



SENSE. SHIFT. SEIZE.

The Disruption Opportunity

Values, Networks, and the Art of Scenario Planning

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The domains of our businesses are shifting. This isn't new. New technologies, regulations, external events, behavioral changes, and acts of God—all of these are causing changes to the currents and eddies in our markets and economies. The sands we stand on are always at risk of shifting.

It's hard to admit that we don't know much about the future. There's an ever-present uncertainty in the world that never really sinks in. We can get lollid to sleep by everyday familiarity.

We live day to day with an appreciable understanding of what's going to happen tomorrow and next week and even next year.

This is true.

But it's also true that we will almost always miss the signs of meaningful and disruptive change until we're knee deep in shifting sands.

Most companies believe they are thinking about disruption, but they aren't. They are thinking about how to tread water with everyone else.

Even the term "digital disruption" is ubiquitous in today's boardrooms. That's why most firms in most industries are exploring the application of new technologies to their businesses. They aren't innovating. They are chasing best practices to keep up with the Jones's.

In these instances, how many of those organizations are thinking about the future at a macro level? I'd wager that very few of them are. And I'd double down that most don't know how to think about the future in this way.

Learning to look into the possibility of the future is hard work. I believe it requires an understanding in three key areas:

- First, it requires an understanding of uncertainty and how to see through its fogs.
- Second, it requires a grounded identity and a set of strong corporate values that everyone in the organization believes in, that provide firm guiding (if not inspirational) principles.
- Third, it requires an understanding of how progress happens through the creation (the reforming) of new domains and networks.

Disruption and Uncertainty

Disruption is hard to track as it creeps up on us by unobservable gradients, until there's a general recognition of a paradigm shift.

At some point (as disruption happens), we come to recognize an ecological change, but we almost always suffer a shortsightedness in determining when it happens. As we watch the pot on the stove, we are challenged to discern when it starts to boil because the degrees of change are incremental and hard to measure from the perspective of each passing moment. This is the calculus of change.

With disruption, we are further challenged because we don't know where it will come from. Often, we're looking in the wrong direction as disruption creeps up on us from behind.

Think of uncertainty as a thick fog. It's hard to see through. Eventually, disruptive forces will emerge through the fog and change the relationships that hold our markets and economies together, that even hold society together. Uncertainty about the future will eventually dissipate and new paradigms will reveal themselves.

We engage in long-term planning primarily to help our firms survive. The information we gather, we hope, will help us steer the ship through uncertain times and help us develop and executive a viable strategy.

The hurdles executives face go well beyond the act of sensing and scenario planning. Ultimately, executives will need to allocate resources based on how they interpret the external and internal environments.

Paul Schoemaker is a Dutch business strategist and was part of the famed strategic planning group at Royal Dutch/Shell

during the 1980s. He has written several books on scenario planning and environmental scanning. He breaks down the managing of resources into three categories: 1) Uncertainty, 2) Complexity, and 3) Intra-organizational conflicts. We added a fourth, Cognitive biases.

SOME BARRIERS TO STRATEGY			
Uncertainty ¹	Complexity	Intra-organizational Conflicts	Cognitive Biases
About <ul style="list-style-type: none">• The economic, industry, regulatory, social, and technological environments• Competitors' behavior• Customers' preferences	Concerning <ul style="list-style-type: none">• The interrelated causes that shape the firm's environments• The competitive interactions ensuing from differing perceptions about these environments	Among <ul style="list-style-type: none">• Those who make managerial decisions and those affected by them	Among <ul style="list-style-type: none">• Executives and employees and that will influence their ability to make the best decisions.

These four areas are hard, if not impossible, to model.

1 Adapted and modified from Schoemaker, Paul, and Raphael Amit, "Strategic Assets and Organizational Rent," *Strategic Management Journal* (1993).

Yoga and the First Scenario Planners at Shell

Royal Dutch/Shell was perhaps the first organization to take tools used by doomsday strategist Herman Kahn and apply them to develop scenarios about the future in its industry.

In 1964, senior directors of Standard Oil of New Jersey visited the Shell Centre in London. One of them casually asked, "What is Shell doing about long-term future?" The question suprised and then haunted Shell excutives. Shell couldn't afford the risks of the other sisters because it bought more oil than it drilled. Royal Dutch/Shell was considered the weakest of the "Seven Sisters."

The company decided to find "someone with imagination" to think about the long-term future, separate from the forecasting function of its Unified Planning Machinery (UPM), which spit out annual forecasts for the upcoming year based on sales from the previous year.

