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A generic foresight process framework

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Abstract

A generic foresight process framework is outlined, based upon prior independent work by Mintzberg, Horton and Slaughter. The framework was developed as part of work carried out by the author during the introduction of foresight into the formal strategic planning of a public-sector university in Australia. The framework recognises several distinct phases, leading from the initial gathering of information, through to the production of outputs intended as input into the more familiar activities of strategy development and strategic planning. The framework is also useful as a diagnostic tool for examining how foresight work and strategy are undertaken, as well as a design aid for customised foresight projects and processes. Some observations and reflections are made on lessons learned from a two-and-a-half year engagement as an organisationally-based foresight practitioner.

Keywords: organisational implementation, generic foresight framework, diagnostic tool, design aid

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1 Introduction

This paper describes a generic foresight process framework developed as part of the introduction and implementation of foresight into an organisation with pre-existing strategy development and strategic planning activities. It has proven to be very useful as a practical tool for clarifying to organisational personnel at all levels the important inter-relationships and distinctions between these three types of activity. In addition, the framework has also proven to be very useful as a practical tool for diagnosing where and how certain approaches to foresight and strategy work may need improvement or refinement. It has been useful both for understanding and evaluating the manner by which different methodologies may be combined, and as a basis for designing new and innovative methodological processes, practices and interventions tailored to specific organisational circumstances. Reflections and observations on some key learnings which have stemmed from this work are made throughout.

An underlying objective of this paper is to report back to the foresight practitioner community on a specific instance of practical foresight implementation. The framework described here flows from an adaptation of existing theory and methodology, and is designed to support and stimulate the emergence of new ideas for foresight praxis. As such, this paper represents an attempt to 'close the loop' of action research (Senge & Scharmer 2001), something which is necessary for the continued growth and health of foresight as a specialised and professional knowledge discipline. The intention is that this paper will contribute to the continuing cycle of knowledge creation within foresight work in general, and organisational implementation of foresight in particular.

2 The organisational context for foresight at Swinburne

Foresight, Planning and Review (FPR) at Swinburne is located organisationally in the Office of the Vice-Chancellor, to whom the unit's Director reports. It was formed in 1999 following a decision by the then Vice Chancellor (together with the then Vice President) that Swinburne should 'do foresight.' Another aspect of this decision was the establishment at Swinburne of the Australian Foresight Institute (AFI), whose Director and Foundation Professor is Richard Slaughter, the current president of the World Futures Studies Federation.

It is frequently a source of some confusion to people that there are *two* places at Swinburne with the word 'foresight' in their names. The AFI is a research, teaching and academic institute with an international focus whose mission, in part, is the training of foresight practitioners, while FPR is an internally-focussed administrative department charged with putting foresight into practice for the University. Therefore, as far as we have been able to discern, Swinburne as an organisation is in a unique position with respect to foresight—it is both taught here as an academic discipline, and the University is engaged in incorporating it explicitly into continuing strategy development and strategic planning processes at the highest level. We have had an opportunity to establish foresight at Swinburne as both an area of academic excellence (via the AFI) and as an area of competitive advantage (via FPR).

My own position with respect to these two centres of foresight at Swinburne is also rather unique. When I arrived at Swinburne in early 2000 it was to work with Prof. Slaughter at the AFI as a contractor on a small project. When that short-term contract ended, I applied for, and was subsequently appointed to, the new 'strategic foresight analyst' job which had only just been created in FPR. From August 2000 until December 2002, I was involved as a member of a small team in implementing foresight in this real-life, politically conservative organisation, where the notion of foresight was originally greeted with perplexed scepticism

at best, and open hostility at worst. During that time, I occasionally taught in the AFI, providing a practitioner's view 'from the trenches', as it were, to the students undertaking the AFI's courses on Strategic Foresight. This practical orientation to foresight, in addition to the obvious necessity for intellectual rigour provided by the academic structure, is a hallmark of the AFI's courses. In January 2003, I returned to the AFI in an academic role, which has provided the opportunity to teach what I have learned as a practitioner to other practitioners.

FPR was charged, upon its creation in 1999 (in a slightly different form than at present), with the mission of developing, implementing and continuously improving the University Planning Framework in ways that meet the needs of the University community, and with developing a strong foresight capacity to underpin and inform the University's strategy development. This continues to be a major part of the mission of FPR. Most of the University's planning framework—within which my specific contribution to implementing foresight at Swinburne has been made—was already in place before my arrival, put there largely single-handedly by the Director of FPR, Maree Conway.

What follows below is a description of one aspect of my work as a member of FPR—an easily understandable (or so it was meant to be) foresight process framework I developed during late 2000 which would guide our approach to communicating the 'message' of foresight, while at the same time forming an intellectual and conceptual framework within which to operate. The diagrams included herein are taken or adapted from actual presentation slides used during seminars and workshops. They are examples of attempts to 'de-mystify' the foresight process in ways that are intended to be easily and quickly grasped. Often, there were only a very few minutes to get people's attention and to get the message across, so the goal was always to present complex ideas as simply as possible. For a detailed description of Swinburne's early experience in attempting to incorporate foresight into pre-existing strategic planning, see the paper by Conway (2001).

3   The staged approach to implementing foresight

Foresight is being implemented at Swinburne using what Slaughter (2002, p.232) calls the *pragmatic* approach to foresight—addressing the strategic question of how to survive in an increasingly competitive (in this case, education) environment. While this implementation of foresight processes is informed by the solid discipline and academic rigour of futures studies, it must also operate within the confines of the strategic reality of Swinburne needing to remain viable as an organisation. Maintaining this balance between rigorous intellectual discipline and practical pragmatic utility is of prime importance in the sceptical and political environment of the organisation.

While conventional strategic planning is well established in Australian universities, the introduction of a 10–20-year foresight time horizon which explicitly forced a longer-term perspective into the existing planning mind-set met, needless to say, with some problems. There was disbelief, frustration, and even anger at being asked to think beyond the 'more realistic' time frames of one-to-three years out to what were considered lunatic time frames. Jokes about crystal balls and tea leaves were common, as were derisory remarks about the usefulness of the activity—and the (mis)perceived cost of doing it. It was abundantly clear that very few people had any real understanding of what foresight work is all about. It was also very clear that a good deal of education needed to be done to de-mystify futures and foresight work before any meaningful introduction of methodologies could be undertaken.

