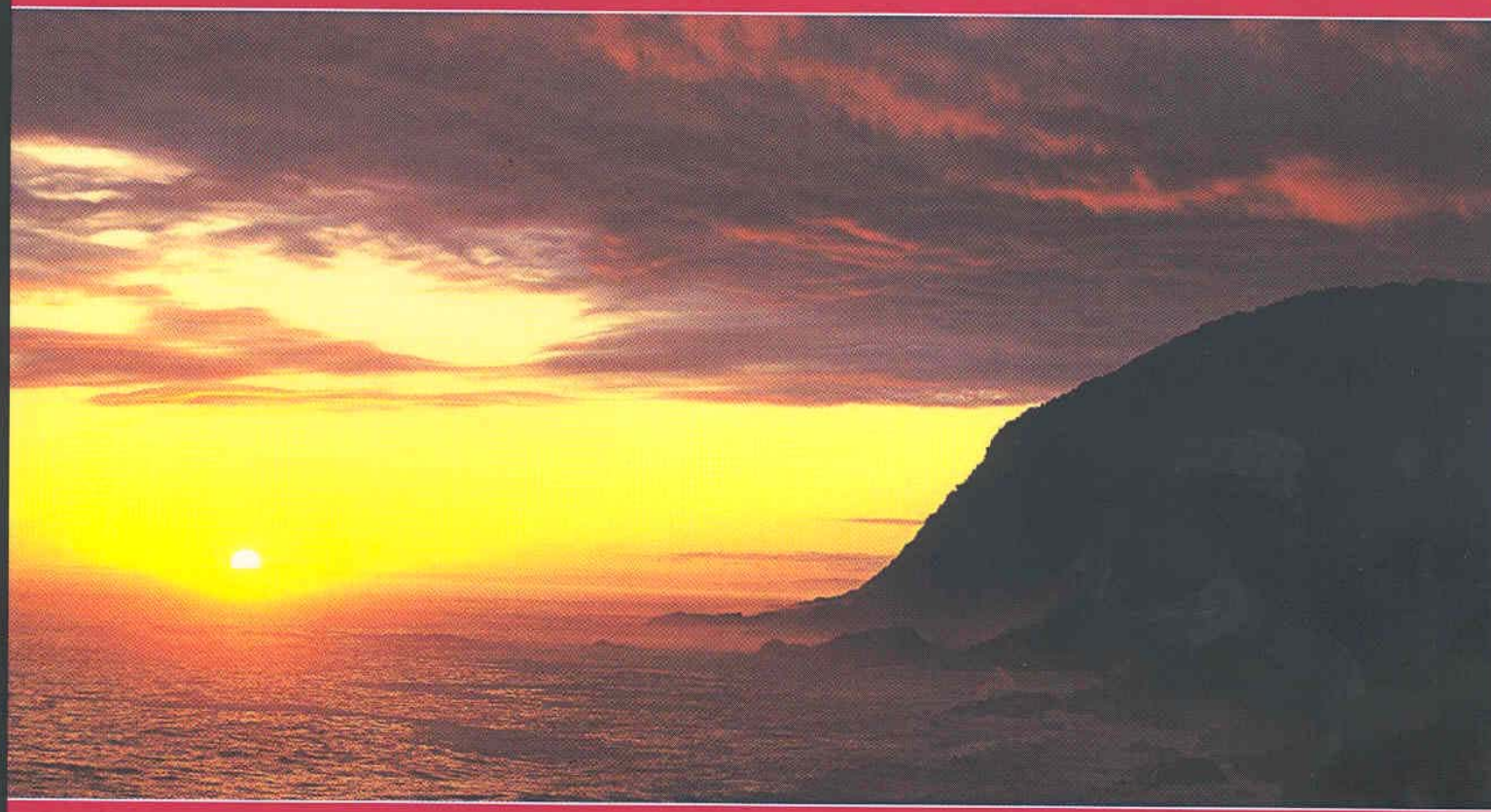
REFRAMING ENVIRONMENTAL SCANNING

A reader on the art of scanning the environmment



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Joseph Voros

Reframing Environmental Scanning

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Joseph Voros began his career as a physicist – he holds a PhD in theoretical physics, during which he worked on mathematical extensions to the General Theory of Relativity. Following this, he spent several years in Internet-related companies, including a stint at Netscape Communications Corp., before deciding to become a professional futurist. He has been associated with the Australian Foresight Institute since early 2000, initially as a project consultant and then later as an adjunct lecturer, following his appointment as a strategic foresight analyst to Swinburne University's own top-level strategic planning unit. In that practitioner role he was involved in the building of a practical organisational strategic thinking capacity based on the use of foresight concepts and methodologies, subsequently returning to AFI, where he now teaches foresight practitioners. His professional interests are broadly multi-disciplinary; his main research interest is the emerging field of *Integral Futures Studies*. He has a strong belief in the need for both rigorous intellectual discipline as well as practical pragmatic utility in 'real world' contexts, and this belief lies at the heart of his approach to Futures Studies and foresight work.

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A reader on the art of scanning the environment

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See page preceding title page.

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Introduction

JOSEPH VOROS

This monograph grew out of a special issue of an organisational environmental scanning newsletter I edited while working as the Strategic Foresight Analyst in the Foresight, Planning and Review unit (FPR) of Swinburne University of Technology from mid-2000 to the end of 2002.[1] FPR is the university's own top-level administrative strategic planning body; its Director reports to the Vice-Chancellor and President of the University. It is sometimes a source of confusion to people that there are two places at Swinburne with the word 'foresight' in their names. The other, the Australian Foresight Institute (AFI), is a research, teaching and academic institute whose mission, in part, is the training of foresight practitioners. 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 and applied discipline, and the University is actively engaged in incorporating it explicitly into on-going strategy development and strategic planning processes at the highest level. Upon leaving my practitioner role in FPR and taking up an academic role as a researcher and teacher of foresight practitioners at the AFI, Prof. Richard Slaughter suggested that the special issue of the newsletter could be turned into a monograph on the practice of environmental scanning, and that it should be made available to a much wider audience. This volume is the result.

Our work in FPR consisted, in part, of undertaking strategic intelligence scanning of the university's operating environment, at the level of detail relevant to the university *as a whole organisation*, with at least a *ten-year* time-frame into the future (and more often twenty years). This is in stark contrast to scanning for emerging novelty in specific subject areas, or for signals relevant to particular organisational sub-units, such as individual academic Schools, Institutes or administrative units, within the time-frames of operational planning (one year) and conventional 'strategic' planning (three years).

With a full-time staff of two at that time (and a half-time administrative assistant), we had to draw a clear distinction between what FPR could reasonably accomplish for the university as a whole, compared with all of the other more focussed subject-specific and unit-specific shorter-term scanning which was going on in the rest of the organisation. In FPR we recognised that the true experts in particular subject areas are those who work in them, and that therefore FPR could not credibly contribute in terms of expertise to those more specialised scanning efforts. Rather, it could add most value to strategic intelligence scanning by adopting a very broad scanning stance, based on taking a dedicated and systematic whole-of-organisation view – something which was largely absent up until that time – and looking out at least three-to-five 'normal' triennial planning cycles – something which people still have tremendous diffculty understanding or even treating seriously.

This very broad stance brought us into conflict with some members of the organisation who misunderstood the nature of the work we were doing. While conventional strategic planning is well established in Australian universities, the introduction of a 10–20-year foresight time horizon which explicitly forces 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 to be 'lunatic' time-frames. And, because most strategic planning involves something called 'environmental scanning' which 'everyone knows' how to do, we needed to distance our approach to scanning from existing 'well known' methods of environmental scanning, so we always referred to it by a deliberately different term – 'strategic intelligence scanning' or simply 'strategic scanning'.[2]

FPR was and remains the only organisational unit charged with taking a 'macro' view of the whole environment from the perspective of the whole organisation over the long term. This is no mean feat in an organisation specifically designed to house experts in niche areas of specialised human knowledge! And that is why the underlying theme in this monograph – growing as it did out of our approach to environmental (or should I say *strategic*) scanning – is that of very wide-scale, broadly-based scanning; and how it needs to be carried out in a much-expanded form when operating in the more open 'viewing' mode.[3]

One of the first things we did when starting to set up the new scanning function in FPR – and considered how we would capture, store and make this intelligence available – was to read Choo's book on environmental scanning.[4] It was a great help that that we could point to a wonderful diagram in that book[5] to explain in a graphical way the scope and extent of different forms of intelligence-gathering, and where and how what we were doing fit into that context. In addition to strategic scanning, FPR was and is implementing a program of introducing foresight as an embedded capacity of the organisation. Strategic scanning is a vital aspect of that capacity. Of course, in practice, this means that the foresight capacity must be independent of particular individuals. Rather, it should be present in the very processes the organisation uses to consider its strategic environment. That implementation is still under way and is progressing apace.[6]

In my view, carrying out environmental scanning well is less about technique and methodology (although they are obviously important) and more about openness of mind. In fact, I would go further and claim that it is incalculably more about the interior consciousness of the scanner than it is about the quantity of information and/or the number of sources being scanned in the exterior world. Environmental scanning is often conceived of as a rational, analytical, programmed activity – and it is usually practised this way – but the openness of mind which is called for might not be supported by a too-analytical approach. Hence, we need to find ways of opening up our environmental scanning while still retaining the very best of what makes it beneficial.

The sequence of papers collected here is designed to introduce the would-be scanner, or even the 'old hand' at scanning, to new ideas for scanning practice, new ways to expand the scanning frame and, most importantly, ways to understand how our minds might pre-filter what we see.

Choo's paper (Chapter 1) lays out the main definitions and situates environmental scanning amongst a variety of similar intelligence-gathering activities. It introduces the reader to best practice in environmental scanning as currently understood, distinguishing in particular between two main types of activity: *viewing* and *searching*. There is a wealth of starting points for the reader who simply wants to spring forth from there…

The four main modes of scanning Choo discusses can be conceived of as an 'attention funnel': broadest at the top (*undirected viewing*), gradually narrowing down (through *directed viewing* and *informal search*) to the narrowest part (*formal search*) where attention is highly directed and very specifically focussed. Clearly, if the original undirected viewing is narrow to begin with, we might miss entirely key information or important signals which otherwise might have attracted our attention and lead us to take our attention 'downstream' through the attention funnel to what we consider more important or relevant.

With a narrow scanning frame at the outset, we might not even see at all the very signals which our scanning is supposed to detect.

Hence, Slaughter's paper (Chapter 2) argues for a much wider scope for *viewing* than is commonly practiced, as well as for an understanding of the deeper layers of meaning and insight to be found 'below the surface' of what is readily seen in conventional environmental scanning. Thus his paper is essentially about 'opening the width of the funnel', as it were, to increase the scope of what is *viewed* at the outset, even before more detailed *searching* is undertaken. The quadrant model of Ken Wilber provides a useful artifact through which to consciously open up the 'viewspace' to which scanners direct their attention.

Building upon this idea, Voros (Chapter 3) suggests that in addition to opening up the viewspace being viewed, one needs also to understand the extent and scope of the 'mindspace' of the scanner doing the viewing, and to take conscious steps to also open *it* up. While that paper uses one particular example of a model to do so ('Spiral Dynamics'), many other models are equally possible and equally useful. The key idea, therefore, is to find models of human consciousness and use them to understand what filtering might be going on in a scanner's mind. Informed by this, one would then seek to become aware of the potential blind spots we might possess as scanners. Having done that, one would attempt to factor these insights into scanning praxis so as to minimise the 'scanning blindness' of the scanning team. In this way, a team effort of diverse scanners consciously reflecting on their preferred mind-sets, and taking steps to broaden their views, is less likely to miss critical signals than a homogeneous group of scanners who are unaware of their own potential blind spots, or even that they may possess such blind spots.

Ultimately, the effectiveness of scanning comes down to what signals 'out there' we allow 'in here'. We all filter the signals we (allow ourselves to) see; this is a necessary survival mechanism – we *need* to do so in order to function. Recent high-profile 'intelligence failures' reveal, however, that while this pre-conscious filtering is necessary for our daily survival in a world literally filled with signals, such filtering may also lead to potentially dangerous exclusions of what may turn out to be vital signals. Just because we can't see or sense such signals ourselves, it doesn't mean that what others see is wrong or false or fantasy or illusion or hallucination. Our own personal view of 'reality' (whatever *that* is) is always filtered, and so we would do well to recall this simple fact when attempting to understand the view or perspective of another. Once we can accept that other people see different things, without discounting the validity of their view, then we are in a stronger position to use other people's work as an adjunct to our own scanning. Otherwise, our work becomes merely the practice of accumulating more and more information viewed from the same perspective. This is hardly a useful, or indeed wise, practice in the long run.

So, as Choo suggests in his paper, scanning the environment really is more of an art than a science. Like art (and beauty), it depends very much on the eye of the beholder. And, I would assert, what that eye sees is conditioned by what lies *behind* the eye of the beholder, in the interior consciousness of the perceiving subject.

And that is another realm of understanding entirely…

NOTES

[1] See the FPR web site at http://www.swin.edu.au/corporate/fpr/

[2] Brown, A, 'Ten ways futurists can avoid being destroyed', *Futures Research Quarterly*, vol. 15, no. 2, 1999, pp. 7–13.

[3] See Choo's paper in this volume.

[4] Choo, C.W, *Information Management for the Intelligent Organisation: The Art of Scanning the Environment*, second edn, Information Today, Inc., Medford, NJ, 1998, (http://choo.fis.utoronto.ca/fis/imio).

[5] Choo, 1998, p. 76.

[6] For a detailed description of Swinburne's early experience in attempting to incorporate foresight into pre-existing strategic planning, see Conway, M.K, 'The Swinburne experience: Integrating foresight and strategic planning', *Scenario and Strategy Planning*, vol. 3, no. 4, 2001, pp. 12–16.

1 The art of scanning the environment

CHUN WEI CHOO

Environmental scanning is the acquisition and use of information about events, trends and relationships in an organisation's external environment, the knowledge of which would assist management in planning the organisation's future course of action. A summary of research that has examined environmental scanning indicates that the findings fall into the following categories:

- situational dimensions
- organisational strategy and scanning strategy
- managerial traits
- information needs, seeking and use.

