Practical Foresight Guide

Chapter 4 – Scanning

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4. Scanning

What is Horizon Scanning?

Almost all foresight work starts with or involves Horizon Scanning. 'Horizon, or Environmental, Scanning is the art of systematically exploring the external environment to (1) better understand the nature and pace of change in that environment, and (2) identify potential opportunities, challenges, and likely future developments relevant to your organization. Environmental Scanning explores both new, strange, and weird ideas, as well as persistent challenges and trends today. Scanning the future environment is pivotal to futures research and the usual place to start in undertaking a study. It is the feedstock for strategic thinking, innovation, and risk and issues management.

Scanning objectives[2]

- ❑ *Detecting*: important economic, social, cultural, environmental, health, scientific, technological, and political trends, situations, and events.
- ❑ *Identifying*: the potential opportunities and threats for the organization implied by these trends, situations, and events.
- ❑ *Determining*: an accurate understanding of an organization's strengths and limitations.
- ❑ *Providing*: a basis for analysis of future program investments and decision-making.'

Source[1]: Aguillar 1967 and Choo 1998

Source[2]: Scanning objectives – Cornell University

Horizon Scanning is both an intelligence led and evidence-based* method for obtaining answers to key question(s) about the future. It is the best place to start when one or more people desire more information on a particular upcoming trend, uncertainty, or wild card that may affect them or their organization (project), or, when an organization wants to watch specific issues to spot upcoming change (program).

Horizon Scanning is analogous to an early warning radar, a continuous process of pinging the environment to identify signals of change. An excellent early warning radar looks at all aspects of the global environment. Locating sources** of change from everywhere, evaluating likelihood, monitoring growth, and tracking spread provides the early warning system for impending change.

By collecting, analyzing, and picturing what's likely/unlikely to happen within the global environment, mental models of possible and probable futures can be created from which preferable futures can be chosen. By choosing preferable futures people and organizations shape their and our tomorrows.

The goal of Horizon Scanning is therefore to always describe "How will the future be different?" while Strategic Thinking and Action Planning respectively determine "Where the focus should be" and "What should be done about it?"

Effective scanning calls for formal searching, using formal methodologies to obtain information for a specific purpose. It is systematic. It is much more than reading newspapers or industry journals, or checking the latest statistics about your market. It is about exploring both present certainty and future uncertainty, and moving beyond what we accept as valid ways of doing things today. Sources can be "Hard/Quantitative" - statistical data sets or "Soft/Qualitative" - personal perspectives on possibilities or issues pulled from press releases, website monitoring, conference events, reports, people and organization tracking etc.

Most people in management positions in organizations would say that they scan the environment, and indeed, nearly all of us are doing some form of scanning in our personal and professional lives every day – whether we realize it or not.

For strategy purposes, however, environmental scanning needs to be formal and systematic, and focused around a particular interest or critical decision being faced by the organization. It is an activity usually undertaken as part of a broader strategy development process.

Remember that it is vital that you know that when you scan it is both okay and necessary to look outside the box. This means that as well as identifying trends and issues that are topical and relevant today, you should also be looking far and wide for signals about how those issues might play out into the future, and what new issues are emerging that you need to consider. You need to be curious and exercise both focal and peripheral vision looking for the "perceived" environment (the one that we notice and talk about) and the "pertinent environment," the one that can change the organization.

For example, if there is a government report on skill shortages that is an operational imperative today, identify the drivers of this imperative, and then explore how those drivers might evolve over time. Think about what challenges might emerge, and what decisions your organization might have to make to address those challenges. Will it always be an issue, or might it shift or disappear?
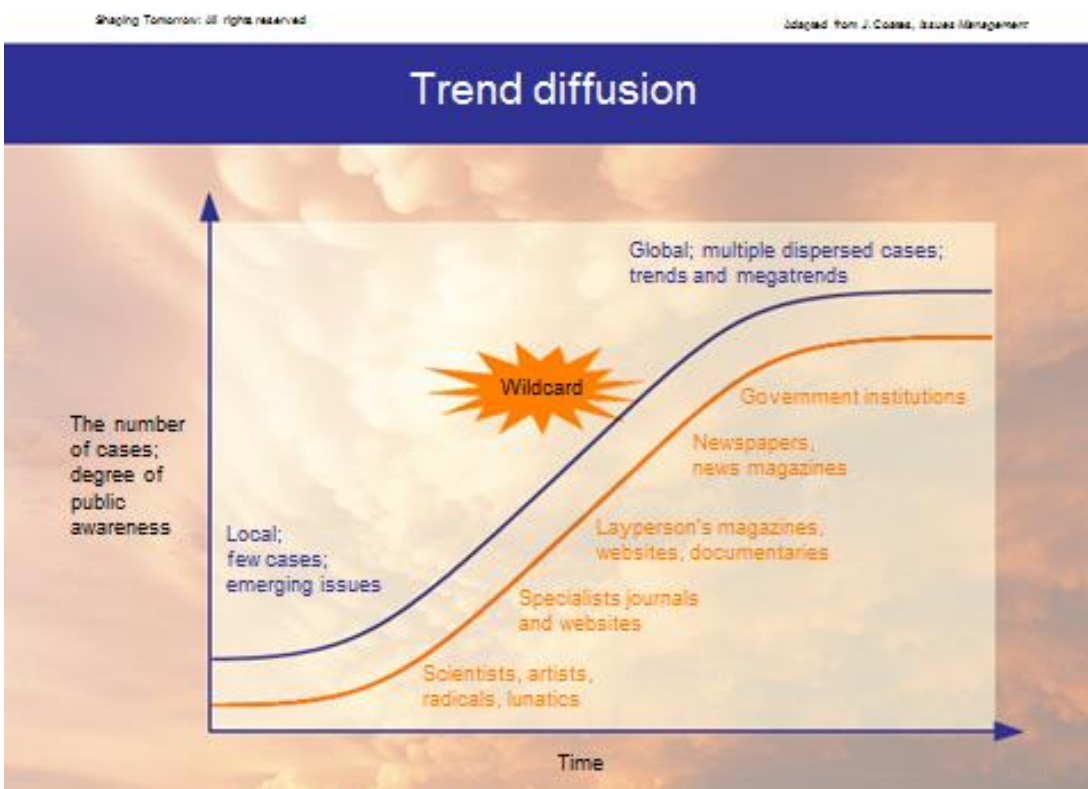

Figure 26. Trend diffusion. Courtesy of Joseph Coates

This is one time when following links on the Internet to see where you end up is a good thing.

Without a structured approach to scanning, you will just be aimlessly scanning the web, and luck will be the only determinant of whether or not you find something useful. Discipline yourself to know you are off your topic, stop researching and try a different search until you feel you have exhausted the key possibilities.'

Pre-requisites

- "Out of the box" thinking, an open mind, and a desire to discover new things.
- Exposure to many sources, ideas, and challenges.
- Looking beyond personal and organizational comfort zones and specializations.
- Noting opportunities and risks in an ordered fashion.

With practice you will attune your mind and be able to spot potential upcoming change accurately, quickly, and effectively.

Scanning timeframes [1]

- Ad-hoc scanning - Short term, infrequent examinations usually initiated by a crisis or a special request.
- Regular scanning - Studies done on a regular schedule (say, once a year).
- Continuous scanning - (also called continuous learning) - continuous structured data collection and processing on a broad range of environmental factors.

Most commentators feel that in today's turbulent business environment the best scanning method available is continuous scanning. This allows the firm to act quickly, take advantage of opportunities before competitors do, and respond to environmental threats before significant damage is done.

Each can standalone or be employed in conjunction with the other two approaches.

Further references

- ❑ Sharpen Your Business Acumen, Ram Charan, Strategy + Business 2006

- ❑ Thinking About The Future: Guidelines for Strategic Foresight, Andy Hines & Peter Bishop, Social

- ❑ Environmental Scanning[1], Wikipedia

- ❑ Environmental Scanning: A Holistic Approach, Wendy Schultz, Infinite Futures 2002

- ❑ Was It Good For You?: Subjective-Objective Issues in Applied Futures Research, Wendy Schultz,

- ❑ Doing Environmental Scanning Part 1: Focus Your Scanning: Maree Conway 2009

Source: Personal thanks to Maree Conway for allowing me to quote from "Environmental Scanning: What it is and How to Go About It".

* Source citations including tagging, commenting, faceting, and analysis of material.

** The original provider of the evidence or intelligence noting or commenting on emerging change.

4.1 Scanning for Insight

Horizon Scanning involves finding and assessing potential trends, uncertainties, and wild cards to assist present-day decision making, innovation, and risk assessment.

Henry Mintzberg* described the need for strategists to look ahead, beyond, across, behind, above, below, and around for perspective; so it is with Horizon Scanning research. Horizon Scanning research starts with the early identification of potential change through single observations of change; an insight. Researchers then look for more scan hits to further evidence their observations and to identify changing patterns for continuous intelligent reporting.

Insights are raw, diary entries of new, possible, and probable change noticed by researchers. They are an indelible record of eclectic facts, ideas, fads, fashions, and epidemics that allow the fixation of an unrevised perception. They enable us to study events in their own context. Aggregating insights allows us to spot new patterns of what's growing, falling away, and remaining static.

Change does not happen in a vacuum; there are cumulative signals as trends emerge and gather momentum or critical mass. Horizon Scanning aims to support identifying, and keeping track of, the most significant developments at each stage.

Horizon Scanning is therefore a necessary pre-requisite step to organizational strategic thinking, action planning, and policy-making to avoid narrow and shallow decision-making, continual re-work, missed opportunities, and potential shock.