Therefore, the method of implementation was based on a two-phase staged approach—education *first*, methodology second—with the following rationale. An initial education phase 'prepares the ground'; the second phase then establishes the context for foresight

processes and methodology within the organisation in a way that can 'take', as it were. These two phases are not separated in time and are best thought of as overlapping waves; different parts of the organisation may be at different stages of the overall implementation process. The introduction of foresight concepts and ideas through an education phase assists the creation of a shared vocabulary for people to use in daily interactions. When this effect is widespread and natural, a language for thinking and speaking about the future is embedded. Only with this foundation in place can foresight processes be meaningfully introduced into existing planning processes. These foresight processes are gradually adopted until they too become embedded in the strategic processes of the organisation. When this state is achieved, the organisation as a whole has a foresight capacity; through *widespread* shared understandings, concepts, processes, and what van der Heijden (1996) calls 'strategic conversations', rather than being localised within a few specific individuals—a situation which is both strategically unsustainable and extremely unwise.

The key goal of the implementation of foresight at Swinburne is simply this: rather than foresight being a separate, special and merely 'episodic' occurrence which shines forth briefly and then vanishes without trace, the intention was to make it a permanent, continuous and *totally normal* part of all planning at all levels of the organisation. One way of normalising foresight was to get it in front of people at every opportunity. This we did via a variety of means. In my role as a foresight analyst, I edited frequent email 'foresight snippets' as well as an environmental scanning newsletter, *prospect*. They were designed to be 'conversation starters' for the strategic conversations mentioned above. The *Snippets* focussed on the broader social environment in which the organisation is embedded—items of interesting, challenging and sometimes weird information which 'may or may not' have direct obvious relevance to the organisation—while *prospect* provided more obviously 'serious' information about specifically education-related developments which were also related to the five main strategic 'themes' of the university. These publications had the dual role of both raising awareness of futures-related issues in the organisation as well as becoming a medium for disseminating strategic intelligence.

The initial wide-scale education phase is largely complete, now focussing on new staff. The methodology phase has also been operative for some time, using scenario planning as the first methodology because of its long pedigree and track record—something which was important for the prevailing mind-set of this organisation—with other methodologies being introduced as appropriate to particular projects. For example, FPR were commissioned to run exploratory workshops for the early part of the Student Experience Project in 2002. For these I chose to use *causal layered analysis* (Inayatullah 1998a) as the methodology. The workshops were considered very successful because of the uncovering of 'deeper' layers of understanding around the issue being explored, and because of the novel approaches and proposed solutions which these understandings engendered. Half- and one-day scenario workshops were run during 2001 in several administrative and academic units, preparing the ground for the major Swinburne Scenarios Project undertaken in 2002. The full roll-out of the Swinburne Scenarios continues in 2003 with the production of a workbook and workshop designed for use at each level of the organisation: from the academic School or administrative Unit level to the Division level, and so on up to the University level. Foresight is now well on the way to becoming a mainstream activity in the organisation.

4   On foresight, strategy and planning

In our daily work in FPR, we often encountered confusion among staff about the relation between strategic thinking, strategy development and strategic planning. The confusion between these different activities lies essentially in the mistaken belief that they are all

the same thing—which of course they are not. They are, in fact, three quite separate but mutually inter-dependent activities which each have decidedly different foci of interest, and which each require quite different styles of thinking for their proper execution. We found ourselves having to explain these differences to people on so many occasions, public and private, in workshops and in meetings, that we incorporated elements of the text below into some of our presentation slides, in order to 'short-circuit' mistaken beliefs before they could take hold in an audience beyond any hope of extirpation. Perhaps some of the text and ideas below may also be useful to you.

Experts on strategic management, such as Mintzberg (1994), or Liedtka (1998), have characterised the essential difference between strategic planning and strategic thinking. In essence, says Mintzberg, strategic planning "has always been about *analysis*—breaking down a goal or set of intentions into steps, formalising those steps so that they can be implemented ..., and articulating the anticipated consequences or results of each step" (Mintzberg 1994, p.108). This is clearly an activity requiring thinking which is strongly analytical, logical, deductive and pragmatic, in order to ensure that things stay 'on track.' "Strategic thinking, in contrast," he says, "is about *synthesis*. It involves intuition and creativity" (p.108) to formulate an integrated perspective or vision of where an organisation should be heading. It is generally intuitive, experimental and disruptive and attempts to go beyond what purely logical thinking can inform. Because information about potential futures is *always* incomplete, the thinking required for success in this activity needs to be 'synthetical' (as it were) and *in*ductive, rather than analytical and *de*ductive.

Foresight, then, in an organisational context, is an aspect of strategic thinking, which latter is meant to open up an expanded range of perceptions of the strategic options available, so that strategy-making is potentially wiser. Foresight (as strategic thinking) is concerned with *exploration* (based on limited and patchy information) and *options*, not with the steps needed for the *implementation of actions*, which is the realm of strategic planning. The former is intuitive, disruptive and 'what if?' in nature; the latter is goal-oriented, pragmatic and 'make it happen/can do!' in nature.

The junction between these two activities is the mysterious 'black box' of the strategy development process or strategy-making itself, where a particular goal or objective is actually set or a decision made. The focus here is on assessing options, examining choices, making a *decision*, and/or setting a goal, objective or *destination*. Mintzberg and collaborators (Mintzberg et al. 1998) discuss ten major 'schools' of strategy and highlight their different assumptions, approaches and foci. The 'cognitive' school is concerned with the 'mysterious process' of the actual creation of strategy.

Thus, in brief; strategic thinking is about *exploring options*; strategy development is about *making decisions* and *setting directions*, and strategic planning is about *implementing actions*. Problems arise when one of these activities is elevated to pre-eminence, rather than seen as simply a part of a necessary, and much wider, process—*all three* are needed and vitally necessary for successfully confronting the strategic environment.

We positioned foresight, therefore, as an element of strategic thinking, which is *an* input into strategy-making, which then directs strategic planning and action. We were always careful to stress that it does *not* replace strategic planning. Rather, we suggested that foresight work 'enriches and enhances' the context within which strategy is developed, planned and executed. In colloquial terms, foresight and strategic thinking tend to resonate with the question: 'what *might* we need to do?' In contrast, strategy development asks the question 'what *will* we do?', and strategic planning the question '*how* will we do it?'

Hayward (2004) has used Stafford Beer's Viable System Model (VSM) as a basis for understanding foresight in organisations. The most accessible of Beer's own writings on the VSM are found in a companion volume (Beer 1984) to two earlier and much more demanding volumes. Hayward's (2004) paper shows where foresight is properly placed in the overall

complex system which is an organisation, how it may be facilitated, what roles it can and should take and, most importantly, explains why foresight practitioners and management are so often in conflict over priorities and concerns.

