

Learning from the future through scenario planning

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Decisions made today are usually for an uncertain future. The future is unknowable, yet we choose to devote a lot of resources and effort to discussing and studying possibilities before we make decisions about new directions or new investments. Van der Heijden (2000, p.31) suggests the reason we do this is that there is at least something in the future which is predictable. There are many approaches to discovering what the future might hold, but few provide the insights and genuine learning that scenario planning can provide. Scenarios can help decision-makers understand what is truly uncertain and what is more predictable. This paper provides an introduction to scenario planning, explaining what scenarios are, why and when to use scenarios and how to create scenarios.

What are scenarios?

Scenarios are instruments for ordering people's perceptions about alternative futures in which decisions made today might play out. A scenario embodies a plausible view or perception of the future in a given year linked to conditions in the present via an internally consistent sequence of events. A scenario could be described as a road map from the present to the future.



The use of scenarios in strategic decision making and corporate planning was pioneered by the Royal Dutch/Shell Company during the 1970s. The method is best suited to organisations and industries which are extremely sensitive to external factors beyond their control and where time frames are relatively long. The use of scenario planning techniques as described in this paper is widespread in private industry and in the public sector. Examples of its use are presented in Attachment 1.

Scenario planning is a strategic planning tool or method for improving decision making against a background of possible future environments. In simple terms, a scenario is an internally consistent account of how the business environment, the external environment, in which an organisation operates might develop and change over time. An organisation assessing long term prospects with the aid of scenarios as part of its strategic planning would typically build up multiple scenarios to make sense of the large number of diverse, but inter-connected factors in the external environment. (The published literature on scenario planning is expanding. Detailed information of the use of scenarios in planning and future thinking can be found in Schwartz, 1991; Blyth and Young, 1994; van der Heiden, 1998; O'Brien, 2000; Lindgren and Bandhold 2003)

Scenarios are not predictions or forecasts of the future, nor are they science fiction or fantasy stories constructed merely to titillate the imagination. Scenarios are stories about the future based on an understanding of the present and the factors that have shaped current conditions and sequences of events from the present to the future. Each story comprises a number of plots. A plot binds together the elements of a story or scenario. Plots within a scenario are based on the key variables in the business environment, in the same way that the key characters or events in a story or a film provide sub-plots. According to Schwartz (1991, p.144), 'in most good scenarios, plot lines intersect, just as a good film often includes several sub-plots'. A scenario planner is like an author or script writer. The planner considers the converging forces in the plots and attempts to understand how and why they might intersect. From that analysis and understanding, coherent pictures of alternative futures are constructed. These are the scenarios.

To summarise, scenarios address:

- issues, trends and events in the **current environment** that are of concern to the organisation's decision makers;
- elements in the environment that are somewhat certain or **predictable** – referred to as predetermined events or variables; and
- elements in the environment that are more **uncertain** such as:
 - trend breakers that affect a system in unpredictable ways, but with understandable dynamics
 - turning points or discontinuities in the business environment, which may be identifiable in the present although often as weak signals of change (factors that should be monitored)
 - previously unencountered events such as new technologies or natural disasters.

Why and when should you use scenarios?

If you are facing critical decisions for the future of your organisation or industry and the business environment is complex and dynamic, then scenarios offer many advantages over traditional forecasting techniques.



First, scenarios can lead to better decisions for the future because they involve the decision makers in learning about the forces which shape the future, from an understanding of present behaviours and attitudes, patterns and trends. They challenge decision makers to 'think the unthinkable', to suspend disbelief, to let go of long-held mindsets and assumptions and let their imagination explore new horizon and consider possible futures.

Second, scenario planning allows individuals and organisations to perceive unexpected influences in their business environment. They enrich and expand the perceptual limitations of individuals and organisations by unlocking the mental maps or mind-sets of the managers and exposing them to previously unthinkable events. Scenarios are also 'tools for organisational perception' (Galer and van der Heijden

1992). Galer and van der Heijden argue that 'what an organisation sees in the outside world is determined by its traditional modes of thinking'. Pierre Wack (1984), one of the pioneers of scenarios at Shell, chose as the title of his seminal article on scenarios, '*Scenarios: The Gentle Art of Reperceiving*'. The poor record of forecasters in the early 1970s and the increasing uncertainty in the business environment shaped his thesis. Wack proposed that the solution to effective account of the future in strategic planning and decision making is not in looking for better forecasts or forecasters, but in the acceptance and understanding of uncertainty, and making it an integral part of the individual's or organisation's reasoning. Shell found that the scenarios technique was 'more conducive to forcing people to think about the future than the forecasting techniques' used formerly (Benard 1980 - quoted in Wack, 1984).