Change lifecycles

The diagram depicts the life cycle of a change, from emerging issue to full-blown trend, both in terms of the number of observable cases, and in terms of public awareness. Perceiving weak signals of change requires very different sources from collecting evidence for more clearly defined issues and trends.

A robust scanning strategy will monitor change along this curve (Figure 26) using appropriate sources at each level and discriminate between the uses and usefulness of data emerging from different points of the curve. Discriminating between the uses and usefulness of data is essential to manage the tension between requirements for evidence-based strategy and policy making, and the nature of horizon scanning which seeks to extrapolate possible outcomes from limited intelligence. A clear audit trail from fresh evidence and intelligence to robust presentation of the results is essential to Horizon Scanning.

Managing change

Reporting of change comes in various ways:

Emerging change

- ❑ Background - reference site, data site, information.

- ❑ Difference - significant change, distinction from the accepted norm.

- ❑ Policy - strategy, plan, rule, regulation.

- ❑ Trend - pattern, direction, fashion, tendency of past events.

- ❑ Weak signal - weird, wacky, strange, and radical or fringe idea.

- ❑ Perspective - mainstream idea, concern or solution.

- ❑ Discovery - first observation, realization or finding.

- ❑ Transformation - revolution, evolution, radical or directional change.

- ❑ Event - breakdown, outage, incident or disruption.

- ❑ Uncertainty - ambiguity, confusion, dilemma or doubt.

- ❑ Wild cards - surprise, shock or Black Swan.

When a change is just emerging, and only a few data points exist with which to characterize it, we can only analyze it via a case study approach; changes indicated by limited data points and observations are referred to as "weak signals" of change. Sources here are likely to include blogs, fringe publications, and conferences.

As a change matures, more and more data points are available with which to analyze it: we can speak of the change as a variable which is displaying a trend in some direction. The more mature the trend, the more likely it is that it has entered the public arena, and thus attracted issue adherents. Sources here are likely to be more formal reports and articles.

Horizon Scanning provides a wide range of uncertainties, opportunities, and threats arising from possible changes over time. These range from issues in the mainstream of current thinking (climate change, energy security, and food supply) to those at the edge of planning (trans humanism, animal extinctions, and flying cars).

Horizon Scanning therefore explores novel and unexpected issues as well as existing issues or trends.

Further reference*

- ❑ Henry Mintzberg, his personal website

- ❑ The way trends tend to spread, D. Murali, The Hindu

4.2 Adopting a worldview

Before you start scanning, you need to reflect on your worldview – how you create meaning from your experience of the world, how you filter events, what you accept as "real" and what you dismiss as irrelevant or rubbish.

Myopia

Our minds are wonderful things, but they are habitual things as well. They look for patterns, and they tend to ignore things that don't fit the pattern. They simply miss things because they do not see them. For example, the world almost universally missed the recent emerging financial crisis because of this inherent

myopia. Yet the strong and growing signals were there for all to see for several years before the crash with some pundits warning of the dangers including ourselves at Shaping Tomorrow.

Taking an integral approach to scanning therefore draws attention to the intangible qualities that help determine what is scanned and what is not. There are no future facts, and when confronted with uncertainty and the unknowable that characterizes the future, your mind tends to retreat to explanations based on what is already known.

Your mind uses your existing benchmarks of what you believe to be right and wrong, how things work, what is real and what is not. It shuts down when something new doesn't match expected patterns. It misses things that might just be important, and makes assumptions that often are just wrong. Your mind falls into a certainty trap that does you no favors when you are scanning.

Knowing your thinking style

'When scanning, you will be making a subjective assessment of the value of the scanning hits you identify. You need to be wary of allowing your mind to retreat to explanations and assessments based on what is already known. You need to ensure that your mind doesn't shut down when something new doesn't match expected patterns.

If you are not alert to your worldview when scanning, you will miss things that just might be important, and you will make assumptions that may be just plain wrong!

Action-oriented biases often drive us to take action less thoughtfully than we should. In the book 'Think Again' (see 'Further references' below), the authors point to why good leaders make bad decisions. 'They, and Walter Derzko, a Canada-based technology futurist, describe many cognitive disconnects including:

- ❑ Excess Optimism Bias… the tendency for people to be overly optimistic about planned actions, overestimate the likelihood of (+) events and underestimate the likelihood of negative events.

- ❑ Competitor Neglect… the tendency to plan without factoring in competitive responses.

- ❑ Overconfidence bias… overestimating skill & competence levels leading to overestimating the ability to affect future outcomes, taking credit for past outcomes and ignoring the role of chance and luck,

- ❑ Impact Bias… the tendency of people to overestimate the length and/or intensity of the impact of future states.

- ❑ Omission bias… the tendency to judge harmful actions as worse, or less moral than equally harmful omissions (inactions)

- ❑ Not Invented Here Bias... the tendency to ignore that a product, service or solution already exists, because its source is seen as inferior or the "enemy.

- ❑ Planning fallacy… the tendency of underestimating task-completion times.

- ❑ Wishful Thinking… the formation of beliefs and the making of decisions according to what is pleasing to imagine instead of by appealing to evidence and rationality.

- Early hype error… in the short term, marketers, promoters and eager inventors seem to overestimate the impacts of any new technology and in the long term underestimate such impacts and consequences (reference the Gartner Hype curves)

- Replacement hype error… the belief that new technology will replace the existing incumbent technology & that this will happen relatively fast. In reality competing technologies often coexist over a long period of time with the old technology re-inventing itself. (i.e. Radio & TV)

- Enhancement error… the belief that new technology will only solve old problems & supplement existing technological systems. Instead new technologies, especially platform or core technologies often lay the groundwork for entirely new systems and new resulting systemic problems. (i.e. the electric motor for the railway, the car for the roadway infrastructure, the PC for the Internet, nanotech and biotech for our bodies "intra-structure" (the Human Genome project and HapMap, and SNP's), the impacts of which we do not fully understand yet.

- Panacea error… the mistaken belief that new technology will function as a panacea for various social problems.

- Patterning and sense-making error… the difficulty of seeing new important links between seemingly unrelated and different fields of technology, especially in cases' where this novel combination of fields is precisely what will offer major accelerated development opportunities

- Social impact errors… often people who have tried to predict the future have become bogged down in the actual technology and neglected the economic and social aspects.

- Prisoners of our times error… that without realizing it, people tend to be prisoners of the spirit of their times (Zeitgeist), erroneously believing that the big issues of today will also be the big issues of tomorrow

- Decision criteria error… the belief that only rational economic considerations are the only factors behind that choice of one technology over another. However, for many people, seemingly irrational considerations determine such choices.

- Information gap error… the information on which science and technology (S&T) foresight studies are based on is often insufficient. Technology development is not linear, transparent or fully predictable, with surprise developments coming out of left field such as the secret work that is done in the military or a new start-up working in stealth mode before it goes public with a breakthrough.

Source: Walter Derzko

Figure 27: Personal style analysis. Courtesy of Shaping Tomorrow

Therefore, scanning is not about being certain, but rather about being comfortable with uncertainty, ambiguity, and complexity. Being certain is not an asset when you are scanning.

It is about moving beyond traditional and familiar sources and thinking in new ways about existing and potential markets, emerging technologies, and new business models. It is about looking beyond current ways of working, and thinking the unthinkable to see what might be needed in the future. In short, scanning requires you to:

- ❑ Have an open, semi-sceptical mind about what might be important, look beyond dogma and perception, and be constantly dissatisfied with what you know and what you don't.
- ❑ Formulate bold propositions and hypotheses and look for ways to improve them.
- ❑ Continually test your assumptions about why you think something is valuable or not, and then look for ways to prove your propositions and hypotheses wrong, or start a new one. Dismiss nothing until tested (particularly if you think that it's rubbish).
- ❑ Capture your propositions and hypotheses as trends, uncertainties, and wildcards in the form of rounded commentaries, metaphors, and stories rather than transitory, single focused ideas.'

Source: "Environmental Scanning: What it is and How to Go About It," by Maree Conway 2009 (adapted from the original with her kind permission

Try taking this Style questionnaire in Figure 27 to see how you perceive, intuit and reason versus others and how your cognitive style influences your thinking about the future.

The left-right poles of this style questionnaire suggest different cognitive biases for each of us as follows:

- Independent - Interdependent. An independent orientation is a preference for individual initiative and action, whereas, an interdependent orientation is a preference for a more group-oriented approach that emphasizes the interests of the team as a whole.

- Egalitarian - Status. An egalitarian orientation is a preference for mutual consultation in decision-making, whereas, a status orientation is a preference for greater deference to rank and hierarchy.

- Risk - Restraint. A risk orientation is a preference for rapid action and risk-taking, whereas, a restraint orientation is a preference for more cautious and calculated actions based on ample information.

- Direct - Indirect. A direct orientation is a preference for open and explicit communication, whereas, an indirect orientation is a preference for careful attention paid to context, or to implicit meanings in a given message.

- Task - Relationship. A task orientation is a preference for immediate attention to getting the job done, whereas, a relationship orientation is a preference for establishing strong and trusting personal relationships first.

- Short Term - Long Term. A short term orientation is a preference for making choices based upon a narrow time horizon, whereas, a long term orientation is a preference for considering the impact that choices will have over a longer span of time.

This is why it is important to involve groups of people in scanning and to encourage right rather than left pole thinking in the participants.

Further references

- [Measuring Cultural Cognitive Biases in Multi-National Research](), Joan H. Johnston, Phillip Mangos Naval Air Warfare Center Training Systems Division

- [Think Again: Why Good Leaders Make Bad Decisions and How to Keep it From Happening to You](), Sydney Finkelstein, Andrew Campbell & Jo Whitehead, Harvard Business School Press 2009

- [Structured Analytic Techniques for Intelligence Analysis](), Richards J. Heuer Jr. & Randolph H. Pherson CQ Press 2010

4.3 Ways of seeing

Successful seeing relies on synthesizing and fragmenting disparate narratives into "meaningful wholes" or new patterns. Rather than breaking up information into pieces, a manager's, policymaker's, and consultant's intuition and vision is needed for the opposite reason.

