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A City Achieving
Community Excellence

Greeley promotes a healthy, diverse economy and high quality of life responsive to all its residents and neighborhoods, thoughtfully managing its human and natural resources in a manner that creates and sustains a safe, unique, vibrant and rewarding community in which to live, work, and play.

City Council Worksession Agenda

January 28, 2020 at 5:00 PM

1001 11th Avenue, City Center South, Greeley, CO 80631

1. Strategic Foresight Worksession (5:00 p.m. – 9:00 p.m.)

Paul Fetherston, Assistant City Manager

Worksession Agenda Summary

January 28, 2020 (5:00 p.m. – 9:00 p.m.)

Agenda Item Number 1

Paul Fetherston, Assistant City Manager, 350-9730

Title:

Strategic Foresight Worksession

Background:

As the City Council (Council) prepares to go into its annual Council Retreat, futurist Rebecca Ryan will facilitate a strategic foresight session with Council during the January 28 work session that will use trends and scenarios to help guide how Greeley defines its future. The session will include a number of items including but not limited to the following:

- an introduction to strategic foresight,
- a tabletop 'The Big Sort' exercise that enables Council members to learn STEEP trends (Society Technology, Economy Environment, Politics) that will impact Greeley over the next ten years, and
- Council agreement on the high impact trends Greeley is facing.

The information and exercise will be helpful in informing the Council's strategic and long-range focus during its upcoming retreat.

Dinner will be available for City Council members in the executive session starting at approximately 4:45pm. The session, which will start at 5pm and will end by 9pm, will involve Council members sitting in two separate tables in front of the dais during the card sort exercise and discussion.

Brief bio on Rebecca Ryan:

Rebecca Ryan, the founder and owner of NEXT Generation Consulting, Inc., is the Resident Futurist at the Alliance for Innovation, the Resident Futurist at the Local Government Institute of Wisconsin, the chairperson of the board and a faculty member for the Institute for Zen Leadership and the founder of Futurist Camp. She has authored *The Next Big Things: The Next 20 Years in Local Government* (2015); *ReGENERATION: A Manifesto for America's Future Leaders* (2013); and *Live First, Work Second: Getting Inside the Head of the Next Generation* (2007). Rebecca has degrees in Economics and International Relations from Drake University and a Professional Certificate in Strategic Foresight from the University of Houston.

Attachments:

Introduction to Foresight (optional pre-reading)

Introduction to Strategic Foresight

Future Motions

January 2018

Freija van Duijne

Peter Bishop



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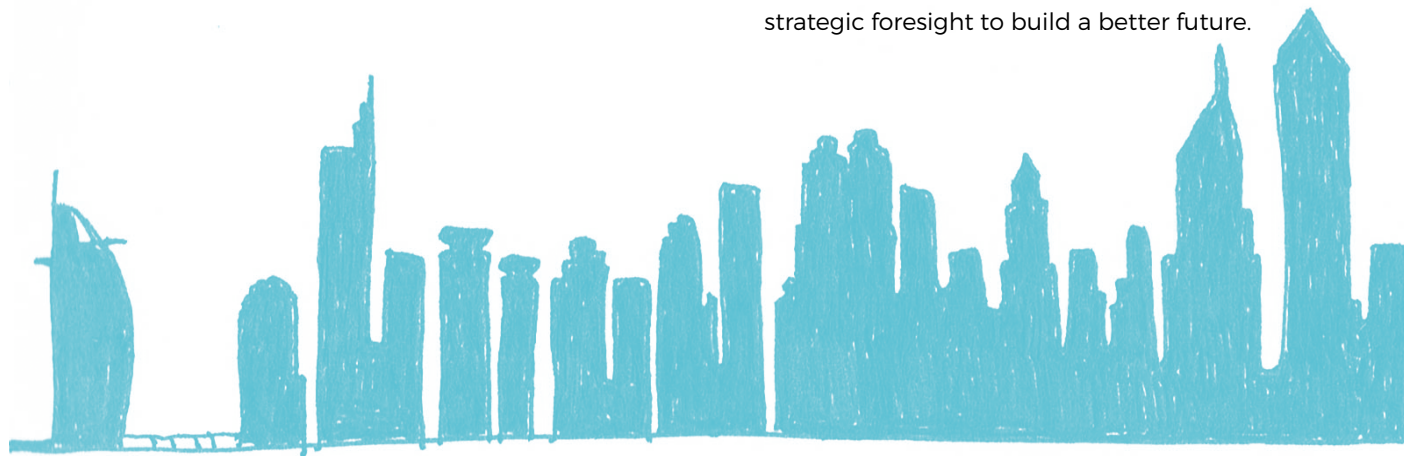


Introduction

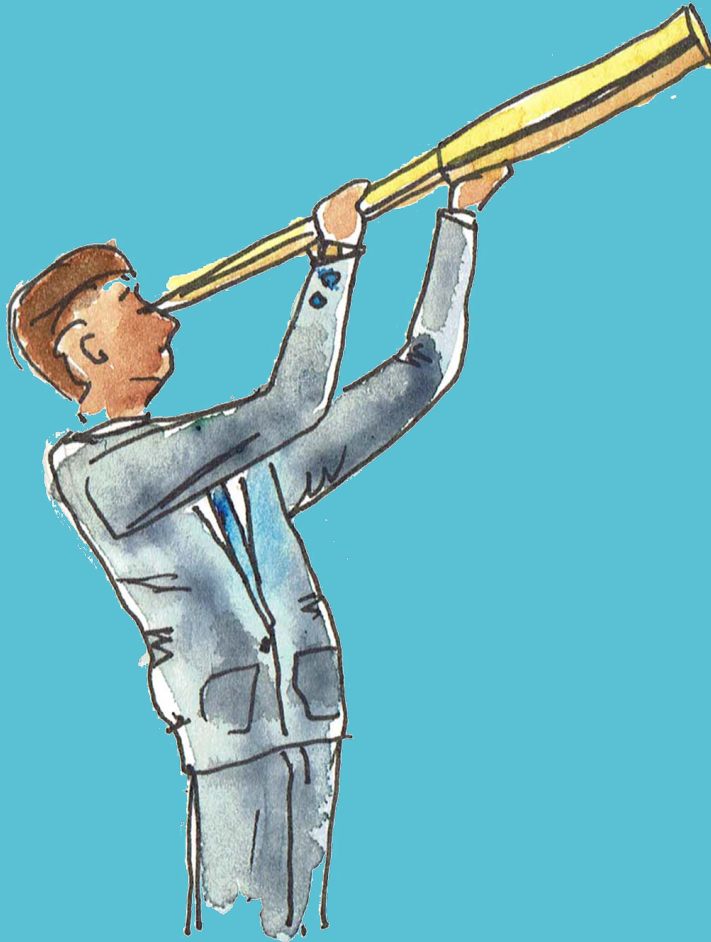
This online book intends to provide a short introduction to strategic foresight. It is aimed at those who are interested in the potential of foresight for their work in (government and private) organizations, in terms of improving strategic capacities and in developing long term strategies.

The book explains the rationale for using foresight techniques as part of strategy and planning processes and describes some methods for doing so. It presents the main principles of strategic foresight from a practitioner's point of view, including an approach by which you can learn about the future and study trends, drivers and signals of change. Special emphasis is given to scenarios, which are one of the main tools that are used in strategic foresight. The book focuses on the main steps of Framework Foresight, as a practical approach for working with foresight. Finally, we briefly discuss some of the additional steps of a foresight project.

We hope that readers of this book will be helped by it, in terms of improved understanding of the meaning and practice of strategic foresight. And that they will be encouraged to use the tools of strategic foresight to build a better future.



The VUCA world



Strategic foresight differs from traditional planning approaches, which generally build on models. Strategic foresight is used in particular in situations that are characterized as a VUCA context. VUCA stands for Volatile, Uncertain, Complex and Ambiguous. Together these characteristics make the world largely unpredictable, and the future fairly unknown. In a VUCA world, traditional planning approaches do no longer provide reliable outcomes. Strategic foresight methods are designed to deal with VUCA environments.

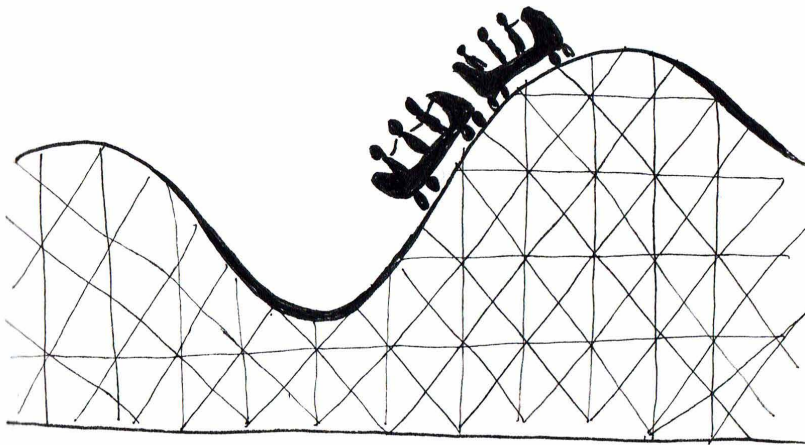
Volatility

Volatility means that change goes up and down, just like a roller-coaster. There are three dimensions of volatility. First of all, the speed of change can vary. With varying and unpredictable speeds of change - sometimes fast sometimes slow - people will experience more volatility. Second, the change can spread out to different dimensions in an unpredictable manner. Change can be singular, like in the prices of commodities, or the change can spread out to consumer spending and other dimensions. Lastly, the scale of volatility can vary: Change can either stay within certain bandwidths that people have experienced earlier. Or the change can affect greater numbers and scale up to previously unknown proportions.

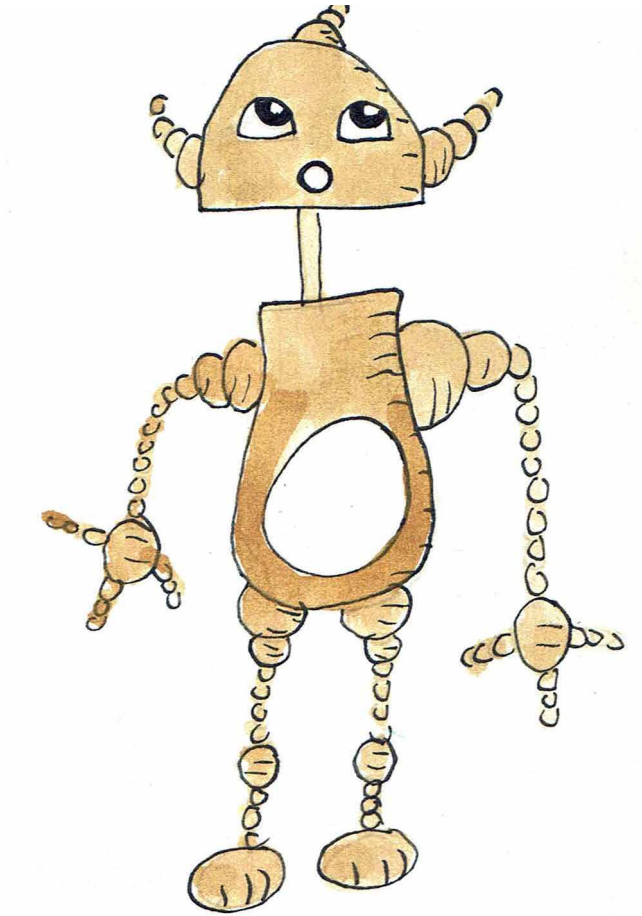


Uncertainty

In a VUCA world there is an increase in the uncertainty about the future outcome. There are many unknowns about what will happen next. For instance, there can be uncertainty about the impact of a new technology. Even with the knowledge of all the experts in the world, it is difficult to predict the outcome in uncertain instances. The urge is often to gather more information, but paradoxically there is never enough information to understand turbulent situations. We call this system variability and it leads to an inherent incomplete understanding of a certain situation. Therefore, it can be difficult to compare with previous situations and predict the impact and implications. In short, there is no certainty of a particular outcome.