5 Origins of the foresight framework

The framework emerges from a combination and reworking of ideas found in three main sources. I will not dwell on the details of these sources, preferring to simply note key aspects and leave it to readers to follow up as their own interests dictate. Some of this work was reported in an abridged form in a conference paper at the Foresight conference held at the University of Strathclyde, Glasgow, Scotland on July 11–13, 2002 (Conway & Voros 2002).

As discussed above, Mintzberg (1994) makes a clear distinction between strategic planning and strategic thinking. Horton (1999) has laid out a broad, three-phase process for doing foresight work. Phase One consists of gathering *Inputs*; Phase Two of *Foresight* work itself, and Phase Three of *Outputs and Actions*. Phases One and Three are relatively self-explanatory. Phase Two of her process consists of two steps: a Translation step—to translate the information gathered in Phase One into a form which the organisation can understand—and an Interpretation step, where the translated knowledge needs to be converted into understanding.

I took the broad structure of Horton's framework and, using Mintzberg's notion of the separation of strategic thinking from strategy-development and strategic planning, separated Horton's Phase Three into two distinct elements: the Outputs of the foresight process, and the Actions taken as a result of it. As I see it, the Actions step is really just the more usual organisational processes of Strategy Development and Strategic Planning (which will be called simply 'Strategy' below), the concepts of which are already familiar to most people in organisations.

I also explicitly separated the outputs of Foresight work from Strategy because of the very real possibility of Foresight becoming a convenient scapegoat for ineffectual action. In other words, one must be clear that the Foresight process simply provides *input into* the consideration of decisions and the implementation of actions, which is the role of traditional strategy work. If this strategy work is not done, or done badly, it must be clear that it is a separate activity from the foresight work which preceded it. Because 'foresight' is usually new and unfamiliar (and may have opponents within the organisation who perhaps see it as a threat to their power base, or simply just don't 'get' it), in real-world political environments such as organisations, this clarity of the separation of roles and responsibilities is very important.

Thus, in broad outline, the framework has a four-phase structure: Inputs; Foresight; Outputs; and Strategy, modelled on Horton's, but which differs significantly in the details of the phases, especially the Foresight phase. This broad outline is shown in Figure 1. The comments on the right hand side of Figure 1 indicate either the type of activity involved, or the main focus/output of the phase.

The Strategy 'phase' as portrayed in a single box is really just an attempt to denote on a simple diagram the many highly complex and continuing strategic processes which go on in an organisation, in order to visually suggest that Foresight is *an input into* Strategy processes. These latter obviously extend their influence beyond the simple box form portrayed in the diagram and inform several layers of organisational activity below, such as managerial/allocative and tactical processes, which in turn inform operational processes. My interest in this paper, however, is merely to show how Foresight interacts with and 'feeds into' Strategy, which latter is well understood and has a huge literature concerning it. For
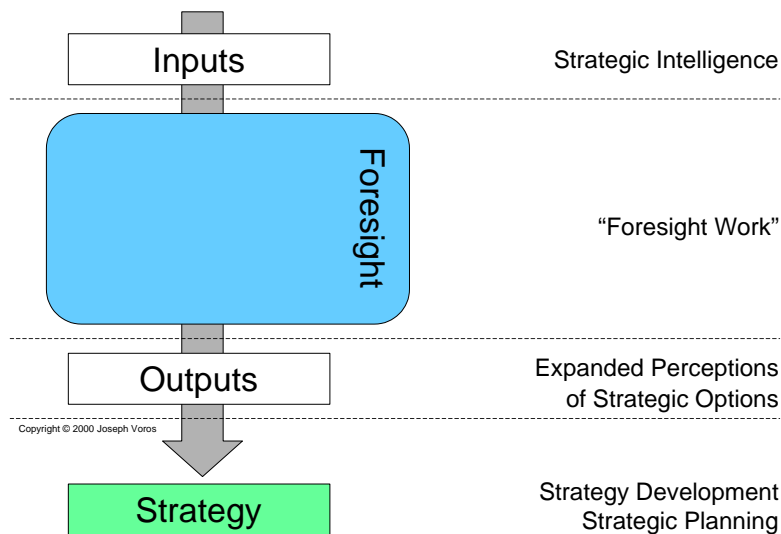
Figure 1: The generic foresight process framework, in broad outline form

that reason, 'Strategy' is considered a 'given' here. One should remain mindful of these considerations in what follows.

Slaughter (1999, p.287) has discussed the development and application of 'strategic foresight' and suggested several methodologies which could be employed. He gives four main types:

- Input methods;

- Analytic methods;

- Paradigmatic methods; and

- Iterative and Exploratory methods.

In brief, Input methods are used to gather intelligence from a variety of sources. This type of method maps closely with Horton's Inputs phase, and with the Inputs step in Figure 1. Analytic methods are used to analyse and assess factors and their interrelationships, usually as a first step towards deeper and more detailed work. This is similar to, but not the same as, Horton's sub-step of Translation. Paradigmatic methods seek to deepen understanding, and thus have a similar goal to Horton's Interpretation sub-step, but again differ somewhat. Iterative and Exploratory methods are used to explore future states to create the 'forward views', so they are 'prospective' in nature.

Combining, in this way, the essential ideas of Mintzberg's separation of roles and responsibilities of strategic thinking, strategy development and strategic planning; the broad phase approach of Horton; and the specific methodological suggestions of Slaughter, we arrive at a generic process framework for foresight work. This framework is designed to be scalable from individual to workgroup to organisation to higher degrees of human interaction, and is detailed in the next section.
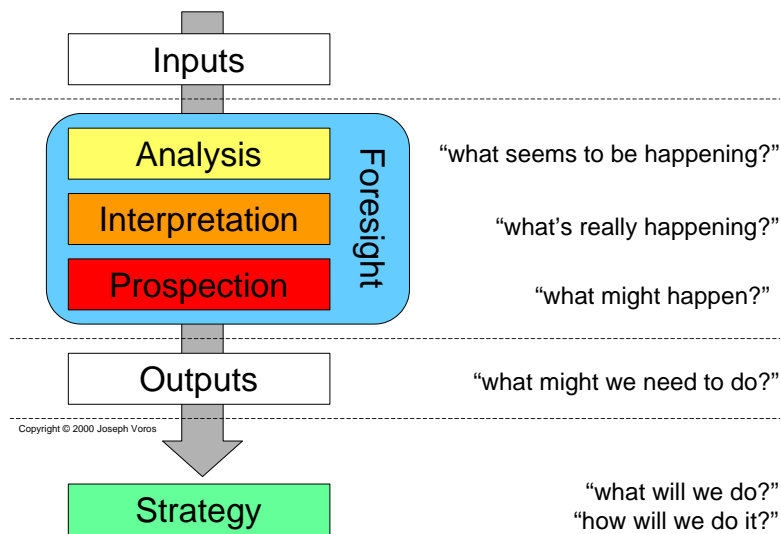
Figure 2: The foresight framework, in 'question' form