Figure 27. Ways of seeing – Starburst. Courtesy of Shaping Tomorrow

A critical part of Horizon Scanning is being able to read a scanning hit for what it says about the future and being able to extend your worldview beyond today's paradigms.

Ways of seeing[1]

Brainstorming: Brainstorming gives us a way to see the future from the present by taking different vantage points as follows:

- ❑ Look ahead: looking to what's coming next
- ❑ Look behind: understanding the past
- ❑ Look above: taking a helicopter view
- ❑ Look below: finding the diamond in the rough
- ❑ Look beside: removing the blinkers
- ❑ Look beyond: questioning what's beyond the horizon
- ❑ Look through: actioning the thinking above

Source[1]: Strategic Thinking as "Seeing," Henry Mintzberg (1998)

Figure 28. Ways of seeing - Brainstorm. Courtesy of Shaping Tomorrow

Starbursting

Starbursting is a second method that generates questions on how an issue may evolve by taking the perspectives below:

- ❑ Who? (list potential key actors)

- ❑ What? (describe alternative futures)

- ❑ When? (when might these futures happen?)

- ❑ Where? (describe geographic impacts significant to these futures?)

- ❑ Why? (what would cause these alternative futures to happen?)

- ❑ How? (might these alternative futures emerge?)

Both Brainstorming and Starbursting are two great ways, among several others for an individual (or a team) to tell stories about the future they see emerging.

Other methods include:

- ❑ *Snapshot* – extracts key information from an Insight

- ❑ *Deception* – identifies false information

- ❑ *Devil's Advocate* – critiques someone else's analysis

- ❑ *Ideation* (including McCluhan's Tetrad) – helps understand change possibilities

- ❑ *Lifestyle* – examines societal impacts

- ❑ *Post-Implementation Review* – determines the underlying causes of an event

Each presents an individual or team with different vantage points and choices of perspective on the same issue.

Through co-created storytelling and narrative fragments we turn ideas and visions into the actions that form the pattern we regard as our strategy, to generate future scenarios and for use with other foresight methods.

We can represent these thinking tools as basic shared analyses like the ones in Figures 25 and 26 above or through visual analysis diagramming and narrative analysis.

For instance, Southbeach Modeller (Figure 28) allows the iteration of the initial set of Brainstorm and Starburst questions and facilitates the development of further layers of questioning through its visual analysis diagramming.

If used in a workshop, for example, the facilitator enters the subject of the workshop in the center. Clicking around the model generates the Starburst questions. These questions can be captured in the notes panel or used to create rules that trigger and generate additional prompts as the user clicks around the model they are developing.

Diagrammatic models using notations like this can be used to generate multiple scenarios in visual form.
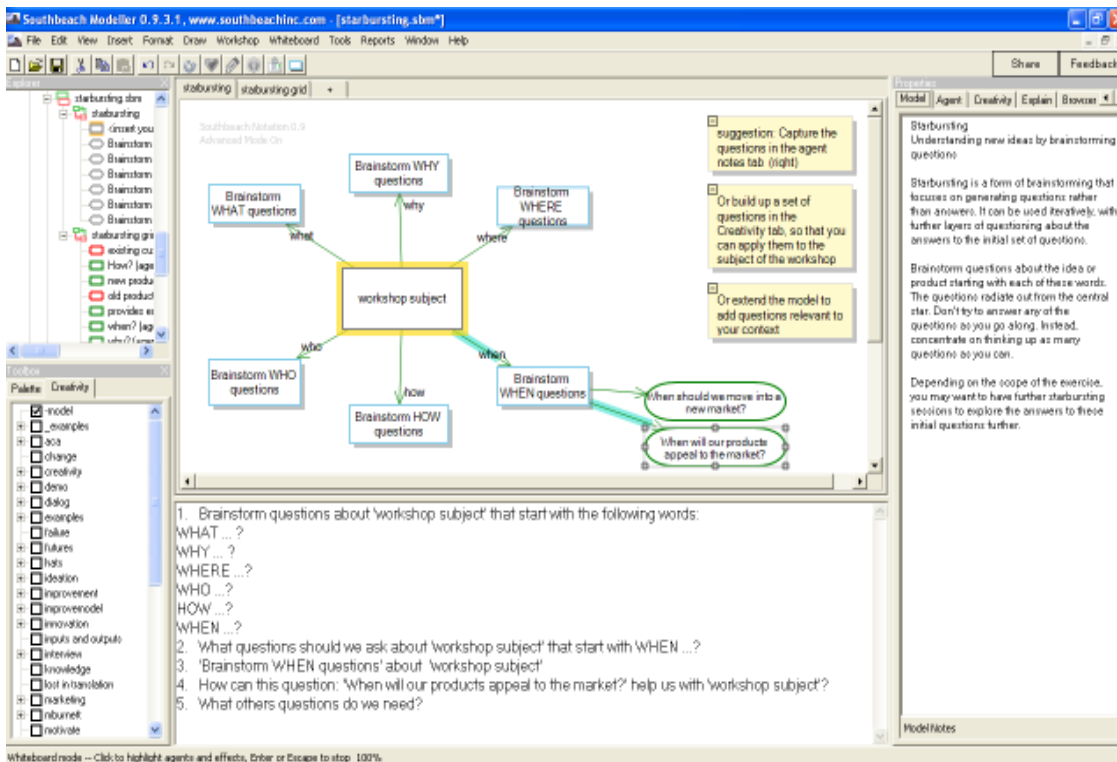
Figure 28. Southbeach /TRIZ Software, Courtesy of Howard Wright – Southbeach Modeller
http://southbeach-screenshots.blogspot.com/2010/03/starbursting-with-southbeach.html

Cognitive Edge provides a decision maker with the ability to see the world through others eyes using its narrative analysis 'Sense-maker' software. 'Sense-maker' has specific applications in Horizon Scanning and Risk Assessment:

❑ Helps decision-makers see the world through others eyes by utilizing collective wisdom

❑ Complements traditional scenario planning tools

❑ Provides weak signal monitoring and alerts

❑ Measures complex issues without allowing participants to game the outcome

Techniques

There are multiple ways to see beyond today and to generate fresh questions, stories and narrative:

❑ Bookmark sources
❑ Become a newsletter junkie
❑ Experience a service
❑ Go beyond your immediate interests
❑ Look for new inventions
❑ Look outside your industry

- ❑ Maintain an idea log
- ❑ Network with forward thinkers
- ❑ Pick a time frame
- ❑ Revisit the past
- ❑ Scan the scanners
- ❑ Set up a futures panel
- ❑ Take a global perspective
- ❑ Vary your routine
- ❑ Search patents, new books, etc.
- ❑ Conduct a bibliographic search

Principles

But, bear in mind these principles as you scan for fresh ideas:

- ❑ Explore both sides of the ledger to gain a complete picture.
- ❑ Think micro and macro at all times.
- ❑ Use "multiple lenses" to look at the same information or situation.
- ❑ Look for ways to "triangulate" (verify from multiple sources) information.
- ❑ Accept and think beyond felt needs and opportunities.
- ❑ Incorporate diverse sources and viewpoints.
- ❑ Consider both internal and external perspectives.
- ❑ Use multiple techniques.
- ❑ Explore both needs and constraints, and opportunities and assets.
- ❑ Form a global view without being superficial or narrowly focused.
- ❑ Involve those who can act on the information.
- ❑ Promote only realistic expectations.
- ❑ Ensure your research decision criteria are clear upfront.
- ❑ Sense check whether an idea is socially, economically, politically, technologically viable.

Multiple glasses

'Scanning is best done in a group, so you should look to set up a representative group of staff from across the organization. Doing this sounds easy, but it requires a commitment on the part of managers to include scanning in the position descriptions of these staff and to support them to spend a regular amount of time to do scanning each week. Staff finding the time to do scanning is the biggest obstacle to implementing a successful scanning system.

You need people who have open minds, who are willing to have their ideas challenged, who can think outside the box and are not tied to the present way of doing things, who are willing to share their knowledge and who can see the big picture rather than being obsessed with the details'

Source: Doing Environmental Scanning: Some Notes On Implementation, Maree Conway, 4, June 2009

We are so preoccupied with the short term, the here and now, and the urgent, that switching our brains over a long term and more strategic focus takes time and space. You might need to have a few scanning sessions that seem confused and worthless before you start to identify the valuable information, and to filter out the "noise." You will need to move out from your organization, into and beyond your industry to global trends. You will need to take a systems perspective. You will be looking for information about:

- ❑ Your industry and its operating environment.
- ❑ Your services and how they might evolve.
- ❑ Your clients and how their expectations might change.
- ❑ Issues that likely affect your workforce and your staff.
- ❑ Emerging and converging technologies.
- ❑ Emerging shifts in what we think is "business as usual".