Complexity

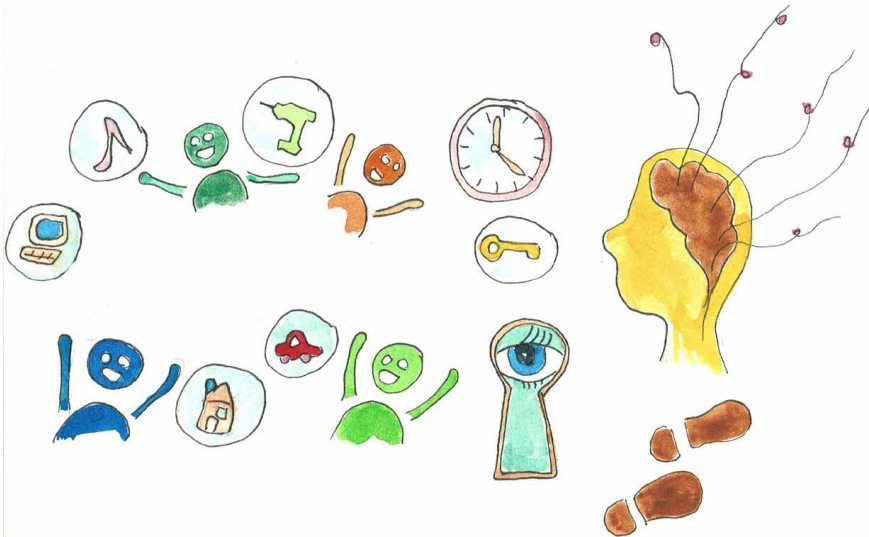


Complexity refers to a situation wherein multiple drivers of change are affecting each other. The cause and effect of change are unclear. It is unclear how the changes really interact. The relation between different drivers affecting change is too complex to understand the precise causal chain of events. Complex problems are different from complicated problems. The latter have more variables, but the problem can be solved by statistics. Complex problems tend to be wicked problems, which are ill formulated and have incomplete and contradictory requirements. An example of a complex problem might be the war on terrorism. While it is important to attack people who attack us, our attacks breed resentment from the population which makes it easier to recruit more terrorists. So is the rate of killing going to stop terrorism, or does the rate of resistance increase it?

Ambiguity

Ambiguity refers to the lack of clear meaning, or the occurrence of mixed meanings. It is accompanied by a great potential for misreads of the situation. Again, there is no precedent that explains the situation or what will come next. In sum, ambiguity is about facing the unknown.

The forces of ambiguity are most clearly at play when it comes to society's response to the introduction of technology. The meaning of technology is ambiguous at first and is defined by its use by people. Almost everyone fails to grasp the societal uptake and the transformational impact of technology. This is illustrated in many cases, whether it is the use of the internet, online shopping or social media use. The proliferation of these uses of technology was not well predicted.



Turbulence



The VUCA world can feel extremely turbulent. This is like the turbulence in an airplane. You know that there can be air pockets that may cause sudden drops of the airplane. However, you don't know how severe they are and when they are happening. It is also possible that nothing at all will happen. Even the feeling of potential turbulence can make people feel uncomfortable. This VUCA world can have that effect. The complexity of change and the uncertainty about what will change, together with increased volatility and lots of ambiguity, could be responsible for actual turbulence. And it could give the impression of living in turbulent times. Both are meaningful for understanding and anticipating change.

In a very turbulent environment, predictions should be distrusted. Predictions in turbulent times and the so called "official future" are likely to be wrong.

Game changers

Game changers completely change the way things work and things are done. For instance, the spread of the internet was a complete game changer in the way people have access to information and communication with other people. Mobile devices have completely changed the way in which people have access to services provided by platforms (such as Uber and Airbnb). Blockchain technology and its distributed ledger could be the next game changer that will affect secure storage of information or property, and business transactions.





Wildcards

Wildcards are low probability events with major outcomes. They are sudden and unique events. There are no comparable historic records to see them coming. These high impact events can be turning points that change the directions of a trend or a system. Sometimes they are announced by weak signals of change. Sometimes people have not identified these signals or there are no clear signals to point at the possibility of such an event.

Most important is the low probability. For example, a nuclear war or sudden regime changes in otherwise stable countries. Positive wildcards include the discovery of penicillium and the transformational impact of mobile phones. As long as the probability is low, the event with an undeniable major outcome seems pretty unlikely. Therefore, wildcards are difficult to take into account in decision making and future planning.

Unpredictable future?



*"If everything were predictable, there is no room for strategizing.
If nothing were predictable, strategizing would make no sense"*
– Kees van der Heijden

Given that we live in a VUCA world, which makes it difficult and frankly impossible to predict what the future will look like, what can we say about the future? Is there anything to say about the future?

The answer is yes. If we look at tomorrow, or next month, things will be most likely pretty much the same. If we look at the 22nd century, it will be almost impossible to say anything about life in that era. The further away in the future, the more uncertain and the less predictable it will be. In most cases strategic foresight focuses on the timeframe roughly between ten and forty years from now. That is where things are definitely not very predictable, but also not completely unknown to us now. There are many things that are likely to stay the same in forty years from now. It can be a good exercise to look back forty years ago and see what is still the same and what is different.

What is strategic foresight?



Strategic foresight is not about better predictions of the future. As we noted, in a VUCA world accurate prediction is an illusion. Instead, strategic foresight is about better preparedness for different futures that are all possible and plausible.

Strategic foresight calls for a systematic analysis of identifying driving forces of change before developing policies and plans. These efforts are aimed at finding solutions and policy responses that are likely to bring positive outcomes. Hence, these activities enable better preparedness, because they generate explicit, contestable and flexible sense of the future. By doing so, old and obsolete imagery of the future (that organizations sometimes hold on to) can be refreshed. New imagery of the future makes it possible to reveal and test assumptions of our understanding of the world.

Moreover, insight about the meaning of possible futures also enables the organization to capitalize on opportunities, particularly ones that are in the long-term future that few people are aware of. New business strategies can emerge from understanding these opportunities.

Systems thinking

Strategic foresight looks at change from a systems perspective. The concept of a system implies that parts (or subsystems) are part of a larger system. Every system and its parts are (indirectly) connected to every other system. Systems and their parts interact in ways that can generate surprising and counter-intuitive results. Because of the tendency to produce unexpected results, predicting the outcome of systems' interaction is difficult, or even impossible.

Systems thinking aims at getting a better understanding of the goals of a system involving humans. It looks at the drivers that are affecting the behaviors in a system and the interaction and feedback loops between outcomes and behaviors. We live in a world of systems. Every situation can be described and analyzed in system terms. However, complexity of everyday system interactions makes every system description ultimately a simplification, aimed at getting a better understanding of the system.

Strategic foresight questions, e.g. systems questions, are aimed at getting deeper insight and structural understanding of change. One of the result of a foresight project is often that people have learned to articulate and think about such questions. This will also help to anticipate change and to develop strategic agendas.





Examples of strategic foresight questions:

- What is driving our system?
- What are the underlying structural relationships?
- What is already in the pipeline?
- What would be the role of our organization in the future?

Typically, these questions are rarely being addressed in regular work activities and projects within the short term planning cycle. Therefore, most people have limited recent experience in addressing such questions. Like almost everything in life, thinking about strategic foresight questions requires training. It does not require a magical gift and it is not impossible to learn. Strategic foresight projects help to shape this knowledge and this can be an asset to the organization.



"The only certainty for the future is change. Hence, it is very risky to assume that everything will stay the same as today."

– Kees van der Heijden

"The problem with prediction is that people set to a routine, implying that a historical situation will continue forever"

– Kees van der Heijden

Limitations to our current perspective on the future

In our personal life, most of us are looking for stability and predictability in one way or the other. A permanent job, for instance, is a way to predict that you will work for the same employer in the years to come. Organizations and other larger groups are in the same manner focused on stability and predictability. However, in the world around us things tend to be less stable. Although not everything changes, there is undeniably change and it is dangerous to close your eyes for it. Ultimately, change will reveal itself and then it may catch you by surprise.

If an organization holds on to a certain imagery of the future, and does not refresh their insight, there is the risk that the organization maintains its strategy despite the change in the world.

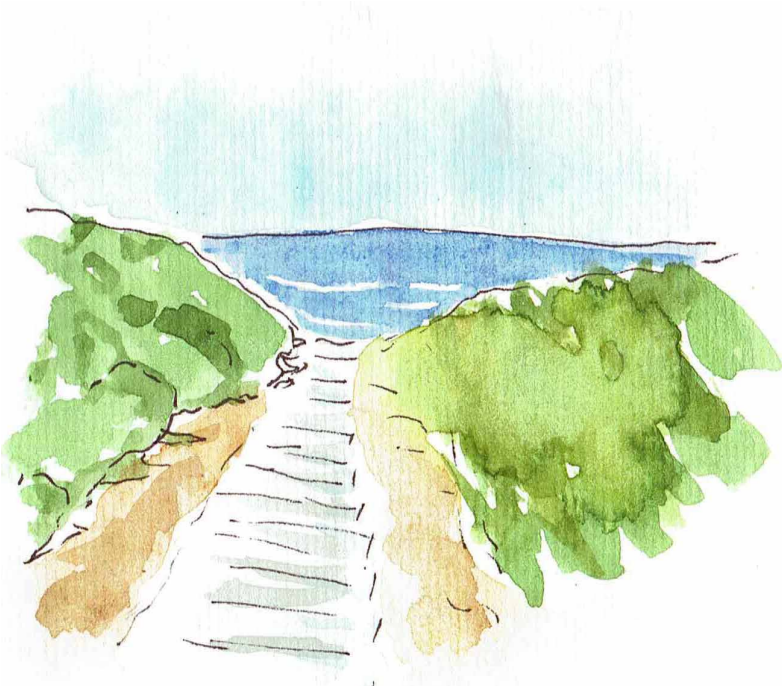
A classic example of a company that holds on to old beliefs about the world is Kodak. This company was the market leader of analogue photography, almost since the invention of photography. The inventor of digital photography was a Kodak employee. Still Kodak considered itself a photography printing company. It held on to the perspective that photos had to be printed. Despite many years of market research, they missed out on the transformation of photography as something to share on social media.

Aims of strategic foresight

In sum, foresight helps to get a better and systemic understanding of change in the world around you and your organization in relation to the course of plans of your organization. This can be a general feel of change or an understanding of specific (causal) relationships. This can be focused on a particular topic or a broader understanding of a general domain of change.

Strategic foresight enables the organization to learn about the volatility, uncertainty, complexity and ambiguity of trends and events in the world. The methods and practice of strategic foresight intend to reveal assumptions. It provides tools to discuss evidence of change and hold it against multiple interpretations.

Foresight can lead to improved decisions about short term action plans, because of a better understanding of the short term future. It also supports setting long term goals, as it helps to make carefully formulated assumptions what may happen in the long term future.



Strategic foresight: learning about the future



Learning about the future is learning about change.

Many other disciplines also study change, from chemical reactions to the evolution of species, or the development of a child. Two disciplines in particular study change in a way that is most related to studies of the future.

History studies change in past times. Journalism reports change in the present. By the same token, futurists study the future. The difference is that historians and journalists have direct evidence of the change that they are studying. Historians can use written records and physical evidence of all kinds to make inferences about their object of study. Journalists can use all kinds of data sources, including observations and interviews. Futurists also use data from trends to opinions, but undeniably, there are no direct data from the future. Although people make statements about the future all the time, no one can predict the future.



The impossibility of prediction doesn't mean that there is no way of studying the future. There is no singular path from the present to the future. Futurists assume that there are multiple plausible futures. Learning about those futures will make you better prepared for any of these futures if they materialize. Futures studies is in a way generating a "memory of the future" (Peter Schwartz). Once you start to recognize things, you know better how to respond.



The Expected future

There is clearly momentum in the world. It is heading somewhere. If it continues as it has, it will be somewhere, to an expected future. We call that the Expected Future, because we expect it to happen, if everything we know and believe turns out to be true.

This is the future that we know from the science class. If everything else stays the same, the laws of physics will tell you exactly about how fast an object moves and where it will land, even before you have actually dropped that ball from the tower. You can predict this particular future.

When you are driving on a road with a sign of the next city coming up, you know that staying on that road will bring you to that city. That is a future that you can predict, even if you don't know this road before.

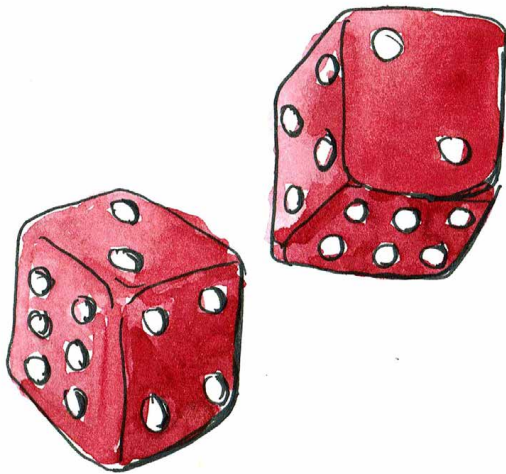
In other fields, like in technology development, the future is not fully predictable. But from the current state of investments, Intellectual Property Rights, consumer demand, you can make statements, for instance, about the market uptake of a particular technology. These can be considered predetermined elements of the future. Of course, things can turn out differently, but this would be the Expected future.