Environmental scanning includes both looking *at* information (viewing) and looking *for* information (searching). Surveys of effective scanning practices in organisations appear to converge on a set of common best-practice principles:

- Plan and manage scanning as a strategic activity
- Implement scanning as a formal system
- Partner with domain experts and IT specialists in designing the scanning system
- Manage information as the core of the scanning function.

1.1 INTRODUCTION

Environmental scanning is the acquisition and use of information about events, trends, and relationships in an organisation's external environment, the knowledge of which would assist management in planning the organisation's future course of action.[1] Organisations scan the environment in order to understand external forces of change so that they may develop effective responses which secure or improve their position in the future. To the extent that an organisation's ability to adapt to its outside environment depends on knowing and interpreting the external changes that are taking place, environmental scanning constitutes a primary mode of organisational learning.

Environmental scanning is complementary to but distinct from information gathering activities such as competitor intelligence, competitive intelligence, and business intelligence.

- Michael Porter wrote that the objective of *competitor intelligence* is 'to develop a profile of the nature and success of the likely strategy changes each competitor might make, each competitor's probable response to the range of feasible strategic moves other firms could initiate, and each competitor's probable reaction to the array of industry changes and broader environmental shifts that might occur'.[2] *Competitor intelligence* is therefore focused on the actions, behaviours, and options of one or more existing or potential competitors.

- *Competitive intelligence* refers to the analysis of competitors as well as competitive conditions in particular industries or regions.[3] The Society of Competitive Intelligence Professionals defines competitive intelligence as 'the process of monitoring the competitive environment' that 'enables senior managers in companies of all sizes to make informed decisions about everything from marketing, R&D, and investing tactics to long-term business strategies'.[4]

- *Business intelligence* has a similarly broad scope, and has been described by Benjamin Gilad as 'the activity of monitoring the environment external to the firm for information that is relevant for the decision-making process in the company'.[5] In practice, business intelligence often concentrates on current competitors as in competitive intelligence, but may also include areas such as analysis of potential acquisitions and mergers, and risk assessments for particular countries.[6]

- *Environmental scanning* casts an even wider net, and analyses information about every sector of the external environment that can help management to plan for the organisation's future. Scanning covers not only competitors, suppliers, and customers, but also includes technology, economic conditions, political and regulatory environment, and social and demographic trends.

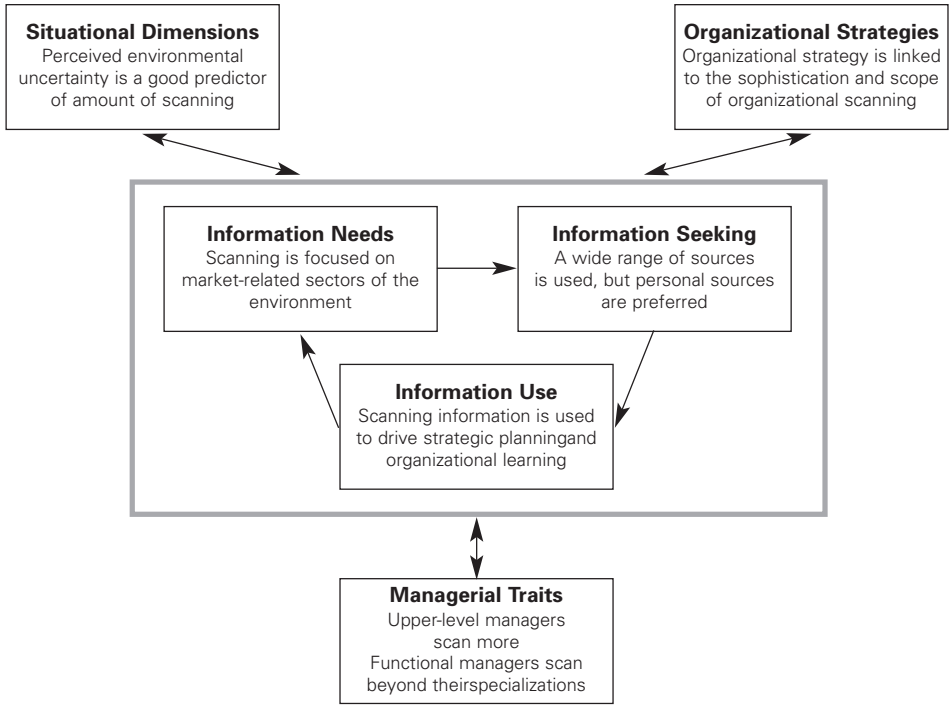

Figure 1.1: Summary of research on environmental scanning

1.2 RESEARCH ON ENVIRONMENTAL SCANNING

What may be gleaned from the research that has examined environmental scanning? Figure 1.1 presents an information-seeking framework to summarise important findings.[7] These findings fall into the following categories:

- Situational dimensions
- Organizational strategy and scanning strategy
- Managerial traits
- Information needs, seeking and use.

Situational dimensions: The effect of perceived environmental uncertainty

Managers who perceive the environment to be more uncertain will tend to scan more. Several studies have found that perceived environmental uncertainty is a good predictor

of the amount and intensity of scanning. Perceived environmental uncertainty is a function of the perceived complexity (number of factors, opacity of causal relationships) and perceived dynamism (rate of change) of the external environment. Furthermore, if the perceived importance of the environment is included in a measure of perceived strategic uncertainty, the association between environmental uncertainty and scanning is even stronger.[8]

Organisational strategy and scanning strategy

An organisation's overall business strategy is related to the sophistication, scope, and intensity of its environmental scanning. An organisation that follows a particular strategy, such as a product differentiation, cost leadership, or focus strategy,[9] or adopts a certain strategic stance, such as prospector, analyser, or defender,[10] is likely to operate a scanning mode that provides the required information and information processing capabilities to pursue its desired strategy. There is also tentative evidence to suggest that a balanced organisational culture is likely to encourage managers to scan more frequently and take on a more adaptive outlook.[11]

Managerial traits: Unanswered questions

The effect of a manager's job-related and cognitive traits on scanning is an area in need of further research. There is tentative evidence to suggest that managers scan widely, covering not just their functional specialisations but also other areas; and that upper-level managers scan more and morebroadly than lower-level managers.[12]

Information needs: The focus of environmental scanning

Business organisations focus their scanning on market-related sectors of the environment. Information about customers, competitors, and suppliers is seen to be the most important. In industries where other sectors of the environment, such as technology or demographics, are perceived to be having a large impact, these sectors would also be considered high scanning priorities.[13]

Information seeking: Source usage and preferences.

Although managers scan with a wide range of sources, they prefer live information from personal sources when seeking information about market-related environmental sectors which are highly fluid and equivocal. There is some evidence to indicate that source selection for scanning is influenced by the perceived quality of the source, and not just its perceived accessibility.[14]

Information use: Strategic planning and organisational learning.

Information derived from environmental scanning is increasingly being used to drive the strategic planning process in business and public-sector organisations. Research suggests that environmental scanning is linked with improved organisational performance. However, the practice of scanning by itself is insufficient to assure performance – scanning must be integrated with strategy, and scanning information must be effectively employed in the planning process. An important effect of scanning is to increase and enhance communication and discussion about future-oriented issues by people in the organisation. Coupled with the availability of information on external change, scanning can promote generative organisational learning.[15]

1.3 MODES OF ENVIRONMENTAL SCANNING

Scanning is not a monolithic activity. Environmental scanning includes both *looking at* information (viewing) and *looking for* information (searching). Research in organisation science suggests that it might be helpful to distinguish between four modes of organisational scanning: undirected viewing, conditioned viewing, informal search, and formal search.[16]

- In **undirected viewing**, the individual is exposed to information with no specific informational need in mind. The goal is to scan broadly in order to detect signals of change early. Many and varied sources of information are used, and large amounts of information are screened. The granularity of information is coarse, but large chunks of information are quickly dropped from attention. As a result of undirected viewing, the individual becomes sensitive to selected areas or issues.

- In **conditioned viewing**, the individual directs viewing to information about selected topics or to certain types of information. The goal is to evaluate the significance of the information encountered in order to assess the general nature of the impact on the organisation. The individual wishes to do this assessment in a cost-effective manner, without having to dedicate substantial time and effort in a formal search. If the impact is assessed to be sufficiently significant, the scanning mode changes from scanning to searching.

- During **informal search**, the individual actively looks for information to deepen the knowledge and understanding of a specific issue. It is informal in that it involves a relatively limited and unstructured effort. The goal is to gather information to elaborate an issue so as to determine the need for action by the organisation. If a need for a decision or response is perceived, the individual dedicates more time and resources to the search.

Scanning Modes	Information Need	Information Use	Amount of Targeted Effort	Number of Sources	Tactics
Undirected Viewing	General areas of interest; specific need to be revealed	Serendipitous discovery 'Sensing'	Minimal Medium	Many	• Scan broadly a diversity of sources, taking advantage of what's easily accessible 'Touring'
Conditioned Viewing	Able to recognise topics of interest	Increase understanding 'Sensemaking'	Low	Few	• Browse in pre-selected sources on pre-specified topics of interest 'Tracking'
Informal Search	Able to formulate queries	Increase knowledge within narrow limits 'Learning'	Medium	Few	• Search is focused on an issue or event, but a good-enough search is satisfactory 'Satisficing'
Formal Search	Able to specify targets	Formal use of information for planning, acting 'Deciding'	High	Many	• Systematic gathering of information on a target, following some method or procedure 'Retrieving'

Figure 1.2: Modes of scanning

- During **formal search**, the individual makes a deliberate or planned effort to obtain specific information or information about a specific issue. Search is formal because it is structured according to some pre-established procedure or methodology. The granularity of information is fine, as the search is relatively focused to find detailed information. The goal is to systematically retrieve information relevant to an issue in order to provide a basis for developing a decision or course of action. Formal searches could be a part of for example, competitor intelligence gathering, patents searching, market analysis, or issues management. Formal searches prefer information from sources that are perceived to be knowledgable, or from information services that make efforts to ensure data quality and accuracy. The four modes of scanning are compared in Figure 1.2.[17]

In order to be effective, environmental scanning needs to engage all four modes of viewing and searching. Undirected viewing helps the organisation to scan broadly and develop peripheral vision so that it can see and think 'outside the box'. Conditioned viewing tracks trends and gives the organisation early warning about emerging issues. Informal search draws a profile of an issue or development, allowing the organisation to identify its main

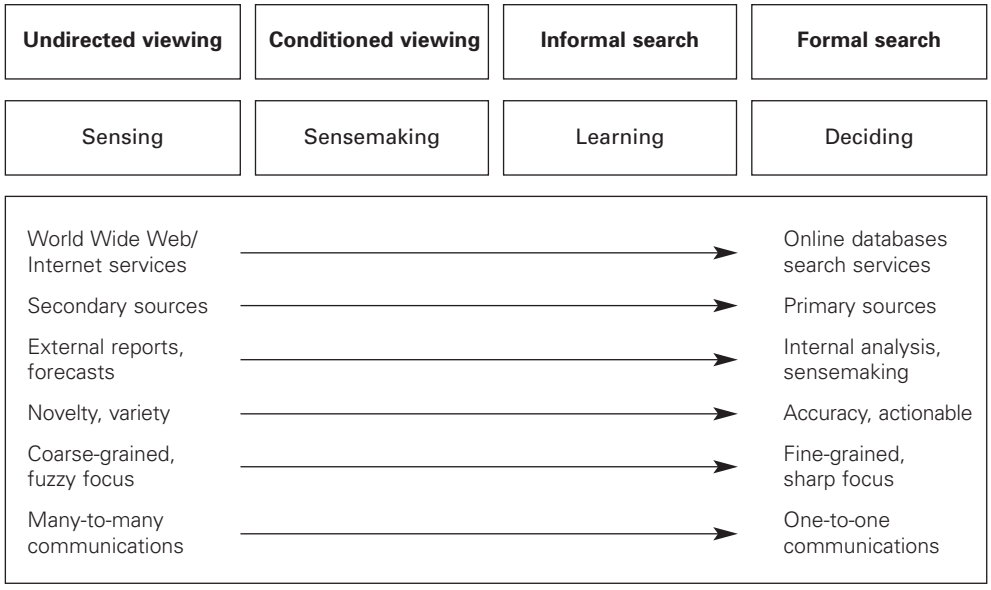

Figure 1.3: Modes of scanning (2)

features and assess its potential impact. Formal search systematically gathers all relevant information about an issue to enable intelligent decision making.

Figure 1.3 shows how the four modes of scanning are supported by a continuum of online information gathering and communication methods that range from:

- information characterised by novelty and variety to information characterised by accuracy and focus
- secondary sources to primary sources
- many-to-many communications (newsgroups, mailing lists) to one-to-one communications (e-mail, telephone, face-to-face meeting)
- the chaotic, informal World Wide Web to the structured, formal online databases.

1.4 LEARNING FROM BEST PRACTICES

Surveys of effective scanning practices in organisations[18] appear to converge on a set of common best-practice principles.