Shell brought in Ted Newland, who was a free-thinking pundit, and teamed him up with Pierre Wack, who was a spiritualist. Wack took guidance from Svamiji, an Indian spiritual guru who promoted yoga in daily life. Yoga, in contrast to how westerners understand it as physical exercise, is about using the breath as a means to focus the mind, to reach a state of greater awareness about the world and the self. Svamiji imparted this aspect of yoga, to practice yoga through the activity of daily life. Wack pursued a lifelong interest in learning "to see" and applied his guru's teachings to how he approached his job and scenario planning.

Wack and Newland understood that they couldn't just spitball scenarios of the future. They had to be robust and believable. They had been to some of Kahn's presentations and both were firm believers in what Kahn called scenario planning, but thought that they needed to overhaul Kahn's methodologies.

Wack used a yoga term to describe his practice of gathering intelligence from the outside world. He called it "Breathing in."

The Shell team presented their first scenarios in a September 1972 meeting with the company's executives. In it, they laid out one plausible scenario whereby an oil shortage would lead to a massive increase in oil prices and ultimately to an energy crisis. They suggested this could happen as soon as 1975. In reality, it happened exactly a year later, in October 1973, when OPEC cut production and declared an embargo against the United States and other western nations.

1 From the 1940s to the 1970s, the "Seven Sisters" comprised Anglo-Persian Oil Company, Gulf Oil, Royal Dutch/Shell, Standard Oil of California, Standard Oil of New Jersey, Standard Oil of New York, and Texaco.

Externally, we're faced with uncertainty and complexity. Internally, our organizations are plagued with cultural barriers.

When we integrate one or more cognitive bias(es) in the mix, decisions become even tougher. Managers, employees, and executives tend to do the same things that were successful (rewarded) in the past. Strong personalities can be stubbornly tied to their lack of perspective. We often suffer from recency bias, wherein we overvalue recent wins and try to repeat the measures that led to those outcomes. Many types of cognitive biases influence our decision making. Some of the better known ones are groupthink, overconfidence bias, framing effect, status quo bias, and the power of storytelling.

Further, large, dispersed organizational systems are often dysfunctional if they aren't bound together by a set of common strong values.

The late Thomas Schelling was a RAND Corporation strategist, best known for his contribution to Game Theory. He's considered one of the fathers of modern strategy. He wrote a preface to a book on America's failure to recognize the warning signs leading up to the bombing of Pearl Harbor.² His words shed light on the same dysfunctions that we can find in just about any large organization.

Surprise, when it happens to a government (or any organization), is likely to be a complicated, diffuse, bureaucratic thing. It includes neglect of responsibility, but also responsibility so poorly defined or so ambiguously delegated that action gets lost. It includes gaps in intelligence, but also intelligence that, like a string of pearls too precious to wear, is too sensitive to give to those who need it. It includes the alarm that fails to work, but also the alarm that has gone off so often it has been disconnected. It includes the unalert watchman, but also the one who knows he'll be chewed out by his superior if he gets higher authority out of bed. It includes the contingencies that occur to no one, but also those that everyone assumes somebody else is taking care of. It includes straightforward procrastination, but also decisions protracted by internal disagreement. It includes in addition, the inability of individual human beings to rise to the occasion until they are sure it is the occasion—which is usually too late. (Unlike movies, real life provides no musical background to tip us off to the climax.) Finally, as at Pearl Harbor, surprise may include some measure of genuine novelty introduced by the enemy, and possibly some sheer bad luck.

Schelling's words eloquently articulate how difficult it is to sense through uncertainty, complexity, and internal organizational dysfunction. He added, "There is a tendency in our planning to confuse the unfamiliar with the improbable....what looks strange is thought improbable; what is improbable need not be considered seriously."

Being able to sense disruptive forces and take advantage of opportunity starts by recognizing and nurturing the identity and values of the firm and its employees and then preparing to become open to the improbable.

Thinking about the Unthinkable

The roots of scenario planning go back as far as military strategy does, even to Sun Tzu and Plato and the Bible. Modern scenario planning often is attributed to Herman Kahn, who worked on strategies for nuclear war at the RAND Corporation.

Kahn was an intellectual heavyweight and reportedly had the highest IQ on record. His 1960 book *On Thermonuclear War* explored in grotesque detail the possibility of nuclear war, running through a range of scenarios that resulted in deaths of about 2 million people to 160 million people.

