheses of the future and analyses of the relationships between key drivers.

DESIGN OF HEDGING STRATEGIES

Not all the data need to quantitative, some of the most interesting inputs to scenario planning can be the diverse opinions of experts and futurists who specialize in conceptualizing alternative futures. The key is to collect a broad range of data with a view to developing credible

scenarios of what the future may look like based upon what is known or believed today.

Having collected the base data, the next step is to identify the relative materiality and predictability of the

drivers. For example, the supply of hotel rooms is largely predictable in the short term, whereas fashion trends or exchange rates are far less certain.

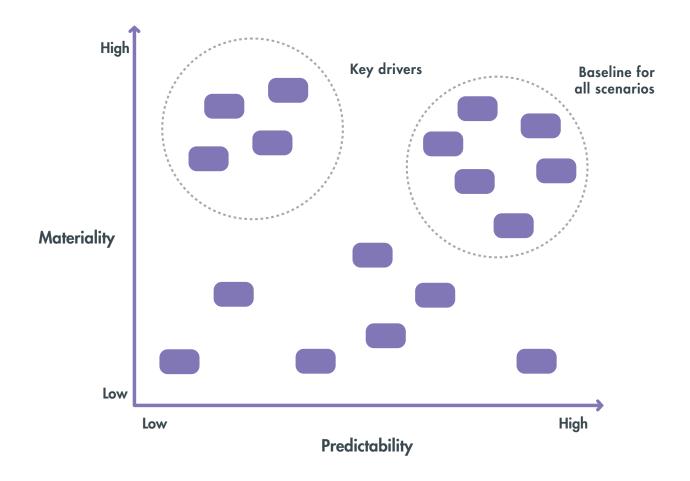
Even for drivers where the long-term trend has been reasonably stable, scenario planners should not be afraid to ask the question, "What could materially change this trend?"

Scenarios are not directly concerned with probabilities. They are more concerned with plausibility. Several of the defining events of the current millennium such as 9/11, the global credit crisis and the H1N1 pandemic all had low probabilities but were plausible. In a world characterized by increased volatility and uncertainty, the number of plausible but low probability events that can

affect an organization or a market is increasing — hence the increased interest in scenario planning.

One technique that can assist in prioritizing drivers is to map them against two axes. The first axis is an assessment of each driver's materiality or importance to the issue or decision being analyzed and the second looks at the predictability of future trends for each driver (figure 4). Those drivers that are both material and reasonably predictable (top top-right-hand circle) can form a consistent basis for all the scenarios that are to be developed. Those that are material but difficult to predict (top-left-hand circle) will be those that define the differences between the scenarios.

Figure 4: Evaluation and identification of key drivers



STEP 4: DEVELOPING SCENARIOS

The starting point for many scenario plans is the traditional planning view of the future that is based upon an extrapolation of current trends.

However, the value of scenario planning comes to the fore when the past is not a good surrogate for the future and disruptive change occurs. For the automotive industry, it was the 1973 Arab oil crisis, combined with the rise of imports in the U.S. market; for consumer electronics, the disruption was the emergence of low-cost broadband Internet access: and for the retail model it was the emergence of the "big box" retailer such WalMart, Target, Home Depot and Best Buy. Organizations that

continued to operate under the "business as usual" scenario suffered rapid declines, exemplified by General Motors, Chrysler, Sony (remember the Walkman), Motorola, Sears and Woolworth.

Crafting scenarios that lay out plausible alternative views of the future based upon a change in the behavior of drivers or the relationship between them is at the heart of effective scenario development.