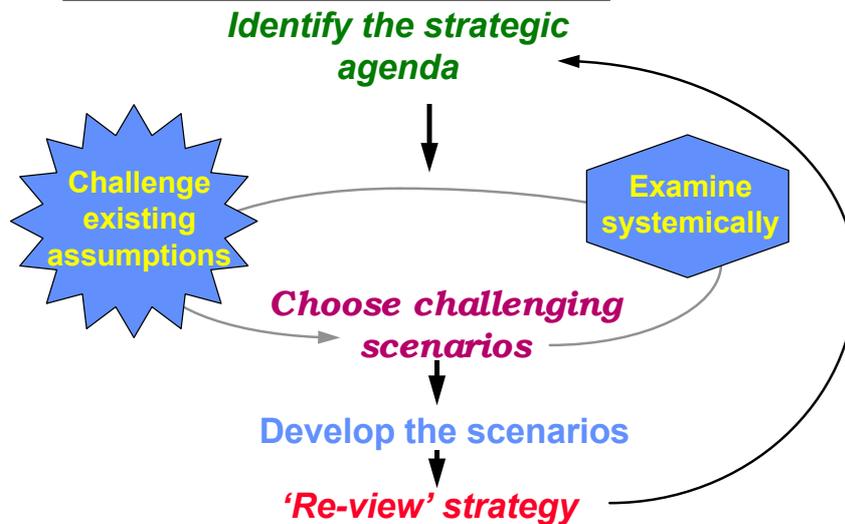
While scenarios focus on the critical uncertainties they also embody predictable or pre-determined elements as part of the story. Predetermined elements do not depend on any particular chain of events. If it seems certain, regardless of what might occur in the future, then it is a predetermined element. Predetermined elements include *slow changing phenomena* such as population growth and the building of physical infrastructure, *constrained situations* such as government regulations or goals, and *decisions or events already in the pipeline*, such as the size of the teenage population in the next decade or the area of plantations available for harvest in 15 years time.

Third, scenarios provide a basis for testing the impact of current and proposed strategies on the performance of your organisation in the future. This is often referred to as 'wind tunnelling'. Similarly, the impact of particular exogenous events, such as a natural disaster, can be assessed. The scenarios can also be used to identify strategies that will be robust regardless of which particular future (scenario) occurs. In these ways scenarios can be used to add confidence to decisions made for the future.



The following diagram presents the scenario process in terms of a 'scenario thinking map', where the organisation's strategic agenda is developed and changed as part of a continuous learning process. Existing assumptions (mental models) are challenged and strategy is reviewed in light of the possible and plausible futures as described by the scenarios.

Scenario Thinking Map



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Many organisations use scenarios to varying degrees to assist their strategic thinking and planning. Until the late 1990s, there were very few accounts of the experiences of scenario planning in organisations. Millet (1988, p.66) suggested that 'few of these have been written up because of the business sensitivity of the matter'. There are a number of published accounts available now for a range of organisations. Sensitivity is still an issue and most accounts focus on aspects of the scenarios process and provide descriptions of the scenarios (see for example, Ringland, Gill, 1998, Australian Business Foundation, 1999 and Fahey and Randall, 1998). Two excellent accounts of the methods used by organisations to develop strategies from scenarios are van der Heijden (1998) and Lindgren and Bandhold (2003).



The development and use of scenarios in business is well documented for Shell, who are the recognised leaders in scenario planning. Following a period in which scenario development was an episodic activity, Shell fully integrated scenarios into their strategic planning cycle in the early 1980s. Shell uses scenarios to develop business strategies, to identify investment opportunities and to prepare for discontinuities and sudden change in the business environment. Shell develops global scenarios as part of its strategic planning for the whole organisation, and focused scenarios for the assessment of more specific strategic issues, at various levels in the organisation. Global scenarios are developed for the long term, usually 30 years into the future. Shell also develops short-term scenarios, for 2 to 3 years hence. Focused scenarios may be developed using the global scenarios as a back drop, or they may be developed from scratch.¹

The set of scenarios developed for an organisation should include links to existing organisational mental maps and assumptions. Galer and van der Heijden (1992, p. 7)

¹ For more information visit the Shell web site at: <http://www.shell.com/home/Framework?siteId=home> and search for scenarios. In particular go to the article, People and Connections, which provides an account for the public of Shell's Global Scenarios to 2020.

suggest that 'a good starting point for a scenario program is an exploration into what managers directly concerned believe is currently going on in their world'. This leads to the identification of the organisation's **strategic agenda**.

