Framework foresight: Exploring futures the Houston way

Andy Hines *, Peter C. Bishop

Graduate Program in Futures Studies, University of Houston, 4800 Calhoun Road, 110 Cameron Building, Houston, TX 77204-6020, USA

ARTICLE INFO

ABSTRACT

Over the last several years, the University of Houston developed and codified a method for teaching students how to carry out foresight projects. This development represented a philosophical shift from a neutral presentation of methods without particular advocacy for one or the other. The challenge that this neutral approach presented is that each method is somewhat different and especially for those new to foresight, it became challenging to find common ground, distinguish them, or to know when to use one or the other. Our experience is that our initial wariness of promoting a standard method and thus a "one-right-way" of doing foresight proved unfounded. Not only does it not detract from the teaching of other methods, in fact it has made it easier. Framework Foresight was deliberately built to accommodate and incorporate other methods and approaches. It provides a basis of comparison of how various practitioners and methods do the work, enabling them to assess the strengths and weaknesses of each. Framework Foresight thus could be viewed as a meta-method in that it is a modular approach that accommodates a substitution of, or supplementation from, other methods or techniques at various steps. As students became practitioners and used the method in their practice, they have provided useful feedback and have generally reported back good results. Thus, Framework Foresight is offered to the foresight community as a method for carrying out foresight projects

© 2013 Elsevier Ltd. All rights reserved.

1. Introduction

Framework Foresight is a method for carrying out foresight projects developed at the University of Houston. The method is a systematic way to develop a "start-to-finish" future view of a domain or topic of interest and to explore its implications. The decision to adopt a "standard" method represented a philosophical shift from a neutral approach that presented methods without particular advocacy for one or the other – rather they were presented with their respective strengths and weaknesses. The challenge this neutral approach presents is that each method is somewhat different and especially for those new to foresight, it became challenging to distinguish them or to know when to use one or the other. This challenge is true not only of academic programs but also in consulting firms training new practitioners – while some firms do have an established approach [1–3], others employing a variety of methods may experience the same challenge in having difficulty developing new talent in the absence of a common approach.

Framework Foresight evolved then as means to provide a common approach and thus provided a basis of comparison to how other methods accomplished similar tasks. In that sense, Framework Foresight could be viewed as a meta-method, a method that can incorporate other foresight methods. While Framework Foresight presents an approach to doing a forecast, it acknowledges that others methods have different approaches and could easily be substituted in a modular fashion.

---

* Corresponding author. Tel.: +1 832 367 5575.
   E-mail addresses: ahines@uh.edu (A. Hines), pbishop@uh.edu (P.C. Bishop).

By having students carry out several framework projects, they learn the essential steps involved in a foresight project and understand how different methods invoke different ways of carrying out the steps.

Pieces of the method were introduced in the late 1990s with graduate students and the first prototype was produced in 2000. Students typically do two or three semester-length projects using the method during their time in the Master's program. A lighter version of the method was adapted in 2007 for use with undergraduate students without any foresight background and has been used regularly since. Several graduates reported using Framework Foresight in their jobs over the years and that it worked well in practice. A major teacher-student collaborative project for a client was published in 2008 [4]. So the authors felt since it had evolved beyond just a teaching tool, it would be useful to pull a description together and offer it to the foresight community as a new method. Author 2 originally developed the method for mapping or describing the future (framework forecasting), and Author 1 extended it to include influencing the future (implications, plans, and actions), thus expanding framework forecasting to Framework Foresight [5].

The method classifies information used in foresight, captures it in templates, and arranges it in a logical flow. It centers on the development of a baseline future and alternative futures along with their implications for the purpose of developing plans and ultimately stimulating action. The method works best with a clearly defined client, but one can "make one up" as our students often do, and that works fine as well. It starts by describing the domain, characterizing its present status and reviewing the relevant recent past. It then identifies the forces of change and uses them as the foundation for developing the baseline and alternative futures. Next, it explores the implications of those futures, and identifies the resulting strategic issues or opportunities they suggest. Finally, it identifies leading indicators to track the progress of the domain going forward.

The outcome is called a framework because it is just a rough outline of the future of the domain and its potential consequences. It is not filled in and "fully furnished," so to speak, with complete details – though it can be done this way. A framework is to the complete mission of a futurist what the foundation and the 2×4 studs are to a fully livable house. It indicates the general outline of the future. Everything else hangs on it or is contained within it, but it is typically not the complete job.

The Framework Foresight method flows in a logical order with each step feeding the next. Templates have been developed to summarize and capture the deliverables of each step. Of course, information does not always arrive "in order" or sequence, so that the categories act as bins to store different kinds of information that may be used later in building or analyzing the baseline and alternative futures.[1]

Framework Foresight is inherently selective. It targets the best information – quality over quantity. The templates suggest about 5–10 items as the recommended target for each category. It might be more or less, depending on the quality of the items and the purpose and scope of the project. The researcher selects the best from all the information collected to focus attention on those most important items, so they do not get lost in too much detail. The Framework Foresight method breaks the components of a foresight project down so that one can literally see all the pieces and how they relate. It is a balancing act between too much information and the risk of leaving out something important. What to leave in and what to take out is a matter of professional judgment that is typically honed through experience.

The method does not require that all steps be completed. It may be enough, for instance, to simply stop at developing the baseline or alternative futures. Or one might start with futures that have already been developed and focus on their implications move. Each step uses templates that capture inputs and a summary deliverable consisting of categories of information that are filled in:

1. Domain description
2. Current assessment
3. Baseline future
4. Alternative futures
5. Preferred future
6. Implications analysis
7. Futures to plans
8. Leading indicators
9. Summary

The method can be viewed as a specific set of steps for covering the six primary activities of a foresight project described in *Thinking about the Future* [6]. There are, of course, many different methods for carrying out these six activities [7]. This article describes the method developed by the University of Houston.

The method can be informed by different perspectives, and other modules and methods can be added to it. It allows the futurist to plug in whatever methods, techniques and tools are appropriate to one of the nine steps laid out in the method. Using the analogy of building a home, rooms can be re-modeled or added on. It is possible to substitute or add modules within the framework. To substitute, for example, instead of creating baseline or alternative futures using the suggested Framework Foresight approach, one might use Aspirational Futures technique [8] to craft the scenarios, or any scenario technique [9]. The key deliverable is a set of future scenarios, however that is achieved. The scenario techniques can draw

---

[1] Baseline and alternative **futures** describe projected outcomes in this piece, but forecasts and scenarios are often used synonymously with futures in these instances, e.g., alternative futures/forecasts/scenarios.

upon the material developed in the previous steps of the Framework Foresight process to provide the raw material it requires. This might necessitate revisiting previous modules and enhancing them. For instance, the trends module may require additional work by developing a larger number of trends and clustering them into megatrends, which could provide the scenario building blocks. The resulting scenarios are then used as the basis for the influencing the future modules that follow in the Framework Foresight process.

An example of adding an additional module might come from incorporating a critical perspective module using causal layered analysis [10] to question the baseline future and develop alternative futures produced by Framework Foresight. These futures could be analyzed using the layered approach. This process might reveal, for example, that key drivers or uncertainties failed to adequately account for how different worldviews might interpret or react to them. The analysis might uncover a strong myth in play might slow down a proposed rate of change in one of the futures. It might also be fruitful to expose the scenarios to the questions in CLA's post-structural toolkit, and possibly deliver new insights on how the futures might unfold. In any of these cases, the analysis could be presented as an additional module (or simply appended) with the insights folded back into the baseline and alternative futures.

The modularity could get fairly granular, that is, aiming at as specific aspect of module in the templates. For instance, in doing the alternative futures inputs, one might add in a wildcard analysis [11] to stimulate additional "events" or "ideas" (categories in the template).

The method is explained by going through each of the nine steps, introducing the purpose, outlining the information to be gathered and analyzed and characterizing the summary deliverables. Templates are provided to capture the deliverables of each step. These deliverables from one step provide the input for the step that follows.

2. Domain description

The method begins by identifying the domain or topic to be explored. One of the key challenges in any project is bounding and scoping, with the goal being a description that is neither too broad nor too narrow. This step can be revisited and the domain re-scoped as more is learned about the project.