Alternative futures

Will we get to the Expected Future? Sometimes to some extent yes, but also not exactly as described. And in other cases we will get to wildly different futures. Those are the Alternative Futures, plausible futures that could reasonably occur instead of the Expected Future. Alternative Futures are not the product of pure imagination. While we can't prove that any Alternative Future is plausible (that's the point!), we should be able to offer some reasonable foundation for why it could occur.

The course of history has often moved away from the Expected future. Many historical events were unexpected at that time. There are many influences that can at some point determine the future, big or small. Things that are coincidentally happening at the same time create another situation. The leadership of a country, a company or civil action makes a bold move forward. New technology creates impact in a way that was never seen before. Like the rolling of a dice, unexpected breakthroughs can never be ruled out.

Human affairs are hardly deterministic. In good history classes, students realize that the past has depended on the convergence of forces and trends but with a heavy dose of contingency. From that they conclude that future is more like a game of chance than a river or a road. Anything could happen!



The chosen future

Motivational speakers tell us all the time: we can be anyone we want to be. We have a role in creating the future. We are not victims, completely powerless in the face of the mighty forces of the world. No, we can influence the future, albeit within limitations set by the world. Nevertheless, we identify our preferred future toward which we apply our time, talent and resources to achieve a better future than we would get absent our influence.

Indeed, people have the most influence on the future, when they plan for certain results to be established within a certain time frame. City planners, for instance, literally see their plans to be realized. However, they cannot predict how their buildings will be used. Society may have changed over time and the need for stores, offices and domestic apartments can be different from what they had anticipated. Strategic foresight helps to have a better understanding of change (but not predicting it!). For city planners and others these insights can be useful to adjust their plans and make buildings that are useful and pleasant in futures yet to come.



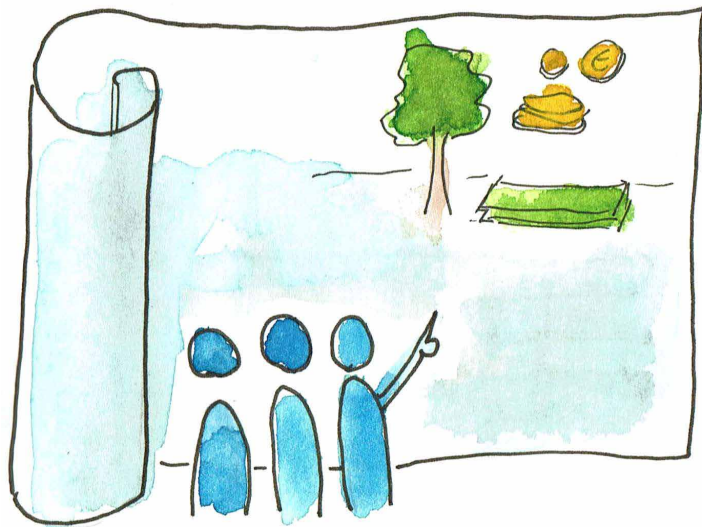
The actual future: three futures

In reality, all three types of futures will shape the future to some extent. In strategic foresight, we have to pay attention to all three futures. Each of them represents a particular mechanism of change.

We have to study the trends in the world of today and analyze what we expect to happen next. Change can be seen as momentum. Change, long term trends, tends to find a new equilibrium. We can call this the Baseline.

But we also have to think of Alternative futures. Discontinuities, trend breaches can start a new era. So we need to imagine a different world than what the drivers of change are currently telling us most loudly.

Lastly, we have to consider human choice and take into account the Chosen future. Government regulations, agreements and agendas, the work of businesses and the actions by motivated individuals and groups will have an impact on the future. And even then, wildcards can suddenly take the course of the future in a different direction.

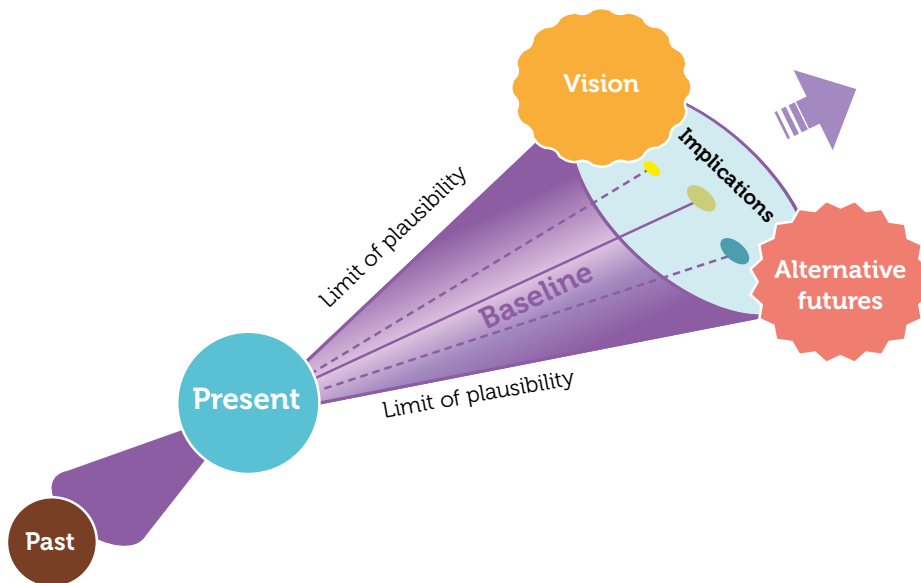


The cone of plausibility

We can see the future as an ever expanding cone of plausible futures. The baseline future is the expected future. In the very short term future, things will pretty much look like the expected future. Change in the short term future is likely to be small. The further away in the future, there is more uncertainty about change. Alternative futures become more plausible, but not in terms of absolute probabilities. Alternative futures always come in sets of multiple futures. They cover a broad range of futures. They are different from the baseline future. Studying these multiple, alternative futures, enables an organization to prepare for different things that may happen in the future.

A vision is the preferred future. That is one specific alternative future. A vision can be seen as the planned future. Choices and plans intend to lead to that future. However, also with a plan an organization needs to be aware of change in the world that could affect the organization. In order to make the vision come true, plans often need to be adjusted as circumstances change, e.g. move away from baseline expectations.

The past could also be seen as a cone. There are many explanations, or stories if you will, about how the present came to be. Also in the past, there is complexity and it is difficult to disentangle drivers of change.



Studying the future



Despite the fact that there are no data about the future, futurists make use of various sources of data to study change.

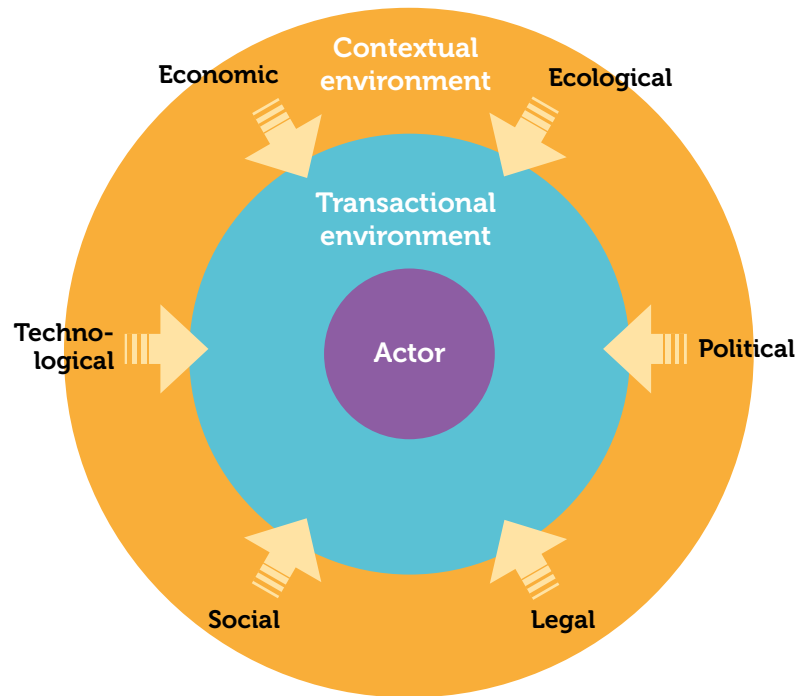
- Quantitative trends, such as on populations, fresh water supplies, consumption patterns, etc.;
- Qualitative trends, such as changes in lifestyle, social values and sentiments in society
- Online literature reviews (including news articles and blogs), for instance on emerging technologies;
- Interviews, both with experts and generalists;
- Collaborative learning, group sessions in which ideas and understanding about the future emerge.

Seeds of the future in the present

The very things that will shape the future are already here. Just like the crops that grow from seeds that are sown in fertile soil and provided with water. The seeds can be strong or weak signals of change. Strong signals of change are measurable trends and events that are fairly certain to happen like a scheduled election. Weak signals are minor events or new pieces of information that might affect the future, but they are too small to do so just yet. Studying these indications helps to raise awareness of the potential meaning and impact of trends and signals of change. Conversations about these potential seeds of change helps to reflect on the current assumptions about the future and the change that can be observed in the present.



Identifying driving forces

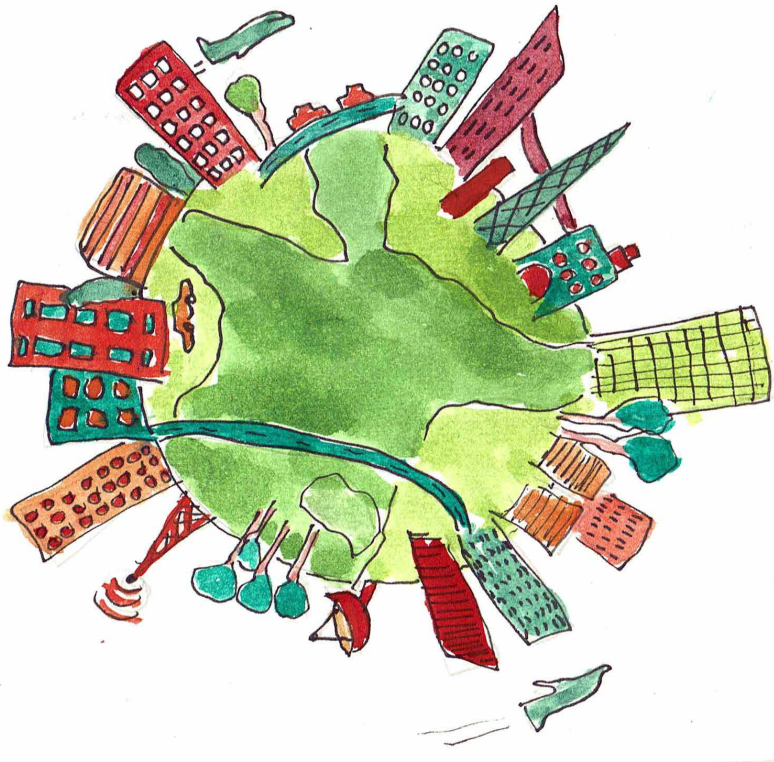


Based on: Kees van der Heijden

Strategic foresight looks broadly at the change in the world that might influence the organization. First place to look is the contextual or indirect environment. The developments that are happening everywhere interact in complex ways that cannot be precisely understood. Influential developments can be called drivers of change. They are categorized by the acronym of STEEP: social, technological, economic, environmental and political change. Sometimes these categories are expanded by demographic and legal or culture as drivers of change.

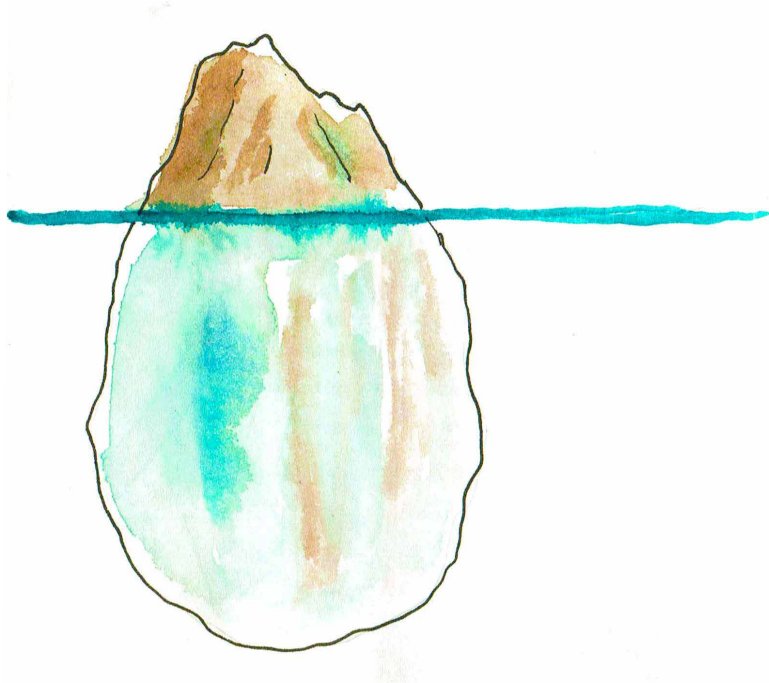
The driving forces work within two different environments around the organization:

- The closer environment is the immediate or transactional environment. It contains the part of the world where the organization conducts its business. It knows and understands this environment quite well, particularly if the organization has been around for some time. The driving forces in the transactional environment operate on relatively short time frames, and they change frequently as issues come and go.