GUIDELINES FOR DEVELOPING SCENARIOS

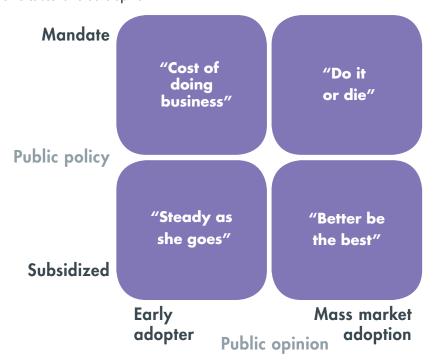
- 1. Develop between two and four scenarios. Developing more than four scenarios can be confusing and counterproductive. Each scenario should be sufficiently distinct to materially affect future plans or decisions.
- 2. The intent is not to develop the perfect scenario but to provide a mechanism for testing strategy, plans, decisions and behaviors under a range of credible future scenarios.
- 3. Scenarios should be organized around the key questions or issues defined in step 1.
- 4. Each scenario must present a credible and logical alternative view of the future
- 5. Scenarios must be internally consistent.
- 6. Each scenario should clearly describe the assumptions or pre-conditions upon which it is based.
- 7. The differences between each scenario should be clearly documented and understood.
- 8. The completed scenario should include:
 - a. A narrative description that sets out the major elements that describes each scenario.
 - b. A listing of the key drivers that will determine whether the scenario prevails.
 - c. The definition of the leading indicators that will provide early warning that a particular scenario is unfolding.
 - d. Quantifiable metrics that allow the organization to test strategies, plans, or decisions for efficacy under each scenario.

The three most common approaches for defining scenarios are the spectrum, the matrix and the binary. The spectrum approach isolates one major variable that has a spectrum of credible future states. A simple example would be the approach many organizations used

for developing their plans for 2010. During the latter half of 2009, when most plans were being developed, there was considerable uncertainty as to the medium term economic outlook. While stock markets were signaling signs of recovery, many other indicators such as unemployment, gold prices, housing and credit quality were less positive. A similar example is the planning process for companies affected in 2014 by the fall in oil prices or fluctuations in foreign exchange rates, or those affected in 2015 by the economic dynamics in China.

The second approach is to organize the scenarios around two dimensions in the form of a matrix. The matrix approach isolates two material dimensions that have a high degree of uncertainty associated with them. ElectricIQ, is a software company focused on the development of smart systems for the management of electric usage in factories and office systems. ElectricIQ adopts the matrix approach and constructs four scenarios across two dimensions (see Figure 5). The dimensions are (a) public opinion, which describes the level of consumer demand for environmentally friendly or "green" solutions, and (b) public policy, which describes the extent to which government policy incentivizes or mandates "green" standards. This leads ElectricIQ to define four scenarios to guide their planning:

Figure 5: ElectricIQ scenario development



Mandate – "Cost of doing business"
 Governmental action leads to hard mandates for adoption. Little support is provided and adoption becomes a "cost of doing business," akin to a tax. Public opinion is not a major driver; consumers will not pay more for green solutions unless forced to do so through taxation

or mandate.

• The "S" Curve – "Steady as she goes"

Demand for smart grid systems follows a traditional adoption cycle of early adopters leading the way at high prices; as the market scales and prices drop, mass market adoption takes off before flattening out as maturity is reached. Little effective public policy or incentives are provided/needed.

Necessity – "Do it or die"

Public opinion swings rapidly to green solutions and dramatically changes customer buying patterns. Products not seen as being green are shunned in the marketplace. Governments mandate adoption of environmentally friendly technologies for new construction and remediation for all existing construction.

• Market-driven – "Better be the best" Public opinion moves to green, and consumers are willing to pay extra for the best green products. Governments offer some incentives. Adoption is balanced between market innovation and a series of tax-based incentives by governments to encourage adoption of smart grid technologies. Being green becomes a source of competitive advantage. There is a third approach that some organizations use effectively, which is to create just two scenarios using a simple binary structure where one scenario is "good" and the other is "bad." This can be effective for simple yes/no decisions where it is possible to define clear criteria for the key drivers that determine whether they are acceptable for a decision to be made. However, most situations are not so clear-cut and a simple binary approach may provide insufficient choices.