Your scanning focus will likely cover:

- ❑ what competitors are doing,

- ❑ what is happening in the industry and how might your competitors respond, what is

- ❑ happening more generally with industry and government policy, and then the broader

- ❑ societal and global trends. The emphasis you put on each segment will depend on

- ❑ what you need, but you should always spend time looking at global trends – this is the area that sometimes gets dismissed because people are busy and want to know

- ❑ what is going to affect their work tomorrow rather than in 10 years' time. But, the global trends drive the former and you need to understand them first

economics
finance : globalisation : poverty : regulations : sustainability : trade

environment
agriculture : animals : climate : construction & building materials : environmentalism : food & drink : nature : raw materials : restoration : water

healthcare
disabilities : disease : epidemics : genetics : management : medical research : nutrition : pharmaceuticals : treatment : wellness

industries
arts : biotechnology : clean technology : communications : energy : financial services : life sciences : manufacturing & materials : media : mining (new) : retail : transport : travel

lifestyles
consumption : design & engineering : education : families : fashion : homes : leisure : values

organisation
anticipation : change : competition : culture : innovation : metrics : processes : risk : sales & marketing : strategy : workforce : workplace

politics
government : ideologies : international : military : protest : rights : security

society
community : crime & justice : demographics : gender : generations : networks

technology
computing : electronics : intelligence : internet : nanotechnology : realizations : robotics : science : singularity & transhumanism : space

Figure 29. Taxonomy – Courtesy of Shaping Tomorrow
http://www.shapingtomorrow.com/insights.cfm?taxon=1

Taxonomies

Using a taxonomy (a knowledge classification system) such as STEEP (Social, Technology, Economy, Environment, Politics) or PESTLE (Politics, Economics, Social, Technological, Legal, Environment) provides you with a starting point for your scanning. If, for example, your scanning anchor is around technology and learning, you will need to search out hits related to different aspects of the issue – delivery, communication, networking, etc.

Figure 29 shows a typical, but comprehensive, taxonomy. Your scanning is likely to be limited to maybe 10-15 topics from this list or others that are specific to your organization.

Using various ways to classify your data through structured, centrally managed and classified topics (taxonomy) or by unstructured, distribute, unclassified topics (folksonomy) helps identify the valuable information and to filter out considerable noise.

Figure 30. An unstructured folksonomy displayed in a Wordle tag cloud (www.wordle.com)

Social networks

Using a system to collect scan hits where everyone can voluntarily contribute is ideal. But, remember to thank them each time they contribute and encourage them to share what they see in the "hit" and what this might lead to, so that others will want to contribute also.

Further reference

❑ Free Labor for Foresight, John Mahaffie, 2008

❑ The Kingdom of Taxonomy on Video, Green Chameleon,

4.4 Recording insights

When you start to record your insights as scanning hits, you are working at the initial stage of the Foresight Process. You are working out how to present your scanning hits in ways that will make sense to you and your organization.

Depending on the scope of your scanning, you can manage the recording process manually, or you can use a database online like the one below. Either way, it's probably a good idea to have one or two people whose job it is to coordinate receipt of the scanning hits from all scanners.

Figure 31. Add an Insight – Courtesy of Shaping Tomorrow

This will allow some consistency to emerge in how the hits are recorded and summarized.

When you identify a hit that you wish to record, ensure you capture the following:

- ❑ a *title* for the scanning hit.
- ❑ the *source* where you located the hit and the date it was published.
- ❑ a brief *description* of what the change is all about.
- ❑ the future *implications* that you see from this change.

- ❑ the *url* if appropriate.
- ❑ any *tags* you to use to find your material again, for instance, keywords, project names, or dates.

4.5 Visualising insights

Adding an Insight to your database allows you to see your scan hits as a list and to manipulate them in various views.

Figure 32. Selected Insights. Courtesy of Shaping Tomorrow

The collaborative nature of this system allow members to add their own 'tags' and 'comments' to others additions, create customised newsletters through the 'report' button, 'share an Insight via email or through social media sites and allow an observed trend, uncertainty or wildcard to be directly captured through 'link trend'. By this means yours and others insights are enriched.

More and more we will see the visualisation of data presented as mash-ups that present information lists as concepts, by geography, process or time, through metrics and analysis. Lists, maps, tables, graphical time-series and 360 degree tag clouds allow the user to see change as it is happening.

S-curve visualization

Trend watching is much like a surfer reads a breaking wave. Initially the long rollers that signal the building of a wave are almost imperceptible and over the horizon but as they accelerate and reach land the wave begins to build and the surfer can increasingly see which ones are worth riding. Surfers ride the wave until just before it crashes, slows down, dissipates its energy and returns to the sea. S-curves can be of short, medium or long duration and with varying amplitudes and directional shifts just like waves.

Sigmoid or S-curves (See Figure 24) are used in trend watching and foresight to visualize growth and declination curves of scan hits. Skilled trend watchers and organizations see the growth early, prepare

ahead of time and ride the wave knowing it won't last forever and that they will need to look for the next 'big one' early.

Figure 33 shows a classic S-curve of Insights extracted from the Shaping Tomorrow database based on lagging and co-incident scan hits. In this example the rising concerns regarding dramatic climate change are evident.
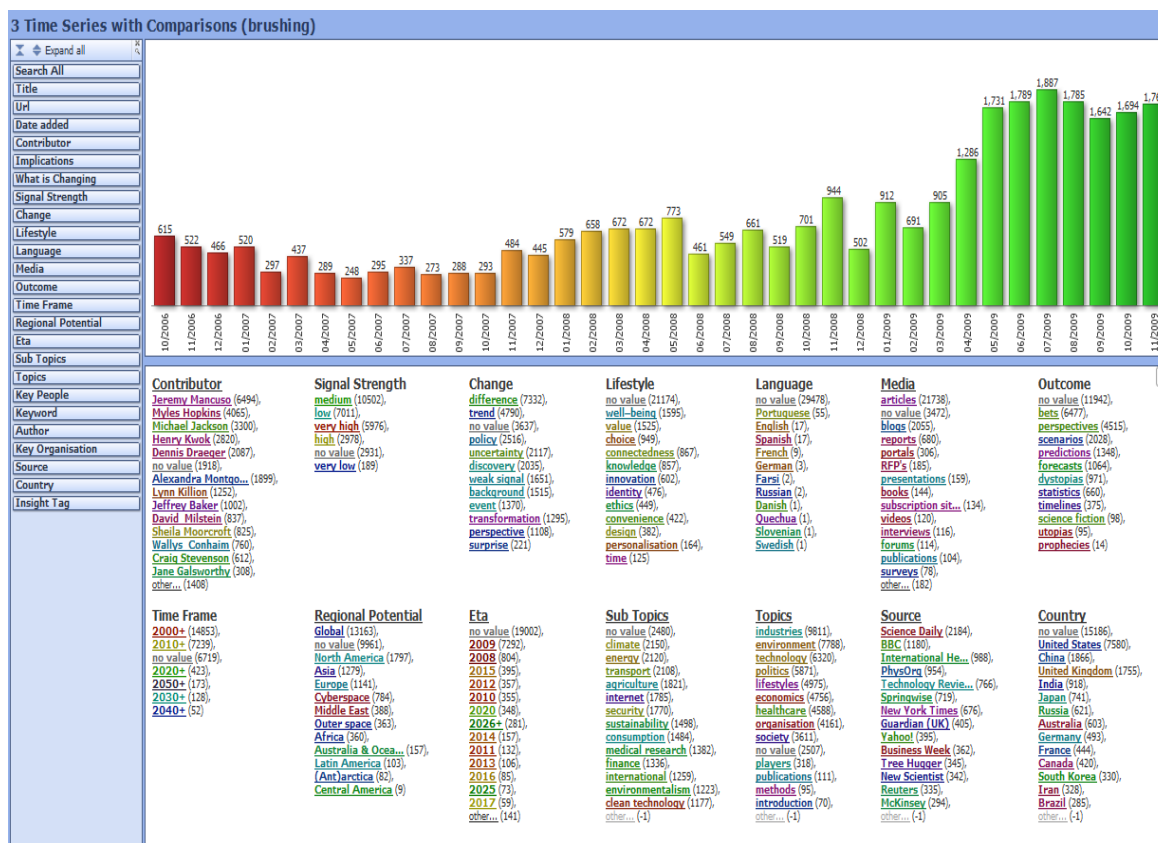
Figure 32: Time-series with Comparisons – Courtesy of Shaping Tomorrow. Produced using Visokio software. http://www.visokio.com/

Trend extrapolations can also show curves projected into the future using ETA (estimated time of arrival) on the x axis and hence show leading indicator directional shifts before they occur. *Figure 1* proved to be a good predictor of the then coming recession before 2007 using this combination of lagging, co-incident and leading indicators visualized as an S-curve.

Geolocation

And another showing Insights by country and region:
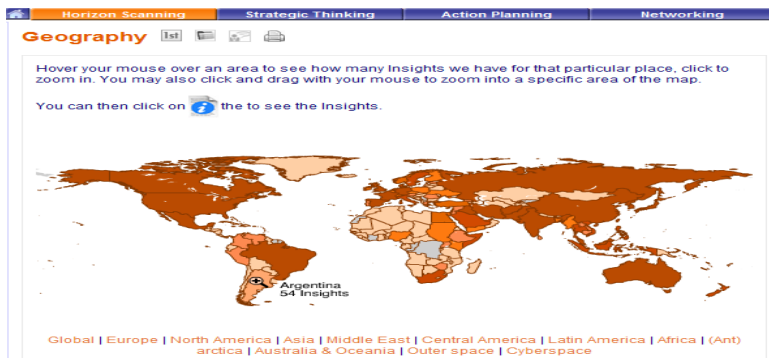
Figure 34: Geographical analysis – Courtesy of Shaping Tomorrow