- The broader (contextual) environment is the global environment outside the transactional. Here the forces are quite strong, but they may take some time to affect the transactional environment which then affects the organization. Nevertheless, successful organizations keep on an eye on the global environment and prepare for disruptive change as it comes upon them.

Trends and driving forces: the perceptual iceberg

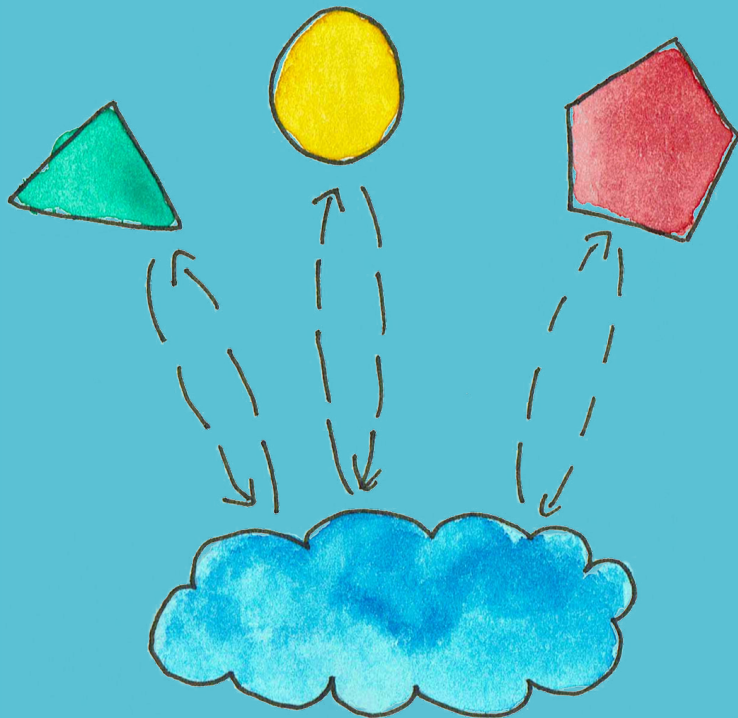


Every one of us can spot change. It is on the news, in the streets and on the markets. What we see around us is evidence of the driving forces of change. However, the things we see may only be the tip of the iceberg. There are many things happening below the surface.

Once we start analyzing the trends and things that we read and hear, some patterns may emerge. Examples of such patterns can be found for example in research reports of current affairs. However, many reports tend to remain at the level of description. Assumptions about deeper systemic change can still be speculative and therefore not suitable for research reports, but very relevant for investigating alternative futures.

Hidden in the deepest levels of the iceberg, are people's worldviews and their beliefs about the world. These can be religious and cultural, but they can be also specific to certain stakeholders in society with a specific agenda, such as incumbent industries on the one side or progressive NGOs on the other side. Worldviews are often not the things that people talk about, but you may read between the lines about unspoken assumptions and values. Worldviews are very influential in shaping the future. Insight into worldviews helps to make statements about the plausibility of certain futures.

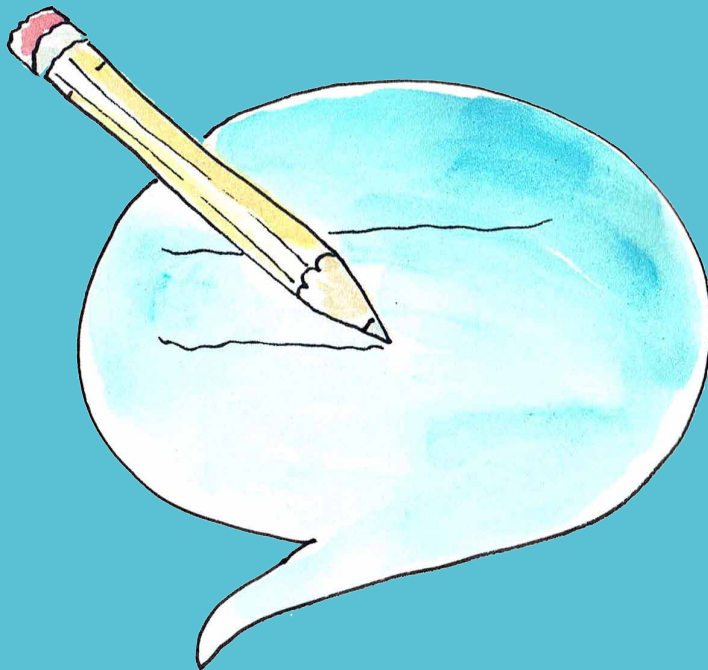
Scenarios about the future



One of the main methods in strategic foresight is scenario development, as we mentioned before.

Scenarios are multiple, alternative futures, built from intuitive logic. The Expected future can be one of the scenarios, but it is certainly not guaranteed to occur. Scenarios need to be plausible but also surprising in order to generate a meaningful conversation. They can even be extreme, depending on the perspective.

Scenarios build upon the most influential and uncertain drivers of change. A scenario storyline can be created from this starting point, using the insights of trends and the outcomes of the STEEP analysis and following a systems logic. This ensures that they are rooted in the earlier steps of the foresight approach. But scenario thinking also relies on intuition and imagination.

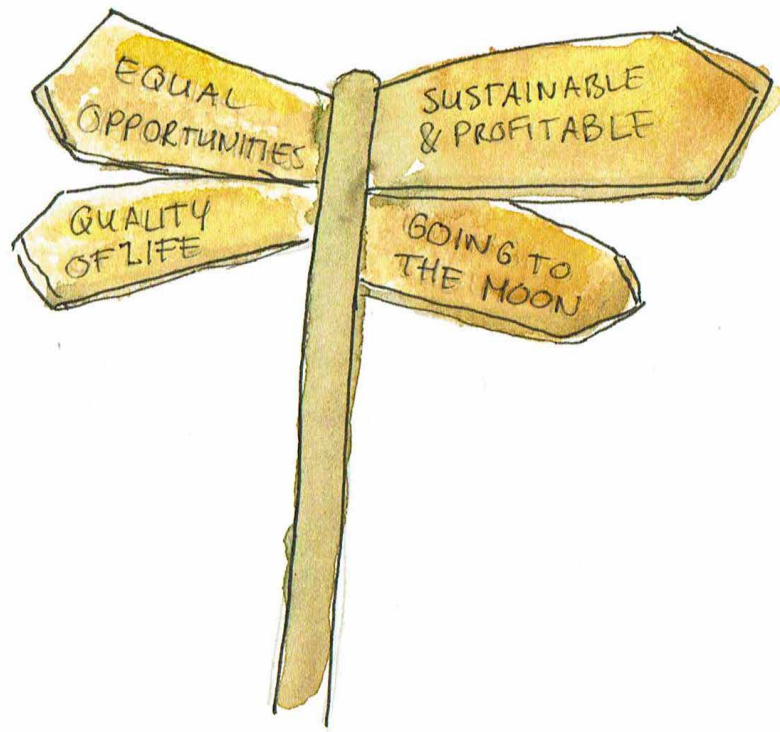


Scenarios are descriptions of contextual developments beyond the influence of the organization. They are also stories about society, technology and issues emerging in that world. They are not worst case versus best case futures (or just middle of the road futures). They are truly alternative futures, each of them equally attractive and each containing discomfoting elements.

Scenarios are narrative descriptions of the future. However, they can contain quantitative analyses and projections. Depending on the aims and the target group of the scenario project, scenarios consist of narratives and numbers.

Most likely, these stories will not come true. Some elements of the storylines may already exist or are likely to become more widespread in the future, but as a whole the story is not intended to predict the future. They are not THE future. They are tools for conversation.

Types of scenarios



Different types of scenarios are used in strategic foresight.

Contextual scenarios are most common. They describe the external environment that cannot be influenced by the organization. They help to get a better understanding and feeling about the change in the world and how to respond to this change.

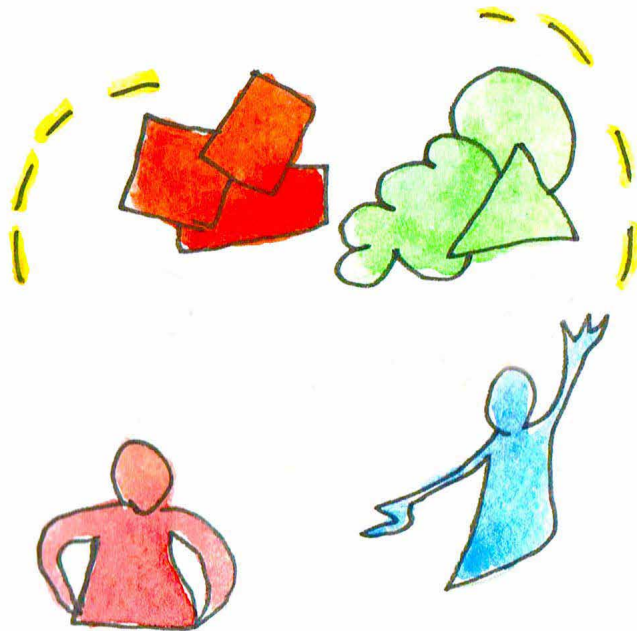
Normative scenarios describe different kinds of preferred futures, the future that we want. Especially when dealing with sustainability issues, it can be helpful to have an understanding of different systems, different ways in which society works that can all be sustainable. Just like countries have different cultures, different rules and practices to solve societal challenges.

Goal-oriented scenarios are a sub-set of normative scenarios. They describe different visions of the future of the organization. Goal-oriented scenarios can be made as a second set of scenarios, complementing the contextual scenarios. These goal-oriented scenarios help an organization in finding its role in a changed world. They support the conversation about the identity and the strengths of the organization, which could be part of a visioning trajectory.

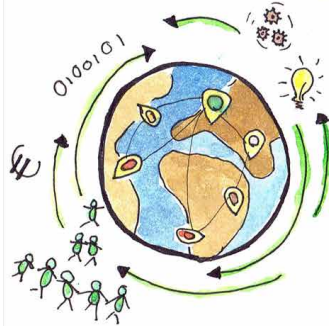
Examples of different scenarios

Scenarios emerge from a messy, creative process. The amount of trends and patterns can be overwhelming at times. It can be tempting to move quickly towards an understanding of the issues and creating structured storylines. However, cutting off the creative process undermines a deeper understanding that can emerge from a divergent process of discussing trends and patterns.

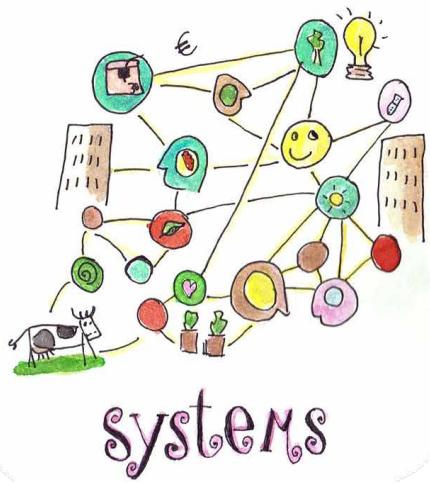
Once converging into scenario development, it is not uncommon that the same archetypes of stories and system descriptions are reused over and over again. The reason is that these are plausible storylines that show resemblance with society as we know it. Below are two recurrent systems perspectives that are often used for questions on economics, resources and geopolitics. This is a brief description, which can be modified and customized in an actual scenario project to reflect an understanding of the issues at stake.



GLOBAL EFFICIENCY



LOCAL & CONNECTED



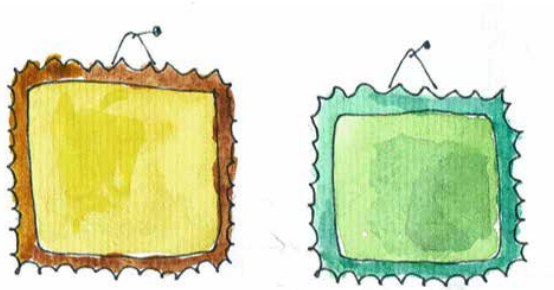
Global, large scale, highly efficient supply chains

This is a world run by the efficiency of the market. Technology is used to reduce friction and losses. It is a 'winner takes all world', and as a result there is a monopoly of global players. People are globally connected and cultures will become more similarly.