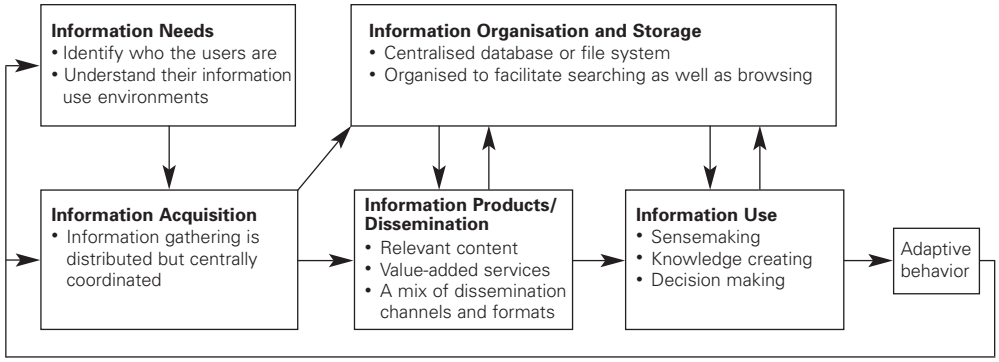

Figure 1.4: Information management in environmental scanning

Plan and manage scanning as a strategic activity

As an engine of organisational learning, scanning should be managed as a strategic activity. In many ways, the scanning function is like a research and development program, where the investment is for the longer term, but the payoff may be spectacular. Like R&D, scanning needs to be given a critical mass of talent and resources in order for it to take off, and it needs time to develop its knowledge and expertise. Leonard Fuld suggests that successful programs take three to five years to mature: his study found that the most effective scanning departments were at least five years old or were run by executives with tenures of five or more years.[19]

Implement scanning as a formal system

A formal scanning system is one that is planned, sustained, and coordinated. Planning ensures that information gathering is based on the organisation's goals and critical information needs. Continuous monitoring enables the organisation to detect deviations from the norm and sense early warning signals. Sustained monitoring also allows the system to grow its information networks and build up its knowledge base. Coordination minimises duplication and maximises the scope and efficiency of information gathering.

Partner with domain experts and IT specialists in designing the scanning system

Effective scanning requires the partnership of three groups of knowledge workers in an organisation:

- domain experts who have deep knowledge about the business

- information experts who organise information into useable and useful resources
- IT experts who build the technical infrastructure to support information management.

Domain experts transform information into intelligence that can guide action and decision making. They are not just consumers of the end products of scanning but active participants in the collection and analysis of information. Information specialists add value to information in various ways to signal its significance and enhance its accessibility and utility. IT specialists implement systems that accelerate and simplify the movement and sharing of information.

Manage information as the core of the scanning function

As shown in Figure 1.4, information management is a network of six interrelated processes: identifying information needs, acquiring information, organising and storing information, developing information products or services, disseminating information, and using information.[20] In identifying *information needs*, key groups of information users are clearly identified and the situations in which they will use the scanning information carefully understood. *Information acquisition* is a widely distributed organisational activity, in which virtually everyone participates. At the same time, the information collection network is coordinated, usually at a single locus, to properly manage issues relating to coverage, redundancy, and economies of scale and specialisation. *Information organisation and storage* is accomplished using a central database or repository where information is structured to facilitate both searching (retrieving information) and browsing (connecting information). *Information products* should be 'relevant' not only in the sense of being on topic, but also 'right' in its focus, orientation, format, and other value-added attributes. Products could exploit a mix of dissemination channels, including face-to-face briefings, workshops, written reports, and special exhibits. *Information use* in organisations takes place in three linked arenas: sense-making (what do the external signals mean?), knowledge-creating (what knowledge do we need and how can we develop it?), and decision-making (what course of action is best for the organisation?).[21] Information from scanning is a vital resource in all three arenas.

What these best practices suggest is that environmental scanning has to balance the tensions between control and creativity, centralisation and decentralisation, focus and exploration. While scanning is a formal, planned activity, it should also provide the space and freedom for participants to challenge assumptions and create new interpretations. While the scanning program is centrally coordinated, it is also a distributed activity where many groups and individuals gather and share information. While scanning is focused on the organisation's information needs, it should also provide the peripheral vision and long-range perspective for the organisation to grow. Ultimately, scanning as information seeking in support of organisational learning will always remain much more of an art than a science.

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2 A new framework for environmental scanning

RICHARD A. SLAUGHTER

This paper suggests that environmental scanning has been restricted to parts of the external world and has largely overlooked the inner one. In fact the inner/outer distinction has itself been lost sight of within Futures Studies, as in many other fields of enquiry and action. The result is that much well intentioned, and otherwise disciplined work takes place in a cramped empiricist frame that has, for good reason, been dubbed 'flatland'. For environmental scanning to more adequately comprehend a richer and more complex reality, a broader scanning frame is needed. This paper provides a model for working toward that goal.

2.1 LIMITATIONS OF CONVENTIONAL ENVIRONMENTAL SCANNING

Environmental scanning is a methodology that stands at the juncture of foresight and strategy. It establishes organisationally relevant criteria that allow prepared human minds to discern information, knowledge and insight from the multitude of 'signals' that occur daily. In most cases the starting point for environmental scanning is the design of a scanning frame which helps practitioners decide what to look at and how to judge the usefulness of information. But, at the same time, there also needs to be an openness to new data, 'lone signals' and unconventional sources. So one of the meta-skills of good environmental scanning work is to know when to apply the standard 'rules' of discrimination and when

to set them aside. This is quintessentially a matter of human judgement, not of calculation. As such environmental scanning stands firmly in the interpretative domain, not that of the dominant empirical tradition of futures work.

Organisations that do not pay attention to a wide range of signals are unlikely to prosper because they will have missed vital information about markets, products, customers, competitors and the like. Organisations that do adopt effective environmental scanning are much more likely to succeed because they are 'tuned in' to their environment – they 'know what is going on'. Moreover, the trained eye (ear, brain) can detect new signals and provide early warnings of change. In other words, environmental scanning is a key step in creating an in-house foresight capability. Thus environmental scanning is steadily emerging from its academic origins into more widespread practice where it has a range of practical implications, particularly in business. As Choo notes:

> Information derived from environmental scanning is increasingly being used to drive the strategic planning process by business and public sector organisations in most developed countries. Research evidence shows that environmental scanning is linked to improved organisational performance.[1]

But most businesses are pragmatic organisations that neither grasp the bigger picture nor have the means to do so. They exist for the limited purposes of making money and satisfying shareholders' expectations. They are not, on the whole, interested in critiquing conventional assumptions or looking beyond currently popular ideologies such as scientism and economism. Hence the methods they use tend to be focused on 'getting the job done'. Though 'triple bottom line accounting' (i.e. using economic, social and environmental criteria) is slowly emerging onto the agenda, powerful boundary maintenance practices continue and thus the focus on the pragmatic achievement of limited, instrumental goals remains dominant.[2]

This essentially technical orientation is only one of many that are possible. But it is reinforced by strong empiricist tendencies in the world of corporate strategy. What seems to matter most is getting a grip on the key trends 'out there' – trends that can be measured and captured through statistics, models and graphs. Various books are available that popularise the notion that 'you, too, can profit from reading the trends'.[3] Those who detect and employ them first will also be the first to benefit. Hence the focus in Hamel and Prahalad's work on what they call the 'race for industry foresight'.[4] In these terms, such an approach is entirely reasonable. It makes a great deal of sense if one is working in a typical business environment, with pragmatic strategic and financial goals, and where the relevant bottom line is largely economic.

There are at least three reasons why this approach is insufficient. First, the typical empirical scanning frame overlooks phenomena that do not respond to empirical 'ways of knowing'. Something is being lost, but what that 'something' might be is not always clear. Second, all organisations are located in a wider milieu – a world that is experiencing dysfunction, stress and upheaval on an unprecedented scale. Its future has become highly problematic and humanity as a whole is facing a profound 'civilisational challenge'. In essence, the challenge involves the following:

- understanding the sources of dysfunction and breakdown in the global system (a diagnosis)
- taking responsibility for re-framing the way we understand and manage spaceship earth (values, purposes, strategies and goals)
- developing a commitment to collectively changing course and striking out in a new, or renewed, direction (a vision of a transformed world).[5]

Practical people in organisations of many kinds either label such concerns 'academic' or consign them directly into the 'too-hard basket'. Yet these are very poor strategies, amounting to little more than avoidance. They merely leave the hard choices to others or to the mindless working-out of processes and systems at every level.

The third reason why empirically based environmental scanning is lacking is that organisations themselves need access to richer, deeper outlooks and more thoughtful, innovative strategies. In other words, thinking more broadly, more deeply, and bringing into play non-traditional sources and 'ways of knowing' will provide new insights and leads to new opportunities, new ways of beating the competition. For example, the Finnish firm Nokia moved well ahead of its competitors by taking up the notion of 'human technology' and re-focusing its publicity on style, ease of use and the sheer pleasure of well-designed mobile phones. Similarly, Apple computers not only paid attention to increasing the functional capability of its products, it also released colourful new-look items that made standard computer hardware look boring. Both companies had correctly 'read' some very subtle environmental signals and were among the first to understand the growing importance of 'soft' features such as image, style and the overall 'feel' of products.

So the question behind this paper is: 'is there a way for us, and the organisations we work in or with, to take a deeper, richer and more productive view of the whole environment?' I believe there is. In what follows I will first draw on the work of one leading transpersonal synthesist and then attempt to set out an approach to environmental scanning which encompasses aspects of our world that have been widely overlooked.

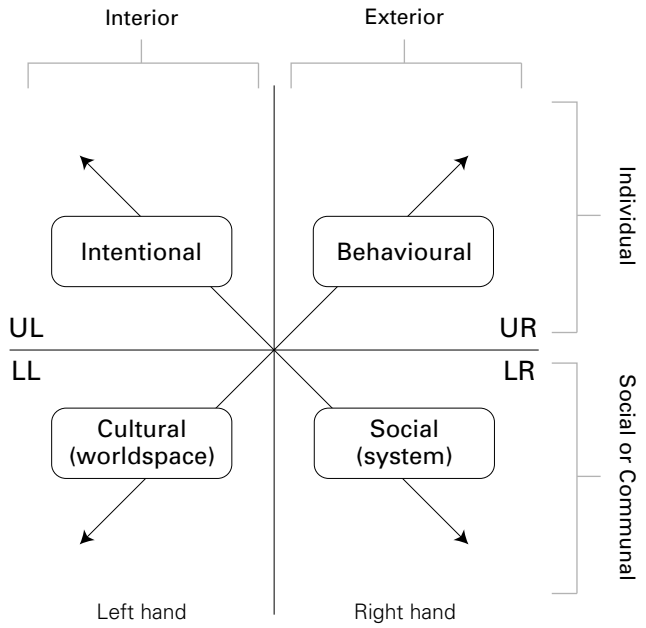

Figure 2.1: The four quadrants

2.2 TRANSCENDING FLATLAND

In a paper with the above title, I explored the way that the modern futures project became trapped in a kind of empiricist prison. That is, it has evolved methods for reading the world 'out there' but has largely overlooked the world 'in here'. Moreover, it has also, in its dominant, mainstream American form, overlooked the rich possibilities for understanding that are given to us through such avenues as hermeneutics, critical theory, semiotics, post-structuralism, multiculturalism and the transpersonal realm. I argued that these oversights have deprived the field of some of the most powerful options for understanding the global predicament and responding to it in deeply transforming ways. In short, I argued that Futures Studies had become trapped in a metaphorical flatland. Ken Wilber described some of the consequences when he wrote that:

> depths that required interpretation were largely ignored in favour of the interlocking surfaces that can merely be seen…valueless surfaces that could be patiently, persistently, accurately mapped: on the other side of the objective strainer, the world appeared only as a great interlocking order of sensory surfaces, empirical forms.[6]

Though brief, this statement stands as an enduring critique of approaches to Futures Studies and environmental scanning that are based only or primarily on empirically based data from the external world. Something essential is missing.

2.3 A META-MAP FOR A RENEWED WORLDVIEW

The corpus of Wilber's work has produced many useful outcomes. Among these is a meta-framework that distinguishes four domains within which different phenomena are located and thus different 'ways of knowing' are employed. (It is necessary to stress that, before coming to any hard and fast conclusions about this perspective, readers should consult the original sources.)

Properly understood, Wilber's 'four quadrants' provide a comprehensive and systematic basis for Futures Studies in general and environmental scanning in particular. They are based on an ingenious division between 'inner' and 'outer' on one axis; and between 'individual' and 'social' on the other (see Figure 2.1). Each quadrant is used to trace the process of evolution in that particular field. So there are four parallel processes, each intimately linked with the other: interior-individual development; exterior-individual development; interior-social development and exterior-social development. Wilber uses the term 'holons' to represent entities that are embedded in systems, part separate and part whole. In his words, 'the upper half of the diagram represents individual holons; the lower half, social or communal holons. The right half represents the exterior forms of holons – what they look like from the outside; and the left hand represents the interiors – what they look like from within'.[7]

Figure 2.2 outlines stages of development in the four realms as drawn from the work of various different observers. 'The upper right quadrant runs from the centre – which represents the Big Bang – to subatomic particles to atoms to molecules to cells to neural organisms to triune-brained organisms. With reference to human behaviour, this quadrant is the one emphasised by behaviourism'.[8] The upper left quadrant 'runs from the centre to prehension, sensation, impulse, image, symbol, concept and so on…With reference to human beings, this quadrant contains all the 'interior' individual sciences (among other things), from psychoanalysis to phenomenology to mathematics'.[9] The lower right quadrant runs through the stages of galactic and planetary evolution. With reference to humans it 'then runs from kinship tribes to villages to nation states to (the) global world system'.[10] It also incorporates the physical realms of architecture, technology etc. Finally, the lower left quadrant outlines the interiors of social systems; that is their culture, values and worldviews. These range from what Wilber calls the 'physical-pleromatic' stage to the 'mythic, rational and centauric' stages.[11]

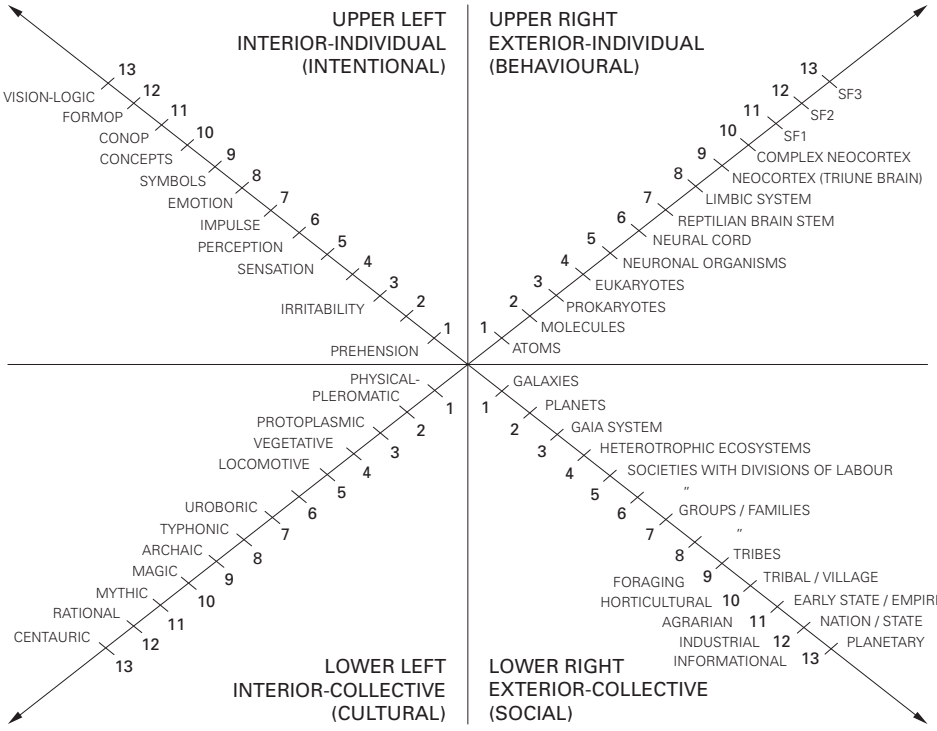

Figure 2.2: Some details of the four quadrants

One use of this scheme is to provide a diagnosis of the modernist path to our present day 'flatland', a path that Wilber suggests involved repressing or dissociating much of the inner world (the left hand side of the diagram) which is what has clearly happened in Futures Studies and environmental scanning. But the story does not end there. It advances two key suggestions about cultural recovery that have many implications for organisations and the strategies, or ends, they pursue. One concerns the reintegration of the 'big three' (the worlds of 'I', 'we' and 'it'); the other addresses the further development and integration of new stages beyond those already achieved. Wilber's work can be seen as central to the cultural enterprise that is Futures Studies because it provides a framework for mapping the outlines of more fully integrated and, indeed, more advanced cultures.