How to create scenarios

There are a number of different approaches to creating scenarios, but they all have a common starting point. The first step is to clearly formulate the topic or issue of importance to the client audience. This is best presented as a question or series of questions. For example, in 2000 the global real estate group King Sturge (2001) in collaboration with the Dublin Institute of Technology used scenarios to explore the future of the global real estate industry. They posed the following strategic question:

'What are the major forces of change affecting the global real estate industry, and how should the property profession position itself now to face the future'.

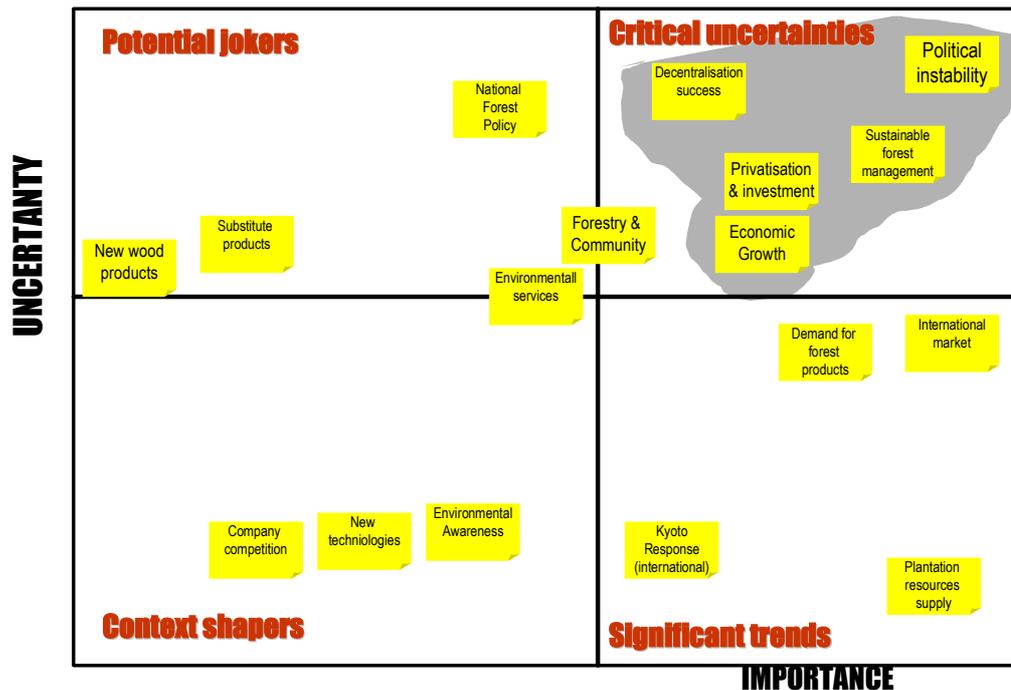
The time horizon for the study was to 2015. They were particularly interested in knowing about the level of government investment in city planning and development and the relative degree of economic prosperity prevailing internationally, regionally and locally. This set of questions defined their strategic agenda and focus.

The second step is to identify the driving forces of change. The focus is the topic or the strategic question. It is important to be wide ranging at this stage of the process, considering influences in the political, economic, social, environmental, technological and business environments. Inputs can be gathered via interviews with key persons who are directly or indirectly associated with the client organisation or industry. Inputs can also be made through a workshop involving various individuals from within and outside the industry or organisation and who have different perspectives on the business environment. This is the stage where those contributing are encouraged to think outside the square, to be imaginative and creative, to think the unthinkable and to step outside of their comfort zone. This is the source of challenging and novel future perspectives.



The third step is to group or cluster these change drivers into a meaningful and more manageable set of key variables. In clustering, the underlying detail is not lost but will be drawn upon later when the scenario logics and narratives are drafted.

The fourth step is to rank the variables in terms of their relative importance to or impact on the topic and their relative uncertainty or predictability. This is where the predetermined variables emerge and the critical uncertainties are identified. The critical uncertainties are those variables that likely to have the greatest impact on the topic and are the most uncertain. These variables are the primary focus of the scenario creation process. The following diagram illustrates the outcome of the variable ranking by importance and uncertainty. It is taken from a scenario planning training program conducted by the author in 2002 on the future of the Indonesian forestry industry and the market for research services.