Locally sourced, small scale, redundant / resilient, connected networks

This is a world where (self-organized) local communities have played a major role in transforming supply chains. Instead of relying on top down regulation, local communities with a DIY mentality have been able to use technology to build innovative, local value chains. The manifold of connections between people and resources may create redundancy, but also it is the success factor for resilience.

Scenarios as an immersive learning tool



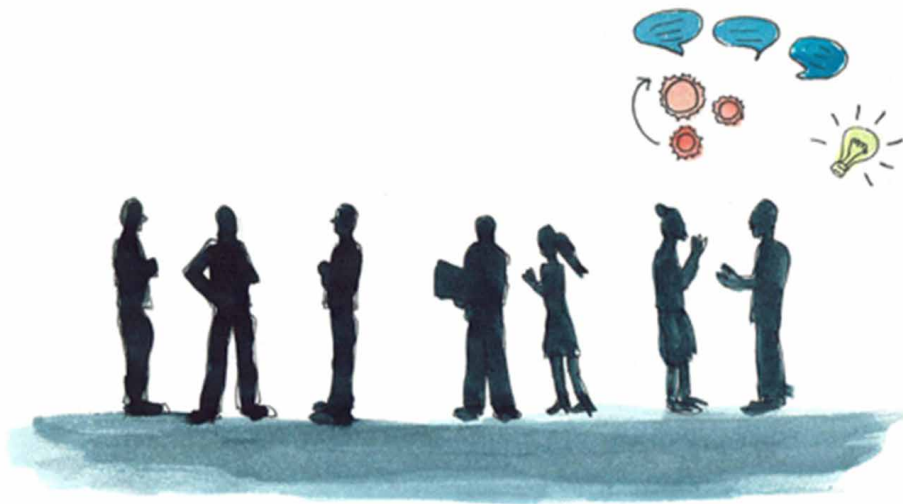
Scenarios help to reframe our current understanding of the future. Similar to what happens if multiple artists are drawing the same scene. Each of them will see something different. Each of these perspectives can be relevant to understanding the situation by focusing on particular objects or figures and their relationship in a particular context. Looking at these different pictures, or scenarios, will help to see things new from a different perspective. As a result of this strategic reframing, refreshing insights about the future emerge, which can be useful in strategic conversations. This process is even magnified and becomes organizational learning, if the learning takes place in a group process that involves people from all over the organization.



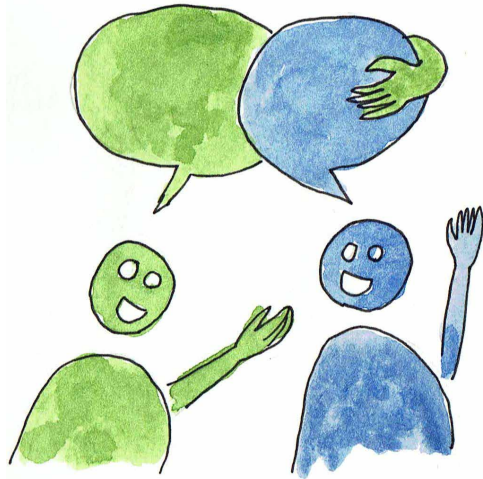
Scenario dialogue

The insights from scenarios cannot be learned from a report or a presentation. This can only happen if a group conversation about the scenarios takes place. The people involved need to think about the meaning of the scenarios in order to understand their implications. As such, the scenarios are a tool, an artefact to support a meaningful strategic conversation and an immersive learning experience.

A scenario dialogue helps to create words to describe the future. This makes it possible to talk about this, during the dialogue and later on in meetings or casual conversations, for instance, when something happens in the news that resembles one of the scenarios. Scenario dialogue helps to create vivid images of the future and how to respond to change. This is like a memory of the future and serves the same purpose as memories. It can tell you how to respond if a certain situation were to occur.

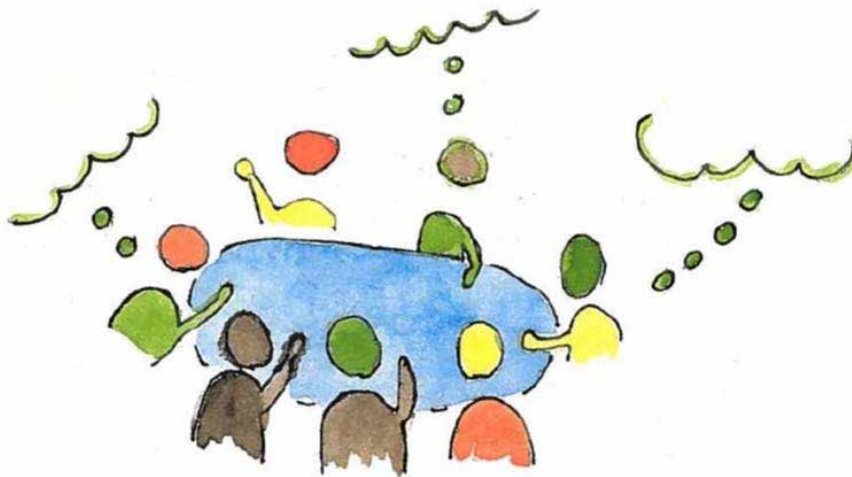


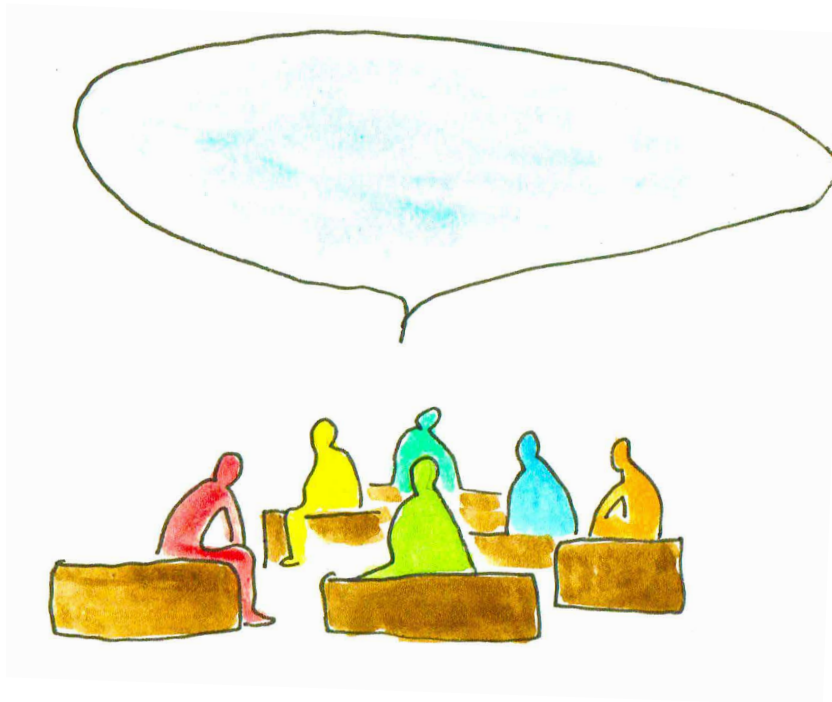
Immersing in a fictitious future



A scenario dialogue calls for empathy. You are asked to talk about scenarios which are extreme and a bit uncomfortable. You would need to go along with scenarios don't correspond with your own ideas of the future. This is important, because seeing new solutions can only happen when addressing these futures seriously.

People in the group may hold different opinions, especially if they are stakeholders from different (and even opposing) organizations. Respecting different perspectives and worldviews of group members is essential for having a meaningful conversation. Everyone is equal in the room, whether they are director or junior staff. People can talk freely without the need to defend their position or their organization. Because scenarios are fictitious, there is room for disagreement without the consequences that we would see in the real world.





Scenarios support a conversation about futures that are a bit more extreme than the organization normally tends to talk about. Although we may not like to acknowledge this: things that “can never happen” may happen after all. Considering these extremes help to get a better understanding of what might happen. Then it becomes possible to discuss new strategic options for those situations.

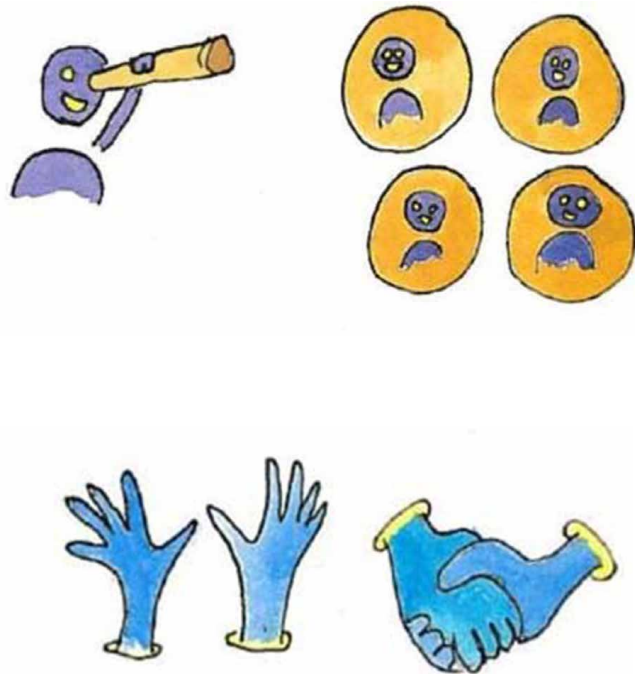
Scenarios are a safe space to talk about the future. Every organization holds formal and informal taboos, things that cannot be discussed. However, in a fictitious world there is room to introduce all kinds of ideas, even the ones that would make people uncomfortable in normal situations.

Differences between scenarios and regular processes in organizations



Scenarios and systems thinking can be new to organizations, or not widely practiced due to the type of questions being addressed. In addition, working with strategic dialogues as a tool for investigation is not always a common practice in organizations. Generally, there is a cultural preference for research reports. Because of unfamiliarity with foresight tools, the practice may be more difficult at first, which may cause friction. But as in everything in life, it all begins with practice.

One of the things that people may run into is that we intuitively think of only one future. It is not uncommon that people need some time to get used to the idea of talking about multiple futures.



Organizations that have a hierarchical structure of different independent divisions with their own unique expertise may find it difficult to use systems thinking. The siloed command structure is less likely to address systems questions than organizations with a horizontal or 'modular' structure.

Lastly, scenarios challenge people to think beyond the mandate of the organization. For most (large) organizations, this is unusual. The focus of the organization is being successful in the current mandate. Then, it may feel as counterproductive to think of opportunities and threads in the longer term. Sometimes it even feels threatening to consider a lesser position for your organization in the future. It may compromise the vision of the leader and therefore long term thinking can be a taboo in itself.