2.4 GROUNDS OF CULTURAL RECOVERY

The above is obviously only a partial summary of a detailed account of individual and collective development over a long period of time. Many insights about the possible grounds of cultural recovery can be derived. Here I will touch briefly on five general points.

1. Wilber's account seeks to re-establish a vertical dimension that, if not lost, was certainly obscured during the modern period. In his words:

   > once the weight of the Big One is lifted from the shoulders of awareness, the Big Three jump instantly back into focus, and interior depths once forbidden to serious discourse…now unfurl before the mind's inward eye: the surfaces are not surfaces at all, the shadows hide something else. The appearances don't just reveal, they conceal: something other is going on.[12]

2. He attempts to clarify the sources and resolutions of modern pathologies. In this view, they are associated with different types of arrested development, corresponding to each of the levels of evolution. For example, a key pathology of the industrial period is the 'disengaged ego'. While the ego is seen as a tremendous step forward from more primitive stages, Wilber argues that its tendency to move from separation to dissociation leads on to many of the self-indulgent behaviours of our age.

3. He carries forward the work of the great technological skeptics of our age, writers such as Lewis Mumford and Jaques Ellul. Wilber writes:

   > I trace a large part of this dissociation and resultant emphasis on the Big One (of instrumental/objectivist rationality) to the strong influence of industrialisation and the machine mentality…: the techno-economic base supported instrumental-purposive activities, and in a way out of all proportion to the instrumental-purposive rationality that did in fact build it: a positive feedback loop that sent calculative rationality spinning out of control, precisely in the avowed purpose of gaining control.[13]

4. He provides a rationale for re-establishing a central role for human agency and aspiration. For example, he notes that: 'as for the coming transformation itself, it is being built, as all past transformations havebeen, in the hearts and minds of those individuals who themselves evolve to centauric planetary vision'.[14]

5. He helps to define aspects of the most promising ways ahead. Put briefly, this involves understanding and refusing the modernistic 'flatland' in all its many guises and manifestations, and then clarifying and pursuing further stages of personal and social development. However, this is not a trivial 'new age' view full of sweetness and light. Rather, it has a gritty reality to it: 'contacting the higher self is not the end of all problems but the beginning of the immense and difficult new work to be done'.[15]

2.5 A REVISED FRAME FOR ENVIRONMENTAL SCANNING

In a much earlier work I suggested that Futures Studies could best be understood as taking place on a range of different levels.[16] This view has been taken up by others and elaborated into a method dubbed 'Causal Layered Analysis'.[17] Essentially, it proposes that the world of reference that interests us in relation to Futures Studies is not monolithic but layered and that different 'layers' reveal different phenomena. Though there is some divergence in detail, the approaches are structurally similar. Both start with more superficial material and move 'down' into deeper areas. Both use four categories. And both can be adapted to broaden the frame of environmental scanning.

The terms I originally proposed for the four main 'layers' of enquiry were: pop futurism, problem-oriented futures work, critical futures studies, and epistemological futures work. It is useful here to summarise what each of these terms stands for.

Pop futurism

This is mostly trite, superficial work. It is media-friendly and can often be seen in weekend newspaper supplements, magazines, popular books and on brief TV features. Statements such as: 'how science and technology are improving our lives and creating the future' sum it up. This is the world of the fleeting image and the transient sound bite. It is eminently marketable, but bereft of theory or insight.

Problem-oriented futures work

This is more serious work. It looks at the ways that societies and organisations are responding, or should respond, to the challenges of the near-term future. So it is largely about practical matters such as social rules and regulations, marketing and conventional strategy. It emerges most typically in, e.g. environmental legislation and organisational innovations, particularly in business. It is significant that the bulk of futures work takes place in this domain.

Critical futures studies

Critical work is emerging as a refreshingly new perspective. It attempts to 'probe beneath the surface' of social life and to discern some of the deeper processes of meaning-making, paradigm formation and the active influence of obscured worldview commitments (e.g. 'growth is good'; 'nature is merely a set of resources' etc). It utilises the tools and insights that have emerged within certain of the humanities and which allow us to 'interrogate', question and critique the symbolic foundations of social life and – this is the real point – hence to discern the grounds of new, or renewed, options. Properly understood, the deconstructive and reconstructive aspects of high quality critical futures work balance each other in a productive dialectic.

Epistemological futures work

Epistemological futures work goes deeper still. Here Futures Studies merges into the foundational areas that feed into the futures enterprise and provide part of its substantive basis. Hence what has been termed the 'social construction of reality' philosophy, ontology, macrohistory, the study of time, cosmology etc are all relevant at this level. It is here that the deepest and, perhaps, the most powerful forms of futures enquiry operate. The main reason is that such work helps to 'unfreeze' the very taken-for-grantedness of everyday life and to identify new sources of freedom, new ways ahead. Essentially it permits the systematic rethinking, revising and recovery of the foundations of the social order. Clearly this has, or could have, huge implications for organisations.

Now in this form, the categories refer to general approaches within each of the 'layers' of futures work. With some adjustment and revision the former can be matched with Wilber's four quadrants. Pop futurism represents a superficial gloss on the LR and, to a lesser extent, the UR quadrants (the world of empirical science, or the 'it' world). Problem-oriented futures work, as presently constituted, refers mainly to limited aspects of the LL quadrant (the shared social world, or the world of 'we'). Critical and epistemological futures work refers to the UL and the LL quadrants respectively (the worlds of subjective and inter-subjective meanings). Overall, then, four new foci for environmental scanning emerge. These are:

1. (Upper left) the inner world of individual identity, meaning and purpose
2. (Lower left) the inter-subjective social/cultural world
3. (Upper right) the external world of the individual
4. (Lower right) the collective external world.

The key point is that in each of these four 'worlds' there are different phenomena at work and different 'ways of knowing' are needed to understand and study them. Running them all together – as has happened to date in Futures Studies and environmental scanning – is a recipe for the exclusion of some key phenomena and confusion among others. Thus in (1) what is at stake is the level, or quality, of individual human consciousness. What we would be alert for here are changes in peoples' values, perceptions and goals; overall, the meanings they weave with their lives. In (2) the focus is on shared collective structures. Here we would consider changes in languages, cultures, institutions, disciplines and the like. In (3) the concern is with changes in the ways people act externally, e.g. voting patterns, consumer behaviour, reproductive practices etc. Finally, in (4) we are back in familiar industrial-era territory with objectively measurable changes in natural and constructed external environments.

Here two points can be noted. First, this interpretative scheme is itself an interpretation. It should not be reified, made real. It should be used for clarity, to cover and include

phenomena that are omitted within more limited frames, but it is not reality itself! Second, all the quadrants are obviously interconnected. Many phenomena are cross sectoral by nature. Reality itself is ever and always interwoven through the four quadrants and through countless other interpretative schemes as well.

Yet the scheme as described allows some tentative conclusions. First, standard approaches to Futures Studies and environmental scanning do appear to be biased toward collective empirical phenomena (the UR and LR quadrants) and therefore overlook the significance of the rich inner worlds of people. Second, approaches to environmental scanning which privilege science, technology, psychology and behaviourism in particular over, e.g. hermeneutics, semiotics, sociology and anthropology, are, by so doing, likely to produce 'thin' and unproductive views of the world. They will overlook the shaping role of subjective and inter-subjective awareness. It follows that a more structurally sound approach would focus on changes in each of the four quadrants and therefore employ a suitable range of methods, foci and 'ways of knowing'. It is to these that I now turn.

2.6 ENVIRONMENTAL SCANNING IN FOUR WORLDS

As noted, the two right-hand quadrants (the 'it' world) have always been the primary focus of conventional environmental scanning. But using the four-quadrant approach allows us to distinguish between empirical data *per se* and social/interpretative data. The two left-hand quadrants are inadequately scanned by futures practitioners and are therefore poorly integrated into mainstream futures work. Though it has major implications, critical futures work (which applies primarily to the left-hand quadrants) has been widely overlooked. Within the upper left quadrant it considers the ways individuals interpret their world. In the lower left quadrant it deals with the social construction of reality. Epistemological futures work adds depth to both of these concerns, particularly in the lower left-hand quadrant, since it is concerned with the shared foundations of social life across space and time. I will now outline some of the questions that arise for environmental scanning in each of these four 'worlds'. Clearly this is a provisional formulation which will require critique and revision over time by theorists and practitioners alike.

World 1. The world of individual meaning and purpose

The upper left quadrant identifies the world of personal identity; of feelings, meanings, goals and life purposes. It cannot be accessed directly. It can only be accessed through an interpretative framework that is adequate to that which is being studied. Such frameworks include psychoanalysis, phenomenology, hermeneutics and the authority, the depth of insight, derived from specific cultural or religious traditions.

Within this arena the questions are personal and transpersonal. They might begin with those about family, biography, culture, tradition and work. They then might proceed to question such as 'what are our assumptions? What interests do we represent? What might we have overlooked? Such questions require reflexivity: the ability of human beings to stand back and 'see' themselves in the process of seeing, perceiving, thinking etc. In so doing, these processes are understood to be not objective but 'situated' in a particular culture or milieu (the lower left quadrant). Though the term 'paradigm' has long been a commonplace in futures enquiry, a developed awareness of the questions and the processes of perception and reality-construction that they imply, remain uncommon in futures work and environmental scanning. Being 'critical' in this context means 'looking more deeply'. It refers to the way that human perceptions are layered and that each of these layers can be accessed using different methods. Paradigmatic texts would include Berger's classic *Ways of Seeing*, Harman's *Global Mind Change* and Hesse's novel *Siddhartha*.[18]

Scanning sources that are relevant here include the literature of perception and transpersonal psychology, much of the quality futures literature, radical and socially critical publications, and non-mainstream magazines and journals generally (e.g. *Whole Earth*, *Revision*, *The UTNE Reader* and the *Journal of Transpersonal Psychology*).

World 2. The world of cultures and shared meanings

This area can seem challenging to empirically minded observers because it too embraces phenomena that cannot be fully 'seen' in the external world and which therefore require close study and deep understanding over a period of time. As noted, such worldview phenomena tend to be widely overlooked in favour of more measurable, widely available and readily absorbed data. Here we are looking (with an inward 'eye') at cultural assumptions and driving forces (purposes, stories, myths etc), at epistemes, at civilisational perspectives and so on. Some questions that arise are as follows. What unquestioned civilisational 'givens' are involved? How are they observed? What effects do these deeply embedded drivers have? Are these effects acceptable? If not, how can they be moderated or changed? How are they 'coded', legitimised, applied in various contexts? What frameworks of theory and practice do they depend on?

More specific questions could include: how is society adapting to the trends operating in the global environment? How are organisations responding, adapting? What opportunities arise in the chaotic shift between cultural eras and civilisations? The focus will include social entities such as: pressure groups, government or industry enquiries, changes in laws and in regulatory regimes, new strategies, strategic alliances and so on. Sources may include: specialist information services, official pronouncements, departmental discussion papers, policy documents, drafts of new laws, and other handouts, the views of opinion-leaders and dissenters, public pronouncements of CEOs, opinion-leading books

and so on. They also include scholars and books in fields such as: anthropology, macrohistory, cosmology, religion and spirituality, the study of time and so on. Paradigmatic texts here would perhaps include Michael's *On learning to plan and planning to learn* and Ogilvy's *Futures studies and the human sciences.*[19]

Scanning sources would be derived from various areas of social and cultural research, interdisciplinarity, governance, administration and strategy. It is, of course, a vast field. But since, environmental scanning does attempt, in some sense, to 'cover the world', its practitioners should be able to select and filter from a vast array of inputs and data. Into this quadrant fall all the organisations, journals, publications of organised social life. In addition – and quite obviously – the world of the Internet also supplies a vast amount of data on the shared social/cultural world and will obviously be an important resource. Journals such as *Futures*, *Foresight*, *Quadrant* or *Economics for the Global Good* provide forums for re-negotiating a range of social and professional commitments.