6 The foresight framework in detail

Here the four key elements of the process are described in more detail: Inputs; 'Foresight' work; Outputs; and Strategy (i.e. continuing strategic processes). A more detailed diagram of the generic foresight process is shown in Figure 2. While some terms are used which are similar to those of Slaughter and Horton, the terms used here have a different meaning here than those implied in their work. In Figure 2, the comments on the right hand side are some typical questions which were used in presentations to illustrate the type of activity or thinking which is undertaken at each step. They are not definitive, but rather attempt to show the 'flavour' of the activity in that step. Feedback from participants suggested that these were very helpful in understanding the distinct contributions from each step in the overall process.

Note that while the diagram appears to portray this process as a simple linear one, conceptually there are very many feedback loops from the later phases to all of the earlier ones—and therefore also many feed-forward effects as the loop pathways are traversed again, perhaps more than once. These are omitted for the sake of simplicity to show only the 'broad flow' of the *overall* process, absent all of the finer details of recursion loops.

- **Inputs**. This is the gathering of information and scanning for strategic intelligence. Many methods, techniques and frameworks exist, of which the 'Delphi' technique and 'environmental scanning' (Choo 1998) are perhaps the best known. The tools and techniques of 'competitive intelligence' are relevant here. It is also where, in workshop formats, the group are asked for their ideas and insights, such as through brainstorming ideas or through what Slaughter (1999, p.292) calls 'constructing the near-future context'—asking a set of key questions, designed to open out the thinking about the near future (Slaughter 1996), which have proven very useful in workshop settings. When the activity of gathering inputs is undertaken at the organisational level (as opposed to workshop formats), we chose the term 'strategic intelligence scanning' (as shown in Figure 3), or sometimes simply 'strategic scanning' (Brown 1999, p.9) in preference to the somewhat passive term 'environmental scanning' or the somewhat

negative term 'early warning system'. Most strategic planning involves something called 'environmental scanning' which 'everyone knows' how to do. I wanted to distance our approach to strategic scanning (Voros 2001, 2003) from existing 'well known' methods of environmental scanning, so the name chosen was something deliberately different.

- **'Foresight Work'**. This can be conceived as comprising three broad steps which follow a logical sequence. The first step is

  - **Analysis**, which is best considered as a preliminary stage to more in-depth work, rather than as a stand-alone technique itself. The sort of question asked here is 'what seems to be happening?' The goal is to seek a 'first cut' at creating some order out of the bewildering variety of data which the Inputs step usually generates, so it is similar to Horton's Translation sub-step. Common tools here are trend analysis, cross-impact matrices and other such analytical techniques.

    The results of the analysis are then fed into a second step,

  - **Interpretation**, which asks the question 'what's *really* happening?' and seeks to 'probe beneath the surface' (Slaughter 1989) of the analysis to look for deeper structure and insights. This is the realm of critical futures studies (Slaughter 1999, p.203), causal layered analysis (Inayatullah 1998a), systems thinking, and other 'depth' approaches to futures thinking. I also developed a generalised approach to layered analysis, based in part on these approaches, which will form the substance of another article. (Suffice it to say here that it extends from the well-known 'systems iceberg' metaphor—events, patterns and trends, system structure—through to the levels of worldviews and myths as found in causal layered analysis, to the deeper structures of consciousness itself and how these are influenced by macrohistorical forces.) In practice, most of our work in FPR extended down to merely the level of system dynamics and drivers, although occasionally it extended to deeper levels in, for example, our work on the Swinburne Scenarios.

    The third sub-step is the actual creation of forward views,

  - **Prospection**. I had to invent the word *Prospection* to denote, in a form which could be displayed in a small box on a PowerPoint slide, 'the activity of purposefully looking forward to create forward views'.[1] This step is where various views of alternative futures are explicitly examined or created. It is where scenarios, 'visioning' and 'normative' methods are located in the broader foresight process. I tend to locate 'backcasting' methods here as well, even though they tend to be analytical by nature, because they presume the existence of a forward view. One need not necessarily be bound to use *explicitly* 'futures'-type methods at this step, either. For example, simply evolving a systems map or causal loop diagram forward in time with different assumptions is also a perfectly valid prospective technique to examine how different futures may unfold. The question asked at this stage depends upon which type of potential futures are under consideration—possible, plausible, probable or preferable. The one shown in Figure 2—'what *might* happen?'—is for the broadest class of imaginable futures: the 'possible'. See Section 7 for a more detailed discussion of a taxonomy for types of futures.

- **Outputs**. The outputs of foresight work are two-fold: tangible and intangible. Some tangible outputs would include the actual range of options generated by the work. Intangible outputs would include the changes in thinking engendered by the whole
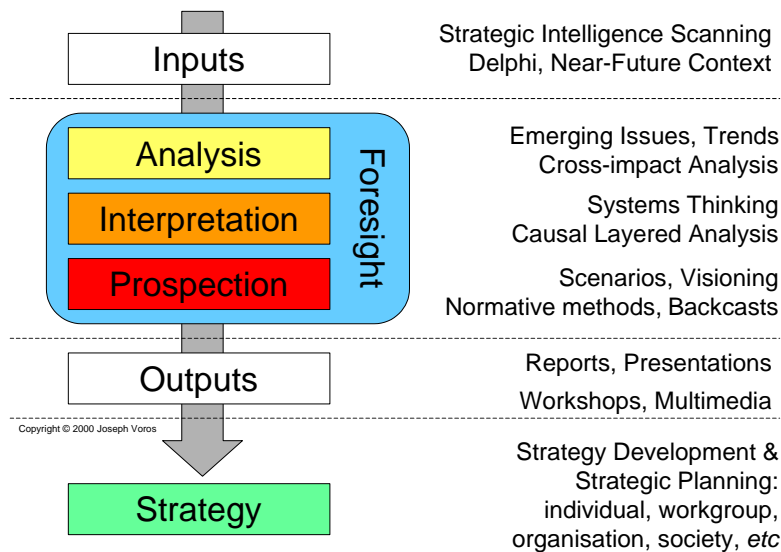
Figure 3: The foresight framework, with some representative methodologies indicated