Kahn thought it was irresponsible to ignore the real possibility of nuclear war and life after nuclear war. His scenarios explored what life after the apocalypse would look like and how society would recover.

He did not put probabilities on his scenarios, but they could be used by strategists to think about political and strategic positions by using game theory to explore how the other side (the Soviets) might respond to different positions taken by the United States. Kahn was a major proponent of fallout shelters, not because they'd save lives, but because they'd send a message to the Soviets that the US was prepared for nuclear war. Stanley Kubrick's *Dr. Strangelove* was said to have been based on Kahn and his thoughts.¹

1 The role was said to be based on an amalgamation of Kahn, John von Neumann (who came up with the strategy of *Mutually Assured Destruction*), Edward Teller (father of the hydrogen bomb) and Wernher von Braun (a Nazi rocket scientist who came to the U.S.)

2 Wohlstetter, Roberta, *Pearl Harbor: Warning and Decision* (1962).

Values and the Purpose of the Firm

What is the purpose of the firm? This might seem like a dumb question. Obviously, the purpose is profitability. Right?

Not so fast.

This is a serious question that the executive should spend some time thinking about, especially as it pertains to the future.

The purpose of Disney is to create happiness. Nike tries to honor and inspire great effort.

These are value statements.

Nike's values don't touch on trying to be the most profitable shoe company in the world. In fact, their values (and messaging) don't even hint at the utility of shoes or sportswear.

The purpose of the firm will always be a value statement, whether it's increasing shareholder value or creating happiness. Be careful not to confuse mission statement with a firm's values. Sometimes, the mission statement may speak about a firm's values, but not always. Mission statements are easy to butcher.

Let's return for a minute to the idea of profitability as a value statement. Profitability is never sustainable if it's the sole or even primary purpose of a firm.

Some will call me a heretic for suggesting this.

If a CEO of a Fortune 500 firm (or even a small firm) said this, he'd be out of a job within a week.

Let me explain why profitability is not sustainable. This is important in how we think about the future of our companies and how we go about sensing the future, and why scenario planning is important.

Profitability isn't sustainable

Arie de Geus was an early advocate for the learning organization. He worked for Royal Dutch/Shell for 38 years in the 1960s, 70s, and 80s, and as coordinator of their group planning department, helped establish the now-common practice of scenario planning.

In his book *The Living Company*, de Geus points out that there's a tension between managing for profit or managing for longevity. We call this the *Executive's Dilemma*. Many companies will talk about long-term growth (longevity) but fall into the "managing for profit" category. Shareholder pressures for immediate profitability and dividends often drives this attitude among chief executives.

De Geus has a term for a company that manages for profit: "Economic company." An economic company looks at people as

Profit, Growth, and Longevity

Corporate longevity is based on varying factors of corporate values, transformation, growth, and profitability.

- Corporate values are the foundation to longevity; they are the organization's DNA.
- Transformation is an organization's ability to adjust to the changing needs of the world and their market. Innovation can lead to transformation, though so can economic or market shocks, regulatory changes, and other external influencers.
- Growth should occur periodically, particularly after periods of transformation. Growth is important in becoming robust, which is the top factor in determining corporate longevity. Growth is not sustainable and should not be an end in itself.
- Profitability gives the firm flexibility to grow or transform when needed. Profitability for the sake of shareholder dividends is far less important. Likewise, profitability as an end in itself, like growth, is not sustainable and will work against the longevity of the firm.

another form of capital “assets” and uses the minimum number of capital assets to maximize profitability. When demand for a firm’s products increases, the company adds people assets to meet demand, and when demand decreases, it reduces capacity and lets those people go. The company operates more or less like a machine.

The problem with the “economic company” is that there’s no development plan, there’s no plan for sustainability. Profitability drives decision making. Longevity is not a value to these firms. That’s why the number of firms on the S&P 500 are falling off the index at a faster and faster clip and the number of firms that disappear entirely will continue to increase.

Nearly one in three companies on the S&P 500 will drop off that index in the next five years. This means that if you look around at your competitors, about one in three of them will be gone or diminished in five years. According to Richard Foster, coauthor of *Creative Destruction*, the average number of years that a company stayed on the S&P 500 in 1958 was 60 years. In 1980, it was 25 years. In 2011, it had dropped to 18 years. Even more astonishing, a company is being dropped from the S&P 500 every two weeks.

In fact, 75 percent of the firms that were in the S&P 500 in 2011 will be gone by 2027.