World 3. The world of individual capability and behaviour

In the upper right quadrant the focus is on the empirical study of the physical and behavioural aspects of human beings. So it encompasses biology, health, reproduction, physical well being and illness as well as behaviouristically oriented psychology. The study of aging is clearly located here, along with that of human behaviour under all the different circumstances of human life: marriage, child rearing, employment, consumer habits and so on. Here is where Taylorism established its foothold in time-and-motion studies and later where stakeholder analysis and responses to advertising occur. Here is where intelligence testing takes place, as well as profiling and fitness for employment. In other words, it is the visible outer arena of human capability. The bulk of educational literature addresses phenomena in this domain. It is quintessentially the field of 'self-improvement' and marketing. It includes any field where the interest is on external performance or manipulation: sporting achievements are a good example. Paradigmatic texts here would include Goleman's *Emotional Intelligence* and Covey's *Seven Habits of Highly Effective People.*[20]

Scanning sources will depend on the specific work in hand. It clearly ranges across all the fields outlined above: psychology, health, marketing, sports, etc.

World 4. The physical world

The world of the lower right quadrant is a vital one and that most consistently scanned by mainstream environmental scanning. It is the world of business and industry, of science, technology, architecture, the globe-spanning infrastructure and the natural environment. Key questions include the following. What is happening 'out there' that is of interest to us/our organisation? What are the key drivers? What are the more subtle counter forces that may signal new phenomena, new issues, directions and opportunities? The focus is

upon trends and events across the board – anything that can be detected, recorded, measured and slotted into an accounting structure. This is where discoveries in science, and their detailed applications in new technologies, occur. This is where the shapes and forms of cities are discussed and questions of the physical sustainability of human activities debated and critiqued. Paradigmatic texts would include the *State of the World* series and the regular digests produced by the OECD, the World Bank and other such agencies.[21]

Sources are, of course, many and varied. They include digests, global statistics, reports, media productions, quality newspapers, abstracting services, interviews and the like as well as the burgeoning web sites where up-to-date information on nearly everything can increasingly be found.

2.7 ENVIRONMENTAL SCANNING BEYOND EMPIRICISM

The view set out above is that environmental scanning needs to move beyond its initial concerns with the world 'out there' to include phenomena that tend to be overlooked and under valued in part because they are 'in here' where different forms of knowledge and tests of truth and usefulness apply. The reason for this view is that without a multi-perspective, multi-level or, perhaps, four-quadrant view of the world, a great deal of foresight work and strategy development merely 'spins the wheels' in the sense that it produces surprisingly little that is either original or useful. The 1998 annual report of the Millennium Project demonstrates this very clearly.[22] A related confusion is evident in a CD-ROM on futures methods that emerged from the same project. In one paper the following passage appears:

> Futures research tends to create a broad set of issue and questions to address policy problems and to seek insight from an extraordinarily diverse section of sources using a broad set of methods. This breadth runs the risk of the researcher being superficial. Academic future studies tend to go much deeper into questions and, therefore, can become narrow and/or parochial in their result.[23]

Here we see the misconception that breadth or depth in futures work risks producing poor results. From the viewpoint of this essay the truth is rather different. It is critical and epistemological naïvete that leads to narrowness, parochial views and superficiality, not depth. The reason is that the deeper we go into the constitution of socio-cultural realities (and the interventions made within the physical world based on them) the more richness, originality and flexibility can be found to think new thoughts and conceive of new projects in any organisation or environment. Methods are therefore needed to handle complexity within the forward view without falling into unintended reductionism. A layered approach on the one hand, or a quadrant approach on the other can certainly be married up with more 'horizontal' methods to reconcile both breadth and depth.[24]

There are few precursors to such work within Futures Studies. One exception is the very thorough multi-perspective approach developed by Linstone and Mitroff.[25] Their work is based on three perspectives: technical, personal and organisational. Theirs is a scientific view and their goal is to outline what they call a 'holistic science of complexity'. It is an intelligent rationalist agenda based largely on high-quality empirical analysis and systems thinking. It produces useful insights. But, to my mind, it overlooks the deep transformations of consciousness, meaning and value that lie outside the rationalist frame. It is significant that their book closes with an optimistic reference to the need for wisdom. But the approach overlooks the deep socio-cultural processes through which it can be recovered or developed.

2.8 CONCLUSION

This paper has attempted to explore what for environmental scanning and Futures Studies constitutes 'new territory'. I have argued that a standard empirical framework provides an inadequate basis for both because key structural phenomena with transforming or innovative potential are thereby omitted and overlooked. The four-quadrant device is not immune to criticism. But it provides us with a meta-map, a larger and more systematic way of covering the territory. Few organisations will need to scan all four quadrants equally. However, I suspect that all would find it helpful to design their initial scanning frames with explicit reference to them and to occasionally check for sources across these broad areas. Otherwise they will overlook factors that would, perhaps, significantly change the nature of their enquiries, re-direct them or possibly undermine them altogether.

The suggestions advanced here can be reduced to some simple, but very significant questions for practitioners.

- Which worlds (quadrants) are germane to the study and what are their key features?
- Do we fully understand the distinctions between the frames of reference they represent?
- Do we understand the different 'ways of knowing' that apply in different quadrants?
- Have we balanced inner/outer and individual/collective, or are there omissions and biases in our coverage?
- Do we have access to adequate sources in non-empirical areas?
- Do our staff have a sense of 'what they don't know', and hence what needs to be looked at more carefully?

A common rationale for environmental scanning is that 'forewarned is forearmed'. That remains true. Yet most people still live in cultures and work in organisations where long-term social foresight has yet to be achieved. In the light of the 'civilisational challenge' mentioned above this is to be regretted. Social and organisational well-being depend significantly on creating and responding to a variety of high quality forward views and then using them for a wide range of purposes. It would be more than a little ironic if defects in the methods used to sensitise organisations to changes in their environment were to cause them to overlook some of the most subtle but powerful sources of change around.

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3 Reframing environmental scanning:
An integral approach

JOSEPH VOROS

The basis for an environmental scanning framework is described which may also function as a means for understanding how human minds filter their perceptions of the world. The framework is based on the integral model of Ken Wilber and the Spiral Dynamics model of Don Beck and Chris Cowan. An analytical tool (cross-level analysis) is presented for examining views of the world in terms of both the perceptual filters of the viewer as well as the aspect of the world being viewed, a technique which is also useful for analysing how other scanners do their scanning. A notation for cross-level analysis is presented and described, with examples of its use. The framework described here is aimed at futurists, environmental scanners and intelligence analysts, all of whom need to gather information, process it, and assess the implications of the signals they find. It assumes no prior knowledge of Wilber's framework or of Spiral Dynamics. Rather, it seeks to present elements of these two models as useful bases for broadening and deepening our understanding of what we see going on in the world. It is hoped that the reader will find them sufficiently useful to investigate the models in more depth.

3.1 INTRODUCTION

It is a truism that all of our environmental scanning is undertaken through perceptual filters. These filters are mostly not conscious, but rather act as pre-conscious conditioners of what we see. Any framework which helps to expand the range of our perceptions may thus help us to become more attuned to more of the world out there. The age-old tension in environmental scanning is that existing between breadth and depth, and it is commonly believed that they are mutually exclusive. The use of a scanning framework deliberately designed to be *both* broader *and* deeper would therefore be a useful step in helping to open out the 'mindspace' which scanners need to inhabit if they are to recognise the weak signals coming from the future. It is also necessary for scanners to become aware not only of how they perceive the world, but also of what types of filtering are likely in their own minds. Thus, one major aim of this paper is to open out in scanners' minds an understanding of some of the ways that human minds filter and perceive the world – that is, to become aware more explicitly of some of our different 'ways of knowing'.

In several papers, Richard Slaughter has begun a process of attempting to integrate some of the key insights from the work of the contemporary philosopher Ken Wilber into Futures Studies.[1] Recently, he has argued that environmental scanning as currently practised is somewhat narrow and shallow in focus, and calls for a move from the largely 'exterior' focus presently employed, to a greater emphasis on the 'interior' world, offering Wilber's so-called Four-Quadrant model as an example of such an expanded framework.[2] In other words, he has suggested that environmental scanning take a broader and deeper view of the world.[3] This paper is intended as a further contribution to this suggestion. Specifically, the idea is to extend or 'reframe' environmental scanning to include not only thinking in terms of the Four Quadrants (which is a good start), but also in terms of some explicit *ways of thinking*. These different ways of thinking represent, in essence, alternative ways of knowing and the reflexive use of them is able to contribute many new insights into how we filter, both consciously and unconsciously, what is going on in the world.

The ideas to be presented here are to do with defining explicit levels within the four quadrants as a means of analysing how we view the world when engaged in environmental scanning. This is an aspect of what Wilber calls an 'integral' approach – or, in his phrase, an 'all-quadrant, all-level' (AQAL) view of the world. Defining explicit levels also allows for reflection on how the perceptual filters we all possess actually filter out large tracts of the world. With a better understanding of what we do and don't allow ourselves to see, we can take steps to consciously widen and deepen our scanning frame. Such a scheme also provides a basis for analysing both the approach to and results of scanning activities (our own and that of others). This critical analysis of scanning itself – which Slaughter has called 'meta-scanning'[4] – allows scanners to fill gaps in their personal scanning frame by using sources explicitly chosen for their focus on distinct areas of the overall framework,

as well as appropriately placing the work of other scanners, in those instances when their own scanning resources are limited.

3.2 RATIONALE FOR AN INTEGRAL APPROACH

In terms of the model to be described below, much of what passes for 'wide' environmental scanning and futures thinking today will be seen to be confined almost entirely to only one or two levels in one quadrant, with occasional and mostly unsystematic forays into the others. Such a 'pre-filtering' of the world is already contrary to the spirit of environmental scanning, which attempts, in a sense, to 'cover the world'. Obviously, the more that we can include in a systematic way, the more likely we are to avoid 'blind spots' in our scanning.

Recently, at a seminar to a government authority where I was presenting the idea of all-quadrant, multi-level environmental scanning, I made the observation in the previous paragraph about the limited nature of much of present-day environmental scanning. One participant commented that some people in her scanning team were already using an expanded notion of scanning which also encompassed aspects of the other quadrants. Interested by this, I asked if it was common; the answer was that it 'depends on the scanner'. As I thought about this response in order to phrase an answer, it occurred to me that it was precisely this implicit, subjective, uncontrolled, scanner-specific aspect of scanning which I was trying to bring explicitly into the design of the scanning frame. As this thought occurred to me I said: 'It sounds to me like it happens by accident rather than by design; I would like it to happen by design rather than by accident'. And this, simply put, is the basic rationale for the integral approach being presented here.

3.3 THE INTEGRAL MODEL

The contemporary philosopher and synthesist Ken Wilber has spent the past quarter-century creating an 'integral' model of the development of human consciousness, by studying the work of hundreds of researchers, Eastern and Western, ancient and modern.[5] One of the key aspects of Wilber's integral framework stems from its syncretic nature – it represents an accessible integration and summary of the work of countless other people, so it is as much the creative, synthetic work of one man as it is a distillation of the wisdom of the ages. An exposition of the integral model was published recently as *Integral Psychology*[6] while the overall 'integral vision' appeared as *A Theory of Everything*.[7] These two books give the primary overview of the underlying framework and its application to numerous areas of human interests. It is important to realise however that what I attempt here is only the barest sketch of decades of work (by Wilber himself, and thousands of years of work by others synthesised by Wilber), so the reader is asked not to form any too-firm opinions about the model solely on the basis of what is written here.

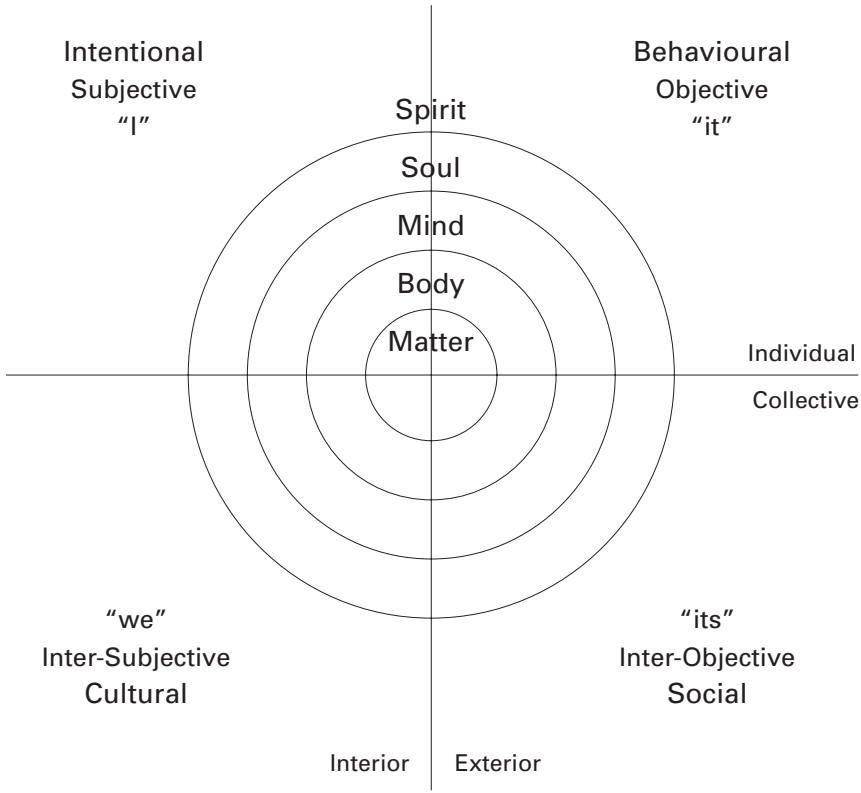


Figure 3.1: The Great Nest of being in the four quadrants

3.3.1 Summary of the integral framework

In the integral model, entities such as human beings exist in a dual context – both as individuals in their own right and as part of collectives. Added to this dual context are the distinctions of an *interior* and *exterior*. Anything exterior is something which has simple location (that is, it can be pointed at) and can be objectively measured using empirical-reductionist techniques, such as height, weight and brainwave patterns. In contrast, the interior is not objectively measurable but, rather, something experienced subjectively, like my sense of right and wrong, meaning, purpose and whether or not I'm happy with my height and weight. Thus, there emerges a four quadrant framework, summarised in Figure 3.1, which shows the relationships of the interior (left-hand side, LH) and exterior (right-hand side, RH) of the individual (upper half) and the collective (lower half). The four quadrants may be conceived of as four aspects of any entity, the upper half

corresponding to its individuality ('agency'), the lower half to its 'communion' with the collective. In this system, every entity exists as 'agency-in-communion' – an individual embedded in a collective. The four quadrants are thus: interior-individual (UL, upper-left, intentional; the subjective realm of 'I'), exterior-individual (UR, upper-right, behavioural; the objective realm of 'it'), interior-collective (LL, lower-left, cultural; the inter-subjective realm of 'we'), and exterior-collective (LR, lower-right, social; the inter-objective realm of 'its'). The major levels within the quadrant framework are conceived of as 'matter to body to mind to soul to spirit'.