2.1. Domain definition

A domain is any topic that can be forecast; and since everything has a future, a domain is just about any topic whatsoever. A domain might be a geographic region from a neighborhood to countries to the world as a whole. It might be an organization from the local church to the United Nations, including businesses, government agencies, or non-profits. It could be an issue like AIDS or climate change. It could be an industry like chemicals or automobiles. It could be an institution like education or transportation. In other words, a domain could be anything that has a future, and what does not?

Sometimes a domain is clear from the start. A client asks for a particular study around a specific question or with a specific objective. Or the futurist has an intended audience in mind around a particular topic. In other cases, the domain is murkier. There may be a general sense of a need, challenge, or problem, but it is not specific. For instance, an organization might be interested in new business opportunities relating to water, but not sure about what aspect. The research might start with a broad view of water. It might reveal that desalination is a promising opportunity space. If the client agrees, then the domain could be narrowed to the future of desalination. The domain definition and subsequent research, as with, the entire Framework Foresight method, is an iterative one.

The reason for spending time on getting the domain right at the beginning is to avoid the explosion of the domain later. "Everything looks interesting; everything affects the future; of course, we need to consider that." No, we decided upfront that we were not going to consider that. Of course, the definition does not preclude new components being added later if they seem appropriate, but they are always added intentionally and with good purpose.

2.2. Geographic scope

It is helpful to note the geographic scope of the forecast – is there a particular city, country, region, or is it global? Drawing a boundary around the geographic scope, or even the domain as a whole, does not exclude the rest of the world and the changes going on there. In fact, those STEEP[2] categories are essential for driving long-term change. The domain and its geography just identify what is inside the domain leaving outside influences to drive those changes.

2.3. Time horizon

The time horizon specifies how long into the future the forecast extends – how far one is intending to look into the future. The time horizon is usually expressed as a year, and usually a round number like 2020 or 2025. The year is not used as a strict

---

[2] STEEP is an acronym commonly used by futurists as a starting set of categories to organize scanning, standing for social, technological, economic, environmental, and political. It can be modified to suit the needs of a particular project, such as adding a "C" category for competitive, or STEEPED, which adds energy and demographics.

12-month period of time, however, such as forecasting for 2020 and not 2021. The year actually stands for how much change one is going to allow in the forecast. Transformational events can happen any day, but the probability of significant change and uncertainty increases as the time horizon gets longer. So a time horizon of 2050 will include a lot more change than will a time horizon of 2020.

A more technical reason for a specific time horizon is that the elements of the baseline future, such as constants or trends, can be assumed to continue over medium times, such as ten years, where they are unlikely to continue over longer times, like thirty years. So the time horizon even influences what elements are included in the rest of the forecast. Different domains will have different logical time horizons: 18 months is a generation for computer chips; 4–5 years is typical for automobile models; and more than 30 years is common for oil drilling platforms.

2.4. Domain map

It is often helpful to explicitly identify "what's in and what's out." What parts of the domain are definitely going to be considered? These show up on the domain map. The domain map is a visual representation of the boundaries and key categories to be explored in the research phase. It is an outline of the research in visual format. Simple "bubbles" can be used to represent key categories and sub-categories. Mind mapping software works quite well for this as well. In the Framework Foresight method, it is enough to start with mapping out the major categories and sub-categories of the domain. It is possible, of course, to get more sophisticated here and get closer to a formal systems map by noting the inter-relationships. Those with design flair can make these visually compelling. But it is enough simply to guide the initial research with a simple visual, and it can be revised as more as learned about the topic.

When working with a client, the domain map can be shared with them to gain shared agreement on what the domain looks like. Gray areas can then be discussed and decisions made about the close calls. It is sometimes helpful to explicitly note areas that are out of scope right on the map.

2.5. Key issue(s) or key question(s)

This is an optional component, but can be helpful for certain domain. It is more a less a problem statement, in the form of an issue or question. In essence, why is the topic being explored? Sometimes projects are motivated by a specific purpose, thus an issue or question can be articulated. Other times, it is more purely exploratory, where the purpose is to learn what the key issues or questions are (Figs. 1 and 2).
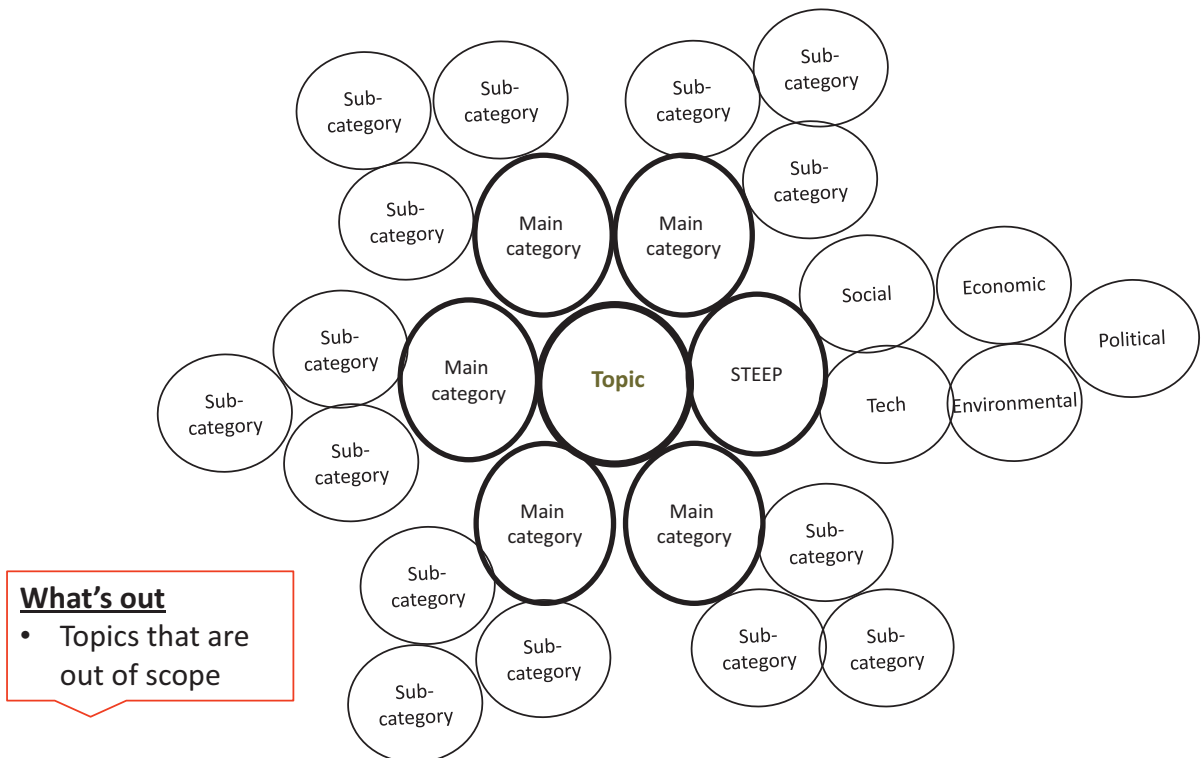

Fig. 1. Template 1A: domain map.

Domain definition (subject of the forecast)	A paragraph that defines the scope of the domain, including what is and what is not in the domain
Geographic Scope	The area of the forecast
Time horizon	The future date of the forecast
Domain Map (Boundaries, Categories, What's in & What's out)	Separate template
Key issue(s) or question(s)?	Is there a focal issue or question to guide the project?

Fig. 2. Template 1B: domain description.

3. Current assessment

Any foresight approach benefits from taking stock of where the domain currently stands and how it got there. Framework Foresight calls this out in the current assessment. It identifies and assembles the pieces and the recent history of the domain and provides a snapshot as it exists in the present.