The group planning department at Royal Dutch/Shell once performed a study of 30 companies that had been around for 75 years or more. It found that the companies that survived all that time were able to adapt during turbulent and uncertain times.

This meant that those companies were able to rethink their purpose and methods. They were able to create and maintain a culture of continuous development, with a focus on the longevity of the business.

At the other end of the spectrum from profitability is growth. These companies are focused on expansion over other values. They may realize profits, but those profits become a means to further growth.

Growth is good when it’s applied to the purpose of longevity. Without that purpose, growth, like its sibling profitability, is not sustainable. All markets have ceilings and, even more, go through lifecycles. Markets do not last forever.

Let me return to the idea of corporate values for a moment. Values are the DNA of an organization. This DNA needs to be sustainable, no matter what it is. The DNA of a company needs to be able to transcend markets and economies, and even generations.

Profitability and growth, as values, cannot transcend markets or economies.

So, where does that leave the CEO of a Fortune 500 company? In a pretty tight bind. He or she answers to shareholders who demand profitability or growth or both. If she ignores those demands, she’ll be out of a job pretty quickly.

There’s no silver bullet to saving their careers. But there’s hope.

If a company can develop values that transcend markets and economies, that company will have a better chance at long-term prosperity.

Family-owned businesses are often more focused on longevity than profitability or growth. Large family-owned businesses typically last longer than public companies. But even family-run companies rarely last more than three or four generations; however, they last longer when they are professionally managed. When they fail, it’s likely that a third- or fourth-generation family member loses sight of their values (or loses an affinity with those values) and turns toward profitability or growth for its own sake, which ultimately starts the death watch.

Can a company’s value be “longevity”? Yes and no. It can be, but it shouldn’t be stated as such. The values simply need to transcend time (and economic goals), and by doing so, they will carry longevity within it, as a gene within the overall DNA.

The world’s most successful companies have such core (and inspirational) values. Apple wants people to think differently. Disney wants to create happiness. Nike wants to honor (and inspire) greatness and great effort. These are value statements.

Building a Scenario

The steps to building a scenario:

GATHER INFORMATION FROM A BROAD RANGE OF SOURCES

- Look at the fringes
- Read and study trends across disciplines
- Travel and talk to people from a range of backgrounds

RECOGNIZE THE MANY COGNITIVE BIASES

- Cognitive biases influence opinions and points of view in your firm, including your own;
- They can prevent you or your team from seriously considering a scenario

THINK IN TERMS OF SYSTEMS, FROM THE OUTSIDE

- Don't look at scenarios from the "inside" perspective of your company
- Look at your market from a macro and outside perspective

CREATE MEMORIES OF THE FUTURE

- These memories will help you recognize indicators as they arise and provide a map to various possible futures

TRY TO SEE POSSIBILITY THROUGH UNCERTAINTY AND COMPLEXITY

- Don't be afraid to explore the unfamiliar
- Disruption is always an expression of the improbable

DEVELOP A ROBUST AND BELIEVABLE STORY FOR EACH SCENARIO

- Don't play favorites with your scenarios
- Make them all equally believable and compelling
- The purpose isn't to predict which one is right, but to become familiar with each possibility

NEVER LOSE SIGHT OF YOUR VALUES

- We cannot develop solid responses to scenarios unless we have well-grounded values to help guide us
- Values can create a strong culture and internal network to sense external disruption

NETWORKS ARE THE MOST IMPORTANT ELEMENT TO CHANGE

- Look for the emergence of new relationships and bonds
- These bonds may point toward an emerging network
- The creation of networks is where all disruptive opportunities lie

These values transcend the present.

People might argue that companies like Apple, Disney, or Nike can afford to focus on core values because they have proven to be profitable and are less pressured by their shareholders to focus solely on profits. What can a smaller or lesser-known company do? Can they really afford to focus on core values early in their development?

I would argue that they cannot afford not to focus on those core values. Those values give the firm an identity and also serve as a unifying force for all the employees. Without a set of strong core values, a firm will be composed of disconnected units or even mercenaries, whose personal agendas will supersede those of the organization. This will result in discontent, which will lead to a whole slew of organizational dysfunctions, the same dysfunctions that Thomas Schelling spelled out.

Further, these companies will be more resistant to change.

Why?

Because they lack core values that provide stability and consistency to a firm's identity and for its employees during times of turbulence. Without those values, the firm would not be able to adapt to market disruptions.