Tag clouds
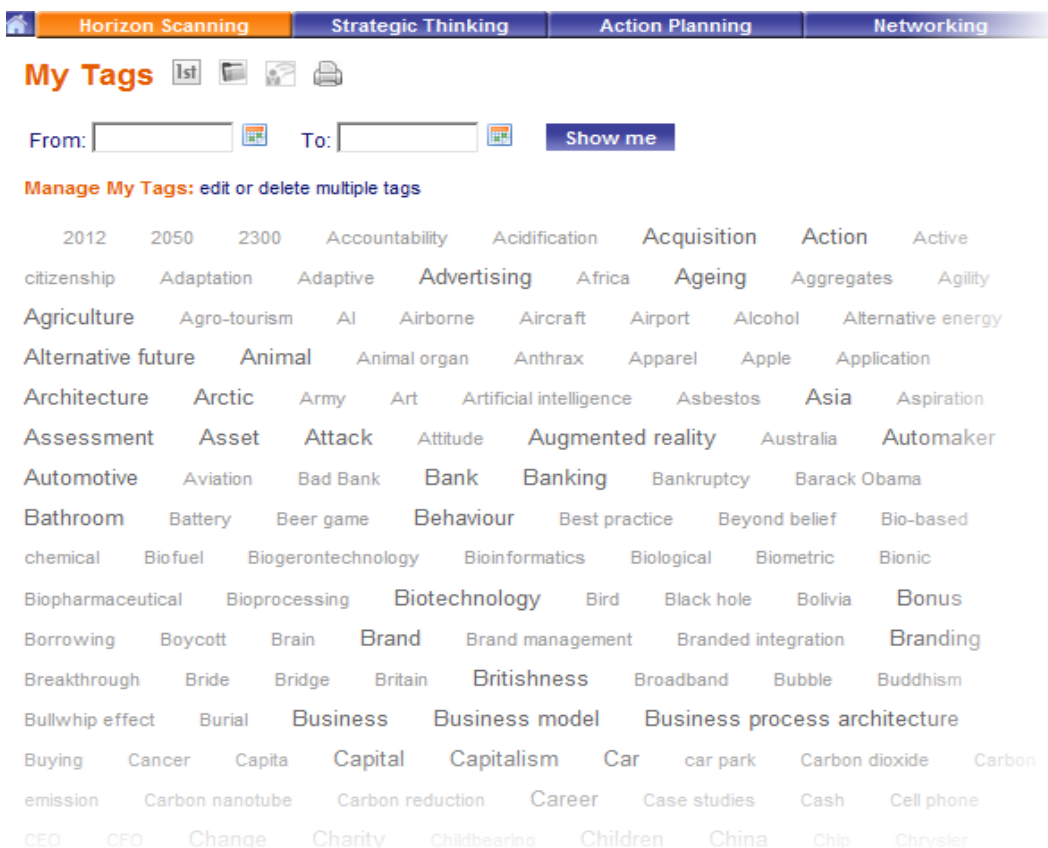
Figure 35: Unstructured tag cloud – Courtesy of Shaping Tomorrow

Figure 35 shows the Insights represented as a tag cloud of user Insights:

The larger the text, the more scan hits, indicating greater tagging activity. Analysts can also see the aggregate tag cloud of individual teams or view at an organizational level. This facility creates a way for the organization to know what their people are interested in and therefore which topics are considered currently hot.

Mash-ups

And lastly, a multi-dimensional mash-up of an issue bringing together all the salient views on a trend or issues likely future impact, likelihood and urgency into a single instrument panel and early warning system:
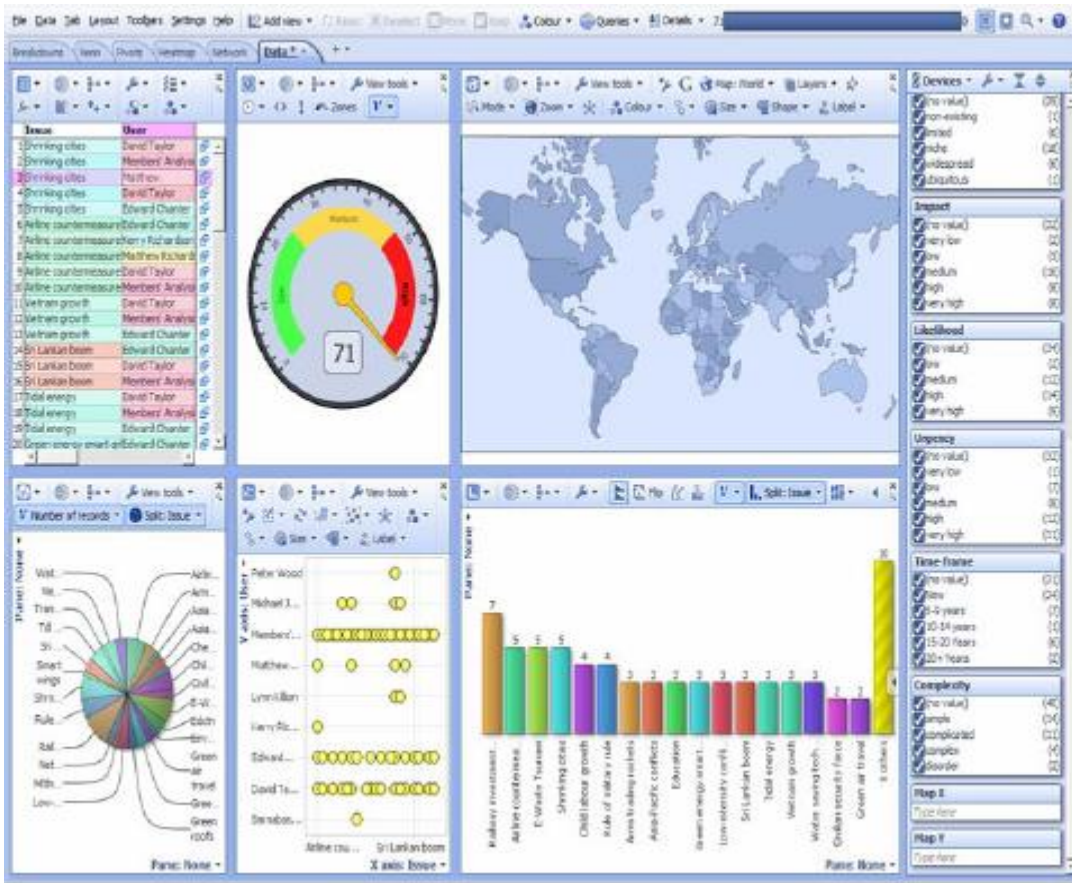
Figure 36. Mash-up – Courtesy of Shaping Tomorrow

Mash-ups are particularly useful to track significant changes in areas of key interests to organizations because the early warnings they give would almost certainly not be spotted by manual research until far later in the lifecycle.

4.6 Reporting insights

'How you report your outcomes will depend on what your organization expects from your scanning, or what you know will add value to existing processes. You will probably need to design the specifics of your own report or use the type of visualizations' above. In any report that you produce, however, make sure you include a statement that makes it clear that the scanning hits and the trends you notice are not predictions. Stress this. The analysis you are providing is an assessment of what might be possible in the future, not what will be. It is designed to inform thinking about how the organization might need to operate in response to increasing complexity and uncertainty in the external environment. Keep your scanning visible in your organization, and ensure your reports are relevant to your organization and its work, but remember that scanning hit reports are really designed to expose people to what is going on "out there" in the external environment. They should therefore challenge current thinking and make people feel uncomfortable or intrigued.'

Source: Environmental Scanning, What Is It and How To Do It ... (By kind permission of Maree Conway)

You may be producing a weekly report on your scanning hits possibly like the example below:

Figure 37. Energy watch – Courtesy of Shaping Tomorrow

As well as sharing this report among your planning team, you should consider sharing it more broadly across your organization as frequently as is appropriate. Your associates will find reports like this helpful to managing risk and/or increasing innovation.

Your scanning hits can be sent out via email (although this has the potential to annoy people whose inboxes are overflowing), or via a website that allows staff to rank the hits on relevance/importance to the organization's strategy. The latter obviously will cost money to develop, but it allows a degree of interaction not possible with conventional email approaches. One advantage is that the website is always available and staff can check it when they have time, rather than responding to a push email.

Staff views collected in this way help identify hits you might need to explore further, even if your own scanning is suggesting the hit might not be of major importance. This process is a cost-effective way to gather staff views about the future. Be open, dismiss nothing.

These reports are part of the process of expanding your understanding of the industry and global environment – the trends that are emerging in those spaces that may or may not be directly related to your organization's business today.

4.7 Scanning strategies

Researchers usually adopt one of three scanning strategies:

- ❑ *Change directed*: where the background is known and continuities and potential changes of any kind from the norm are sought, e.g., searching for any kind of change in an interest topic.
- ❑ *Signal directed*: where specific, known signals, signatures, or trends are sought but little is known of the background "noise," e.g., searching for issue gaps to use in subsequent strategic planning.
- ❑ *Pattern directed*: where apparently random signals without context and requiring interpretation are sought through emerging pattern recognition or trend analysis, e.g., searching for outliers and changing distribution of observations.

Researchers usually follow one of two approaches:

Evidence-based Horizon Scanning (Deductive approach)
In an evidenced-based Horizon Scan the researcher is seeking to find material that supports an issue or that seeks to provide answers to key questions usually for a specific project, and which may, or may not be repeated sometime in the future. Evidence-based scanning is usually static, periodic, and issue focused.

In this form of scanning the issue owner:

- ❑ Identifies strategic issues.
- ❑ Commissions future briefing papers.
- ❑ Asks for research to further inform the future briefing papers.
- ❑ Demands evidence.
- ❑ Requests citing of new evidence.
- ❑ Conducts quality assurance.
- ❑ Publishes a future briefing paper.

Evidence-based Horizon Scanning must reflect best practice, and be able to withstand peer review as well as credible scrutiny by informed readers. High evidence value from authoritative, relevant, well-presented sources and high stimulus value is a necessity. It should provide users with new ideas and perspectives from cutting-edge material to softer perspectives on change.