3.1. Current conditions

This category brings together the key variables, quantities, and structural arrangements. Our experience is that there is not precise formula for what to include in terms of what is the most important information. Basic factors such as growth rates, the competitive set, key regulations typically appear. In the domain of petrochemicals, for instance, it might include the total annual sales, perhaps by major product category and by application area. It could also cover costs of raw materials – if that is a big issue – or where new facilities are being built, or what chemistries are dominant. It is often helpful to think about what a conference on the domain would cover in a state-of-the industry address. The goal here is to list the 5–10 items that are the essential, "need-to-know" information about the domain.[3]

3.2. Stakeholders

The current assessment also includes the stakeholders, the individuals and organizations that work in and could affect the future of the domain. In petrochemicals, for example, the stakeholders would be the primary producing companies, their suppliers and customers, service providers like transportation companies or equipment manufacturers, government regulators and not-for-profit groups like trade associations or environmental organizations. The stakeholders contain all the people involved in the domain just as the current conditions contain all the quantities and structural elements.

3.3. History: era analysis

Framework Foresight also includes a little history, but just a little. Some would like to go back to the Roman aqueducts in describing the history of water. While immensely interesting, that era is long gone and has little practical value for forecasting. So history in Framework Foresight is confined to understanding the previous era, the one before the last major discontinuous event, and how it influences the current era. The influence of longer-term cycles, such as the Kondratieff wave,[4] is not excluded, but considered in terms of how they impact the previous or current era. Past events are those significant events that signal a transition from one era to another. It may be a technology breakthrough, such as the iPod marking the beginning of a new era in digital music. It is often helpful to start the identification of eras by identifying and listing those significant past event.

Eras are periods of relative stability and coherence that have a distinct identity. The generally begin and ends with discontinuous events. So the Great Depression began with the crash of the stock market in October 1929 and ended, for the U.S. at least, with the attack on Pearl Harbor in December 1941.

---

[3] Systems mapping, Causal Layered Analysis, or Integral Futures could be used to provide a more detailed or alternative view of the current conditions in the domain.

[4] Wikipedia notes that Kondratieff, a Russian economist, proposed a theory that Western capitalist economies have long term cycles (approximately 50 years) of boom followed by depression.

Table 1
Framework Foresight in the *Thinking about the Future* framework.

Thinking about the Future activity	Framework Foresight step
Framing	1. Domain description
Scanning	2. Current assessment
Forecasting	3. Baseline future
	4. Alternative futures
Visioning	5. Preferred future
	6. Implications analysis
Planning	7. Futures to plans
Acting	8. Leading indicators
	9. Summary

Table 2
Comparing strategic issues and opportunities.

	Strategic issues	Opportunities
Why/who	*Why*: identify and describe the issue and why it is important.	*Who*: identify and describe potential customers and why you think they are good candidates.
What	Identify and describe what you are proposing should be done about the issue. What activities will be done differently? Note why these activities are being chosen (the logic).	Identify and describe the benefits of the proposed offering? Note how those benefits are different or unique from what is currently available. What is the differentiator?
How	First, outline the resources required to address the issues, both people and financial (ballpark estimates–not precise).	First, describe the value proposition. In simple terms, how do we make money? Or how do we improve service in the case of a government agency/non-profit.
	Second, identify who "owns" it; who will be responsible for making sure the actions are carried out.	Next, outline the resources required to invest in developing the opportunity, both people and financial (ballpark estimates – not precise).

When doing Framework Foresight, one "locates" the current era. The present is also an era though it is rarely thought of as such. Is the domain in a period of equilibrium, or is it on the cusp of a discontinuity? Either way, this is noted to set the context of the forecast. Future historians will characterize our time with labels and attributes just as is done with previous eras. Geopolitically, the current era might be the Age of Terror of the Conflict between Islam and the West, beginning with 9-11. Economically, it could be the Age of Globalization, beginning with the fall of the Soviet Union and the dominance of capitalism as the preferred economic system throughout the world. Technologically it might be the age of the Internet or of Digital Communication.

Understanding the previous era is equally important because it overhangs the present. Though eras end with events, they do not disappear all of sudden. Rather they linger on for quite some time. In fact, much of the tension in the present is between the attributes of the old era which is reluctant to die and the attributes of the new era which is trying to be born. The process of identifying and discussing the transition from a previous to a current era throws light on the present that forms the foundation of imagining the end of the current era and the appearance of the next one (Tables 1 and 2).

The current assessment is the snapshot of the domain as it exists today. The elements in the current assessment tend to be unremarkable. Nevertheless, it is good to articulate what they are so that any questions or issues concerning the domain can be raised and dealt with, particularly the assumptions about what is likely not to change in the forecast period. With the snapshot taken, Framework Foresight is set in motion with the consideration of trends and driving forces of change (Figs. 3 and 4).
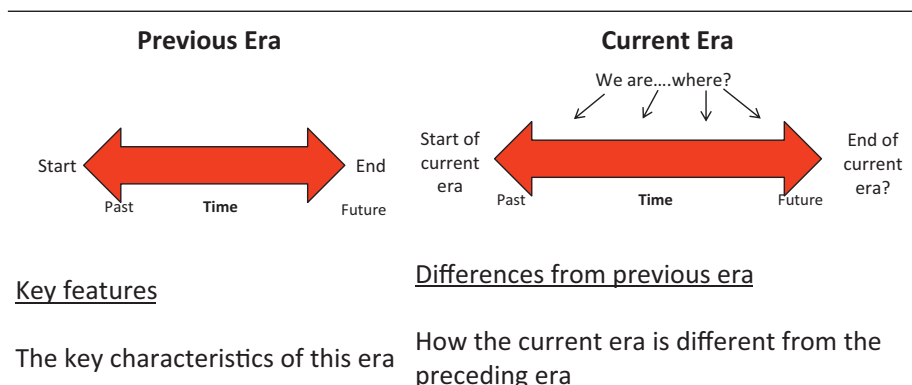

Fig. 3. Template 2A: era analysis.

Category	Description
Current conditions (important facts about the domain today)	An overview of how the domain is structured and how it operates. Key quantities that characterize the domain
Stakeholders (individuals or organizations that can influence the future of the domain)	The major actors in the domain (individuals and organizations) along with their values, political interests and relationships with one another
History past event(s) that began the current era	Recent past events within the domain that have created the current conditions and stakeholders with particular attention to recent discontinuities that began and define the current era
Era analysis from Template 2A	From separate template

Fig. 4. Template 2B: current assessment.

4. Baseline future

The current assessment of the domain is like a snapshot, a magic camera that takes a picture of the domain in the present. Forecasting is then putting that picture in motion to describe the domain in the future. Putting the snapshot in motion requires a consideration of the drivers of change. Trends and other relatively predictable drivers of change lead to one type of future, the expected or baseline future, and other drivers lead to other futures, the plausible alternative futures. Together they describe the major regions at the end of the cone of plausibility (see Fig. 5), an ever-expanding region of alternative futures as time goes on [12]. The big difference between trends and the other drivers is the degree of uncertainty. In scanning for what is changing, the stronger signals of change are captured as trends and weak signals [13], in that there is a higher degree of uncertainty about their development, may be the precursors of alternative futures: new events, emerging issues, new ideas, etc. Trends, therefore, lead to the baseline future at the center of the cone and intervening events, issues and ideas can twist and turn the trajectory to some other region in the cone. Hence there are two types of futures: the baseline and alternative futures (Figs. 6–20).

The expected future is called the baseline because it is the fundamental future with no surprises. It is *more likely* to occur than any of the other single futures, but it is not *likely* in itself because of all that could intervene in the meantime. As Herman Kahn is reported to have said, "The most likely future is not [most likely]." It is called the baseline because it is good place to start, as the surprise-free default future against which more interesting alternative futures are developed.