process, especially the insights generated in the Interpretation step and by the creation of forward views in the Prospection step. The intangible output might be somewhat difficult for some hard-headed, 'objective' people to appreciate, or even recognise. But it is undoubtedly the more important form of output because of the way it alters the very mechanism of strategy development itself, namely the perceptions of the mind(s) involved in strategising. The methodologies employed in the Outputs step need not be specifically futures-related, because the focus of this step is the 'getting across' of insights, and/or the stimulation of thinking about options, prior to and as inputs into more formalised strategy work. A variety of methodologies could be employed here to present the Outputs of the foresight work, such as workshops, reports, role-play, film, multimedia, full-immersion experiential events, etc. Thus, this is a general step which could use any number of appropriate tools for its execution, from a variety of contexts. It is intended to generate an expansion of perceptions and perceived options. This expansion could be attempted directly through overt questioning or similar means, or indirectly by engineering an experience which provokes such questioning or expansion. One question which captures some of the essence of this step is 'what might we need to do?'

At this point, foresight has done its real job—the generation of (hopefully) an *expanded perception of strategic options* available. This output now feeds into

- **Strategy**. The final part in this framework is that of Strategy, about which very little will be said here, given the earlier discussion in Section 4 about the relationship between foresight, strategy processes and planning. Suffice it to say that since foresight has done its job, it now hands over the output for consideration by decision-makers in making decisions and directing strategic actions for implementation (i.e. the more familiar activities and processes of strategy development and strategic planning). The results of Strategy processes need, of course, to be constantly fed back into the Inputs of the overall foresight framework, 'closing the loop', so that continuous re-assessments and 'course corrections' are possible along the 'strategic journey'. (Of course, there

are in reality feedback loops from each step to all those which are prior. These loops are not shown in the diagrams for reasons of diagrammatic simplicity, rather than through conceptual omission, and this point should be borne in mind whenever the framework is being used.) We have made use, in our foresight workshops and seminars, of Hardin Tibbs' (2000) metaphor of the 'strategic landscape' to encapsulate this notion of a strategic actor undertaking a strategic journey into the future. When we have extended that metaphor explicitly with 'foresight' as a means of *viewing* the strategic landscape, the already-powerful image/metaphor has been strengthened all the more.

A more detailed form of the foresight process can be seen in Figure 3 showing, in particular, some of the methodologies applicable at each step. The process is designed to be as general as possible so that it can be applied on any scale, from the individual level to workgroup to department to branch to organisation to society, etc.

7 *Interlude*: Types of futures and their utility

The futures literature abounds with mention of (usually) 'possible, probable and preferable' futures. I have found it useful to distinguish between five classes of alternative futures: potential, possible, plausible, probable and preferable, in order to help students, and participants of foresight workshops and processes, get clear about what sort of futures they are thinking about. For example, the types of futures considered in our scenario planning workshops were usually *plausible* futures, while in some 'visioning' workshops they were most often *preferable* futures. The definitions I use for these classes of futures, adapted from those of many, many others are given below. Elements of this taxonomy go back at least to Henchey (1978), while of use also was the manner of characterisation of futures used by Hancock and Bezold (1994), as was their metaphor of the 'futures cone', which was a valuable aid in presentations. An adaptation and extension of this is shown in Figure 4.

Potential futures.   When speaking about alternative futures in general without specifying any of the other four classes below, I generally use the term *potential* futures. This class contains *all* of the futures which lie ahead, including those which we cannot even begin to imagine. This is by far the largest segment, of course, because of the impossibility of 'discovering' future facts, and because of what Clarke (2000) has called 'failures of imagination'. In presentations, I take the second of Amara's (1981) three foundational premises of the futures field (i.e. 'the future is not pre-determined') as the *primary* foundational premise, for it yields up the consequence of an infinite variety of potential *alternative* futures.

If we do not accept this premise then the entire futures cone 'collapses' into a single future time-line, all potentialities disappear, and all our futures work becomes simply an attempt to find more information about this pre-determined but unknown future. 'The' future (i.e. singular in this view) thereby becomes merely an information problem, rather than being *un*determined. It remains unpredictable, however, because of the lack of future facts and/or the difficulty of finding or generating information of arbitrarily high accuracy.

In relativity physics, there is a region outside the so-called 'light-cone' which is unknowable except at some later time, owing to the finite speed of light. This is also a very useful reminder and metaphor for our forward views; some futures are beyond—sometimes well beyond—our power of imagination, and thus beyond the normal boundaries of the conventional futures cone. In this metaphor, the realm of potential futures ahead is an unknown dark area, while the futures cone is like a car headlight, illuminating the view ahead, as can be seen in Figure 4. The futures cone is always smaller than the totality of potential futures which lie ahead.
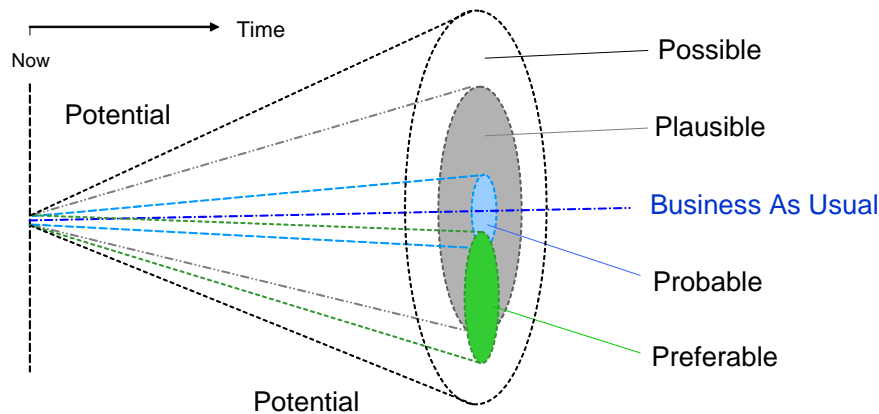
Figure 4: The 'futures cone'. Adapted from Hancock and Bezold (1994).

Possible futures.   This class of futures includes all the kinds of futures we can possibly imagine—those which '*might* happen'—no matter how far-fetched, unlikely or 'way out'. They might, as a result, involve the use of knowledge which we do not yet possess (the 'warp drive' of *Star Trek* is a good example), or might even also involve transgressions of currently-accepted physical laws or principles. I tend to characterise this class of futures as being reliant on the existence of some *future knowledge* (i.e. knowledge we do not yet possess) in order to come about. For instance, the development of a 'warp drive' is something which, while not yet anywhere near becoming feasible, is nevertheless not necessarily ruled out by our current understanding of physics. It is now the subject of research among some mathematical physicists.[2]

In terms of the Prospection step, the question used to prompt for Possible futures is the one shown in Figure 2: 'what *might* happen?' (i.e. usually based on *new* knowledge in the future).