The labels on each of the quadrants in the above diagram indicate the nature of the variables and their association with the topic or issue being addressed.² The critical uncertainties have the greatest impact on the topic and are the most uncertain. The significant trends are the predetermined variables, those influences which are more predictable and which are expected to have significant impact on the topic. The potential jokers are highly uncertain and are not expected to have much impact on the topic. However, they should not be dismissed and should be monitored. The context shapers are relatively certain and will have an impact on the broader environment.

During 2003 the Business Council of Australia facilitated Australia's Scenario Project – *Aspire Australia 2025* (Business Council of Australia 2004).³ Drawing on the contributions of 80 Australians, three scenarios were produced exploring the relationships that shape Australia's capacity to build security, prosperity and social harmony. Critical uncertainties emerging from this scenarios exercise included:

- Social cohesion and shared values between generations, different cultures and ethnic groups and socio-economic groups. How relationships between these groups play out will affect the nation's social fabric.
- Regional stability and the nature of Australia's relationships with other countries in the region will grow in importance, influenced by significant growth in economic opportunities in the region.
- Speed and direction of economic growth will be influenced by the relationships between citizens and institutions and their attitudes to globalisation.
- The efficiency of the relationship between Australia's three tiers of government. How sustainable is this structure of government?

² These labels were used by the authors of the Sturge King (2001) global real estate scenarios.

³ The Business Council of Australia report, *Aspire Australia 2025* is accessible via the Council's web site <http://www.bca.com.au/content.asp>

- Australia's capacity to build and sustain world scale critical mass in science and technology, underpinned by investment in education and training.
- Does Australia have a stable environmental base for future growth?

In addition, the Business Council project identified several inexorable trends (predetermined variables):

- The continued growth and dominance of Sydney
- The aging of Australia's population
- The dominance of world politics by the US (over the next 20 years)
- Technology advances will only partially address Australia's geographical distance from major trading partners

Three key challenges for Australia's future were identified. The first is about capacity, the second is about Australia's ability to adapt and the third is about social cohesion in Australia. The three scenarios explore how Australia might respond to these challenges.

The fifth step is to develop the scenarios, drawing on the critical uncertainties. There are a number of ways to proceed from the critical uncertainties to scenarios including the inductive, deductive and incremental approaches. The different approaches are explained by Van der Heijden (1996). The deductive approach is most suitable for a workshop situation where there may be time and other resource constraints. The approach uses simple prioritisation techniques to construct a 2 X 2 scenario matrix based on the two most critical uncertainties. This method aims to discover a structure in the data that can be used as a framework for deciding the set of scenarios to be developed. While this may seem to simplify the situation, the complexity apparent in the full set of critical uncertainties is recovered in the processes to develop the scenarios. Within a workshop the participants agree on the two most critical uncertainties which provide the axes for the four scenarios. The scenarios are defined in broad terms initially and then fleshed out in more detail with story lines developed from the variables.

During the scenario development stage agreement is reached on evocative names for the scenarios. Each name should capture the essence of the scenario and easily allow for differences between the scenarios to be recalled. One approach to naming is to select a theme from which variations can be selected to represent each scenario. The use of metaphor can be most evocative. This is an important part of the scenario building process and greatly helps in understanding the distinctiveness of each scenario.

In developing the scenarios attention needs to be relevance, novelty and substance.

- **Relevance** relates to the inclusion of current issues and situations that can be linked to current mental models and assumptions of management; it provides a bridge to the future.
- **Novelty** comes from the inclusion of new and amazing ideas and perspectives that challenge existing mental models and strategies, but are plausible; they could happen.

- **Substance** relates to the credibility and quality of the underpinning analysis that contributes to understanding of the present and to the logic and internal consistency of the pathway from the present to the future within each scenario.

Of these characteristics novelty is the most difficult to achieve and maintain. It is likely to fall out of the picture the quickest, yet its presence is critical to meaningful scenarios. Therefore, most effort is needed in the area of novelty. Relevance can be sourced from interviews with management or from background research on industry issues, while substance reflects the credibility of the thinking about issues and forces of change relevant to the topic and the client.

The Business Council of Australia created three scenarios for Australia to 2025. These are described in the accompanying box.