Listing trends that drive the expected future is usually not too difficult. In fact, selecting the most important ones from the vast number proposed is usually more challenging. It is important to balance those perceived as good and bad. It is also useful to recognize that what may appear as a "good" trend to some may be bad for others. Positive and negative trends do not have to be exactly equal, but neither one nor the other should be over-represented.
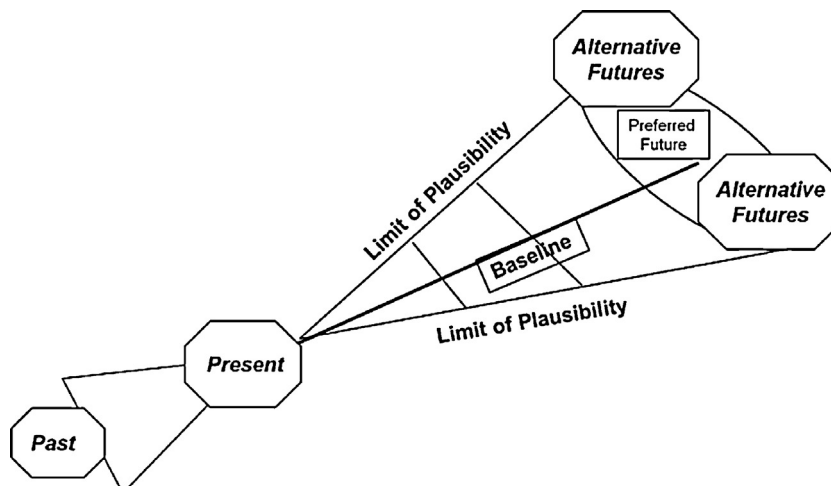

Fig. 5. Cone of plausibility.

Trends *(can say "more" or "less" of something)*	Quantities or changes that move incrementally in a specific direction over a long period of time; the value of the quantity and its rate of change (if known)…Forecasts of specific quantities and their value at some specific time in the future. *Can always say "More" or "Less," or "Increasing" or "Decreasing…"*
Constants *(no change before the time horizon)*	Conditions or quantities that are expected not to change before the time horizon
Cycles *(can say "And again…")*	Quantities or changes in the domain that recur, where quantities are in the cycle at present. *Can always say "And again…"*
Plans *(announced intentions/plans of key stakeholders)*	Announced intention by any stakeholder to create change in the future
Projections *(baseline forecasts made by others, if any)*	Public forecasts that might influence what people expect to happen

Fig. 6. Template 3A: baseline future inputs.

Title & Brief Description	One-liner
Abstract	The result of the cycles, trends and plans in the expected or mostly likely future. A description of the most likely future at a specific time, focusing on the important differences from the present and the implications of those differences for the stakeholders in the domain
Key Drivers	The extrapolated value of important drivers: trends, constants, cycles, plans, and projections materialize and continue as expected

Fig. 7. Template 3B: baseline future summary.

a. Evidence for the change:
  i. Assumption required to use the evidence:
    1. Alternative (opposite) assumption:
      a. Reason for the alternative:
      b. Reason for the alternative:
  ii. Assumption required to use the evidence:
    1. Alternative (opposite) assumption:
      a. Reason for the alternative:
      b. Reason for the alternative:
	Identify and support an alternative outcome for a key element of the baseline

b. Evidence for the change:
  i. Assumption required to use the evidence:
    1. Alternative (opposite) assumption:
      a. Reason for the alternative:
      b. Reason for the alternative:
  ii. Assumption required to use the evidence:
    1. Alternative (opposite) assumption:
      a. Reason for the alternative:
      b. Reason for the alternative:
	Identify and support an alternative outcome for a key element of the baseline

Fig. 8. Template 4A: baseline analysis.

Challenging Assumptions	From Baseline Analysis
Events (including wildcards)	Expected or unexpected events and wildcards that would disrupt, change, and potentially end the current era. *Can always appear as a headline in a news source.*
Issues (including conflicts, controversies, dilemmas, choices)	Issues that are currently being discussed and those that could become important (emerging) along with the various ways they could be resolved and the implications of each of those ways. *Can always "Should we…" or "Should they…"*
Ideas (including images, perspectives)	People and their ideas that present a new or insightful look at the domain, particularly about its structure, types and rates of change and plausible futures. *Something really new or novel, even if unusual.*
Key uncertainties	The quantities, potential events, issues and ideas that would have the greatest impact on the future, yet which are least predictable (ie most uncertain) *(The key uncertainties are a <u>**selection**</u> of the most important items from events, issues and ideas above. Key Uncertainties do not contain any new elements that are not listed above.)*

Fig. 9. Template 4B: key uncertainties.

Title & Brief Description	One-liner
Abstract	The story of how the key uncertainties and other inputs come together
Key Difference from today and the baseline	Bullet points of the major differences from the present and the baseline "at a glance"

Fig. 10. Template 4C: alternative future summary.

Vision statement: <u>[the public manifestation of the more important</u>

<u>commodity that people carry around with them--the vision itself]</u>

_____

The mission of [name of organization]

is to serve [*these customers*]

by [*providing these products and services*]

in order to [*obtain these benefits*]

and to [*do good*].

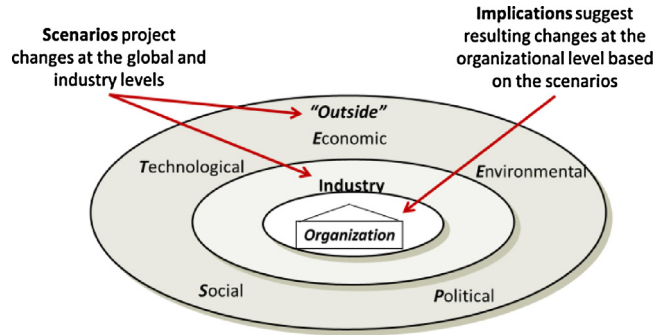**Fig. 11.** Template 5: preferred future.

Fig. 12. Levels, scenarios & implications.

|	
Baseline or Alternative Future	Select one of the futures
Category	Within each level, identify the categories to be explored, using the key activities or functions of the client organization, or a stakeholder analysis; can refer back to the domain map as well.
Key Implication	Within each category identify a key implication or implied change
Additional Implications	For each key implication, identify the changes, impacts or consequences it suggests using the future wheel template 6B

Fig. 13. Template 6A: futures wheel prep.
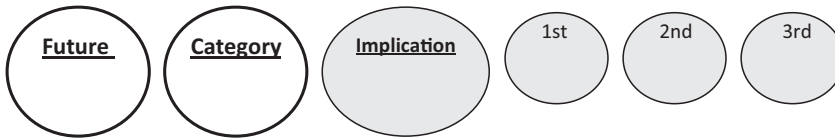
Fig. 14. Template 6B: futures wheel.

Future	Most Important Implications	Most Provocative Implications	Issues/Opportunities
Baseline	judged to be of such importance that the client must pay attention to them.	may be less likely to occur, but if they do, they will have a significant impact	1. Assuming this scenario comes to pass, identify the issues or opportunities that would result 2. 3. 4.
Alt 1	"	"	5. 6. 7. 8.
Alt 2	"	"	9. 10. 11. 12.
Alt 3	"	"	13. 14. 15. 16.

Fig. 15. Template 6C: implications analysis.

Future	Likely 1-9 (9 is most likely)	Impact 1-9 (9 is most impact)	Unprepared (9 is most unprepared)	Total
Baseline				
Alt 1				
Alt 2				
Alt 3				

Calculate the percentages based on totals from the table

Alternative 2   %

Alternative 1   %

Baseline   %

Alternative 3   %

Present
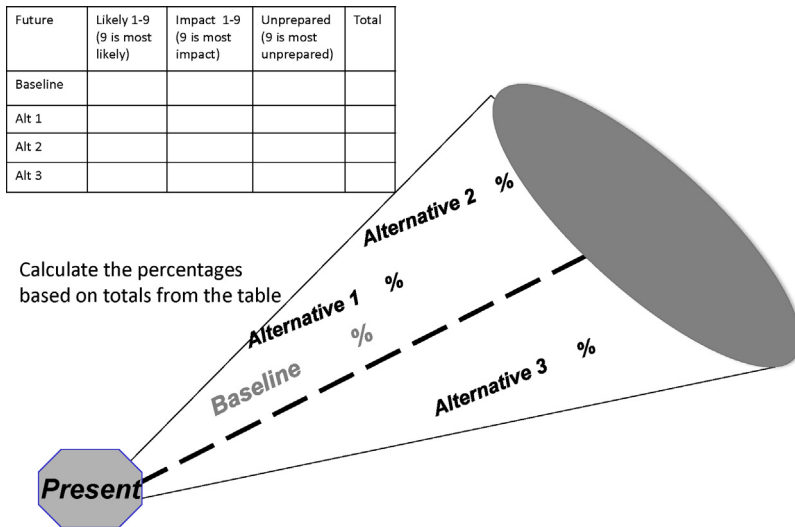
Fig. 16. Template 7A: prioritize futures.