Plausible futures.   This class encompasses those futures which '*could* happen' (i.e. they are not excluded) according to our *current knowledge* (as opposed to future knowledge) of how things work. They stem from our current understanding of e.g. physical laws, processes, causation, systems of human interaction, ways of knowing, etc., not necessarily from our knowledge of actual specific facts, but rather from our more general knowledge of 'how things work'. In other words, they depend upon what is allowed or considered reasonable by our current understanding of how the world operates. For example, consider the global economic system. While many people might often think about replacing it with something 'better', to suggest that it be replaced by a new form of exchange based on 'hugs and kisses'—rather than the equivalents of 'dollars and cents'—is to move outside the realm of what many would consider 'the way the world *really* works,' and thus outside the realm of what they would consider plausible. Such an economic system is *possible* (according to the definition above), but not yet *plausible*. This class of futures is clearly a smaller subset of futures than the possible.

In terms of the Prospection step in Figure 2, the prompting question for Plausible futures is 'what *could* happen?' (i.e. given our current knowledge or understanding of how the world works).

Probable futures. This class of futures contains those which are considered '*likely* to happen', and stem, in part, from the continuance of *current trends*. Some probable futures are considered more likely than others, and the one considered most likely—sometimes called 'business-as-usual'—is a simple linear extension of the present from the past. However, as we know, trends are not necessarily continuous over long periods of time, and discontinuities in the trends may occur. Some trends may fade out suddenly, while new ones may emerge unexpectedly. Some people think that studying or 'reading' trends is the whole game of foresight or futures work. But it becomes very clear to workshop participants from this description that merely reading trends gives rise to a *much smaller* class of futures than the previous two, and therefore to a dangerously narrow range of forward views.

In terms of the Prospection step in Figure 2, the prompting question for Probable futures is: 'what is *likely* to happen?' (i.e. based on, for example, current trends).

Preferable futures. The last three classes of futures described above are all largely concerned with informational or *cognitive* knowledge. This class, Preferable futures, is, by contrast, concerned with what we '*want* to' happen; in other words, these futures are more *emotional* than cognitive. They derive from *value judgements*, and are more overtly subjective than the previous three classes. Because values differ so markedly between people, this class of futures is quite varied. Of course, as anyone knows who has ever facilitated a 'visioning' workshop where participants are constructing a view of their preferred future, this is the most vexed class of futures. *What* is preferred depends a very great deal on *who* is doing the preferring. Preferable (or preferred) futures can lie in any of the previous three classes.

In terms of the Prospection step in Figure 2, the question to ask for Preferable futures is: 'what do we *want* to happen?' (i.e. based on our values and 'ideas of the good'). Ogilvy (2002) suggests 'what *ought* to happen?' in his approach to normative scenarios. An equivalent question might also be 'what *should* happen?'

Another useful tool is the concept of

Wildcards. Wildcards are usually defined as low probability events (hence they are outside the Probable realm) or even 'mini-scenarios' which, if they occurred, would have very high impact.[3] Therefore, they can be Potential, Possible or Plausible, according to the above definitions. Examples would include an asteroid or cometary impact with Earth (*plausible*), or very-high-speed interstellar space travel (*possible*). *Potential* wildcards, by contrast, are waiting for us in that realm (outside the imaginably possible) where our powers of imagination are presently useless. Wildcards are, in a sense, a boundary-spanning, -crossing or -smashing tool; they are useful to break through 'bounded' thinking into new realms 'outside' the boundary. Since the creation of forward views depends so intimately upon the consciousness creating them, and upon the boundaries considered relevant to the defining of these forward views—not to mention the unconscious boundaries beyond which we do not think—the use of wildcards to force an expansion of thinking into new territories of the imagination can be extremely useful. For example, playing with the edge of what people consider 'impossible' is a good way of nudging on the boundary of the *possible*.

We incorporated wildcards into some of our in-house unit-level scenario workshops. The idea for this came from a web page by Mark Justman (2000), where he speculated on how one might use wildcards with four generic types of scenario adapted from Jim Dator's four generic images of the future. As a basis for the wildcard deck we used the wildcards listed in Petersen's (1997) book, together with a number of others gathered from different sources. The whole workshop group is divided into several smaller groups, each of which

fleshes out a particular scenario based around agreed-upon drivers. The small groups each create a 'first cut' scenario and examine some consequences for the focal issue. Then they are required to draw a wildcard from the deck at random and examine how this wildcard affects their scenario 'world', and their proposed strategy for operating in that world. The presentation slides introducing wildcards are headed 'Suddenly, the world changes...', and the implications for scenario worlds are sometimes quite profound.

For example, in one such workshop, one of the scenario syndicates decided to move all their information services off-shore to another continent where labour is cheaper, because it made good financial sense to them in that scenario world, and to use the international communications infrastructure to provide the services back to Australia. They then pulled the wildcard 'long-term global communication disruption'. The effect on their business model due to this was devastating—they literally went out of business overnight! The explicit use of a wildcard had highlighted a potential weakness in their strategy. Thus, they were forced to consider ways of circumventing such an effect, which led to consideration of a more diverse set of strategic options, and a subsequent strategy which was more robust as a result. Another group, pulling a different wildcard, discovered a wonderful opportunity in their case, while still another was not affected at all. The use of wildcards in scenario workshops provides an interesting and often highly instructive input, causing the participants to consider things they might not normally consider. Even the expectation that something unexpected will occur alters the timbre of the strategising thereafter.

Finally, while on the subject of wildcards, an eerie and telling anecdote is called for. The workshop mentioned above was held over two days; as it happens, on September 10 and 11, 2001. We had spent the first day (Monday the 10th) running the usual scenario process, having each of the various small syndicate groups developing their particular scenario world, fleshing it out, and developing a strategy appropriate for it. For the second day (September 11th), we planned to run the wildcard process as described above. One of the wildcards present in the original expanded deck was 'terrorist attack on a major U.S. city or cities'. When deciding which subset of wildcards to use for the workshop, we had *consciously removed* it from the workshop deck, on the grounds of 'improbability' and 'irrelevance' to the focus of the scenarios... We have often since speculated on whether anyone would have drawn that particular wildcard during that particular workshop on that particular day. Given the events which took place in the USA later that night (Melbourne time) we learned our lesson: *never* remove *any* wildcard from the deck...