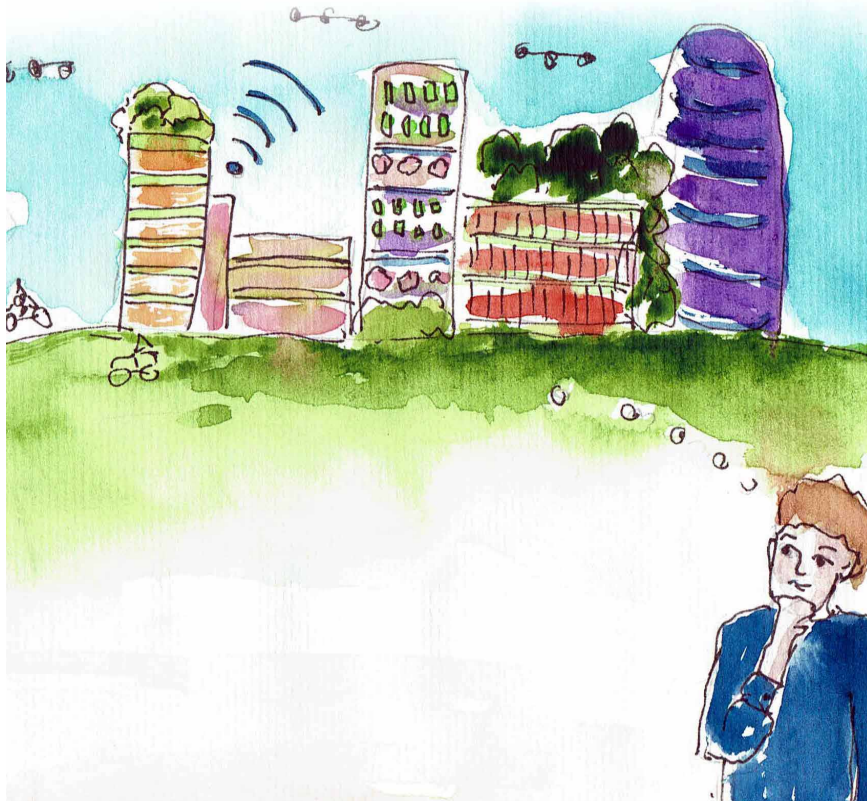
The effects of scenarios

Challenging the official future

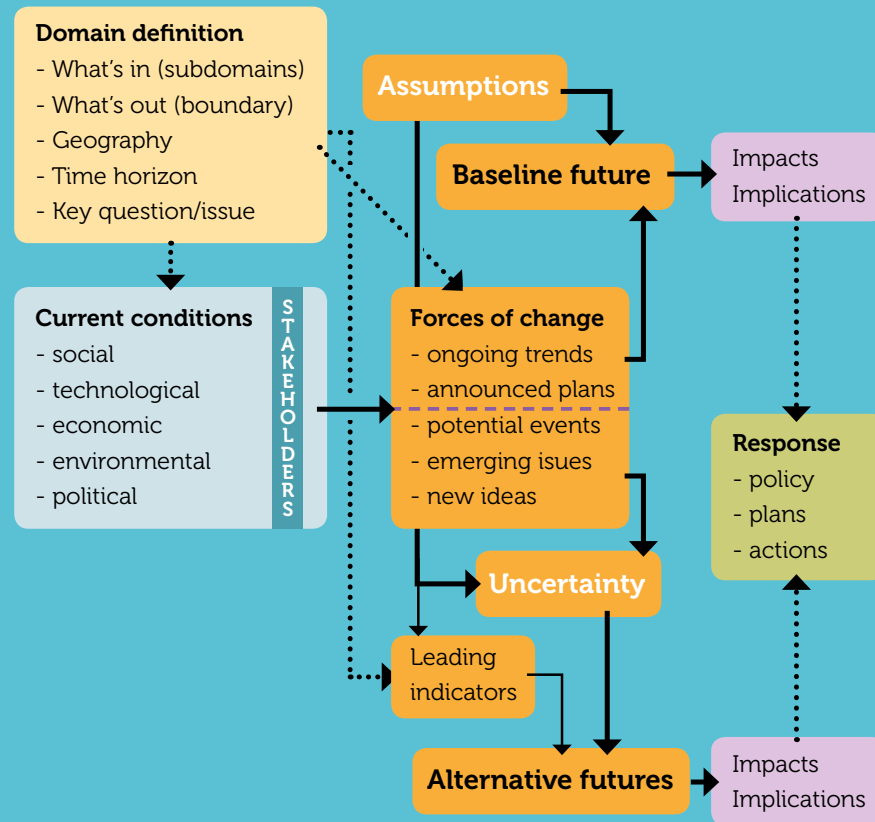
The official future, the future that people believe in, is often based on outdated principles, assumptions and mental models. All of us have biased belief systems that we are unaware of. We follow the rules of thumb that we hold for truth. And we hold certain beliefs about the organization. Scenarios function like a mirror, as they help us become aware of our assumptions and belief systems.

Think the unthinkable, solutions for the toughest challenges

Scenarios help to think the unthinkable. In this way, the impossible can become possible. Challenges can be seen as opportunities for transformation, but not in the sense of hollow phrases. But supported by ideas about solutions and actions that might work to overcome even the biggest global challenges.



Practice: Framework foresight

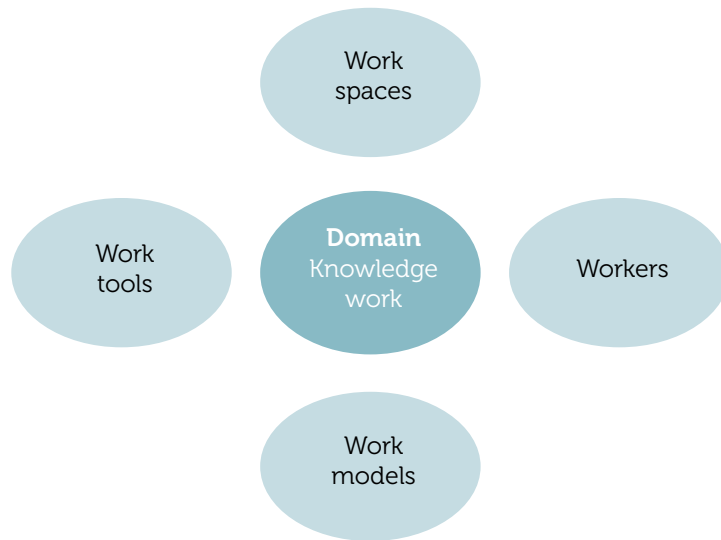


Framework foresight
© Dr. Peter Bishop, 2000

Framework foresight is a structured approach for forecasting and planning.¹ It starts with defining the domain of what is being studied. Next is an exploration of the current conditions and the stakeholders that are involved. Then, a more in depth analysis of the forces of change can follow. This helps to see a baseline future, the expected future based on the current insights on the forces of change. Also, one starts to see the uncertainty associated with the forces of change. Things can go another way. This helps to consider alternative futures. Both the baseline future and the alternative future will have implications. The organization can respond to this by designing policy, plans and actions that contribute to a better future. In this way the foresight project not only helps to get a better understanding of change, but also to anticipate change. Here, we describe the method up to the stage of identifying strategic issues. For the purpose of this short introduction, we only describe the basic steps. In a real project, each of these steps would be subject of a workshop, interviews, literature reviews, and project team meetings. Also additional methods can be used to deepen understanding in each of these steps.

¹ Framework foresight was developed by Peter Bishop and his colleagues at Houston University. --"Framework Foresight: Exploring Futures the Houston Way," Andy Hines and Peter C. Bishop, *Futures*, 51 (2013) 31-49.

Domain map example



The first step in any foresight project is the definition of the domain, its scope and boundaries, time horizon and issues to be addressed.

Domain definition

Domain

The domain is what the project is about, such as a geographic region (e.g., city, country, etc.), an industry (oil, auto, communication, etc.) or an issue (e.g., immigration, education, taxes, etc.).

Time horizon

This defines how far in the future one is intending to look. It can be a round number, like 2030 or 2040. It is usually not too close by in the future. Current plans and developments already set a mark on that future. Also the time horizon is not too far in the future, as anything can go over too long a time horizon. The time horizon should provide the freedom to think about alternative futures.

Domain map

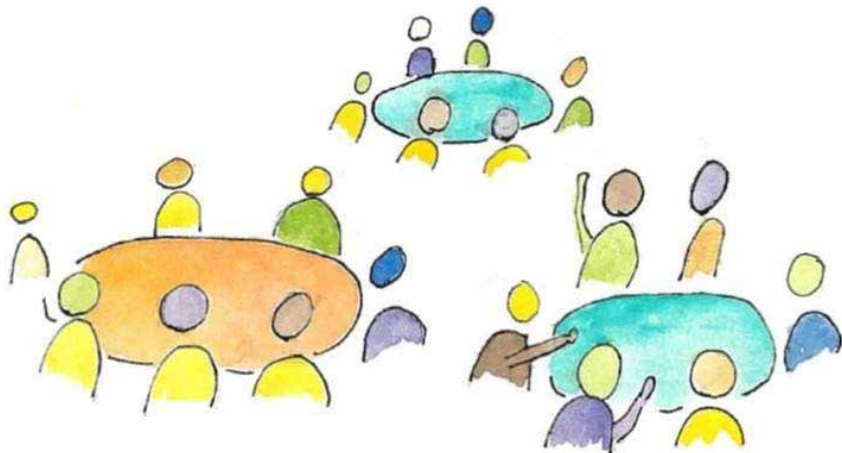
A domain map is a visual representation of the boundaries. It defines what is in and what is out. A simple map of 'bubbles' represents the main categories and subcategories of the domain.

Key issues or key questions

A precise description of the issues and questions helps to clarify the importance of this issue for the organization. This can be motivated by a specific cause, or it can be purely exploratory. In the latter case, the key issues and questions may emerge from the foresight project.

Domain definition exercise

The exercise requires a group discussion on the questions stated in the text box. Group members articulate their ideas and opinions. The discussion should yield a shared understanding of the domain definition as a base to go forward in the foresight project.



Exercise

Domain definition (subject of the forecast) Immigration

What's in (sub-domains that are definitely in the domain)

What's out (other items that are not considered in this study)

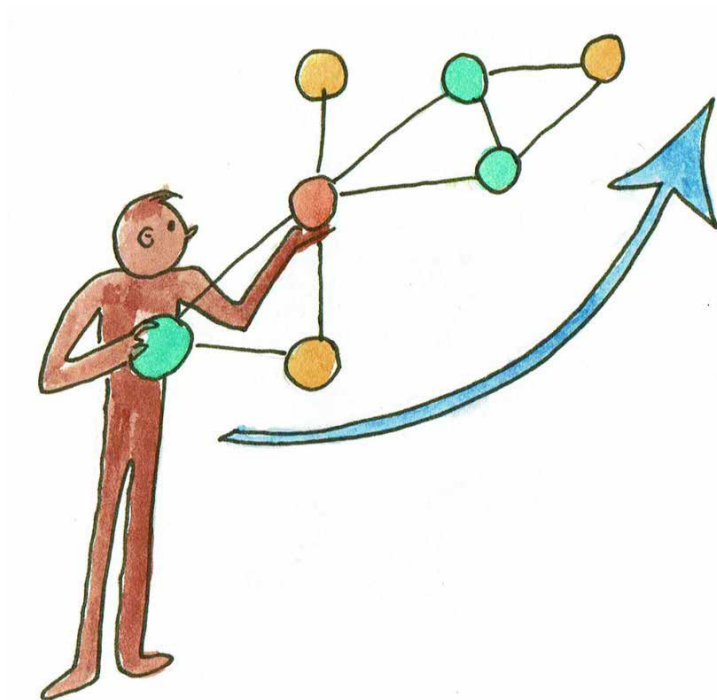
Geography (the area of the forecast)

Time Horizon (the future date of the forecast) 2027

Key Issue(s) or Questions (the reason for spending time on this domain)

Assessment of current conditions

This is an analysis of where the domain currently stands and how it got here. This brings together information, facts, trends and indicators of the current conditions. This includes quantitative information if available. But also qualitative descriptions can be insightful. The assessment includes a stakeholder analysis, which looks at the people and organizations that could affect the future of the domain. In this assessment we also look back in time, in order to see which conditions have shaped the current conditions. Often, this is not a thorough historic study, but a brief analysis of technologies and social, economic conditions that have impacted the current era.

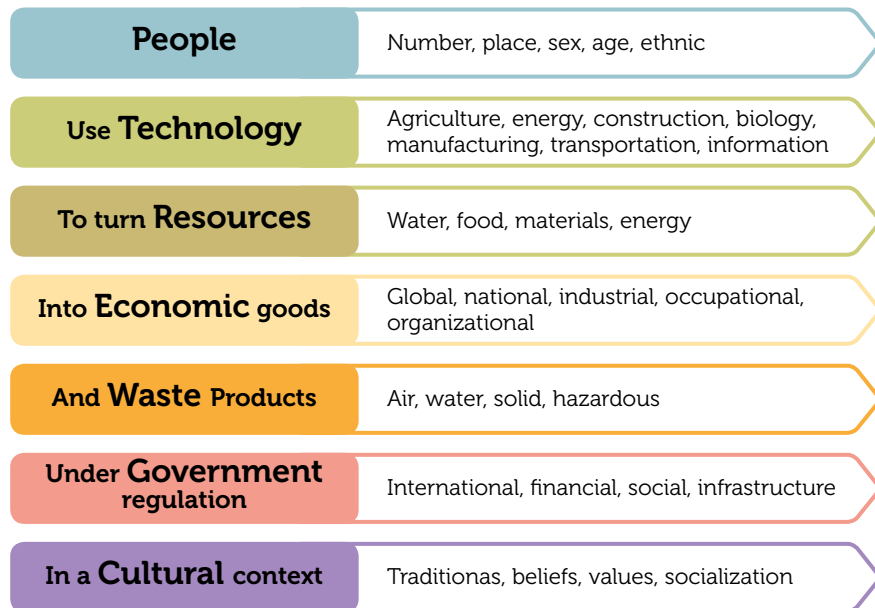


Exercise

Current conditions (a fact sheet about the domain; important facts about the domain today; include numbers where possible).

Stakeholders (individuals or organizations who can influence the future of the domain).

Global sources of change



Driving forces: STEEP analysis

As we have already seen, the driving forces of change can be categorized as follows: Social, Technological, Economic, Environmental and Political (STEEP). The categories of Social can be subdivided into Demographic and Cultural. Together, these categories are interrelated and form the global sources of change, as displayed in the figure on this page. People use technology to turn resources into economic goods and waste products, under government regulation in a cultural context.

This categorization helps to see if your attention has been equally divided across all categories. This makes sure that there is consistency and everyone in the team thinks of all these categories.