Future	Percent (from 7A or 7B)	Issues (from 5C)	Priorities
Baseline		1. 2. 3. 4.	Higher %= more issues from this scenario
Alt 1		5. 6. 7. 8.	Higher %= more issues from this scenario
Alt 2		9. 10. 11. 12.	Higher %= more issues from this scenario
Alt 3		13. 14. 15. 16.	Higher %= more issues from this scenario

Fig. 17. Template 7B: select issues.

Strategic Issues Elevator Speech

You're in an elevator with the CEO, who asks, "so what's up with the _____ you're working on?"

Why

Why is this issue important?

How do we make it happen? (Resources Required)

What

What should we do about it? (Describe actions)

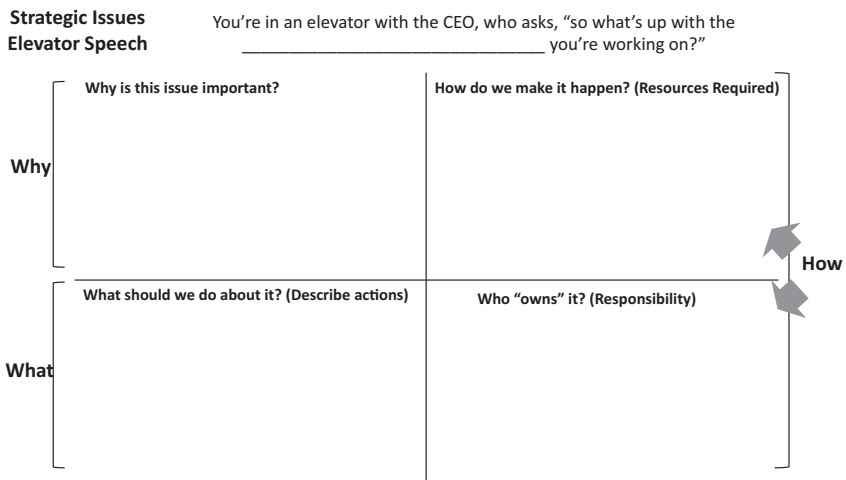Who "owns" it? (Responsibility)

How

Fig. 18. Template 7C: elevator speech.

Quantities or events that would signal that a key uncertainty is
being resolved in one way or another or that one or other
scenario is more or less likely to occur

Alternative Future*	Indicators
#1	1.
	2.
	3.
#2	1.
	2.
	3.
#3	1.
	2.
	3.

*There is no need to identify indicators for the baseline, since it is based on current trends

Fig. 19. Template 8: leading indicators.

Summary

Fig. 20. Template 9: summary.

A second tendency is to draw trends from certain sectors of society, especially the technological. The American or Western view of change sees technology as the big driver, particularly during these heady days of the electronic revolution. But technology is only one of five sectors if one uses the typical STEEP approach. Trends should be distributed across all categories. Again they do not have to be equal, but there should be representatives in most categories.

Four other drivers, along with trends, contribute to the development of the baseline future: constants, plans, cycles, and projections.

4.1. Trends

Trends are quantities or changes that move incrementally in a specific direction over a long period of time; the value of the quantity and its rate of change (if known). One can always say "more" or "less," or "increasing" or "decreasing" when describing a trend. Similar trends are clustered into macro themes of uncertainty during the generation of alternative futures in the next step.

It is often useful to go back to the domain map and identify trends that emerge from the categories and sub-categories. While the method suggests it is enough to capture the top 5–10 trends in the template, the "other" trends may prove useful later in providing additional raw material for building the baseline and especially the alternative futures.

Time permitting, a more thorough approach is to develop a larger list of trends – say 50 or more – and thematically cluster them into larger mega-trends for capture in the template.

4.2. Constants

Constants are those quantities, structures, and stakeholders that are likely to continue unchanged throughout the forecast period. Not everything changes. Constants are those things that are changing so slowly or not at all that they can be considered static for the purpose of the forecast. That is not to say that constants cannot possibly change in some plausible set of events, but the probability is that they will remain the same, at least until the time horizon. Those assumptions can and should be challenged, however, when considering the alternative futures because presumed constants that start to change are excellent sources of alternative futures. The constants are also called the boundary conditions for the baseline future. Outside the boundary are those changes that the baseline future will not consider.

4.3. Cycles

Cycles are predictable oscillations of some variable. So the seasonal cycle of sales, the boom and bust of different commodities, or even the swing from one political extreme to each other can be part of the baseline. It might be impossible to predict where in the cycle one is at the time horizon, but at least, the repetition of cyclic variables is not confused with the secular increase or decrease of trends. In petrochemicals, for example, there is a predictable boom–bust cycle and it is very significant to know where the industry is on the cycle. In other domains, cycles will not play a major role (and that is okay).

4.4. Plans

Plans are intentions to act. They are announced by individuals, organizations or governments. Strategies can be considered as well, although they are generally less available publicly. People who announce plans do not always carry them out, but they are usually sincere in their intention to do so. Hence they represent a driver of the future. A government's plan to reduce taxes or to start a new program is not guaranteed to occur, but it is more likely having been announced than if it were just a possibility. An automaker announcing plans to develop fuel cell vehicles by 2020, for example, would be important to consider for the domain of transportation.

4.5. Projections

Projections are forecasts of the baseline future made by others. Again these are not guaranteed to be accurate, but most forecasters are technically qualified and generally good at describing the baseline. Projections also increase their own likelihood by the process of self-fulfilling prophecy – that is, what people believe is going to happen is more likely to occur than if they do not believe it. Self-fulfilling prophecy may be stronger or weaker in different domains, but the projections themselves and their effect on the future is important for understanding the baseline. The explosion of information available on the Internet includes forecasts or scenarios as well and these can be useful inputs to consider.

4.6. Summary

The baseline then is the result of constants, trends, cycles, plans, and projections that create differences in the future. The top five to ten of each type should be included in this section. The baseline future is the result of these driving forces and their consequences for the domain being forecast.

It is sometimes hard to distinguish a trend or a plan from the baseline future. Trends and plans, however, exist in the present. They are changes or intentions going on today. Describing the baseline requires extrapolating these trends and plans into the future the way projections do. What will the future be like at that point? What are the big differences between the present and the baseline future? And what difference do those differences make? The difference between trends and the baseline future is a subtle difference, but an important one. The most important realization is not just that trends will continue, but that the future will be quantitatively and qualitatively different as a result. Highlighting the most important differences is the beginning of understanding the future.

The baseline future is the expected future, and expectations about the future are already fairly well known. As a result, one might expect the baseline future to have no interesting or surprising elements, but that is a misconception. While the basic elements of the baseline future might be expected, the implications of those elements can still contain surprises. A pair of trends, for instance, might set up a conflict, even in the baseline future. What if a government agency's mission is expected to increase over the next 10 years, but its budget is expected to shrink? Could both of those trends be strong and almost irrefutable? Sure, it has happened before. But that convergence of contradictory trends sets up interesting differences between the present and the future.

5. Alternative futures

A funny thing happened on the way to the baseline future – something else! That is the essential problem of forecasting. Something typically happens between now and then to upset even the most elaborate and well-supported baseline future. Futurists explore the range of variation in plausible futures by focusing on the uncertainties in the baseline. Authors [9] surveyed the techniques used in developing scenarios (referred to as baselines and alternative futures here) and classified the twenty-tree techniques found into eight major categories.

Revealing and managing uncertainties is at the heart of alternative futures. [14–18] The baseline addressed "certainty" to the extent that it explored how the present is likely to extrapolate into the future. Uncertainties are those elements projected to be important to the client in the future, but how they play out is difficult to anticipate – they might go on one way or another. They might involve breakthroughs or risks. Alternative futures identify and explore uncertainties using a technique called baseline analysis as well as research and creative imagination. Uncertainties must have some foundation in plausibility – plausible elements are required over merely possible ones. Almost anything is possible – pandemic, nuclear war, meteor strikes, etc. In contrast, plausible elements are supported by some type of information or line of reasoning that give one more reason to believe that, that element might change the future. Weak signals identified earlier in the process are

particularly good foundations for alternative elements. They are not guaranteed or even expected to change the future, but they could. And there was some evidence provided for their development when they were identified. So, alternative futures are not just "made up;" they are based on some evidence, albeit typically weaker than with the baseline.