One way of doing this is to discover just where the targeted readership obtains their material. A quick organizational survey will improve the quality and provide a single source for their research. In other words, an enterprise-wide knowledge base of evidence can be created which retains corporate memory and informs every one of the current and past state of play. This side benefit has significant potential to reduce costs of evidence collection and increase organizational knowing.

Intelligence-Based Horizon Scanning (Inductive approach)
In an intelligence-based Horizon Scan the researcher is seeking to find material that adds to or identifies new issues as they arise with the aim of tracking change and creating an alerting system for new opportunities and threats. Intelligence-based scanning is dynamic, continuous, and usually targeted at keeping up to speed on external potential change in an organization's direct and indirect key interests.

In this form of scanning the process above is reversed with the researcher:

- Citing fresh intelligence.
- Discovering new patterns and connections.
- Using research to further inform future briefing papers.
- Creating future briefing papers.
- Identifying strategic issues.
- Conducting quality assurance.
- Publishing the future briefing paper.

Intelligence-based Horizon Scanning does not require the same level of rigor in order reflect best practice and is not necessarily designed to withstand peer review and credible scrutiny by informed readers; however, it must still provide high intelligence value from authoritative, relevant, and well-presented sources, and high stimulus value through providing users with new ideas and perspectives on a diverse range of topics. It should range from sourcing hard publications to softer perspectives on change and be aimed at a far wider community than just experts.

Balancing the need for evidence and intelligence
A well-structured Horizon Scanning system will support both evidence and intelligence-based methods.

However often a scan needs updating, it needs to be systematic and repeatable. At the same time, users need to see the bigger picture around their strategic issues, rather than diving into detail. It is also the case that trends tend to change slowly. Even shocking events, such as 9/11, are usually – if a scanning process is robust – evidence of trends or emerging issues which have already been identified.

In this sense, therefore, in building a repeatable horizon scanning process, the perfect is the enemy of the good. One can always make an evidence/intelligence base better, but there comes a point where diminishing returns set in, and money spent on improving the evidence/intelligence base further would be better spent on engagement or communication.

A balance can be struck by using the tiers to prioritize actions, on-going undirected scanning to capture new and emerging ideas, expert review and workshops to continue to identify gaps or altered priorities, using all of these to identify where new future briefings should be written as well as linking new material to existing future briefings.

Applying systematic mapping methods ensures the scans become complete and consistent. The principle methods are bibliometrics and patent mapping. Scan entries can be visually mapped to check for gaps, which are addressed with new data from information sources.

4.8 Scanning methods

Different organizations use a variety of ways to encourage strategic thinking through serendipitous discovery. Their intent is to engage people in continuous thinking about potential future issues, uncover previously unseen opportunities and risks, and determine their implications for the organization. Here are some common methods used by our clients:

Automated scanning: In recent years Internet improvements have made it possible to track emerging change from pre-selected sources e.g. competitors, favorite people and websites and other stakeholders through automated and semi-automated scanning. This method has cut finding highly relevant Insights to one tenth of the time, reduced human error and cut scanning costs significantly.

Bookmarking, RSS feeds, auto-linking to Twitter, Facebook, MentionMap, Paper.li and LinkedIn as well as scanning robots all provide fast addition of Insights.

[Kerry, cant get an image in here]

Organization-wide approach
One method of driving idea management throughout an organization is through using a web-based system for collecting ideas and concepts. Local teams often collect this information themselves but applying the same principles across the whole organization means greater idea transference and adoption. Encouraging disciplined adding, tagging of, commenting on, and ranking of Insights and Trends is one way to create continuous organizational narrative and thought transference and a better view of the emerging landscape.

Groupthink
People are encouraged to record and tag Insights of interest to them over a period of time, e.g., a week, month, or quarter. No restraints are placed on what people record but they are expected to talk to their Insights at a group meeting at the end of the period. The group discusses everyone's recorded Insights and then agrees on new trends, uncertainties, and wild cards that need adding to their Trends base. This process is repeated with the group adding new Insights to their existing Trends, retiring old ones, and adding new ones as the future unfolds. Further research is then carried out on these selected issues as described in the sections on Strategic Thinking and Action Planning.

Project or Program focus
Encouraging associates to browse latest Insights and Trends added by others, or to use a web-based scanning system every time they start a project or program or need to consider future implications of their actions, is a way of creating a forward-thinking culture. This brings similar benefits in terms of making sense of idea and views held in the organization by aggregation and visualization.

Issue-focused
Another method takes a specific issue and asks everyone to use the method above to find multi-sourced insight and ideation activities that would help solve the problem, create an opportunity, or reduce a risk. This method improves on the generic company idea scheme by focusing on key issues as they arise resulting in more quick wins, far greater stakeholder engagement, and visible successes.

Out-of-the box thinking
A different approach but with the same underlying principles is to ask people to regularly research and contribute areas outside of their own disciplines. For example: a marketing person reviewing latest technologies or an IT specialist researching finance developments. This type of approach often reduces organizational barriers, increases cross-team empathy, and drives innovation through better awareness of solutions beyond current paradigms. People are encouraged to record and tag Insights on topics unfamiliar

to them but directly related to their work over a period of time, e.g., a week, month, or quarter. No restraints are placed on what people record but they are expected to report their Insights to a central group of reviewers at the end of the period. The process then follows the Group Think process above.

Citation analysis

Leading organizations adopt a variety of methods to obtain serendipitous discovery here. Some regularly search for first mentions of new keywords, organizations, or patents. Others track favorite sources or watch key competitors, countries, or on-going R&D projects. For instance, fresh insight can be gained by examining previously unheard of organizations and looking to discover their unique selling points. These can then be compared to the needs of an organization and the learning shared.

Scouting networks

New Insights can also be identified through listening posts or an international scouting network of external or internal people to the organization. Tasks include scanning the research scene, in both academia and start-ups, for new knowledge, technologies, or competitive threats and opportunities.

The main benefit of the scouting method is the reduced time lag between the discovery and identification of an emerging Insight. This time lag can be up to 18 to 24 months in publication and patent analysis compared to a robust scouting process.

Scouts are expected to provide a title, short description, references, an image (if available), a judgment on potential and potential applications and possible risks. Out of a long list of scouted Insights an editor together with an expert panel selects a short list according to potential impacts based on:

- ❑ Entirely new highly impactful Insights.
- ❑ Important direct development changes to existing Insights.
- ❑ Important indirect development changes to existing Insights.
- ❑ Important rises in take up, or awareness, of an impactful Insight.

The expert group rates on three dimensions: urgency, impact, and likelihood of success to produce a prioritized listing of all impactful Insights. Changes to existing policies and strategies are then implemented as appropriate.

There can be a comparatively high cost for the establishment, management, and maintenance of an extensive scouting network.

Another disadvantage is the lack of scalability when using the scouting method. Each scout has a limited identification and processing capacity and therefore a desired output increase can only be achieved by a continuous increase in the number of scouts. This increases overhead management.

Stakeholder surveys

Surveys are a fast way to find out what others see in terms of future development.

Survey types

- ❑ Field trips
- ❑ Windshield surveys
- ❑ Key informant surveys
- ❑ Issues-oriented surveys

- ❑ Delphi studies
- ❑ Public opinion polls

- ❑ Staff surveys
- ❑ Prediction markets

The design of the surveys needs careful consideration and must focus clearly on answering the key question(s) you need to answer.

Key steps

- ❑ Establish the key questions and overarching goal(s) of your survey.
- ❑ Determine your target sample.
- ❑ Choose your method.
- ❑ Test the questions.
- ❑ Conduct the survey.
- ❑ Analyze the results.
- ❑ Produce the output.
- ❑ Add to the Horizon Scanning database.

Social media

Facebook and Twitter have revolutionized the way we signal change to each other. They and other social media sites coupe with wikis and blogs provide tremendous armchair scouting and dialogue tools. Use them to set up your favorites to watch, perhaps using the stakeholder analysis that was described in chapter 2.

Culture

Most adopt a combination of these approaches and have established regular forums amongst participants to discuss perceived underlying shifts hidden in their latest Insights research. These then become new Trends to track as a first step to clustering Trends into Key Drivers affecting the organization.

These methods, and more, can be used for visioning, target setting, road mapping, scenario planning, option selection, and risk assessment among others. Each relies on more convergent strategic innovation approaches through a coordinating staff function, heavy use of system analytics, encouraging diverse thinking, parallel exploration, and decision-making.

Above all, leadership and commitment to action from the very top of the organization are essential to making innovation a cornerstone of an organization's strategy. Organizations take a variety of approaches to creating an innovation culture but best practice companies have carefully considered and articulated their vision, the values they expect people to adhere too, the measures of success, the processes and measures to gauge progress, and the on-going communication mechanisms to inspire, engage, and enable.

Common flaws

- ❑ Choice: same tool every time, attempting too much rigor, attempting too much creativity.
- ❑ Application: excluding participation, process inflexibility.
- ❑ Communication: no explicit time horizon, theoretical base or values, too much complexity, no dialogue or action.

Further reference

- [What Are The Most Effective Approaches To Drive An Innovation Pipeline](#), Innovation Tools 2008

- [Adapted from The Technology Radar](#) -an Instrument of Technology Intelligence and Innovation Strategy, R. Rohrbeck, J. Heuer, H. Arnold - Deutsche Telekom Laboratories (2006)

- [Technology Scouting](#) - a case study on the Deutsche Telekom Laboratories, Rene Rohrbeck (2007)

- [Survey Design](#): Survey System

  [Survey and Questionnaire Design](#) : Statpac

4.9 Source selection

Scan sources should provide early signals of the leading edge of change, whether the change is a scientific discovery, technical innovation, or a value or behavioral shift in a community of interest.