A STEEP analysis adds to the assessment of the current domain.

Baseline forecast (inputs) exercise

Material that describes the difference between the present and the expected or most likely future.

Constants Quantities or conditions that are not expected to change before time horizon	
Trends (extrapolations) Quantities or changes that move incrementally in a specific direction over a long period of time	
Plans (goals) Announced intentions and actions by influential stakeholders	
Projections Public forecasts that may describe or influence what is expected to happen	

Baseline future

While the current assessment of the domain focuses on the present, the baseline future projects this into the future. By looking at constants, trends and other relatively predictable drivers of change it is not difficult to see a picture of the future that this will lead to. Historical analogies and extrapolation will help to formulate this picture. This is called the expected future. It is the baseline future, a projection of the current trends without any surprises or unexpected changes. Most likely, the baseline future will not exactly happen like this. But certain elements may be more or less predetermined and need to be dealt with. This is made explicit in the description of a baseline future.

Input exercise

In order to describe the baseline future, this input exercise helps to describe the difference between the present and the expected future. In this table you can describe what the constants, trends, plans, goals and projections will look like in the future.

Baseline future exercise

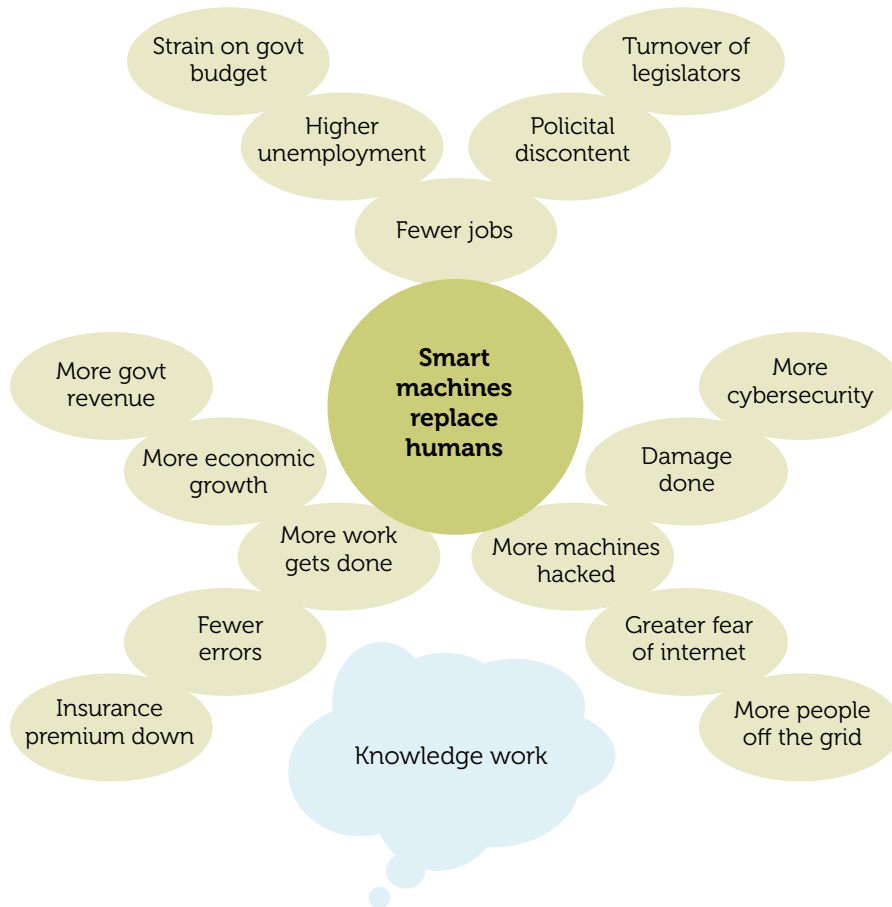
Baseline title		Year
Brief description	This is a future which...	
Key differences from today		

Describing the baseline future

Using the results of the input exercise makes it possible to describe the baseline future. Make sure that this description not only builds on technological trends, but cover the broad spectrum of the STEEP categories.



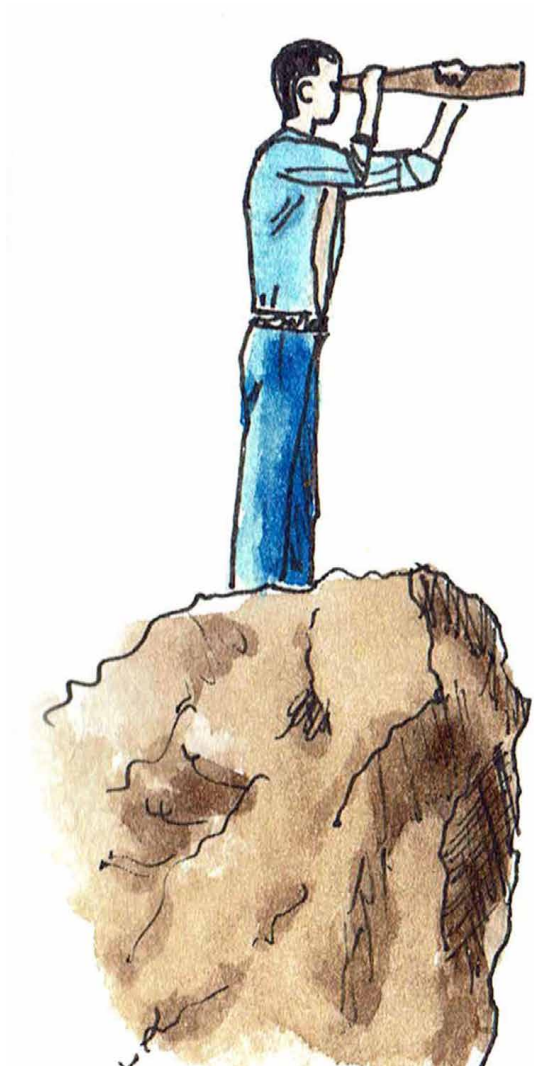
Futures wheel exercise (baseline) example



Implication analysis of the baseline future

To complete the analysis of the baseline future, a future wheel exercise should help to identify the impact and implications of the baseline future.

The center of the futures wheel identifies one of the main changes of this future. Say for example, smart machines replacing humans. From this change, one can consider consequences, such as fewer jobs. That also has further consequences and implications such as political discontent, etc. A futures wheel helps participants think through the consequences and implications of this baseline future.



Uncertainty, scanning for weak signals

Trends and constants leads to understanding of the baseline future. To conceptualize alternative futures we have to look at more uncertain influences. Scanning for weak signals involves two phases. First, we start looking at strong signals, coming from research and well known sources. This can be seen as a benchmark for the second phase of scanning, where we look at weak signals. Here we try to identify signals for change. In particular, emerging issues in society can provide clues for change.

A scanning hit is an event or new piece of information that could influence the future. It is a weak signal of change. These can be small surprises and good to know at an early stage. Otherwise, without awareness of these weak signals, one may encounter big surprises.



Scanning for weak signals is difficult because scanning hits depends on what you already know. It is subjective and difficult to determine credibility, since what is significant to someone may vary from person to person.

Second, weak signals are indeed weak. It is difficult to identify them given the noise and the attention levels in the media for strong signals. Weak signals can be well kept secrets.

Weak signals are also often early signals. It may take time for these issues to materialize and become wide spread. These signals may not be very reliable, as many things can influence the change that is happening over time. The influence of early signals may be marginally, after all.

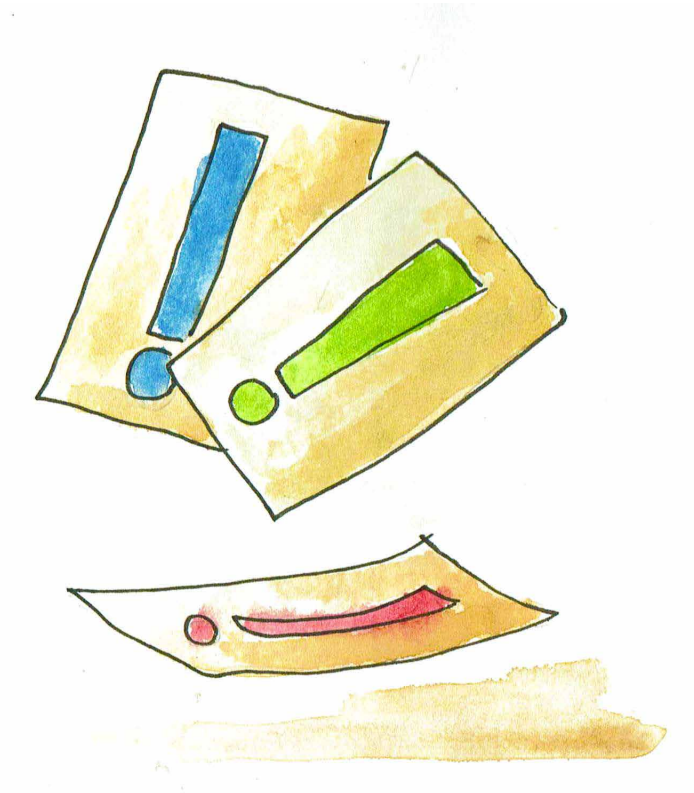
Alternative futures



Most of the work in formulating Alternative futures is to reveal the uncertainties that may give rise to a different future than the one we projected earlier. The uncertainties are elements that might involve breakthrough or risks. Uncertainties need to have a foundation of plausibility rather than possibility. Anything is possible, but a certain line of reasoning makes one storyline more plausible than another storyline. This helps to decide which storylines to focus on. The creation of alternative futures is supported by baseline analysis, research and creative imagination.

Baseline analysis

This establishes a bridge between the Baseline future and Alternative futures. It consists of an evaluation of the evidence supporting the baseline future, by identifying and challenging assumptions. Any assumption on the baseline that is successfully challenged (i.e., there is some reason to believe that its opposite might be true instead), provides an opening for an alternative future instead of the baseline.



Research and creative imagination: events, (emergent) issues and ideas

Events, (emergent) issues and ideas form the basis of alternative futures. Events could be the emergence of an infectious disease, such as SARS, or political upheaval. Issues, such as political dispute over free trade or immigration, can also shape the future. Emergent issues, such as nuclear proliferations and treats from North Korea or Iran could change the future in a very significant way. Ideas have the power to change the future. From gender equality to welfare reforms, changing the world starts with ideas and small experiments.



Alternative forecast (inputs) exercise

Material that describes the difference between the expected or most likely future and other alternative futures.

Trend breaks Counter-trends, disruptions (based on previous trends)	
Unfulfilled plans Key stakeholder does not complete its plan (based on previous plans) what happens instead?	
Potential events Surprises, unexpected developments (would be a headline)	
Unresolved issues Decisions yet to be made, intentional branching points (would begin with "Should...")	
Novel ideas Proposals, weak signals, other things that could change the future	

Alternative futures input exercise

This exercise helps to identify different sorts of uncertainties. These imply openings for plausible alternative futures. This table can help you to consider alternative outcomes other than what the baseline future holds.



Alternative future

Scenario title	Year
Brief description	This is a future which...
Key differences from today and from the baseline	

Alternative futures

The previous exercise will have generated an extensive list of uncertainties and alternative outcomes of the future. There are numerous uncertainties out there and many are still unknown. A list of the most important uncertainties can be used to generate descriptions of alternative futures. The key uncertainties to focus on are selected based on their impact and uncertainty. Things that are considered too uncertain are called wildcards. They may occur, but they are often not considered the main theme of an alternative future.