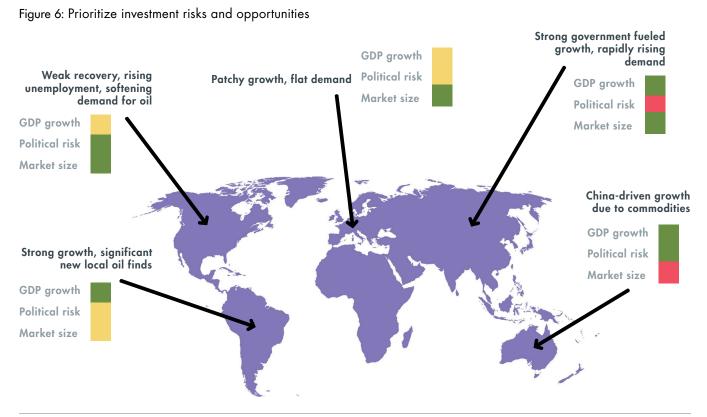
Having constructed a set of plausible and interesting scenarios, many organizations mistakenly think they are done — they're not! While creating plausible scenarios that resonate with management is satisfying, the real value comes by using the scenarios in a structured manner to test and adjust strategies, plans and decisions.

STEP 5: APPLY SCENARIOS

One of the criticisms of scenario planning is that it can become a largely conceptual exercise with little practical application. It is a valid criticism but not of the technique itself but more of how the results are used (or more accurately not used). Too often organizations pour a lot of effort into developing rich scenarios but fail to apply them in the planning and decision making process.

Beyond envisioning alternative views of the future, the next step is to assess how plans, decisions and priorities will change under different circumstances. Figure 6 provides an example of the type of scorecard one global business uses to assess the relative attractiveness of

investing in different markets. During their planning process they develop scenarios around each major region and then develop alternative investment portfolios based upon the relative attractiveness of regions relative to each other.



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The first step after completing scenario development is to test the sensitivity of strategies, plans and budgets under different scenarios by asking, "What will be the impact?" Developing an understanding of the validity of different strategies and plans under different scenarios gives management a much clearer understanding of the

risk factors and hence the appropriate risk mitigation and management techniques that may need to be employed.

Let's look at how the four scenarios for the consumer electronics industry defined in the previous step could be used to frame strategies and make decisions affecting key elements of a business:

Table 1: Electronics industry scenario implications

	Do it or die	Better be the best	Cost of doing business	Steady as she goes
Approach to innovation	The minimum is not enough: must be best to win	Innovative leadership has real value	Must meet the standards; little advantage in being ahead of the curve	Focus on select areas where there is strong demand and we have a capability
Marketing strategies	Either be the safe option (complaint) or the best	Must be a leader	Partner with builders and owners to secure share	Be No.1 in select niches
Market goals	Own the high end	Acquire share	Be the preferred supplier	Build share in niches
Financial goals	High margins	Focus on size and scale	Low-cost producer	Modest growth over time

After understanding the broad implications of each scenario, organizations will frequently complete more detailed analysis of specific initiatives or decisions. For example:

- Budgets maybe recast under each scenario to assess the financial implications.
- Alternative approaches may be tested against each scenario. For example, a new entrant may model the implications of entering new markets by partnering with an established player versus direct entry under each of the scenarios.
- Leading indicators may be identified that can provide the organization with an early warning that the most likely future scenario is changing. For example, the adoption of broadband Internet technology in Asia progressed much faster than almost all forecasts, making online business models much more attractive. Leaders such as Google and Microsoft capitalized on this trend while others such as America Online and eBay were less successful.

Table 2 shows how ElectricIQ's management accounting team used the scenarios to develop a high-level financial model that laid out how forecasts of key market measures, business volumes, and financial measures would change under each scenario.

Table 2: Electric IQ scenario impacts

MARKET: WESTERN EUROPE					
	All metrics expressed as percentage change from the current three-year trend				
	Scenario				
	Do it or die	Better be the best	Cost of doing business	Steady as she goes	
	A	В	С	D	
MARKET: WESTERN EUROPE					
GDP growth	3%	5%	1%	2%	
Demand: New construction	15%	24%	5%	4%	
Demand: Remediation	20%	22%	8%	4%	
ELECTRIC IQ VOLUMES					
Existing products	12%	32%	3%	7%	
New products	5%	28%	1%	3%	
Western Europe share	-2%	7%	0%	0%	
ELECTRIC IQ KEY FINANCIALS					
Revenues	18%	30%	3%	5%	
Growth margins	4%	8%	0%	2%	
Net margins	7%	12%	1%	1%	
R&D investment	15%	25%	9%	5%	

STEP 6: MAINTAIN AND UPDATE

Some organizations treat scenario planning as a one-off exercise or project. There is certainly merit in using scenario planning in this way, particularly as the effort required can be significant. However, in today's increasingly volatile world, the future rarely is predictable, so many organizations are adding scenario planning as a core tool in their management toolbox.