8   The framework as a diagnostic tool

The process as described and shown in the diagrams is also useful for diagnosing how an organisation responds to the strategic environment, as well as showing graphically why using a foresight process is preferable to not.

For example, if, in the full foresight process shown in Figure 3, we remove all the steps between Inputs and Strategy, so that there is nothing modifying the direct Inputs, no Foresight work and no distinct Outputs from such a foresight capacity, we can characterise the so-called 'responsive' strategy so beloved of some (pre dot-com-bustion) Silicon Valley companies. This reduced process is shown in Figure 5. Something occurring in the environment is discerned by the scanning system and the organisation reacts to it directly, without any analysis, interpretation, prospection, or even stopping to consider what options such activities might uncover ('no time for such luxuries, we need to be *responsive*'). This is equivalent to the 'instinctive/reactive' survival 'strategy' of animals. Introduced after a complete discussion of the full foresight framework, this form of diagram unambiguously and un-subtly illustrates the point that explicit foresight work is needed to inform strategy work, lest we
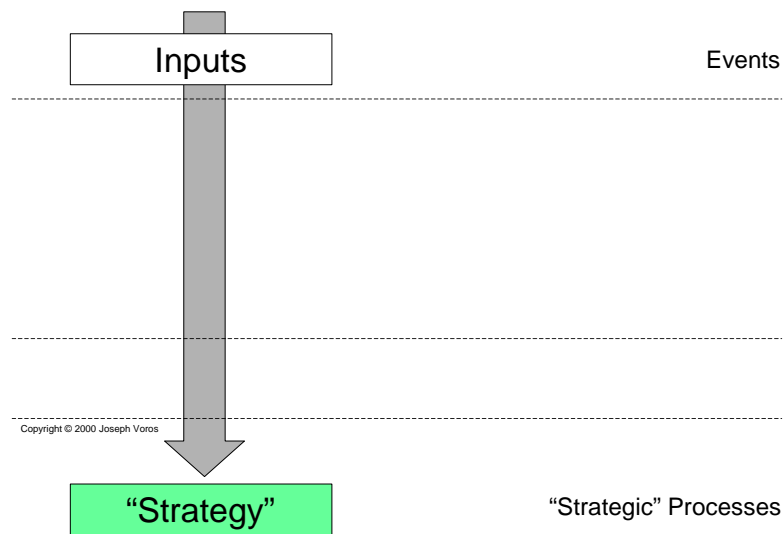
Figure 5: A purely reactive approach to strategy

simply *react* to everything going on in the environment and pretend to ourselves that we are really being 'highly responsive'.

If we remove only the Interpretation and Prospection steps from Figure 3, we can characterise what we might call a 'shallow' foresight process. In this process, there is *some* analysis of strategic intelligence which might reveal certain trends, but this produces a fairly thin set of Outputs based upon the clear and obvious present. We can see this process diagrammed in Figure 6. Of course, this is how many organisations actually operate—they believe that understanding 'the' future is simply about 'reading' the trends. By looking at the characterisations in Figure 2 we can see that this is an approach which undertakes strategic processes based merely on what *seems* to be happening in the strategic environment, absent any attempt to look deeper, or to explicitly examine forward views. The strategic options so produced are therefore rather suspect.

If we then add the Prospection step (but continue to leave out Interpretation) we nevertheless still have, despite the explicit use of Prospection, another example of the production of suspect strategic options, albeit via a more sophisticated process of mystification. This is shown in Figure 7. Some organisations attempt, for example, forecasting based on trend analysis, extrapolation of the present, 'visioning' exercises, or scenario planning using this form of process—the forward views stem from simple analysis alone, and no attempt is made to address the question of what is *really* happening, either inside the organisation or outside it. In some ways this is an even more risky approach because now there exists the illusion that the strategic options generated are somehow 'better' because of the explicit Prospection step undertaken. However, there is essentially no difference in the quality of the strategic options generated by this modification—they are still rather suspect, based as they are on a narrow set of forward views flowing from a shallow and incomplete foresight process.

With the addition of the Interpretation step there at least exists the possibility of producing some more in-depth understanding as an input into the Prospection step. The level of 'depth' to which the Interpretation step is taken is also variable. Obviously I am suggesting that the deeper this interpretation goes, the more profound the insights are likely to be and thus the more potentially wise the subsequent perceptions of strategic options generated as
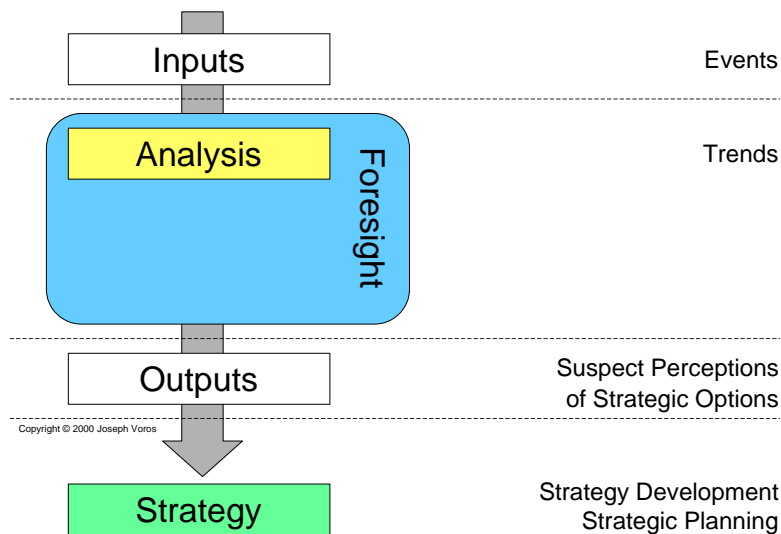
Figure 6: A 'shallow' foresight process

input into Strategy.

9 The framework as a design tool

Another use for the generic framework described in this paper is in the design of specific foresight processes, interventions or projects.