Box 1: The Business Council of Australia Scenarios – Aspire 2025

Riding the Wave

This scenario explores the consequences of a breakdown in trust between people and institutions. It is a story of reform fatigue and complacency. Australia's capacity to grow is undermined by a loss of faith in institutions. This leads to a lack of long-term, targeted investment and reform, resulting in economic decline and social crises. A re-examination of the nation's political structures ensues. In this world, global prosperity is no guarantee of prosperity for Australia. Efficient and effective government and trust between people and institutions are critical to building the nation's capacity.

Stormy Seas

This scenario is about Australia's international relationships. In this world there is a sustained decline in stability and security in the Asia Pacific region. This scenario explores policy options for Australia's relations with countries in the Asia Pacific. Australians become more nationalistic and cohesive. They become more tolerant to domestic differences but at the same time they are cocooned in their view of the rest of the world. It is a difficult future for Australia.

Changing the Crew

This scenario explores the social dimension of change in Australia, in particular value tensions between and within generations, as baby boomers move out of the driving seat of industry and government into retirement in unprecedented numbers. In this world a new generation of pioneers creates a sharper-edged Australia, which leads to friction with other generations. In this world Australians are more strongly connected with the rest of the world than ever before, economically and culturally.

The sixth stage involves testing the scenarios to ensure that they are distinct from each other. Indicators or sign posts that might reveal the emergence of a scenario are identified and documented for each scenario.

It is important that the scenarios gain wide acceptance as defining the strategic conversation within the organisation or industry. For this to occur the scenarios need to be tested and the test of a good scenario is that:

- it is plausible to a critical group of managers/decision makers in your organisation or industry and to significant others outside the industry⁴
- it is internally consistent
- it is relevant to the topic or issue of interest
- it is recognisable from signals of the present
- it is challenging or novel, containing some elements of surprise or novelty in directions where the organisation's or industry's vision needs to be stretched (encouraging managers to 'think the unthinkable').

Having successfully completed the testing and revised the scenarios accordingly, you are left with a set of road maps to the future, each starting from the same set of conditions in the present, but taking a different route to the future with various outcomes and implications for your organisation or industry. This set of scenarios becomes the framework for testing and developing your organisation's or industry's strategies that will help you achieve success in the future.

The subsequent stages relate to determination of strategies from the scenarios. This includes identifying opportunities and threats for your industry in each scenario and identifying the characteristics of a successful organisation in the horizon year. The outputs of these analyses can be fed into decisions about the future. The performance of existing and proposed industry and organisation strategies can be tested (wind-tunnelled) in each scenario.

Concluding remarks

Scenarios can help us learn from the future. True learning involves changing the way we think and act based on acceptance of new insights and understanding. Scenarios are learning tools. Scenarios accelerate learning. Learning faster is a competitive strength. Scenario planning gently releases us from conditioned worldviews and assumptions and exposes us to new perspectives and ways. Scenarios enrich our decision making for the future and guide our strategic choices for future success.

Successful scenarios usually emerge from a process that follows these simple rules, based on tips for successful scenarios articulated by Ogilvy and Schwartz (2004):

1. Commence with a clearly defined focal issue which captures the strategic needs of the target audience, posed as a question or series of related questions. Stay focused on this question.
2. Keep it simple and avoid overly complex scenario plots that can detract from the ease of remembering the scenario. Simple plots with a few key characters/variables are more helpful to managers' understanding, use and communication of the scenarios. Remember the KISS principle.
3. Avoid converging to soon and maintain an open, outward-looking and objective approach, involving a broad range of perspectives beyond the

⁴ A practice often used in scenario planning is to test the plausibility and logic of the scenarios with influential people from within the industry and beyond. Other testing techniques are outlined by van der Heijden (1998), pp.213-16.

‘official future’ or the business as usual scenario reflecting the prejudices of the most powerful individuals or organisations. The challenge is to strike a balance between divergence and ‘group-think’ among the critical mass of shared views involved in a scenarios exercise. The process requires active management involving careful selection of those invited to contribute, questioning of views and willingness to review and revise existing assumptions and strategies in light of new and imaginative viewpoints. This rule applies at each stage of the scenarios process including the identification of driving forces of change, the definition of critical uncertainties, the formulation of the scenarios and scenario logics.