Scenario planning does not have to be an annual activity; many organizations tie the development and update of their scenario plans to major events rather than simply the turning of the calendar.

Updating scenarios in response to material changes in the internal or external environment serves two purposes:

- It forces managers to revisit the original scenarios and develop an understanding of what worked and what didn't which provides valuable input to future iterations.
- 2. It will help flush out new opportunities and threats that have been created since the original scenarios were developed.

Updating scenarios can be a simple process of revisiting steps 2, 3 and 4 by refreshing the data and then assessing the impact of any material changes in the scenarios on current operations and future plans. The most critical element is to avoid assuming that the same relationships between key drivers and results remain the same.

CONCLUSION

Scenario planning is not a silver bullet — no management tool is. Like any management tool, there are risks associated with implementing and using scenario planning. Successful scenario plans demand careful planning and clear communication.

Table 3 lists some of the more typical risks and proven strategies for mitigating those risks. Scenario planning can provide organizations with a valuable tool to expand management's thinking around future uncertainty and the possible implications on current strategies, plans and decisions.

As organizations globally struggle to deal with an increasingly uncertain world, they are looking to their

finance team's to assist in helping them understand the choices, opportunities and implications that uncertainty presents. Applied judiciously, scenario planning can provide valuable insights as to how the future may unfold thereby equipping organizations to react with speed, agility and confidence.

Finally, remember the words of Benjamin Franklin: "Those who fail to plan, plan to fail."

Table 3: Risks and mitigation strategies

RISKS	MITIGATION STRATEGIES
Poorly defined issues or decisions make it difficult to identify key drivers and therefore construct scenarios	 Take enough time to frame the issues or decisions Upfront, ask the question: "Can we define the decisions that will need to be made and who will need to make them as a result of completing this process?" Always the "So what? Who cares?" questions to ensure relevance and ownership of issues and decisions
Too many scenarios are defined	 Limit scenarios to no more than four Emphasize that the goal is not to define the perfect scenario Focus on material differences between scenarios
Scenario definition and refinement becomes a never-ending process	 Establish a clear timeline Frequently step back and ask the question: "Have we defined a logical and consistent scenario yet?" Remember that with respect to the future, more detail does not equal more accuracy

RISKS	MITIGATION STRATEGIES
Scenarios are perceived as being too subjective	 Ensure an appropriate balance of quantitative and qualitative data Each scenario needs to be perceived as credible; one way to do this is to show how each scenario can realistically evolve from the current state
Management becomes fixated on a single scenario	 Ensure an appropriate balance of quantitative and qualitative data Each scenario needs to be perceived as credible; one way to do this is to show how each scenario can realistically evolve from the current state
Little changes as a result of developing scenario plans	 Ensure an appropriate balance of quantitative and qualitative data Each scenario needs to be perceived as credible; one way to do this is to show how each scenario can realistically evolve from the current state
Scenario projects are effectively outsourced to third party consultants	 Ensure an appropriate balance of quantitative and qualitative data Each scenario needs to be perceived as credible; one way to do this is to show how each scenario can realistically evolve from the current state
The explicit definition of multiple plausible scenarios makes it difficult to secure commitment to the chosen strategy or plan	Emphasize that uncertainty is a fact of life, but that does not invalidate commitment to a common plan of action. In fact, the existence of scenario plans increases the likelihood that a chosen strategy or plan can adapt to changing circumstances by providing managers with a road map to respond to variability
Confusion can exist between forecasts of future performance that offer a singular view of the future and scenarios that offer multiple views	Forecasting is predicated on the assumption that the future is predictable based upon information and relationships known at the time of creation. Scenario planning assumes that the future is not predictable with any degree of confidence. Both techniques have value; however it can be dangerous to apply scenario planning to factors that are reasonably predictable and conversely develop forecasts for inherently unpredictable factors

Endnote

1 Shell Global, shell.com/global/future-energy/scenarios. September, 2015.

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Further reading

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