Exercise

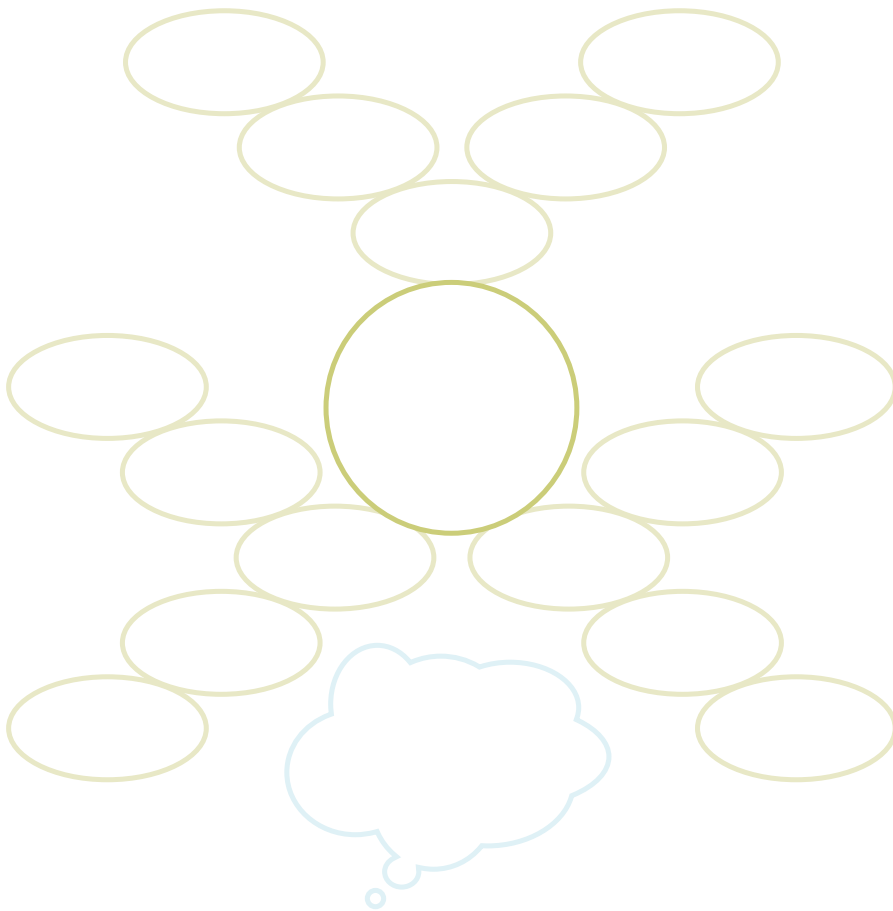
Use the results of the alternative futures input analysis and the selection of key uncertainties will help to imagine storylines for alternative futures. This is a creative process and involves building on each others ideas. Often, this process is supported by more research, scanning and interviews.

Futures wheel exercise (scenario)

Impact and implications

Similar to the exercise for the baseline future, a future wheel exercise helps to identify the impact and implications of each alternative future.

The exercise is carried out in the same manner as for the baseline future.



Important/provocative implications

	Most important implications (from future wheels)	Most provocative implications (from future wheels)
Baseline		
Scenario		

Important / provocative implications

After finishing the exercise of the futures wheel for the baseline future and the alternative futures, one can select the most important and the most provocative implications. This selection may provide some important insights about the future.

Identify issues

Identify issue

The list of most important and most provocative implications can be used to identify a Top 3 – 4 issues. Later on these issues can be addressed in research agendas, projects and studies.

Scenario	Most important implications	Most provocative implications	Top 3-4 issues
Baseline			1. How to give people meaning outside of work? 2. How to collect taxes when so few people work? 3. 4.
Scenario			



Strategic issue elevator speech

You're in an elevator with the minister, who asks:
"So, what's up with the project you're working on?"

Why is this issue important? (Rationale)	How do we make it happen? (Resources)
What should we do about it? (Actions)	Who 'owns' it? (Responsibility)

How?

Strategic issue elevator pitch

The issues can be used to form new strategies and business opportunities, so it is important to 'sell' these to the organization. The elevator pitch is the means, because it is clear about the rationale for this issue and the importance of the issue to the domain, as defined at the beginning of the project. Building on the insights from the foresight project, the elevator pitch mentions actions to provide solutions and responses to the challenge. It doesn't stop there. Ideas about how to make it happen will give confidence and motivation to go forward. Lastly, the elevator pitch mentions ownership and responsibility in order to define the role of the organization in the follow up actions.



Additional steps in strategic foresight

In addition to the basic steps that we outlined here, the toolbox of strategic foresight includes many other methods. Briefly, we mention just a few of them, which can be used after the set of scenarios have been generated.

Narrative techniques: techno-moral vignettes or first-person stories

One method for deepening understanding of emergent issues is by creating first-person stories for each of the scenarios. Such stories describe the life of someone in that scenario, their concerns, the use of technologies, regulatory regimes and other elements of society. The practical value of the stories is that they quickly point at the issues at stake. The scenarios come alive and enable a conversation about specific issues.

Quantitative modelling

Sometimes, quantitative modelling can provide an additional understanding of narrative scenarios. For instance, scenarios about the transition towards a sustainable energy system can be helped by modelling the energy production of different sources and energy consumption by industry, mobility and households. It should be noted that the quantitative model is built upon the parameters in the scenarios, instead of building the scenarios based on the modelling.

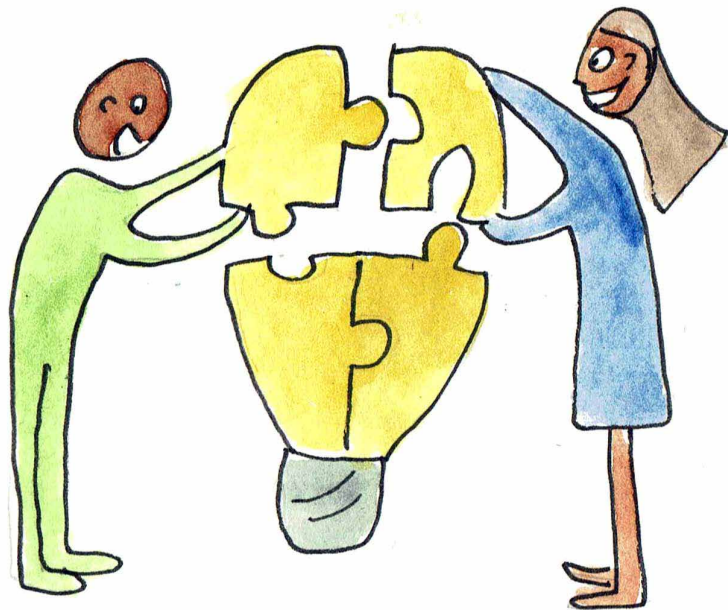
Identifying strategies and policies

After pointing at the most important issues as input for business strategies or government policies, these strategies need to be clarified and assessed. Strategies that work best in multiple alternative scenarios can be considered most promising and deserve further elaboration. However, it can also be clever to explore strategies that are useful only in a subset of the scenarios, in order to be prepared if these situations may occur. The process of assessing the value of strategic options against the set of alternative scenarios is called 'wind tunneling,' analogue to the testing of airplanes in different weather conditions.

Methods for meeting future goals

Scenarios can be complemented by methods that aim at identifying future goals to reach a certain future. These methods can be for example backcasting (working backwards from a desirable future to identify policies that help to meet that future) and technology roadmapping (matching short-term and long-term goals with specific technology solutions to help meet those goals).

Investing in strategic capacities



Scenarios can be developed by means of framework foresight or another method that builds upon understanding drivers of change, predetermined outcomes and fundamentally uncertain consequences by using systems thinking. Although the method presented here can be considered structured and straightforward, strategic foresight is never a quick fix. In every stage of the foresight process, there is a collaborative effort which emphasizes group learning and emergent insights. Reaping most benefits of a strategic foresight project requires an organization dedicated to investing in strategic capacities.

Preferable strategic foresight is not a stand-alone project, but a continuous effort. One activity that clearly can be done continuously is horizon scanning for weak signals. Also, scenarios can be considered regularly in strategic conversations, both in board rooms and in the rest of the organization. All of these methods enable systemic understanding of change, anticipating change and seizing opportunities in order to create a better and successful future.

Literature resources

GENERAL FORECASTING AND PLANNING

Thinking about the Future: Guidelines for Strategic Foresight

edited by Andy Hines and Peter Bishop. Social Technologies, 2006

The best advice from dozens of futures professionals on how best to conduct a futures project.

Teaching about the Future: The Basics of Foresight Education

by Peter Bishop and Andy Hines. Palgrave Macmillan, 2012.**

The futures studies curriculum from the University of Houston written out in text form.

"Framework Foresight: Exploring Futures the Houston Way,"

Andy Hines and Peter C. Bishop, *Futures*, 51 (2013) 31-49.

A description of the approach to strategic foresight as taught at the University of Houston.

Scenario based strategy. Navigate the future,

Paul de Ruijter, 2014, Gower.

A step by step approach to the methodology of scenarios. Builds upon case studies.

Strategic reframing, the Oxford Scenario Planning Approach

by Rafael Ramirez and Angela Wilkinson, Oxford University Press, 2016.

A description of the approach to strategic foresight as taught at the Oxford Said Business School, which emphasizes the social process of immersive learning.

Scenarios, the art of strategic conversation,

by Kees van der Heijden, Wiley, 2005.

The second edition of one of the classics in the foresight literature. It builds upon the work by Van der Heijden at Shell, with an emphasis on the concept of strategic conversation.

SCANNING

"Good Sources of Weak Signals: A Global Study of Where Futurists Look For Weak Signals,"

Elina Hiltunen, *Journal of Futures Studies*, May 2008, 12(4): 21 – 44.

Weak signals are the early signs of plausible change that form empirical basis for plausible alternative scenarios.

The signals are talking. Why today's fringe is tomorrow's mainstream

by Amy Webb. Public Affairs, 2016.

Interesting method of systematically exploring for signals of change by looking at fringe developments.

SCENARIO DEVELOPMENT

The Art of the Long View: Planning for the Future in an Uncertain World
by Peter Schwartz. Doubleday, 1996.

The best business book on how to apply futures thinking and scenario development in a business.

"The current state of scenario development: an overview of techniques,"
Peter Bishop, Andy Hines and Terry Collins, *Foresight*, vol. 9 no. 1 2007,
pp. 5-25.

A comprehensive review and evaluation of 22 scenario development techniques in eight categories.

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"The Futures Wheel,"

Jerome Glenn, *Futures Research Methodology Version 3.0*, Millennium Project, Ch 6, <http://107.22.164.43/millennium/FRM-V3.html>.

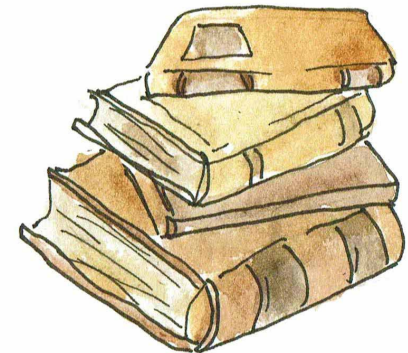
The best tool for identifying consequences and implications of scenarios.

ASSESSMENT

"Foresight Maturity Model (FMM): Achieving Best Practices in the Foresight Field,"

Terry Grim, *Journal of Futures Studies*, May 2009, 13(4): 69 – 80.

A calibrated process for assessing how good an organization's foresight practices are.



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Dr. Freija van Duijne

Dr. Freija van Duijne has been a professional futurist since 2006. She has been leading strategic foresight projects in various government organisations in the Netherlands. She has been a researcher at thinktank The Hague Centre for Strategic studies. In 2015 she has worked at the OECD strategic foresight unit to design a scenario based policy discussion for the Ministerial Council Meeting. Freija is co-founder and president of the Dutch Future Society, local chapter to the World Future Society. She is also part of the 'Trendrede', a collective of trend researchers who present an annual trend analysis to contribute to society and the Dutch economy. Currently, Freija works as an independent futurist. She is a keynote speaker at conferences. She provides training in strategic foresight for thinktanks, government organizations and others. As a consultant she is involved in trend research, scenario planning, strategic dialogue and long term (research) agendas. Freija is married to Angelo van Merrienboer, a professional guitar builder, and they live in The Hague (the Netherlands).

Background

Freija obtained her degree in cognitive psychology at Leiden University and her PhD in applied ergonomics and design at Delft University of Technology. Her interest in risk governance and new technology made her pursue a career in strategic foresight. She has been leading many foresight projects on a variety of topics including food and agriculture, natural resources, energy and the general economy. She is a regular blogger for several platforms and media. In her spare time, she is a yoga teacher trained in the Iyengar yoga tradition.



Peter C. Bishop

Dr. Bishop is the Founder and Executive Director of Teach the Future, an organization whose mission is to encourage and support educators who want to include futures thinking in their classes and schools at all levels. In 2013, Dr. Bishop retired as an Associate Professor of Strategic Foresight and Director of the graduate program in Foresight at the University of Houston.

He has published two books on Strategic Foresight: ***Thinking about the Future: Guidelines for Strategic Foresight* (2007)** and ***Teaching about the Future: The Basics of Foresight Education* (2012)**, both with co-author Andy Hines. Dr. Bishop is a founding Board member of the Association of Professional Futurists and President of his own firm, Strategic Foresight and Development, which offers training and facilitation to businesses and government agencies.

Dr. Bishop came to the University of Houston in 2005, having taught futures studies at the Clear Lake campus since 1982. Dr. Bishop started teaching at Georgia Southern College in 1973 where he specialized in social problems and political sociology. He received his doctoral degree in sociology from Michigan State University in 1974. Dr. Bishop received a bachelor's degree in philosophy from St. Louis University where he also studied mathematics and physics. He grew up in St. Louis, Missouri where he was a member of the Society of Jesus (Jesuits) for seven years. Dr. Bishop is married with two children and two grandchildren.

Colophon



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