5.1. Baseline analysis

The search for alternatives futures begins with baseline analysis, which establishes a bridge between the baseline and alternative futures. Traditional forecasting uses the baseline as its end-product; it stops there. Baseline analysis begins from there by evaluating the evidence that supports the baseline future, identifying and challenging the assumptions required to use that evidence, and using the plausible challenges as a basis for alternative futures. If any one of the assumptions that support the baseline can be challenged (i.e., that an alternative assumption could plausibly be true instead of the original), then by definition an alternative future results. Baseline analysis is not the only way to arrive at alternative futures, but it is a rigorous way since it rests on evidence and plausible reasons that the alternative might come true instead of the baseline.

Baseline analysis applies the process of critical thinking to the support for the baseline future [19]. The process is quite simple, though it may not be easy:

1. State the evidence for the baseline future, exploring the inputs: trends, constants, cycles, plans, and projections.
2. Challenge the evidence by asking:
   - Identify the assumptions that must one accept to use each piece of evidence.
   - Challenge each assumption with its alternative by stating its opposite. Stating the opposite brings to mind reasons that it might be true.
   - Identify the alternative assumptions that are plausible, those with foundation, support, evidence, or reasons that they might be true.
   - Extend plausible alternative assumptions into plausible alternative futures.

5.2. Uncertainties

A second means to identify alternative futures relies on the research – such as identification of weak signals – and creative imagination. The analyst generates potential uncertainties that could form the basis for alternative futures by exploring several categories of potential developments.

- *Events*: Potential events could clearly change the future. Eras begin and end with events as described above. If they happen, the result is one future; if they do not, the result is another one. Will there be a major economic recession? Will the atmosphere suddenly shift into another warmer or colder mode due to greenhouse gases? Will AIDS mutate into another more communicable form? Will scientists develop the means to retard aging? Any of these events could shape the future dramatically.
- *Issues/emerging issues*: Issues also have the power to shape the future. Issues are decision yet to be made. They are currently under debate or could emerge as a matter of debate before the time horizon. Resolving these issues one way or the other could make the future different. Issues on the agenda today include U.S. involvement in the rest of the world, free trade or protectionism, assistance for or competition with the world's developing countries, universal healthcare, or endangered species.

  Other uncertainties arise from what are called "emerging issues" – issues that have not yet appeared on the public agenda. As with events, emerging issues are inherently uncountable, but some are more apparent than others. They may not be unheard of, but they are not receiving the attention they could. The difference is a framing event, an occurrence that propels the issue onto the public agenda. Books or studies might be such an event. Dr. Jim Hansen's testimony on the reality of ozone depletion before Congress in 1989 was just such an event. 9-11 put terrorism on the world's agenda; Iran and North Korea did the same for nuclear proliferation. Emerging issues have a way of significantly changing the direction of the future after they become framed.
- *Ideas*: New ideas also have power to change the future. Kurt Lewin [20] suggested that "there is nothing as practical [or as powerful] as a good theory." New ideas have shaped history – religious ideas contained in Christianity and the other world religions; political and economic ideas of monarchy, democracy, socialism, communism, mercantilism, capitalism; social ideas like human rights, freedom of the individual, freedom of the press and assembly. New ideas in the focal domain can also shape its future – welfare reform, market-oriented solutions for environmental problems, charter schools and vouchers. Where do new ideas come from? Who knows? But when they appear, they can have a profound impact on the future – hence their ability to kick off alternative paths to the future.

Images of the future are also ideas that shape the future. According to Polak [21], the human capacity to create mental images of the "totally other" – that which has never been experienced or recorded – is the key dynamic of history. At every level of awareness, from the individual to the macro-social, imagery is continuously generated about the not-yet. Such

imagery inspires intentions, which then moves people purposefully forward. Through daily choices of action, individuals, families, organizations, communities, and nations move toward that which they imagine to be a desirable tomorrow.

5.3. Prioritizing key uncertainties

The uncertainties about the future are numerous and unknown. A list of the most important uncertainties, however, is a valuable asset because they together identify the most important alternative futures, those with the greatest impact on the domain. The key uncertainties are chosen using two criteria – impact and uncertainty. Impact is straight-forward – which of the elements above could change the baseline the most if they were to occur. Uncertainty is used because the purpose of forecasting is to gain knowledge it what is not known – provided it is important enough to be worth knowing. Uncertainty, however, is a tricky concept. Most people believe that wildcards, very low probability events that could have major impact, are the most uncertain elements of the future [22]. They are not because they are almost certain *not* to occur. Rather the 50–50 probability future is the most uncertain. Looking for those with high impact are the best key uncertainties.

Alternative futures then balance the baseline. The baseline is the expected future if nothing really surprising happens; the alternatives contain the surprises. The actual future is a combination of both. Many elements of the baseline will come about, but not all. Speculating on how the baseline could be wrong is the source of flexibility and creativity in approaching the future. The momentum of the baseline and the surprising developments of the alternatives are both needed to appreciate and prepare for the real future when it finally becomes the new present.

6. Preferred future

The preferred future is typically captured as a vision. A vision is an image of the future. It creates an attractive mental picture of an outcome that people can strive for. Most people think of the future in ideas rather than images. Attractive ideas are progress, security, enjoyment; unattractive ones include overpopulation, pollution, sickness, and death. None of these are visions, however, because they are not images. What does it look like? How does it feel? What does it taste like, sound like?

The vision is something tangible and concrete – something that people can get excited about. Sports are replete with concrete visions – trophies, medals, endorsements! Politicians work to keep their seat in the legislature. Attorneys see their clients go free or the big check at the end of a long civil suit. Doctors work for the health of their patients; educators the child's visible enjoyment of learning; priests the salvation of their flock. Even the gray world of business livens things up with awards and recognitions and the signs of status in homes, cars, and corporate jets. These are not abstract concepts but powerful images that guide people's actions.

6.1. Vision statements

The vision statement is the public manifestation of the more important commodity that people carry around inside themselves – the vision itself. The statement exists on paper, but the real vision lives in the hearts and minds of people. The statement itself is only the tip of the iceberg. It is like a map that represents a territory. It is a statement that signifies the commitment of partners to proceed in concert toward a preferred future. The commitment is more important than the statement, the territory more important than the map.

Vision statements are much more connotative than denotative. They suggest and imply the real vision rather than embody it in the way a constitution or a mission statement specifies exactly what and how the organization is to be conducted. So the U.S. Declaration says "…life, liberty and the pursuit of happiness," and the Constitution says, "All legislative Powers herein granted shall be vested in a Congress of the United States." The first is connotative; the second denotative. The connotative character of the statement leaves room for individual interpretation. Different people can take different angles, place different emphases, and indeed see their individual vision as part of the larger whole. At the same time, the wording is important, but not in the way a legal document is. The connotations and images associated with the words are more important than the words themselves.

There are many ways to carry out a visioning activity. For this approach, it is enough to simply clarify who the client is and what their vision and mission is. The mission refers to the organization's purpose or reason for being. The mission captures what the organization is tasked to do, and the vision describes how it aspires to best carry out that mission.

In some cases, there may not be a specific client – for example, our students often explore the future as class projects – and in that case this step may not apply. It is recommended that even in the case where a project is not for an actual client, it is helpful to think of a potential audience – who might be interested – and use them as a surrogate client. It is often helpful to use Collins' [23] three attributes for the hedgehog concept, his term for a vision:

• What are we passionate about?
• What can we do better than anyone else?
• What drives our economic engine?

The goal is to have enough sense here of the client to be able to identify issues or opportunities that are of interest to them.