The upper right quadrant deals with the objectively measurable aspects or behaviours of single individuals, and is thereby termed *behavioural*. The lower right deals with communities or societies of these individuals and their external interactions, and so is termed *social*. Technological, economic, political and social systems are found here, so this is where much of STEEP analysis takes place.

While the right hand side is the arena of objective measurement, the left-hand side is the realm of subjective awareness. The upper-left quadrant deals with the interior of the individual; that is, with individual subjective awareness. This is where we experience our hopes, joys, dreams, cognitive capacities and intentions. It is thus termed *intentional*. When individuals exchange their beliefs and experiences with others, a shared awareness, worldview or culture is established, so the lower left quadrant is termed the *cultural*.

Of course, correlations exist between all the quadrants, but it is not possible to reduce any of these four separate aspects to one another without losing something in the reduction. For example, the upper-right quadrant is where my brain can be measured and analysed in terms of its neurotransmitters, brainwaves and so on (that is, what can be seen from the 'outside'), but the upper left is where I actually experience my mind (that is, what I see from the 'inside'). No amount of analysis of my *brain* will ever allow anyone to really know what it is like to be inside my *mind*. They are certainly correlated, but they cannot be reduced to each other. In order to find out what is on, and in, my mind, you need to engage me as a *subject*, not measure me as an *object*.

A more detailed map of the four quadrants, up to the level of mind, is shown in Figure 3.2.

Figure 3.2 is related to Figure 3.1 in the following way: the level of 'matter' in Figure 3.1 corresponds roughly to levels 1 to 2 of Figure 3.2, while the level of 'body' in Figure 3.1 corresponds roughly to levels 3 to 8 in Figure 3.2. This is most easily and clearly seen in the UR quadrant of Figure 3.2, where atoms and molecules are obviously the gross level of 'physical matter', while prokaryotes, eukaryotes, neuronal organisms, neural cords, reptilian brain stems and limbic systems all clearly correspond to biological organic states ('body').

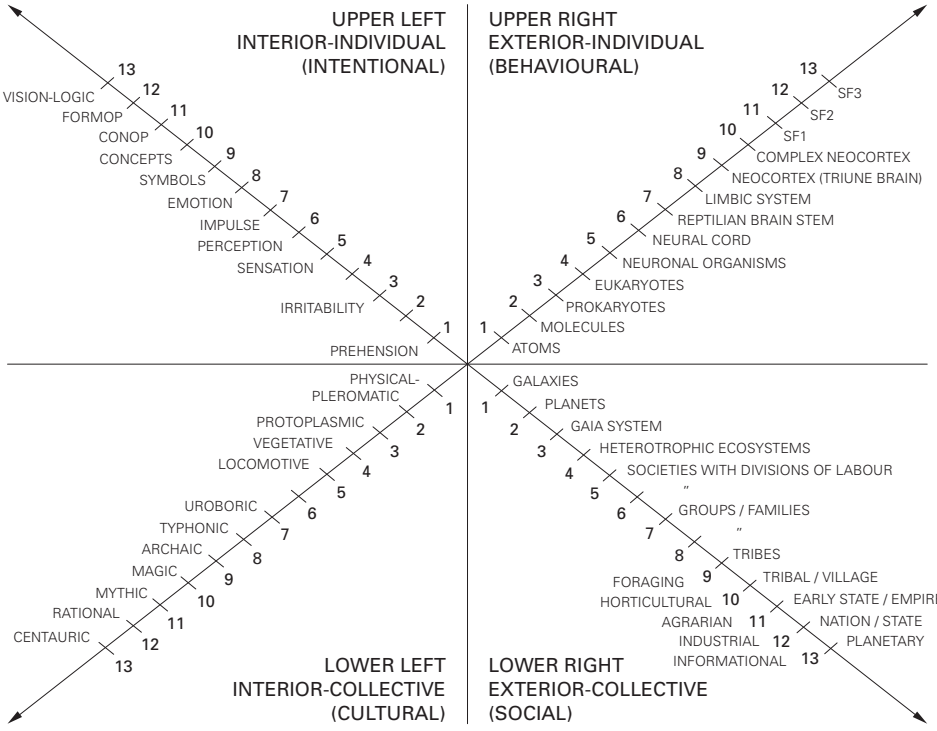


Figure 3.2: The Four Quadrants in detail, up to the level of 'the mind'[9]

The distinct level of 'mind' does not emerge until level 9 of Figure 3.2, with the appearance of a neocortex or triune brain system. These levels in the Upper Right have correlations in the other quadrants at the same level. Thus, as an example, a limbic system in UR (level 8) correlates to an interior capacity of 'emotion' in UL (level 8), and a 'typhonic' worldview in LL (level 8). (The LL quadrant shows the 'worldview' on its main axis; this refers to 'the way the world looks' at each level of the Great Nest.) As another example, a reptilian brain stem in UR supports a 'uroboric' worldview in LL. A complex neocortex and higher structures in UR supports interior capacities for 'concepts', 'concrete operational thinking' or *conop*, and 'formal operational thinking' or *formop* in the UL, yielding 'magic', 'mythic' and 'rational' worldviews, respectively. These last three worldviews correlate, also, with 'horticultural', 'agrarian' and 'industrial' techno-economic systems, respectively, in the Lower Right quadrant.

Thus, in brief, consciousness unfolds and 'tetra-evolves' outwards from the centre simultaneously in all four quadrants, from the level of matter to body to mind (in detail in Figure 3.2), and thence to higher levels of consciousness (soul and spirit), which enfold, transcend and include the lower levels (absent detail in Figure 3.1). The integral model therefore extends beyond human mental capacities (which are designated by the sequence extending from 'symbols' to 'vision-logic'[10] in Figure 3.2) to several trans-mental and trans-personal structures: psychic, subtle (both 'soul'), and causal and non-dual (both 'spirit').[11] The evidence for these trans-mental and trans-personal capacities is gathered from many contemplative traditions which all show broad agreement about the overall landscape of these 'farther reaches of human nature'. Anyone who undertakes a meditative or contemplative discipline is preparing the ground for the emergence of these potentials and the realisations they may bring. This is analogous to someone studying tensor calculus at the level of formop preparing the ground for realisations about, say, General Relativity. There is nothing particularly mysterious about it – it simply takes time and practice to become proficient, and the price of admission to the world seen from that vantage point is, at the very least, the actual undertaking of the practice itself; there is no substitute. Above all, the traditions tell us, it takes a contemplative *practice* to see the world from there – one cannot *think* one's way to trans-mental cognition!

3.4 THE FUTURES FIELD SEEN FROM AN INTEGRAL PERSPECTIVE

I will now sketch in some of what such an 'integral perspective' might bring to the Futures field and especially the way that environmental scanning is done. The use of quadrants to broaden our view of the world is already under way[12] so I will not dwell explicitly on this here. Rather, I will focus mostly on the presence of *levels* within this quadrant framework to deepen our view.

As can be seen from Figure 3.2, there is a considerable amount of detail to be found in the integral framework. The diagram is essentially a summary of the work of many researchers, cross-correlated from a broad perspective, seeking 'orienting generalisations'. The sequence of basic structures in the UL quadrant (individual interior consciousness) begins at the centre and evolves outwards, with levels in this quadrant correlated with the levels in others.[13]

One interpretation of the integral model is that human evolution may be conceived of as an expression of the unfolding of the basic structures of consciousness in the UL quadrant, and that social systems and cultural forms are, in this view, collective reflections 'writ large' of the unfolding of these structures. While the general sequence of these structures has been mapped (as is clear from the partial map in the UL quadrant of Figure 3.2), this does *not* imply predictable or predetermined futures. The actual manifestations of the unfolding of these structures remain open, within the constraints of the structures themselves.

Thus, for example, symbols (in UL) are correlated with the existence of a neo-cortex (in UR). This structure of consciousness supports an archaic worldview (in LL), and yields associated social/political structures of families/tribes (in LR) with a techno-economic system of foraging. Or, to take another more familiar example, the presently emerging informational techno-economic system (LR) probably couldn't have arisen before the structure formop (UL) became widespread in individuals and had stabilised as the rational worldview in a large part of the collective (LL).

The basic structures (or deep structures, as Wilber sometimes has it) express *potentials*, not *givens*.[14] Therefore, in this view, the overall shape of the future unfolds as a particular expression of latent deep potentials which allow for many different types of futures to emerge 'on top'. This means that the integral model may also be viewed as a model of macrohistory – a very broad overall shape is roughly outlined, given by the basic (deep) structures, but the details (the surface structures) remain to be unfolded and filled in.[15] The details remain unspecified in advance because it remains up to us to *create* these specific details. As a concrete example of this, consider the emergence in consciousness of the ability to use language – the actual languages created as surface structures of this deep structure are multitude. There is therefore no conflict with the futures programme – we are still the artists of our own destiny. The integral model simply shows us the edges and extent of the canvas upon which we are creating it. This view of macrohistory can easily encompass possible, plausible, probable and preferable futures. The vexed question of preferred futures (vexed because 'what' is preferred depends on 'who' is doing the preferring, and the associated issues this raises) may be understood much more clearly within the context of the value systems described by the interior (i.e. left hand) aspects of the model, something that rational-analytic approaches to futures cannot adequately deal with.

3.5 SPIRAL DYNAMICS: A MORE DETAILED FRAMEWORK FOR THE 'MIND'

I now want to consider the way that human minds filter their view of the world. To this end, I want to expand the 'mind' level of the integral framework using a system that deals specifically and in detail with minds.[16] This more detailed and specialised model, called Spiral Dynamics, is one of about a hundred systems that the integral framework incorporates into its broad meta-perspective of 'orienting generalisations'. It has the great utility of being simple enough to apply fairly quickly, without being a caricature of, or too simplistic towards, the complexities of human consciousness.

Spiral Dynamics is based on empirical studies of human thinking and value systems, undertaken originally by the American psychologist Clare W. Graves. The possibility of applying Graves' work to the Futures field was suggested by him as early as 1974.[17] This

work was taken up by Don Beck and Chris Cowan, who reworked and extended it into its present form as Spiral Dynamics (SD).[18] SD describes some of the organising principles and landmark states of the human mind as it develops, including motivational factors, views of the world and, most importantly for our purposes here, *ways of thinking and perceiving*. Most significantly, SD is a system for understanding *how* people think about things (i.e. the *process*), not simply the *things* they think about (i.e. the *content*). Beck and Cowan commonly express this as 'describing the containers that *shape* worldviews, not the contents that *fill* them (beliefs, values, etc)'.[19] Again, I recommend the reader consult the original sources in depth before forming a firm opinion of this framework.

Briefly, SD models the evolution of human cognitive capacities in terms of a spiralling double-helix. On one side of the double-helix are the 'life conditions' – external environmental pressures and forces which the individual experiences. These are paired on the other side of the helix with the cognitive capacities within the human brain/mind system that are appropriately 'matched' to these life conditions, and which provide an 'adequate' coping mechanism. Thus, the helical model pairs up 'conditions without' with corresponding 'capacities within'. The combinations of life conditions and cognitive capacities are usually represented by colour codes which symbolise their interaction (Beige, Purple, Red, etc.; see below). The use of colour codes can be a bit off-putting at first, but after a little while the terminology becomes simple, powerful and second-nature. They are just *labels*, after all; it is what they *describe* which is important. The great utility of the colour codes is that they short-circuit the common tendency of some people to play 'better-than/worse-than' ranking games with any sort of system which looks hierarchical. It is difficult to say that Red is 'better than' Purple, for example. In essence, the thinking structures of SD are, both figuratively and literally, filters on the world – ways of knowing – and that is precisely their utility here.

The SD structures have nothing whatsoever to do with levels of intelligence, so SD is not a system for ranking intellects. Rather, they describe emergent thinking systems, which tend to become more expansive and able to perceive a wider and broader 'worldspace' the later they are in the sequence. The earlier systems are necessary in order for the later systems to emerge, and cannot be skipped. They continue to remain present and available to us should the need arise to activate them. We all pass through them in our growth and development, although the life conditions (and possibly the neurophysiology) of some people will be such that the later structures might not be activated.

So far, eight core thinking systems have been identfied, with others expected to follow as life conditions themselves evolve. The sequence at present is as follows: beige, purple, red, blue, orange, green, yellow and turquoise. The colours have no significance whatsoever, except insofar as they are chosen as mnemonic devices (see below). In real life, of course, there are no pure states, but rather combinations of them. We need to keep in mind

always that these idealised states are not found in isolation and that real people have different admixtures of the various systems. A detailed explanation of SD now follows.