In *The Living Company*, de Geus wrote:

A long-term survivor, in short, does not define its life in economic terms, but in terms of its own evolution: the development of the entity as a whole, including all the people who have joined the contract with it, so that it and they are part of each other's identity.

The firm is ultimately a community, and its long-term success comes from cultivating that community, by establishing common values, by recruiting people who embrace those values, by helping those people develop their capabilities, and by developing a means for people whose values might differ to leave the firm gracefully.

The Firm as Community

When core values play an important role in an organization, its members (employees) feel part of a community and tend to identify with those core values.

Solid core values will positively impact the bottom line. The benefits are broad, from increased employee engagement and morale to fewer sick days per employee each year.

As a community, those employees will share values with one another. De Geus says employees will embrace a mindset that they belong to one another, as part of the community. There's a

band-of-brothers cohesion within those companies that focus on strong core values.

The more that employee values overlap with the company's values, the more likely the firm will have the fortitude to transcend market disruptions.

These values also play an important role in scenario planning. They provide a clear identity of the firm, which makes envisioning the firm in various possible futures much easier.

What Is Scenario Planning?

Scenario planning is about exploring possible futures and getting to know those futures in order to make better long-term strategic decisions. The strategist uses scenario planning to ask "What-if" questions. The process always starts at the macro, non-firm level. The strategist will write a detailed scene of what that future looks like for each scenario. These scenarios can then be used to explore strategic options for the firm.

Scenario planning differs from forecasts and visions in significant ways. Scenario planning is about exploring possible futures at the macro level. Forecasting is about assessing risk of probable futures at the micro level. The vision process is about energizing and inspiring an organization (around a vision) to aim for a desired future.

FEATURES OF SENERIOS, FORECASTS, AND VISIONS		
Scenarios ³	Forecasts	Visions
Macro	Micro	Micro
Possible, plausible futures	Probable futures	Desired future
Uncertainty based	Based on certain relations	Value based
Illustrate risks	Hide risk	Hide risk
Qualitative or quantitative	Quantitative	Usually qualitative
Needed to know what we decide	Needed to dare to decide	Energizing
Rarely used	Daily used	Relatively often used
Strong in medium- to long-term perspective and medium to high uncertainties	Strong in short-term perspective and low degree of uncertainty	Functions as triggers for voluntary change

Memories of the future

De Geus says that scenarios can create memories of the future.

David Ingvar was a Swedish neurobiologist. He developed the idea of "memory of the future." A memory of the future is how we think and plan. It is present in our thoughts just about each and every moment. We are constantly thinking about what comes next, where we plan to go, how we're going to drive home, what groceries we need to pick up. These are visualizations of the future.

These visualizations run through endless series of what-if scenarios. For example, *if it is going to rain tomorrow, I'll need to find my umbrella before going to work. If I finish dinner quickly, I'll be able to make it to my daughter's recital performance.* Our minds are making calculations and running through countless possible scenarios. Think of the GPS system on your phone or in your car recalculating a route. That's what we're doing all the time, reconfiguring our reference point to the future, but in fractions of a second.

These will eventually help guide us as we approach the future. They'll serve as a sort of map and are sequentially organized as a series of steps. Not only are we thinking through these scenarios, but they are also being stored in the frontal lobes, and as Ingvar says, they become memories of the future.

3 Adapted and modified from Lindgren, Mats, and Hans Bandhold, *Scenario Planning: The Link between Future and Strategy* (2003).

Cognitive Biases Can Prevent Good Decision Making

Sydney Finkelstein, Jo Whitehead, and Andrew Campbell, in their book *Think Again: Why Good Leaders Make Bad Decisions and How to Keep It from Happening to You*, categorized biases into a typology of five bias types, at least as they pertain to executives:

ACTION-ORIENTED BIASES

- Excessive optimism, overconfidence, and competitor neglect

INTEREST BIASES (AGENCY PROBLEMS)

- Misaligned individual incentives, inappropriate attachments, and misaligned perception of corporate goals

PATTERN RECOGNITION BIASES

- Confirmation bias, power of storytelling, management by example, champion bias, false comparisons

STABILITY BIASES

- Anchoring effect and insufficient adjustment, sunk-cost fallacy, loss aversion, status quo bias

SOCIAL BIASES

- Groupthink, Sunflower management

This list, while not exhaustive of the many biases that can affect employees and executives, is a good starting point in understanding the psychological forces that influence both our awareness (making sense) and our decision making.