In a recent class for second-year post-graduate students at the AFI, I used the generic framework to analyse some twenty-five or so different methodologies, ranging from competitive intelligence to trend analysis to systems approaches to causal layered analysis to scenarios to 'macrohistory' (Inayatullah 1998b). Some of these are relevant to a single step in the generic process, while others touch upon more than one. Some methodologies are processes in themselves, and are therefore complementary to the one described here. Further, some techniques and methodologies which are not necessarily futures-related or considered to be futures techniques *per se*, could be used within such a broader process depending on which step is being designed. For example, the Outputs step could make use of any number of non-futures-related methodologies to 'get the message across'. I recall hearing of an instance where practitioners had started to present the outputs of a foresight exercise to executives in a conventional slide-show form when the venue was 'invaded' by dozens of children who 'kidnapped' the executives, bundled them blind-folded into waiting vehicles and 'took them to "the future" ' in a nearby warehouse. Once there, the decision-makers were then presented with what the practitioners had *really* wanted them to see and hear about (set up ahead of time), in a full-immersion experience guided by the youngsters, all perfectly stage-managed by the practitioners. While a bit extreme, this example nevertheless illustrates that there are many more alternatives available to foresight practitioners for getting their message across than are considered customary.

In this way, it is possible to assess which methodologies (or types of methodology) fit coherently and synergistically into a generic foresight process, in order to evaluate their relative contribution to an overall process, and therefore to make decisions about which methodologies to use in combination in the design of such a process. By a judicious use
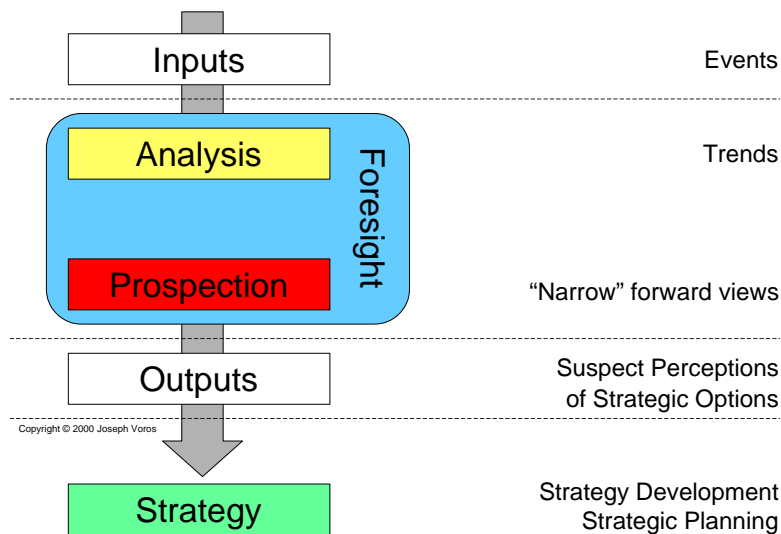
Figure 7: A 'shallow/narrow' foresight process

of complementary methodologies, any weaknesses in one may be partially mitigated by the presence of another, and the overall process so designed is hopefully the better for it. This approach to design requires that we become familiar with a wide variety of methodologies, but any specific process should only use a small number of these. As is often said, 'less is more'.

In FPR we designed half-, one- and two-day unit-level processes using a workshop format, with inputs from the group via brainstorming and consideration of the 'near-future context', analysis of trends, then interpretation down to the level of 'deep system drivers', finished off with the simple two-by-two form of scenario matrix for the prospection step. Further consideration of options leading to strategy development is undertaken in a separate strategic implications workshop. For the major Swinburne Scenarios Project, the main form of Output is a workshop with workbook designed to take people through the thinking which informed the creation of the ('plausible') scenarios, and to use these scenarios as starting points for thinking about and designing a 'preferable' future for their organisational unit. The depth of interpretation in that project went well beneath the more usual 'system drivers' to the deeper levels of worldviews, human value systems and to how these are being shaped by macrohistorical forces. For the Student Experience Project (commissioned ostensibly as a 'visioning' process), the main format was, again, workshop-based, for this is an important part of the culture here. Using causal layered analysis to take participants from the superficial level of events, through analysis to deep interpretation at the worldview and metaphor levels, the purpose was to generate a basis for considering what sort of things might be present in a class of preferred futures they might wish to begin constructing. The prospection step was implicit rather than explicit, because we did not seek to *create* preferred futures; rather, we sought to elucidate key aspects of what preferable futures would contain. These distilled aspects (i.e. the Outputs) were then taken up by several teams on the project and carried forward into a more detailed design phase.

These examples all illustrate the key point: with an overall generic foresight framework, one may use the concept of 'flow' through the general process to design and create specific instances of the process using methodologies and tools appropriate to the context in which

it will be employed. This is a considerably more flexible approach to foresight praxis than to simply arrive with a single methodology in hand and be bound to use it (as some consultants have been known to do). As the old saying goes 'if you've only got a hammer, then everything looks like a nail'. The generic process framework is designed so as to allow easy customisation to suit the specific needs of the particular project or foresight commission; it is a template from which to forge a new tool appropriate to the particular circumstances in which the tool is to be used.

10   Concluding remarks

This paper has described a generic framework for foresight, designed in such a way that it can be used for: understanding some of the key steps involved in foresight work; the diagnosis of existing processes; and the design of new processes. It stems from on-the-ground experience of implementing foresight in a sceptical and conservative organisation. Key learnings during our attempts at implementation have been interspersed throughout in order to ground the theoretical discussion in real-world practical experience.

This has been one example of foresight praxis—many more are needed to grow the knowledge base of practical know-how in facilitating foresight in organisations. For it is only in this way that attempts to develop new theories and models of foresight and futures work can be infused with the fresh insights and deep understandings needed to ensure that the knowledge discipline of futures/foresight remains relevant. Without a continuous renewal of theory, methodology and praxis, the knowledge creation required to build the discipline of futures and foresight will slow, stop and stagnate. If we as futurists are to also remain relevant—whether as academics, consultants, or those working in organisations—then we must each be open to the work being done by the others, even if it is outside the perceived boundaries of what we do. We must all partake in the 'ecological flow' of knowledge and knowledge-creation. It is my hope that this paper will help to ease this flow along.

Acknowledgements

Notes

1. From 'pro' = 'forward', 'spect' = 'look', and '-tion' = the noun form of the action; thus, 'pro*spect*ion' (the stress falls on the second syllable). This word also acknowledges the French school of futures work and their term *la prospective*, as well as the wider use of the term 'prospective thinking'.

2. The paper by Miguel Alcubierre (1994) on the subject of 'warp drive' first showed the existence of a solution to the field equations of General Relativity having aspects of this characteristic structure. See the 'gr-qc' physics preprint archive located at `<xxx.lanl.gov>` and do a search on the keywords 'warp drive' to get some idea of the current state of research.

3. There is a discussion of Wildcards at the web site of The Arlington Institute. See `<www.arlingtoninstitute.org/focus_topics/wild_cards.html>`

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