3.5.1 Spiral Dynamics structures in detail

Each SD structure transposes itself into: a world view; a value system; a level of psychological existence; a belief structure; an organising principle; a way of thinking; and a mode of living.[20] Here I will attempt to give a flavour for each of the SD structures so that the reader might get an intuitive grasp of this model. As before, the value to us of this model is the way it allows us to understand the perceptual filters which may be operating within an individual consciousness, which obviously has implications for the way environmental scanning is carried out and reported.[21]

1. Beige – *archaic-instinctual*. The basic theme is 'do what you must do just to stay alive'. Popular name: *Survival Sense*. The level of basic survival, food, warmth, sex, water and safety. The worldview of Beige is summed up as: 'the world is a state of nature'. A distinct 'self' is barely awakened. Motivation is largely physiological. The characteristic 'energy' of this level is 'survivalistic' – thinking is automatic, processes are instinctive (i.e. using habits and instincts to survive). The social structures tend to be loose bands. The characteristic mode of living is: behave instinctively much like other animals according to biological urges. The colour code derives from the colour of 'savannah grasslands'. The image/colour is meant as a mnemonic device for the main characteristics of the thinking structure. Picture in your mind survival bands roaming across the savannah…

2. Purple – *magical-animistic*. Basic theme: 'keep the spirits happy and the tribe's nest warm and safe'. Popular Name: *Kin Spirits*. Characteristic energy: magical. The world is mysterious and frightening, full of spirits which must be appeased. The thinking involves animism and magic, the processes are circular (e.g. rituals which must be repeated at interval). Structures are tribal – usually ethnic tribes. Motivation is to achieve an assurance of safety. Spirits swarm the earth leaving blessings and spells which determine events. Mode of living is therefore: placate spirits and join together for safety and to honour tradition and ancestors. Colour derives from the royal colour of tribal chiefs and emperors.

3. Red – *impulsive-egotistical*. Basic theme: 'be what you are and do what you want, regardless'. Popular name: *Power Gods*. Characteristic energy: impulsive. The world is tough and hard like a jungle full of threats and predators; the tough survive, the weak serve or die. First emergence of a self, distinct from the tribe. Motivation is the survival of this self, no matter what. Thinking is egocentric ('I am the centre of the universe'); others do not figure, so processes can tend to be exploitative of others. Structures are empires – feudal lords control territory or people; there is a Big Boss and a Chosen

Few underlings. Mode of living is: fight to survive and dominate others without guilt and to avoid shame. Colour code derives from hot-blooded emotions and the 'fire in the eyes'.

4. Blue – *mythic-purposeful*. Basic theme: 'life has meaning, direction and purpose with predetermined outcomes'. Popular name: *Truth Force*. Characteristic energy: purposeful. The world is divinely controlled and guided by a Higher Authority or Order with a distinct right and wrong; those who are righteous are rewarded, those not are punished, possibly forever. Guilt reigns. Motivation is to achieve everlasting peace of mind and security. Thinking tends to be absolutistic, the processes authoritarian. There is one and only one right way to think about or do anything. Structures are pyramidal authority structures – classic hierarchies – the basis of ancient nations. Mode of living is to obey rightful higher authority and find meaning and purpose in sacrificing individual desires for later reward. Colour code derives from the sky (the Heavens) and/or the True Blue believer.

5. Orange – *rationalist-achievist*. Basic theme: 'act in your own self-interest by playing the game to win'. Popular name: *Strive Drive*. Characteristic energy: achievist. The world is a rational, well-oiled machine full of viable options and plenty of opportunities and alternatives for success and prosperity. Progress is made by (rationally and scientifically) learning nature's secrets and seeking the best solution. Basis of the scientific-industrial worldview. Societies prosper through strategy, technology and competitiveness. Self-reliant people deserve their success. Highly achievement oriented, especially towards materialistic gains. Motivation is independence; thinking is multiplistic, processes are strategic. Structures tend to be delegative, yielding strategic enterprises – basis of corporate states. Mode of living is to test options for greater autonomy and compete for success and influence. Colour code derives from the radiating energy of steel in an industrial furnace.

6. Green – *pluralistic-communitarian*. Basic theme: 'seek peace within the inner self and explore, with others, the caring dimensions of community'. Popular name: *Human Bond*. Characteristic energy: communitarian. The world is the habitat for all humanity to share together and find affiliation, through consensus and reconciliation. The human spirit must be freed from greed, dogma and divisiveness. The Earth's resources should be spread equally among all. Motivation is affiliation; thinking is relativistic; structures are egalitarian and heterarchical, yielding social networks; processes are consensual. Basis of value communities, and distaste for cold rationality and hierarchy. Mode of living is to join communities to experience harmony, love, and mutual growth for self and others. Colour code derives from green politics, forests and ecological awareness.

7. Yellow – *systemic-integrative*. Basic theme: 'live fully and responsibly as what you are, and learn to "become"'. Popular name: *Flex Flow* (Flexible; Flowing). Characteristic

energy: integrative. The world is a chaotic organism where change is the norm and uncertainty an acceptable state of being, life is a kaleidoscope of natural systems and forms – there are natural 'flows'. Flexibility, spontaneity, and functionality have highest priority. Knowledge and competency should supersede rank, power and status. The magnificence of existence is valued over material possessions. Motivation is existential – to learn and experience the wonder of life. Thinking is systemic; processes are integrative; structures are interactive (systemic processes open to negotiation). Conflict and disagreement are natural and necessary for revitalisation. This is the first thinking structure that can integrate all the preceding structures and their worldviews into a 'big-picture' view. Mode of living is to learn and discover what it is be human without doing harm to others or the environment. Colour code derives from solar power and alternative technologies.

8. Turquoise – *globalist-holistic*. Basic theme: 'experience the wholeness of existence through body, mind and spirit'. Popular name: *Whole View*. Characteristic energy: holistic. The world is a single, dynamic organism with its own collective mind – a delicately balanced system of interlocking forces in jeopardy at humanity's hands. Everything connects to everything else in ecological alignments. There is universal order in a living, conscious fashion. Feeling is united with knowing. Turquoise thinking sees and uses the entire Spiral, sees multiple levels of interactions, and detects harmonics and undertones. Holistic, intuitive thinking and cooperative action are to be expected. Self is both distinct and a blended part of a larger, compassionate whole. Motivation is experiential; thinking is holistic; processes are ecological; structures are global (holistic organisms). Mode of living is, as above, to experience the wholeness of existence, in a holistic way, through body, mind and spirit, with others. Colour code derives from the colour of the oceans and Earth when viewed from space.

Every SD thinking system has an Entering phase, a Nodal (or peak) phase and an Exiting phase. When a distinction needs to be made between the phases, the Nodal phase is often designated with all capital letters, hence ORANGE, for example. The entering phase of ORANGE would be designated blue/ORANGE, and the exiting phase would be ORANGE/green. Thus, each transition zone between Nodal phases has two sub-phases – the exiting phase of the prior structure, and the entering phase of the subsequent structure. In the BLUE to ORANGE zone the transitional sub-phases would be designated BLUE/orange and blue/ORANGE, for example. The transition zones contain quite some degree of turbulence, and most of the really interesting interactions take place in these transition zones, where the thinking systems are vying for control of the 'mindspace'. I mention them to highlight the degree of complexity this model can handle within such a relatively simple framework. For the purposes of notational simplicity, I will use lower case letters to designate the structures unless there is an explicit need to distinguish non-

nodal sub-phases. Hence, I will use 'Blue' to designate the pure state, but 'BLUE/orange' to indicate the exiting phase, as per the notational convention above.

It is important to stress that the SD model is *not* a typology for categorising people. The phrase to repeat always when using SD is 'systems *in*, **not** types *of*, people'. It is not considered a skilful use of the model to assume or believe that a person is located 'at' a particular level of the Spiral. Beck and Cowan often caution SD practitioners that 'people are not *on* the Spiral; the Spiral is *in* people'. In other words, everyone has a spiral 'stack' – rather like the layers of an onion – which is the set of different admixtures and strengths of the various systems that have arisen during our growth and development in life. Different areas of our lives could be dominated by different parts of the stack. Depending on the life conditions, different thinking systems may 'light up' whilst others 'dim down'. In a typical day we might activate any or all of the capacities available to us, depending on the conditions we encounter in the world. For example, tribal Purple is often seen active in the crowd at sporting events; materialist-achievist Orange is readily visible in some cut-throat TV game shows, and impulsive-egotistical Red is too often visible on the freeway!

3.5.2 Spiral Dynamics and worldviews

There are some correspondences that I want to mention explicitly, and which are important when they inform worldviews.

Blue corresponds to the late mythic worldview; its absolutist and authoritarian thinking is the home of many forms of fundamentalism – one and only one right way of thinking about or doing anything. The actual *content* of the fundamentalism is variable (as with different religions, for example), but the thinking *process* itself is absolutistic (*The* Truth has come from *the* One True Higher Authority). In its healthy form, it gives rise to a profound sense of order and confidence in a higher purpose – hence the worldview of mythic order.

Orange corresponds essentially to formal operational thinking (formop) in the UL of Figure 3.2 and to a rational worldview in the LL. In its unhealthy form it is highly reductionist, tending to reduce everything to material (or materialistic) interactions. One consequent associated worldview is thus scientific materialism. One can discern the presence of Blue-Orange transitional structures in the worldview of economic rationalism – there is only one right way to do things, namely economically (which focuses on materialistic interchanges undertaken rationally by Adam Smith's rational economic man). In its healthy form Orange sees many opportunities and possibilities and pragmatically gets the job done.

Beyond formop is the structure labelled as 'vision-logic'. This is also known as 'creative reason', 'network logic', 'integral-aperspectival thinking' and a variety of other names; the point is that it is a well-documented cognitive capacity which goes beyond the confines

of purely rational formal operational thinking. It is able to hold multiple perspectives *simultaneously*, and reconcile differences and paradox.

The Green structure is a transition from Orange (rational, formop) to early vision-logic. It begins to see multiple perspectives and is distinctly relativistic in outlook; one worldview of this structure is sometimes known as 'pluralistic relativism'. It is where many elements of post-modernism emerge for the first time. In its unhealthy form, it is also where excessive political correctness rears its cosmetically challenged head!

Yellow and Turquoise correspond to middle and late vision-logic. Yellow, as was mentioned above, is often referred to as being 'systemic' in outlook, and Turquoise as 'holistic'. The worldview associated with the presence of both active Yellow and Turquoise is sometimes known as 'holistic integralism' or 'universal integralism'.

Of course, SD also has room for more structures beyond Turquoise; the first such is designated Coral (the colour code derives from 'life deep within the seas'). It is, after all, an open-ended, descriptive, evidence-based model of the emergence of new thinking systems. Based as it is on empirical evidence, and given the current relative rarity of individuals with active Yellow and Turquoise (in their book, Beck and Cowan suggest 1% for Yellow, and 0.1% for Turquoise), the precise nature of subsequent structures is not yet clear in SD. On the other hand, the Wilber model is very clear about what sort of structures follow vision-logic. They are the psychic, subtle, causal and non-dual structures of consciousness. Therefore, the Coral structure might end up being an even more integrated sub-level of late vision-logic; or, it might be at the psychic level itself; or possibly it might be an early transition to it (compare Green and vision-logic). At this point, its precise nature is unclear, so I do not include it in the scanning framework to be described below.

SD is founded upon the observation that different people possess different combinations of active thinking and value systems and that, therefore, their worldviews will differ. Futurists are not exempt from this observation, of course, so their approaches to futures work will also differ accordingly. This has implications for understanding how various traditions of futures work have arisen.

For example, the rational empirical-analytical tradition of futures work is seen, in this model, to flow from the presence of an Orange influence (rational, scientific approach, an 'objective' focus on the RH realms). The critical-interpretive tradition has more of a Green influence (deconstruction of worldviews, renegotiation of meaning, social construction of reality, a focus on the LH realms). The activist tradition has some elements of Green and some of Yellow; activists against industrialism (Green), for example; or activists for new technologies that are cleaner (Yellow), for example (there are obviously very many other examples, and these are clearly very broad-brush generalisations being made here). There is undoubtedly

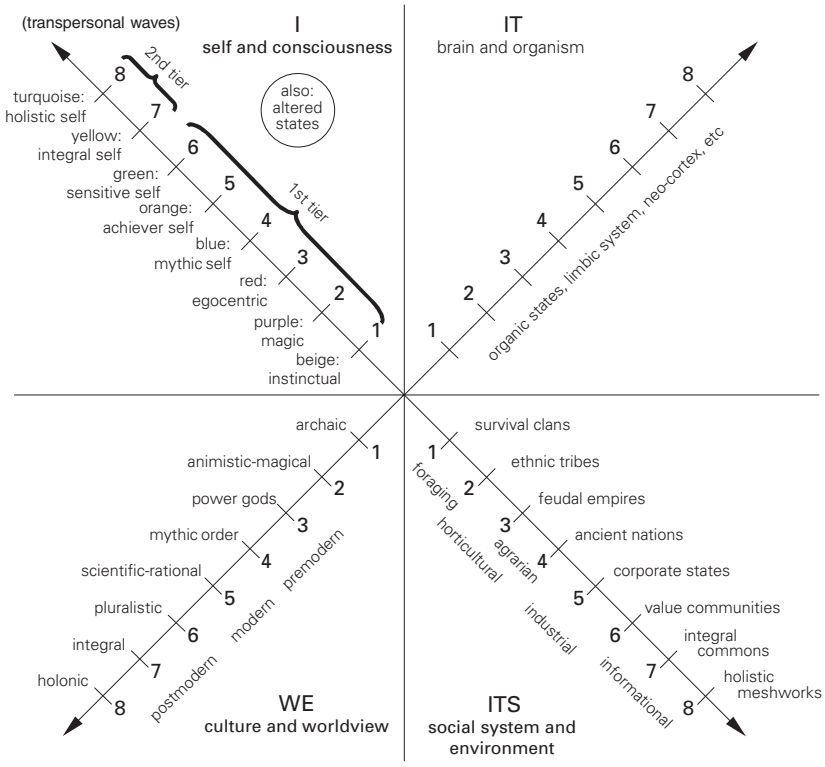


Figure 3.3: The 4Q/8L framework of Don Beck[22]

a great deal that could be revealed by a Spiral analysis of the Futures field. Owing to space considerations, I can only make this scant mention here.