7. Implications analysis

This step is a transition from the description of the world "out there" to a focus on what it means for the client "in here." It is helpful to think in terms of the levels of change: the futures (aka scenarios) describe changes at the global and industry level, and the implications explore what changes are thereby implied for the client at the organizational level. Implications are thus defined here as implied changes. The process starts with the baseline and alternative futures, one at a time, and seeks to identify the impacts, challenges, and issues that might emerge in the future. At this point, no particular judgment is made on whether they will "come true;" rather it is assumed they will for the purpose of identifying a rich set of implications. It answers the simple question, if this future happens, what would it mean for…?

It is worth noting that the process is rigorous and systematic as well as creative and inefficient. The early steps (1–4) ensure that the implications are identified for the appropriate "categories." The latter steps then rely on a creative process that generates lots of possibilities that will eventually be prioritized to a smaller number for further analysis. As with any creative process, many of the ideas generated will be discarded; and, in some cases, the process will seem to result in a dead end. That is okay. The goal is to stimulate insights that are worth paying attention to. The steps are described below.

1) *Choose a future (baseline or one of the alternatives)*

It is helpful to do one at a time or, if multiple small groups are involved, to divide the futures among the small groups.

2) *Choose the categories*

The categories to focus on for the implications depend on the client. Sometimes the focus will be clear from the purpose of the project. If the purpose was to identify innovative new products or services, then new business development would be a key focus. Or if the goal is to identify policy alternatives, there may be a specific agency or department in the government that would be a natural focus.

Absent that specific guidance, at a high level, it is helpful to start with by listing the types of activities or function the client is involved in. Examples for a business organization might include: supply chain, R&D, human resources, manufacturing, communications, legal/regulatory, finance, marketing, facilities, new business development, etc. Another approach is to start by looking at the stakeholder analysis. Examples here might include: leadership, investors, customers, competitors, regulators, workers, etc. These two approaches may be somewhat redundant, so it may be helpful to focus on one or the other. It is also helpful to refer back to the domain map and see if there is a category of interest that may not emerge from the activity or stakeholder viewpoint.

The principles of Framework Foresight suggest focusing on the most essential categories. This is especially true if working with a group, as there will not be time to consider every category of implication. Thus there is selection process of which categories are judged most important to explore.

3) *Identify potentially significant implications or changes in each category*

For each of the categories that have been selected, brainstorm potential changes that the scenario suggests. The future is assumed to occur – the task is to brainstorm the changes it would suggest in the category. It is best to generate a list and then prioritize perhaps one or two of each – the time available will suggest "how many" are practical. These implications (implied changes) will then be explored further using implications wheels.

4) *Identify additional implications using the futures wheel*

The futures wheel is used to investigate the implications of the changes identified in the previous step (or the implications of the implications) [24]. It explores the implications or changes suggested by the initial change. What might change next? Those changes go in a set of circles containing first-order changes that lead to second-order changes, and so on. The process keeps flowing until the ideas run out.

The futures wheel is a brainstorming technique; it is not analytical truth. As with other brainstorming techniques, most of the material is either well-known or highly questionable. But a few nuggets of insight usually emerge, elements of the future that were not immediately evident on first impression.

The process is repeated for each of the changes.

5) *Most important and provocative implications*

When the futures wheels are complete, they are displayed in a way that makes them easy to see and then two sets of implications are prioritized (often flip charted and posted on the wall in a group setting). The first set is the "most important," which are those implications whose impact is judged to be of such importance that the client must pay attention to them. The second set is the "most provocative," which may be less likely to occur, but if they do, they will have a significant impact such that they merit further attention. These lists are captured in the template.

6) *Issues or opportunities*

The next step is to state these implications as either issues or opportunities. If the project is concerned with strategy, the most helpful format is as [strategic] issues to be considered. If the project is concerned with identifying new offerings, such as new products for business or new services for a government agency, the most helpful format is as opportunities.

It is useful to reiterate here that sometimes the issues or opportunities that are identified were already apparent to the group at the beginning of the process. An issue or opportunity may look like or be identical to the challenge that was initially loaded into the futures wheel. That is okay. The intent is to explore these challenges more fully and thus feel

confident that the issues identified are the "right" ones. A key benefit of the process is that oftentimes a challenge is re-interpreted in a more meaningful way or an entirely new issue or opportunity emerges from the analysis.

The issues or opportunities resulting from this step are then fed forward into the planning step.

8. Futures to plans

The baseline and alternative futures are used as the jumping off point to connect the implications to the vision (preferred future) and to develop the planning to achieve that vision. The description here uses two common objectives in foresight projects: identifying strategic issues as input to strategy or identify new business opportunities or offerings as an input to innovation efforts. But the method is by no means restricted to these outputs and can be modified to suit particular client needs, such as policy analysis for a government client. It is a matter of customizing the types of questions asked and adjusting the templates.

This method tackles the question of how to link futures or scenarios more tightly into organizational processes, whether in the form of strategic issues, new business or service offerings, policy alternatives, etc. It is possible that scenarios produced by another technique could be plugged into this one at the implications step in order to develop the plans. This plug-in approach would benefit from an understanding of the analysis behind the scenarios in order to properly identify the implications and subsequent issues, although in theory one could start with scenario narratives and deduce implications from them. It has been our experience that the "forecasting" side of the house was often not talking to, or at least not tightly integrated with, the "planning" side of the house. Even in our foresight education they are often taught in separate classes. In developing Framework Foresight, a key goal was to link them more tightly.

Whatever the intended output, two steps are involved at this point:

- Prioritize the desired output (strategic issues/opportunities) output from implications analysis.
- Outline potential approaches using elevator speeches.

8.1. Prioritizing issues/opportunities

The prioritization starts with the futures, with the idea being that issues or opportunities emerging from futures deemed to be most important should get the most attention. If a future is not deemed as worth a great deal of attention in comparison to others, then why focus on the issues/opportunities coming from it? In other words, the focus is on the output coming from the futures that the client feels are most important to consider. A challenge here is that the client may choose to ignore futures it would prefer not to deal with, but perhaps "should." The futurist can sometimes persuade clients to address these futures – and should try. But forcing them to do so is not productive and undermines a collaborative approach.

So the futures are revisited and relative importance to the client is evaluated. The particular criteria for evaluating the importance can and should be customized to a particular client. In general, three useful criteria for the group's relative ranking are:

1. How likely is the future? (Compared to others)
2. How big of an impact would the future have?
3. How unprepared is the client for that future?

This mix of criteria represents a useful balance. For instance, if a future is judging highly likely, would have a big impact, and the client is not prepared for it, this obviously represents a huge challenge and demands the attention of the client. At the opposite extreme, there is little need to pay attention to an unlikely future that would not have much of an impact and that a client is well prepared for. Of course, most futures will fall between these extremes.

It is useful to keep in mind the admonition: "don't over-think this." This step is intended to make the best use of time by focusing on the outputs that that the team feels to be most important. The default recommendation is to pay equal attention to all, so it usually requires a compelling reason to adjust this. A common reason, for example, may be that the client already has a strategy that is designed to address the baseline future, but would be completely unprepared for one or more of the alternative futures that are either judged highly likely to occur and/or to have a high potential impact. Thus it makes sense to focus attention on the issues or opportunities identified from these alternative futures.

The prioritization process has the added benefit of helping to make the futures "real." The prioritization forces the client to think through the abstract concept of the futures and make them real by considering their likelihood, impact, and how they connect to the present. While some scenario techniques encourage creating scenarios or futures that merit "equal" attention so as to not overlook challenging futures that they might prefer to avoid, this process acknowledges that clients will tend to prioritize anyway. So rather than leave the prioritization implicit, the method calls them out explicitly through a process that brings them into the open in order to think them through more rigorously.

If a project generated a baseline and three alternative futures, it might play out as follows. Alternative #2 scores very highly and thus the issues it identified receive the most attention. Perhaps the baseline scores medium high, and its issues get some but less attention. Alternative #1 may have a single issue deemed worthy of attention and Alternative #4 may not have

an issue worth considering. In this way the subsequent strategy formulation process pays attention to the issues that matter most: it might show up as a core strategy with a few hedges available "just in case."