4. Avoid linear scenarios, such as best case, worst case and most likely case or high, medium and low states. Each scenario should be based on a fundamentally different logic and set of assumptions. Avoid assigning probabilities and leaning towards one scenario over the others. Your mind must be kept open to all possibilities at all times. By selecting one scenario, the preferred scenario, your mind is blocked to other possibilities. All scenarios must remain equally active in strategy development.
5. Choose a small number of scenarios. Three or four scenarios are usually enough. Shell, for example, often develops two very different scenarios. Four is about the memory limit for groups. As mentioned previously avoid the ‘middle of the road trap’ that can occur with three scenarios. There is no ‘right’ or ‘wrong’ scenario. Scenarios are not predictions, because uncertainty remains. Scenarios are a set of distinct and plausible futures that could happen.
6. Creatively name the scenarios using a theme-based metaphor such as movie titles, bird or tree species that capture the inherent nature and behaviour of the scenario. Names should be memorable. The name should evoke the sequence of changes in the business environment associated with the scenario.
7. The scenario process builds ownership and commitment to the scenarios. Participants make powerful contributions to scenario development. There is strong attachment and commitment to the scenarios. Maintain on-going involvement with the participants beyond the scenarios workshop. These influential people will be involved in communicating the scenarios as well as development of strategies based on the scenarios.
8. Communicate the scenarios for impact and influence. Once the scenarios have been tested on a small group of key industry people, they should be exposed to a wider group. Thought needs to be given to the style of communication including how the narrative is drafted. Experience indicates that looking back from the future using first person accounts is most effective. Choice of the appropriate medium is also important. Scenarios can be presented in video format, acted out as dramas or in illustrated booklets.
9. Have fun! Scenarios are like playing or experimenting. Play is fun as well as an opportunity for learning. The more creativity and imagination injected into the process the more fun generated. So, have fun with your scenarios!

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Attachment 1 Selected examples of the use of scenario planning

Industry, sector, nation	Reference
Global scenarios	Shell: http://www.shell.com/home/Framework?siteId=home <i>People and Connections. Global Scenarios to 2020</i> See Global Business network website for recent scenario studies: http://www.gbn.com/index.srv
Energy	Nuclear power: Peter Schwartz and Chris Coldewey of GBN; see GBN website: http://www.gbn.com/SubjectDisplayServlet.srv?taxId=111
Forest Products	Robson, David and Blyth, Michael (2000), <i>The future for wood composites in Australia</i> , paper presented to the Biocomposites conference, ANU, Canberra.
Real Estate	King Sturge (2001): www.kingsturge.com
Information and Tele-communications	Europe - Mante-Meijer, E, van der Duin, P and Abeln, Muriel (1998), 'Fun with scenarios', <i>Long Range Planning</i> , 31(4), pp.628-37. Australia – ASTEC (1995), Surf's Up: Alternative Futures for Full Service Networks in Australia, available at: http://www.dest.gov.au/archive/science/astec/future/partners/contents.html
Environment	Electrolux – see Ringland, Gill (1998), <i>Scenario Planning. Managing for the Future</i> , John Wiley and Sons, Chichester, pp.287-89 Climate Change: Peter Schwartz and Doug Randall (2003) <i>An Abrupt Climate Change Scenario and its Implications for United States National Security</i> , http://www.ems.org/climate/pentagon_climatechange.pdf
Health	UK National Health Service – see Ringland, Gill (1998), <i>Scenario Planning. Managing for the Future</i> , John Wiley and Sons, Chichester, pp.291-96 Aged care in Australia – Uniting Care (2001), <i>Alternative futures for aged care in Australia</i> . See website: www.ads.nsw.uca.org.au
Pharmaceuticals	GBN: http://www.gbn.com/ArticleDisplayServlet.srv?aid=27807
Libraries	Unpublished CSIRO report: Michael Blyth (2000), Possible Futures: Scenarios for library and information services for scientific research to the year 2010.
City development	Curtin University of Technology (2003) Mandurah- Three decades of change. So What's next? Scenario Planning and Research Unit. See: http://www.mandurah.wa.gov.au/news/scenarioplanning
Australia	Business Council of Australia (2004), <i>Aspire Australia 2025</i> : www.bca.com.au Australian Business Foundation (1999), <i>Alternative Futures – Scenarios of Business in Australia to the Year 2015</i> ; see website at: http://www.abfoundation.com.au/
South Africa	Adam Kahane (1992), <i>The Mont Fleur Scenarios: What will South Africa be Like in 2002?</i> , GBN – available at the GBN website - http://www.gbn.com/SubjectDisplayServlet.srv?taxId=111
International relations	US-China: Nautilus Institute (2001), <i>Scenarios for the future of United States-China relations 2001-2010</i> , http://www.nautilus.org/archives/enviro/beijing2k/FinalReport.PDF