Scanners identify sources that provide information on change prior to their natural pace of entry onto the policy stage. Sources are drawn from think tanks, academic publications, mainstream media, corporate foresight, expert/strategic thinkers, government sources, alternative journals and blogs, charities and non-governmental organizations (NGOs), minority communities, and futurists.

Where to look
Newspapers, websites, blogs, wikis, podcasts, videos, news sites, newsletters, magazines, books, book reviews, presentations, reports, surveys, interviews, seminars, chat rooms, trend observers, advertisers, philosophers, sociologists, management gurus, consultants, researchers, experts, and universities are all possible sources of information.

Unfortunately, intuitive recognition of a source as useful is not a transferable decision rule. So, in the best tradition of expert systems analyses, ask what is the purpose when choosing sources? To which the shortest possible answer is probably, "identifying opinion leaders." Because our current social construction grants credibility to intellectual adventuring within formal structures, such as science, we label those opinion leaders "experts." As innovative social and cultural ideas and behaviors challenge the status quo with the potential for transformation, they are generally marginalized - hence the usual scanning label of "fringe" for sources on emerging issues among youth, artists, social movements, the underclass, etc.

'Good scanners concentrate on identifying anomalies and patterns from their daily scans with a detailed knowledge of where information resides using proprietary and utility technology to find the best material versus source categorization. Scanners need to be open-minded, able to see opportunities and threats in change phenomena, and recognize entirely new areas for investigation within and far beyond their core interests.

Look for material that expresses:

- **New:** novel, advance, innovation, renovation, fashion, latest, renew, innovate, newness, fresh
- **First:** inception, conception, initiative, beginning, debut, onset, birth, infancy, start, dawn, commencement
- **Idea:** notion, belief, apprehension, thought, impression, ideation, point of view, standpoint, theory, prediction
- **Change:** alteration, mutation, permutation, variation, modification, inflexion, mood, deviation, turn, inversion, subversion, forecast

- **Surprise:** marvel, astonish, amaze, wonder, stupefy, fascinate, dazzle, startle, take-aback, electrify, stun, bewilder, boggle, wildcard
- **Opportunity:** chance, opening, crisis, juncture, conjuncture, favorable, high time
- **Threat:** future, prospect, anticipation, perspective, expectation, horizon, outlook, look-out, coming, forthcoming, imminent, approaching, fear, uncertainty
- **Unprecedented:** no precedent, unparalleled

Choose sources by identifying opinion leaders in specific sectors. Apply robust decision rules to choosing sources, ensuring that they incorporate both the latest high quality evidence and identify weak signals from fringe sources. Use evaluative modulators to help see patterns and gaps such as relevance, likelihood, controversy, speed, time horizon, and geographic spread.

Therefore, while initially tagging an Insight as having been sourced from an amateur, or the fringe, the task is to strengthen and broaden hits in order to improve source attributes towards professional and expert. If this cannot be achieved the priority rating given to an issue would be suitably reduced.

Measurable attributes
What would be measurable or documentable attributes that would help us distinguish among sources? What would establish sources' credibility as opinion leaders for their communities of interest?

- **High numbers of citations by members of the community:** for science documents, literally the extent to which they are cited; for popular media, their distribution; for "fringe" literature, the "buzz," measurable also by popularity within their target audience and, in the case of blogs, their ranking by links and hits. Is the source therefore credible as an opinion leader for that community?
- **Market niche:** to whom is the source *targeted*? *The Lancet* and *New England Journal of Medicine* are targeted to professionals in medical research; *New Scientist* is targeted to scientific professionals and decision-makers, as well as interested laypeople; *Discovery* is targeted entirely to interested laypeople and students. Is that documentable, e.g., by reference to mission statements or self-descriptions?
- **Distribution**: does distribution data, or access data (in the case of web sources/info-feeds), demonstrate widespread use by members of the source's target audience/community of interest? This would to some extent duplicate, and therefore corroborate, the citations variable, above.
- **Media**: the medium of information distribution itself might help distinguish among expert, fringe, and punditry, in terms of print journal, professional association newsletter, tabloid, etc.

Researchers weight these variables for each trend which in turn increases, or decreases, the prioritization of one issue versus another. These ranking systems in turn provide a useful sight check of whether the thinking has been sufficiently robust.'

Source: By kind permission of Infinite Futures

Determine what should be uploaded as follows:

- Does the link aim to identify and assess possible future threats and opportunities, including radical alternatives?
- Does the link explore socio-economic trends and their potential impacts?

- Does the link challenge existing political, economic, social, technological, and environmental assumptions and evidence?
- Does the link question assumptions underlying current policies?
- Does the link pioneer or employ methodologies appropriate to best practice horizon scanning, strategic planning, or change management?

Good links have the following attributes:

- Credible and eclectic sources from the full range of disciplines.
- Easy to read/plain language.
- Thought provoking.
- Future focused (except where history or today give context and understanding of the future).
- Helpful to creating future plans and actions.

And question links as follows:

- Is at deep-link site level wherever available.
- Is comprehensively described through the content classification.
- Correctly describes an interesting title and properly ascribed source.
- Contains a description that eliminates a site's over-claims to fame.
- Includes key tags: document type, timeframe, country of origin, URL, language.
- Only reference pre-payment sites at front page level and are clearly marked as "subscription" sites.

Managing source material

'Information sources are best selected by individual researchers. The task of a foresight team or manager is to give hints on additional sources and to store and distribute information for future use.

The reliability of a source needs much attention: wrong information and checks cost the scarce time and resources of the organization. Always try to triple check source material with two other similar scan hits from reputable organizations when possible.

Insights and Trends can be collected directly or indirectly with the support of information brokers, abstract or scanning services, or internal library services.

Much of this material is already collected in disparate databases and off-line systems by discrete teams in organizations. But coordinating these activities through a corporate wide knowledge management system means:

- Significant time savings in data collection.
- Wider scanning from a diverse network.
- Organizational sense-making is improved.'

Source: Technology Foresight In Companies, Guido Reger

Look for outliers and don't be afraid of the weird and the wacky. Remember that what seems unreasonable today may well not be viewed that way in the future.

4.10 Source categorization

Quality assessment

Source categorization challenges scanners to assess the evidence and stimulus value of sources, e.g., as "*expert*," "*professional*," or "*pundit," "amateur," and "fringe."* This is NOT meant to be pejorative, only descriptive. It does, to some extent, conflate a judgment of location of emergence of insight (scientific/rational genius vs. artistic/intuitive genius) with the timeframe of emergence (e.g., e*xpert* and *fringe* vs. *punditry);* the assumption being that something spotted in the popular press is further away from the origin point on the emergence growth curve.

A good source is one that stimulates the reader to think further and helps to classify the current evidence level:

Stimulus

Strong indicators of the stimulus levels of a source come from evaluating the potential impact of the intelligence:

- ❑ *Inspiring*: very high | high | neutral | low | very low
- ❑ *Engaging*: very high | high | medium | low | very low
- ❑ *Enabling*: very high | high | medium | low | very low
- ❑ *Novelty* : shock | surprise | new news | old news | none

Evidence

Strong indicators of the reliability and/or credibility of a source come from evaluating who is presenting the evidence:

- ❑ *Credentials*: expert | professional | pundit | amateur | fringe
- ❑ *Bias*: very impartial | somewhat impartial | balanced| somewhat partial | very partial
- ❑ *Methodology*: robust analysis | partial analysis | commentary | opinion led | speculative
- ❑ *Assumptions*: accurate | deduced | faulty | inaccurate | none

The role of the scanner is to seek to improve the initial scan hit by discovering better, more robust material to raise the stimulus and evidence level. If this cannot be found then the scan hit is likely to be on the margins of change.

Depending on the readers' interests, these types of categorizations assist in determining where they look for new opportunities, emerging risks, trigger events, disruptions, highly professional or fringe evidence, etc.

4.11 Discovering trends

When you scan for change or are presented with material that describes change, you will locate "hits" which describe, for example, events, innovations, policy shifts, social developments, and the way people use technology.

Once a week, review your hits and tags and clusters of like hits will begin to emerge. At this stage, you are starting to identify trends. Share the weekly report among the scanning team and get their feedback on what is important to explore more deeply. You might share via email or you might have a meeting - whatever works for your organization.

By the time you have identified a trend, it is likely to be already affecting your organization. Emerging issues, on the other hand, are the signals that are just beginning to appear on the horizon. These emerging issues might turn out to be irrelevant for your organization, but they can also turn out to be a significant issue that you need to consider. The only way to make this determination is to monitor the emergence via scanning.

Identifying trends is relatively simple, mainly because they are labeled as such, and there is much information about them (e.g., technological and demographic trends, generational issues). It is also likely that the impact of trends is already being felt in the present, so scanning is about better understanding how that trend might evolve over time.

Identifying an emerging issue is more difficult. 'Emerging issues start with a value shift, or a change in how an issue is viewed. An opinion leader or champion inevitably emerges who begins to move the issue into the public view. It is at this time that you will be able to identify the emerging issue. You might be looking at "experts" who are opinion leaders, or you might be looking at more fringe sources such as those found in youth culture and social movements.

You will need to make an assessment about whether or not the scanning hit is useful to your organization.

Some tips to help you identify relevant trends and emerging issues are:

- ❑ Explore what the trend/emerging issue is doing today.
- ❑ Explore what people are saying the trend/emerging issue will do over time.
- ❑ Explore the potential impact of the trend/emerging in your industry today and in the future.
- ❑ Place the trend in a global context and consider its implications for your organization today and into the future.
- ❑ Use your imagination

If you find something that might be useful:

- ❑ Test it by searching for relevant keywords to see what sort of links appear; if you get a lot of hits and the quality of the hits seem high, it means the issue is being talked about by many people and it is something you should include as a scanning hit,
- ❑ Or test it with your scanning team or others in the organization – does it seem important to them?
- ❑ If you have a reaction along the lines of "this is rubbish" or "this will never happen," explore a bit further before dismissing what you have found as irrelevant. What else might happen that would make this emerging issue more likely? If nothing substantial comes from this further exploration, then you can probably safely leave that particular hit for now (although check it out every now and then – keep it on a watch list).