These memories, according to Ingvar, are important because they help us recognize which information is relevant in all the noise around us. The memories or stored paths provide a guide or template to measure incoming reference and data points. If the information fits within one of our stored memories, we understand the input, and it takes on meaning for us.

If, however, we don't have those memories of the future already somewhat mapped, we will have a hard time making sense of the world. As de Geus says, "We will not perceive a signal from the outside world unless it is relevant to an option for the future that we have already worked out in our imaginations."

De Geus tells the story of British explorers who find a tribe on the Malayan peninsula. The tribe hadn't advanced technologically beyond the Stone Age. The explorers brought the tribal chief to Singapore, which was a complex and multifaceted seaport. They showed him around Singapore for 24 hours and marched him past a massive harbor full of ships, past multistory buildings, through the complexity of nineteenth-century society.

They then took the tribal chief back and debriefed him. The only lasting memory that stood out for the chief was that he had seen a man carrying more bananas than he thought possible. The man that he had observed had been pushing a cart loaded with bananas. This was the only thing that the tribal chief could fully grasp. All other signs of modernization were so far outside his life experience that his mind was unable to grasp what he was seeing. He had no point of reference to help him understand.

In many ways, executives are in the same position as that tribal chief, trying to look for future disruptive forces through noise and uncertainty. Since they haven't mapped out possibilities in their minds, they have no ability to make sense of what might be right in front of them. We can only see what we've already experienced.

So, how can we develop memories of the future?

Expose ourselves to as wide a range of stimuli as possible. Look at the fringes, not only of our markets, but of cultures and peoples and ideas. Talk to a broad range of people. Get out and pursue new experiences. Travel and explore. Push toward being uncomfortable. Steer away from routine. Question our assumptions and our realities.

This process will lead us to new points of view, to a broader perspective. That's where we'll be in a better position to see and in a better position to explore multiple futures.

We can use scenario planning to explore possible futures, particularly when a period of stability seems to be reaching maturity. It's also when uncertainty is likely increasing, but often, uncertainty surrounds us

in a fog, so it's very hard to discern when change will happen. This can apply to technology, regulations, political environments, economies, markets, and other facets of the human web of society.

Scenarios are narratives

Scenarios are myths we create of the future. A good scenario has to be believable and robust. The more detail we provide a scenario, the more it comes to life and feels real. The steps from the present to the future have to be plausible, even if they seem highly improbable.

The long-term planning team at Royal Dutch/Shell could never have used forecasting methods to foresee the oil crisis. But, in 1972, they explored a range of scenarios through the pricing mechanisms at OPEC and the political climate in OPEC's member countries. They came up with six plausible outcomes about the stability and price of oil. In three of those outcomes, the price of oil remained low, and in three other outcomes, the price of oil spiked. They built a detailed narrative for each scenario.

The more detail we put in our scenarios, the more plausible they become. In creating scenarios, be careful to make them as robust as possible. Don't favor one scenario over another or stand up a straw man as a scenario in order to influence a decision one way or the other. Commit to each scenario.

Later, when developing strategy, executives will be able to see how the company will function in a possible future scenario.

Making Decisions

The scenario is representative of one possible future. The difficulty is making strategic decisions based on one or more scenarios.

Sometimes, the mere process of scenario planning will prepare executives for future decision making. The scenarios are learning tools and should give an executive new perspectives on how, when, and why his firm might respond. A firm that is good at scenario planning will typically be more agile than other firms and able to respond to disruptive forces sooner. It will better be able to sense change and transform itself to take advantage of change.

What does a scenario mean?

This is where most organizations falter. They might look at a scenario as an emerging trend, such as a new technology. That's when they start looking at how that technology might impact their business. We'll hear them use terms like disruption and threat.

These terms, in and of themselves, position firms for failure. They frame the future negatively and, consequently, will put firms on the defensive, sometimes even forced into a position to protect their business models by any means.

This is a mistake.

Disruption is always an opportunity.

Frank Knight, an early twentieth-century economist, published a book in 1921, titled *Risk, Uncertainty, and Profit*, in which he distinguished between two types of uncertainty. "Uncertainty Risk," as he termed it, is when we know the potential outcomes in advance, and may even know the odds of the outcomes. Manifested today, this represents the risk management function of many companies. On the other hand, "Genuine Risk," is when we don't even know the possible outcomes in advance, let alone their probabilities.

His theory stipulated that real opportunities for profit only exist in the face of genuine uncertainty. And in order to innovate successfully, we not only have to deal with uncertainty, we must seek it out.