8.2. Select the issues or opportunities

The number of issues or opportunities characterized depends on the needs of the project and client and is based on the prioritization. Framework Foresight suggests three to six as a default manageable number. The rule of thumb in selecting issues or opportunities to explore is that those emerging from scenarios with higher priority received greater consideration. There is a question of whether the time for prioritization is here, or perhaps earlier in the implications analysis. The argument for prioritizing futures sooner in implications analysis is that one avoids the "work" of identifying issues/opportunities from futures that may not be explored further. The argument for doing it here is that the process of identifying issues may bring insights in terms of the impact a future has – it helps to prioritize the futures overall as well, in terms of some futures generating rich and compelling issues/opportunities and others generating few or uninteresting ones.

8.3. Fill out elevator speeches

Armed with the prioritized issues/opportunities, the next step is to outline the potential responses to the issues/ opportunities using an Elevator Speech. The key idea is to quickly get at what the essential information is to understand the intended response in the shortest amount of time possible. The goal is to come up with a high-level outline of a response to the issues/opportunities answering basic questions of why, what, and how (or who). They are typically answered that order, first why is there a need for a response, then what does the response look like, and finally how is it enabled or brought to action.

Framework Foresight does not get into crafting specific responses, but seeks to provide enough information about the potential responses such that the client team with the mandate to act has a clear sense of the intention, which it can then decide to use or modify at its discretion.

9. Leading indicators

While futurists revel in the uncertainties of the long-term future, those items will not be uncertain forever. As the future gets closer, they will resolve themselves into a singular present (or at least that is the way it is thought to be). At any rate, events that don not happen, issues that do not appear, ideas that are not created pass off to the side much like the hazards to navigation (rocks, buoys, other ships) that pass off the side of a vessel underway. So knowing as early as possible how the uncertainties are resolving themselves is the key to navigating the waters of the future.

Leading indicators are the focused information that will tell how uncertainty is resolving itself. It is a set of precursor events or statistics that point toward one alternative rather than another. What are the signs of impending recession? What indicates whether or not the have/have-not gap is growing or shrinking? How does one tell whether other countries resent the US's position in the world more or less? As opposed to scanning, which takes in everything relevant to change in the domain, leading indicators are very specific, targeted pieces of information with a clear link to one alternative future or another. In this method, the baseline, since it is present trends continued, is assumed to be happening. Thus it is the alternatives that must be monitored. Monitoring is the common term used for tracking leading indicators. Scanning uses the radar image; monitoring uses the image of pilot or nurse who monitors their instruments for any signs of change. Change (or stability) in the leading indicator gives a clear signal toward the increasing likelihood of one alternative future or another. Leading indicators are the signposts along the way to whatever future ultimately prevails.

10. Summary

An important item in the framework is the summary. Even though Framework Foresight seeks to focus on the most important information, there is still a lot of it to deal with. It is easy to get lost in the details because the method is so information intensive. It helps prevent the product from being seen as just a mass of information.

The summary provides the opportunity to highlight surprising bits of information, interesting futures, or important implications – those items that are most important for understanding the future of the domain. It contains the highlights of the best material – the key insights or critical takeaways. Like any good summary, it balances the goals of getting attention and conveying the essence of what was learned. It can range from simple bullet lists to a more elaborate graphical representation. Though it comes last in the process, it is often moved to the front when presenting the results to the client. Given the wide variety of possibilities here, the template is left blank to encourage a creative reporting.

11. Conclusion

The Framework Foresight method offers value to the foresight community both as a teaching tool and a means for practice. Students have found it helpful for identifying and analyzing the information required in carrying out a foresight project and arranging it in a logical flow. It helps them to see how the pieces of a foresight project fit together. And in

providing a consistent set of steps and framework, they are able to see how the steps of other methods "fit" with it. Thus, the authors embraced the notion of teaching a standard method that both stands-alone in doing foresight projects, but also provides a framework against which other methods can be compared. It is takes a modular approach that accommodates the incorporation of other methods.

Our experience is that our initial wariness of promoting a standard method does not detract from the teaching of other methods, and in fact has made it easier. Framework Foresight was deliberately built to accommodate and incorporate other methods and approaches to avoid the appearance that the authors were teaching a "one-right-way" of doing foresight. It provides a basis of comparison of how various practitioners and methods do the work, enabling them to assess the strengths and weaknesses of each. The steps in the Framework Foresight method, for instance, aim typically at getting to the essential points, thus routinely trade off depth for speed. Students or practitioner aware of other methods for accomplishing the same step, can substitute in an approach that provides greater depth – if that fits the needs of a particular project.

Practitioners are likely to make modifications to the method based on their experience and preferences. The authors encourage this innovation and have found this to be part of their own experience in using the method in practice. They would be grateful for feedback in how others apply and innovate around the method.

References

[1] D. Woodgate, Future Frequencies, Fringecore Publishing, Austin, TX, 2004.
[2] P. Micic, The Five Futures Glasses: How to See and Understand More of the Future with the Eltville Model, Palgrave Macmillan, Houndmills, 2010.
[3] P. Schwartz, The Art of the Long View: Planning for the Future in an Uncertain World, Currency Doubleday, New York, NY, 1996.
[4] What if? The Texas Transportation Scenario Project, Horizon: The Future of Transportation, A Publication of the Texas Department of Transportation, Summer, 2008, Available at ftp://ftp.dot.state.tx.us/pub/txdot-info/gbe/horizon/horizon_summer2008.pdf (downloaded 07.05.13).
[5] P. Bishop, A. Hines, Teaching about the Future: The Basics of Foresight Education, Palgrave Macmillan, Houndmills, UK, 2012, 5.
[6] A. Hines, P. Bishop, Thinking about the Future, Social Technologies, Washington, DC, 2007.
[7] J.C. Glenn, T.J. Gordon (Eds.), Futures Research Methodology Version 3.0, The Millennium Project, Washington, DC, 2009.
[8] C. Bezold, Aspirational futures, Journal of Futures Studies 13 (4) (2009) 81–90.
[9] P. Bishop, A. Hines, T. Collins, The current state of scenario development: An overview of techniques, Foresight 9 (1) (2007) 5–25.
[10] S. Inayatullah, Causal layered analysis: post-structuralism as method, Futures 30 (8) (1998) 815–829.
[11] O. Markley, A new methodology for anticipating STEEP surprises, Technological Forecasting & Social Change 78 (2011) 1079–1097.
[12] P. Bishop, A. Hines, Teaching about the Future: The Basics of Foresight Education, Palgrave Macmillan, Houndmills, UK, 2012, 9.
[13] E. Hiltunen, Good sources of weak signals: a global study of where futurists look for weak signals, Journal of Futures Studies 12 (4) (2008) 21–44.
[14] P. Wack, Scenarios: uncharted waters ahead, Harvard Business Review 63 (5) (1985) 73–89, Scenarios: shooting the rapids, Harvard Business Review, 63 (6) (1985), 138–150.
[15] L. Wilkinson, How to build scenarios, Wired (1995), Available at http://www.wired.com/wired/scenarios/build.html (downloaded 04.05.13).
[16] J. Ogilvy, P. Schwartz, Plotting your scenarios, in: Liam Fahey, Robert Randall (Eds.), Learning from the Future, John Wiley & Sons, New York, NY, 1998.
[17] K. van der Heijden, Scenarios: The Art of Strategic Conversation, John Wiley & Sons, West Sussex, England, 2005.
[18] I. Wilson, B. Ralston, Scenario Planning Handbook: Developing Strategies in Uncertain Times, Cengage Learning, Independence, KY, 2006.
[19] S. Toulmin, The Uses of Argument, Cambridge University Press, Cambridge, UK, 2003.
[20] K. Lewin, Field Theory in Social Science, Harper, NY, 1951 p. 169.
[21] F. Polak, The Image of the Future, Elsevier, Jossey-Bass, Hoboken, NJ, 1973.
[22] John Petersen, Out of the Blue: Wild Cards and Other Big Future Surprises: How to Anticipate and Respond to Profound Change? Arlington Institute, Arlington, VA, 1997.
[23] J. Collins, J. Porras, Built to Last, HarperBusiness, New York, 1994.
[24] J.C. Glenn, The futures wheel, in: J.C. Glenn, T.J. Gordon (Eds.), Futures Research Methodology Version 3.0, The Millennium Project, Washington, DC, 2009.