Determining the value of a "hit" depends both on your personal insight and your ability to mentally move into a future space. Determine relevance only after you have explored the trend in the present AND in the future. A trend's trajectory today could shift quite radically in the not too far distant future. One aim of scanning is to help your organization avoid surprises, and unless you explore how a trend might play out over time, you are likely to be surprised.

Think big!

Scan hits and trends are not predictions. They are merely an assessment of what might be possible in the future, not what will be. Scan hits and trends therefore inform thinking about how the organization might need to operate in response to increasing complexity and uncertainty in the external environment. So, always take a "big picture" view today and a "long picture" future view of your trend, watch for deviations from your expected norm, and adjust your thinking accordingly.'

Source: By kind permission of Maree Conway - "Environmental Scanning: What it is and How to Go About It"

Over time, your preliminary clusters of scanning hits will become stronger and you will recognize common or similar patterns of change. At this stage, you probably have a trend, and you will be able to write a short summary statement about that trend, so that people will understand its importance to your organization. Questions about the trend's implications for your organization will also probably start to emerge at this stage – keep a note of these questions as they will be useful at the reporting stage. You may also start to see connections (both positive and negative) among trends. Keep a record of them as well, as they will be useful "conversation starters" further along in the strategy development process.

| Horizon Scanning | Strategic Thinking | Action Planning | Networking |

Add Trend 1st

Capture emerging patterns of change | Describe implications | Reference Insights to Trends.
Add trends, uncertainties and wildcards on change important to you - create your own database of trends etc. Add your own personal ideas and files, share your observations with others or keep them private as you wish.

Title *

e.g. Sensors Manage Commercial Aircraft

Date

[   ] [Month ▼] [Year ▼]

e.g. 01-Jan-2008

Description

e.g. Networks of sensors mounted on commercial aircraft might one day check continuously for the formation of structural defects

Implications

e.g. sensor, aircraft, inspection

What is changing?

e.g. sensor, aircraft, inspection

Why is this important?

Tag(s)

Add reference

[   ] [search]

Search for an Insight where this Trend is mentioned

Upload PDF

[   ] [Browse...]

PDFs less than 10Mb please

☐ Tick this box if you would like to remove the current file without uploading a new one.

Visible to

◉ All Shaping Tomorrow members
○ Me and my colleagues
○ Only me

* - required field

[Add Trend]

About us | Representative Offices | Member feedback | Contact us

Figure 37. Add a Trend – Courtesy of Shaping Tomorrow

4.12 Assessing trends

At this stage, it is important to recognize three things:

- ❑ trends don't exist in isolation,
- ❑ trends are extrapolations of the past and the present, not future facts, and
- ❑ trends have uncertain future trajectories.

During this process of assessing trends, you need to spend some time exploring how the trends might evolve over time. You should have started to do this when you scanned, and now you are looking at a number of trends to see how they connect or operate in isolation from each other. There could be weak or strong connections between trends, and some trends might collide.

Wildcards and other discontinuities might intervene and derail a trend trajectory completely. For this exercise, you need to be applying system thinking principles. The further into the future you explore, the more uncertain the trajectory of a trend is, and the more potential turning points there are. You will need to be exploring multiple alternative pathways to see whether your view that this trend is important to your organization is robust across those alternatives. Look, in particular, for possible pathways that might have a significant impact on how you do business today.

Ask questions such as:

- ❑ what would cause a fundamental change to the way your organization delivers its services?
- ❑ what would generate fundamental change in how your industry is organized?

Remember that you are scanning at the moment to improve your assessment, rather than selecting trends for further evaluation.

As with Insights a number of simple thinking methods exist to improve your assessment including:

- ❑ *Assumptions*: research underlying uncertainties further

- ❑ *Brainstorm*: quickly identify key opportunities and risks

- ❑ *CLA*: deconstruct conventional metaphors and re-make new futures

- ❑ *Counterpoint*: develop reverse strategies to the trend

- ❑ *Debate*: formally discuss opposing views

- ❑ *Devil's advocate*: critique someone else's analysis

- ❑ *Genus*: learn from the past

- ❑ *Megatrend*: examine probable global futures

- ❑ *Panarchy*: understand the source and role of change in systems

- ❑ *Red hat*: anticipate opponents actions

- ❑ *Self-critique*: identify weaknesses in your analysis

- *Starburst*: generate early questions rather than answers

- STEEP: identify critical driving factors

- SWOT: determine strengths, weaknesses, opportunities and threats

- *Surprise*: identify and analyze potential disruptors

- *Tipping point*: spot upcoming turning points early

- *Visioning*: determine a compelling image of a preferable future

All of these are available through the Shaping Tomorrow website.

4.13 Counter trends, wildcards & Black Swans

As well as looking for trends and emerging issues, you should also be alert for counter trends and wildcards. As you identify a trend, ask what the counter trend might be (the opposite trend). Do some scanning to see if such a counter trend is obvious – it might be or it might not be. If you find some evidence of a counter trend, record that. Counter trends can derail a trend's future trajectory, and you need to be alert to alternative outcomes if a counter trend gets stronger over time.

Wildcards are low probability, high impact events that have the potential to change the world overnight. Some sources like the Arlington Institute explore wildcards. Identifying their potential impact has a lot to do with your ability to ask "what if" questions around trends that might seem highly improbable today. Integrating wildcards into your strategic thinking requires an open mind.

Black Swans are highly improbable, impossible to anticipate events. For example, extra-terrestrials contact us, other forms of life and dimensions discovered.

You may not find any counter trends, wildcards or Black Swans but stay alert for them. They will often be weird and wacky, and you will be tempted to dismiss them as irrelevant. Explore first before you dismiss.

Because wildcards in particular are improbable, you will need to resist the voice in your head that tells you that you that it will never have an impact on your work. You will be tempted to ignore it because it seems unlikely to ever help you get your work done today or tomorrow. But, strategy is about the future, not the short term "tomorrows." Use the wildcard to explore questions like, "If this did happen, what opportunities or challenges could our organization face?"

Further reference

- A Vision for 2012. Planning for Extraordinary Change, John L. Petersen, 2008, Speaker's Corner

- The Black Swan: The Impact of the Highly Improbable, Nassim Nicholas Taleb, 2007, Allan Lane

4.14 Scanning challenges

Information Overload

There is a lot of information out there. How do you deal with it so you don't go into information overload?

Remember your scanning focus, but follow-up leads that look as though they might be useful.

Look for credible sources

You will soon learn how to identify these. Trusting your expertise and insight about what is credible and what is not is essential.

Stretch your thinking (or my brain hurts!)

It will probably be necessary to re-train your brain to shift the patterns of the past to be more open to what you are seeing as you scan, and to shift from an operational to a strategic focus. Your brain will probably start to hurt!

You will be dealing with complexity and uncertainty. You will be faced with an overwhelming amount of information when you start out. What you think is impossible now just might be plausible in the future, and this challenges – in a big way - what you believe to be true about the world. That is a truly uncomfortable process, so expect some "cognitive dissonance."

If your brain doesn't hurt, you are probably not stretching your thinking enough! Scanning becomes easier over time. If you scan regularly, you will become an "unconsciously competent" scanner.

Information sharing

'The people of an organization are some of the best sources external information, but sharing it remains a major challenge:

- ❑ Lack of awareness that information is useful to others.
- ❑ Lack of trust and concern information may be misused.
- ❑ Organizational structure blocks information sharing.
- ❑ Organizational culture rewards owning information, not sharing it.'

Source: Scanning the Environment, Chun Wei Choo, University of Toronto

4.15 Making time

You will also face the VERY REAL challenge of making enough time available to do your scanning, but, think about how much time would now be saved by the Banks had they spent some time considering the scan hits that were regularly reporting a financial bubble about to burst and how different the future would have been for them and all of us if they had invested time into scanning for surprises.

Scanning takes time!

You need to scan on a regular basis, for a set period of time. Start with 30 minutes every couple of days, and then adjust your time allocation as you get more comfortable with the process or specific projects call for scanning. Eventually, you will be scanning all the time, whether you know it or not, so make sure you have a way of easily recording any hits you find for further exploration. The key is to set a schedule for scanning and not change it.

If you work in a front-line position where you see clients, time for scanning will always be at risk. Usually however, you will be scanning for a specific purpose that is time limited. Work with your manager and

colleagues to ensure you are able to move out of the front-line for dedicated scanning time. If you are managing a scanning process, commit to making the time available for your staff to do their scanning. Ensure they know that scanning is work too, and that you support them spending time on this strategic activity. Encourage them to allocate set times for scanning, and to not be distracted by the urgent work that is sitting on their desk. Allow them to work at home or in the local café if that is possible (i.e., out of the office), so that they can focus very clearly on scanning.

This is about balancing a strategic activity with your operational imperatives. Most of us spend most of our time in the operational arena, and feel guilty when we move out of that space to focus on other things. Not keeping up with the volume of work and making ourselves busier than we already are is often a great fear. Setting time aside for scanning isn't easy to do in today's work environment, but if you want a stronger and more robust strategy, then scanning must be a priority in your work schedule.

No doubt the Banks now wish they had taken the time to scan more widely in the first decade of the new Millennium. They would have seen the crisis coming and had time to avoid the losses and huge reputation loss they incurred by not being future focused.