But firms often misunderstand or fail to recognize the potential opportunity of a disruptive force. Instead, they get defensive.

For example, the music industry misread the impact of peer-to-peer music downloads. They hired legions of lawyers and took a protectionist position, which was a mistake. They thought first to protect their business models instead of trying to recognize the shift in behavior as an opportunity. CD sales declined, but at the same time, the price of concerts was increasing dramatically.

Bharat Anand is professor of strategy at Harvard Business School and author of *The Content Trap*. He explains that concerts used to serve as marketing for the sales of CDs. Music piracy and peer-to-peer downloading inverted the relationship. The music downloads became marketing for concerts and other products. The revenue streams shifted. In fact, those revenue streams actually increased as consumers purchased more complementary products, such as expensive concert tickets and iPod players and music apps like Spotify. The shift created new market opportunities, but the music industry couldn't see the big picture. It failed to scenario plan for a change in consumer behavior.

Apple saw the opportunity and created an ecosystem to commercialize the downloading of music.

Musicians also saw their fortunes improve. They made about \$1 for each CD they sold, but about \$50 for each concert ticket sold. As ticket prices increased, so did their fortunes. In many ways, piracy downloading led to the democratization of music and empowered musicians to reach consumers more directly and to get a bigger piece of the economic pie.

The music industry could have adapted and led change, but its attachment to the cash cow of CD sales prevented it from seeing that the business model was dying. The industry failed to recognize (and likely failed even to consider) opportunity in the disruptive force of a change in consumer behavior.

The Emergence of Networks

We can read scenarios by looking for the emergence or reorganization of networks (domains). This is the most important aspect in understanding the future. Look for networks and see how they might be changing.

As Anand tells us, networks are stronger than products. The network of peer-to-peer downloading brought on a behavioral change that was stronger than the product of music CDs. It was much stronger. The mass network wanted to consume music in a new way (downloads), and the industry's attempt to control this change was futile.

Networks come in a variety of forms. Anand points to three types of networks: People-to-people connections. Product-to-product connections (e.g., complementary and substitute). Functional connections. There are others. The economy is an ever changing network of connections.

New connections are constantly being formed, and as they form, ultimately change relationships across a web of broader connections.

W. Brian Arthur is an Irish-born economist and one of the pioneers of the science of complexity, with a focus on complexity of the economy. His work at the Santa Fe Institute led to a broader understanding of both economics and technological progress. His ideas are also useful in how we should think about scenario planning. In his 2009 book *The Nature of Technology: What It Is and How It Evolves*, Arthur lays out a framework for how technologies (and consequently, economies and markets and even mass-market behaviors) evolve.

In the book, he writes:

A novel technology emerges always from a culmination of previous components and functionalities already in place. We can step back from this observation and view origination with a wider-angle lens by seeing a novel technology as the culmination of a progression of previous devices, inventions and understandings that led up to the technology in question.

Technologies interact with other technologies and ecosystems in a web of relationships. As new problems arise, these technologies form new relationships to address those problems. Out of these new relationships, new (or refined) technologies are born. We're of the belief that technology means science, tools, methods, processes, and grammar (e.g., metaphor, narrative), among other things.



Scenario Planning Methods

The number and types of scenario planning tools used around the globe continues to evolve with technology and big data playing a crucial role how we plan for the future. As part of their 2003 publication *Scenario Planning: The link between future and Strategy*, authors Mats Lindgren and Hans Bandhold compiled an extensive list of these current practices. Below is a graphical representation of this list that seeks to encapsulate the different techniques currently in use by large firms.

MEDIA BASED

- Description: The continuous monitoring or occasional overview of print, online and television media to assist in the planning process. Includes trend-tracking, keyword analysis and content analysis to develop themes and story arcs.
- Pros: Keep up to date with trends and changes in the markets
- Cons: Doesn't help depict the unforeseen scenarios; relies upon publically available information
- Examples: Employing 'clipping' services or SaaS companies to track various markets or trends.

INTERVIEW BASED

- Description: The sampling of various panels and groups to crowd source ideas about issues that may be relevant in the near and distant future.
- Pros: Allows for information mining from various sources, including subject matter experts. Quantifies responses, helping to rank scenarios based on relevance, likelihood, and other characteristics.
- Cons: Sample biases and groupthink can take over if not executed properly. Losing granular insights by consolidating response spectrum to find mean assessments.
- Examples: Delphi surveys and focus groups

TIMELINE BASED

- Description: Looking at the past to forecast future scenarios in accordance with historic precedents or archetypal development patterns.
- Pros: Provides framework for designing forecasts and anchors thinking in predictable and proven pattern development.
- Cons: Reliant upon history repeating itself and predicting how business shifts will manifest in the future.
- Examples: Time-series analysis, historical analogies

INTUITIVE, GENERATIVE

- Description: Methods designed to help articulate scenarios envisioned by the company for the market or firm itself.
- Pros: See beyond current circumstances and help create future images. This enables development of storyboards for actions needed to achieve future goals.
- Cons: Bias tendencies toward creating an optimistic future leads to overlooking detrimental disruption between current and future scenarios.
- Examples: Intuitive timelines, brainstorming

ACTOR ORIENTED

- Description: Way of mapping the competitive environment and game planning for possible motives and developments.
- Pros: Helps us see different paths and is less predetermined than only looking at trends in the environment.
- Cons: Reliance upon internal knowledge of competitors within the market environment.
- Examples: Value-chain analysis, competitor analysis

CONSEQUENCE FOCUSED

- Description: Combination of trend watching and analysis to explore different probabilities and consequences of new technologies and other developments in the market.
- Pros: Merges both systematic and creative methods to be used in idea generation and future analysis.
- Cons: Difficult to assign values and measurements to various environmental factors.
- Examples: Single impact analysis (SIM), consequence tree

SYSTEMS METHODS

- Description: Mapping of business environment to envision how different trends or actions affect each other and analyze the interrelationships between variables within a system.
- Pros: Helpful in identifying key variables and trends for monitoring disruption within the marketplace.
- Cons: Time consuming and difficult to maintain over long periods.
- Examples: Cross-impact analysis (CIM), Uncertainty analysis

Arthur explains:

In fact, supporting any novel device or method is a pyramid of causality that leads to it: of other technologies that used the principle in question; of antecedent technologies that contributed to the solution; of supporting principles and components that made the new technology possible; of phenomena once novel that made these in turn possible; of instruments and techniques and manufacturing processes used in the new technology; of previous craft and understanding; of the grammars of the phenomena used and of the principles employed; of the interactions among people at all these levels described.

Arthur talks about the pyramid of causality. I see it as a web of relationships that readjust when there's a structural shift. Technology responding to a problem may be a catalyst, but many other factors also could instigate change.

Arthur adds, "When new bodies of technology spread through an economy, old structures fall apart and new ones take their place." Arthur calls this process "Re-domaining." It's the emergence of a new network.

Arthur's insight is far reaching, for our understanding of both technology and economies, of markets and mass-market consumer behavior.

Innovation is simply the forming and solidifying of new connections, whereby a new web of relationships emerges into a domain. It is nothing more.

Even though Anand and Arthur have written about different fields, they are saying the same thing. That networks, the forming of them and the dissolving of them and the re-forming of new networks, the reorganization of relationships between things, technologies, people—these are the building blocks of progress. If you want to understand progress, you had better try to understand networks.

For the strategist, the earlier that she can sense those connections forming and use scenario planning to explore possible futures where new networks have emerged, the better chance her firm will have in taking advantage of those new networks.

For the firm or market that tries to take a protectionist position, they'll quickly find that they are virtually powerless against the strengthening bonds in an emerging network and new domain. These new networks and domains ultimately will rewrite the rules of business models.

In essence, the forming and reforming of network bonds is how progress happens.

Disruption is always and always only an opportunity. Firms can choose to engage in it, or they can choose to be left behind.





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Bruce Cuthbertson is a special advisor to BRG. He is an innovation strategist and writes on topics of innovation, design thinking, corporate culture, innovation clusters, creativity, dynamic capabilities and organizational agility. Bruce has advised governments and Fortune 500 firms on innovation strategies and developing innovation clusters. He previously co-founded a small think tank on economics and innovation in partnership with Stanford and also spent time at a Buddhist monastery in Northeastern Thailand. His company, Blackwillow Group (BlackWillowGroup.com), creates “pop-up” incubators for large firms.

***With contributions from Eddie Newland,
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About BRG

Berkeley Research Group's Strategy advisors provide evidence-based, theory-informed, and insight-driven strategic advice in many of today's most challenging sectors, and help leaders define, build, and execute leading strategies in a variety of business contexts. BRG is headquartered in Emeryville, California, with offices across the United States and in Asia, Australia, Canada, Latin America, the Middle East, and the United Kingdom.