Don Beck has recently adopted the four quadrants into his work with SD (which he has begun calling 'SDi' – 'Spiral Dynamics integral'), and is now using what he calls a '4Q/8L' approach (eight SD levels in the four Wilber quadrants) that is proving to be quite effective in a variety of situations, contexts and countries. Wilber has described it in *A Theory of Everything*. It is shown here in Figure 3.3. The 4Q/8L framework is specifically geared to describe human thinking systems (i.e. minds), and their correlates in the other quadrants. Thus, the correspondence between the SD thinking systems in the UL and worldviews in the LL is clearly visible in Figure 3.3, as are the social systems and techno-economic modes of production in the LR.[23]

3.6 CHOOSING A SYSTEM OF LEVELS WITHIN THE FOUR QUADRANTS

The complete Wilber integral framework deals with the entire 'Great Nest of Being' – matter to body to mind to soul to spirit in the four quadrants. The SD framework focuses on minds in particular in the UL quadrant (although Beck's recent work has sought to extend this to all four). Each has distinct advantages for a more complete or integral view of the world as a basis for environmental scanning. I will therefore use a hybrid form of both frameworks to develop the basis of an expanded scanning frame for environmental scanning. I originally used 4Q/8L as a basis for my own scanning, but I increasingly found it necessary conceptually to add levels at the lower and upper ends of the map, hence my move away from 8L to the hybrid framework I am about to present.

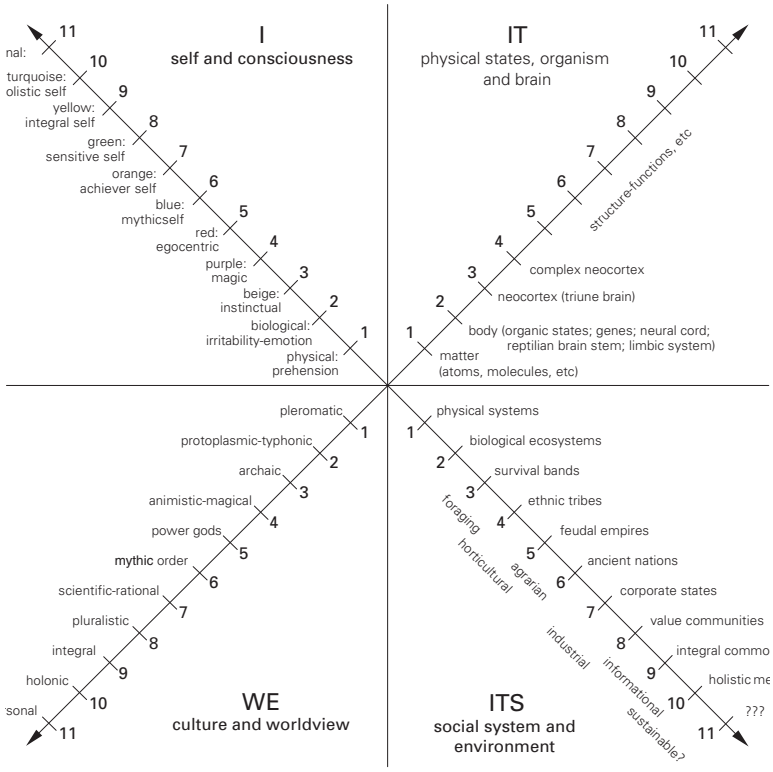
For reasons of simplicity, I will condense levels 1 to 8 of Figure 3.2 back into just the two broad levels of Figure 3.1: Physical (matter) and Biological (body). In other words, levels 1 and 2 of Figure 3.2 correspond basically to the physical level, and levels 3 to 8 correspond essentially to the biological level.[24] In keeping with the notation of SD, I will designate the nodal form of these levels, where appropriate, as PHYS and BIOL.

Added to these (for mind) are the eight major SD levels: Beige, Purple, Red, Blue, Orange, Green, Yellow, and Turquoise.

We are now faced with the choice of whether to treat the further levels of soul and spirit in Figure 3.1 as four structures (psychic, subtle, causal, non-dual), two structures (soul, spirit) or just one (such as 'transpersonal').[25] Any final choice will depend on the biases of the designer of the frame, of course. If one views the world predominantly through a rational formop Orange filter, for example, such talk of soul and spirit is essentially nonsense – they cannot be measured scientifically or rationally in any way that is acceptable to Orange, so to Orange they are therefore not real. Other filters will have correspondingly different views. The point to remember is, though, that this framework attempts to consciously force us to acknowledge and look beyond the partiality of our own filters and worldviews, something that may not necessarily win it friends!

For my purposes here, I will use a single explicit scanning level, 'transpersonal' which has nodal designator 'TRANSPERSONAL' or simply 'TRANSP' for short; it stems from the presence of 'transpersonal waves' in the UL quadrant of Figure 3.3. The explicit inclusion of this as a level clearly requires, then, a willingness to move beyond mental and personal perspectives, which will be quite challenging for some people.

Thus, the basic structures of the scanning framework, in this particular instance, comprise: Phys, Biol, Beige, Purple, Red, Blue, Orange, Green, Yellow, Turquoise and Transp levels within each of the four quadrants. This yields 4 x 11 = 44 primary scanning sectors for



nt © 2001 Joseph Voros

Figure 3.4: The 4Q/11L scanning framework.[26]

this version of the frame (not including transitional sub-phases between nodal phases). In your design you might choose other forms of the frame; expanding the Physical and Biological, for example, or collapsing them into one (physical-biological); treating soul and spirit as two or four levels, or the level of mind with a different system of filters, etc.

> The key point is, though, that none of the five major levels of 'matter to body to mind to soul to spirit' should be excluded *a priori* from the frame, and that *both* interior and exterior dimensions should be included *by design* rather than *by accident*. Such a requirement would seem to be a minimum basis for attempting to 'cover the world' in any fashion which might claim to be comprehensive.

The resulting scanning framework (which we might, acknowledging Beck, call '4Q/11L' – four quadrants, eleven levels) is shown in Figure 3.4, which incorporates the main elements from both Wilber's Four Quadrants framework (Figure 3.2) as well as Beck's 4Q/8L framework (Figure 3.3).

Having chosen the underpinning framework to use, the basic idea for an integral approach to environmental scanning is deceptively simple to formulate: choose scanning sources which cover all sectors – that is, all levels in all quadrants. However, there is more to this than meets the (filtering) eye!

3.7 THE NOTION OF CROSS-LEVEL ANALYSIS

There are actually *two* key aspects of scanning which need to be analysed: the level *from which* the scanning is being done, and the level *at which* it is being directed. Wilber has used this notion of 'cross-level analysis' to classify so-called peak spiritual experiences and worldviews,[27] and the method can easily be used for classifying any view of the world from any perspective. In other words, a cross-level analysis distinguishes both the (epistemological) perceptual filters of the *subject* doing the viewing as well as the (ontological) level of existence of the *object* being viewed.

For example, I recognise now that in my earlier career as a theoretical physicist,[28] I was part of a scientific culture engaged in an examination of the Physical level of reality (as object), coming mostly from a rational worldview (as subject). That is, *from* Orange *aimed at* Phys in the two right-hand quadrants. Of course, individual physicists may view the world through different perceptual filters than scientific-rational Orange, but to *communicate* the results of their work, it must almost certainly be phrased in the (rational) language of physics (usually higher mathematics, which is as formop as can be!) or else it will not be understood, or quite possibly not even listened to.

This last observation illustrates a key point – the community of peers with whom we interchange symbolic information is, to a large degree, also a filter on what we regard as 'real enough' to report on and on how we report it (this is an example of the influence of the prevailing collective LL worldview on the UL individual consciousness – the so-called 'situatedness' of the perceiving subject). As futurists, of course, we are accustomed to being regarded as a little bit 'out there'. The fact that some futurists might regard the scanning framework presented here as a bit 'out there' (as I have already found) is therefore somewhat amusing and ironic. It indicates that we are often able to colonise 'conceptual landscapes' on the far side of the 'conceptual mountains' beyond which others are uncomfortable, yet still be ourselves uncomfortable about looking beyond the next conceptual mole-hill.

3.8 A PAUSE FOR BREATH – REALITY BITES

The preceding section indicates in a general way what many of us have all-too-often experienced when attempting in real life to report on the results of our scanning – some people just don't 'get' what we are talking about, or why we consider it potentially important. From the perspective the model presented here, we can see that it may be because *their* perceptual filters are filtering out the information we are trying to transmit through *ours*. In any communication of information through filters, there is *always* distortion, at both ends of the interaction. For example, a hard-nosed business person with very strong active Orange and no Green present ('show me the money and damn the environment!') would very likely regard information transmitted through a strong Green filter ('forests are not only beautiful but vital to our physical and spiritual life') as soft-headed, nonsensical 'tree-hugger' gibberish. Each side will be frustrated with the other. Both sides are unable to see, quite literally, what the other is talking about. There is a fundamental disconnect between their perspectives; not because 'the other one' is stupid, obnoxious or just being contrary, but simply because they inhabit wholly different conceptual worlds. They *literally* don't see the same world, owing to the filtering processes going on in each individual consciousness.

This has led me to begin using a metaphor in workshops for how to get the message across: 'tune your transmitter to the frequency of the receiver' (accompanied, of course, by cupped-hand gesticulations representing each side of the transmission!). I have found, in this regard, that an understanding of the Spiral structures allows me to tune my transmitter more carefully to the listener; trying to make sure we are 'on the same wavelength' as it were. If I can discern which filters are active in my audience, I stand a better chance of phrasing the message in ways they are *able* to hear. Whether they are *willing* to hear it is, of course, another matter entirely. The best that I can do is to make sure that what I am saying is phrased in such a way (or on such a wavelength) that it *can* at least be heard.

3.9 CROSS-LEVEL ANALYSIS – A NOTATION

Here I will describe a shorthand notation for showing subject-object locations in a cross-level analysis. Having once been a physicist, I am always looking for ways to encapsulate a lot of information into a few well-chosen symbols!

The generic term is of the form:

$$\text{Scanner} \mid \text{Filtering Structures} \longrightarrow \text{Quadrants(Levels)}:$$

The term to the left of the arrow represents the scanner or subject – this will usually be a name of a person or organisation – separated by a vertical bar ('|') from the thinking

structures or filter(s) of the subject. The term to the right of the arrow shows the levels within the quadrants of the object being viewed. For purposes of simplicity, when we are not referring to a particular named scanner or source, a 'generic' unspecified subject may be implied by the designator 'S' (for 'source' or 'scanner' or 'subject'), thus:

$$S \mid \text{Filters} \longrightarrow \text{Quadrants(Levels)}:$$

This is useful for describing generic worldviews without specifying anyone in particular. For example, the earlier description of the rational scientific (Orange) culture in which I was working in my previous career as a physicist might be rendered:

$$S \mid \text{Orange} \longrightarrow \text{RH(Phys)} \qquad (3.1)$$

showing a generic worldview which could be held by 'anyone' (denoted by the 'S'). This is read as an 'Orange-filtered view of the Physical level of the right-hand quadrants'. Or, as 'the Physical level of the right-hand quadrants seen/viewed through an Orange filter'. I do not specify exact terms from the 4Q/11L diagram (such as 'matter' and 'physical systems') in the parentheses, because I want to keep the notation general and extensible to other aspects of those quadrants at those levels (see later).

If the notation needed to describe me personally as the holder of the worldview, then it would make use of symbols representing me | my name, for example, or simply my initials 'JV'. Thus,

$$\text{JV} \mid \text{Orange} \longrightarrow \text{RH(Phys)}$$

would denote me as the person holding the stated worldview.

If no specific level is indicated, or if the whole quadrant is implied, then the 'Levels' parenthesis is left empty; thus,

$$S \mid \text{Filters} \longrightarrow \text{UR}()$$

is a view of the UR quadrant without specifying levels.

If we are not specifying the 'Filters' being used by the scanner or subject, then the notation takes the abbreviated form:

$$S \mid \longrightarrow \text{UR}()$$

Please note, however, that the vertical bar should never be left out of this notation. The reason is so that the notation always reminds us that any scanning takes place through some form of subjective filter, even if none is explicitly noted. This serves as a constant reminder that all views of the world are filtered, even 'objective' ones!

3.9.1 Some examples of cross-level analysis

Here I present some 'back of the envelope' jottings of how I perceive various forms of futures-related work in terms of a cross-level analysis. These are meant to be illustrative rather than definitive.

Obviously, since my perceptual filters will differ from yours, we might not agree on some of these assessments. That is entirely to be expected. In a futures-work situation where we were working together collaboratively, we would have established a form of this model for the scanning frame workup-front as a basis for our discussion of sources, and left open the option of challenging our individual interpretations. Thus, you would tell me that you don't agree with an assessment, and we would together look for why this is the case. We would therefore, as a result, have consciously surfaced some of our individual perceptual filters as part of any on-going dialogue we may have about scanning sources and choosing them as part of our scanning frames. This conscious reflection on our individual biases and filters can only help to clarify which aspects of the world we prefer to see and which we do not. If we are serious about 'covering the world' with our scanning, this set of biases and preferences needs to be consciously acknowledged as such, and steps taken to adjust our scanning frames to take these into account.

Some examples of cross-level analysis are:

- Human Genome Project:

  S | Orange ⟶ UR(Biol) (3.2)

- Swinburne University of Technology Brain Sciences Institute (their focus is mainly on the complex neo-cortex and higher structures):

  SUT BSI | Orange ⟶ UR(Purple+)

- Environmental issues tend to be:

  S | Green ⟶ LR(Biol)

- Criticism of the industrial worldview is usually:

  S | Green ⟶ (Orange)

- Western medicine is generally:

  S | Orange ⟶ UR(Phys/BIOL)

- The OECD's futures work tends to be:

  OECD | blue/ORANGE/green ⟶ LR()

- Rocky Mountain Institute (but see later):

  RMI | Yellow ⟶ LR( )

- Worldwatch Institute:

  WI | Green ⟶ LR( )

- Journal of Transpersonal Psychology:

  JTP | Orange-Green ⟶ UL(Green-Transp)

- Wilber Integral Model:

  S | Turquoise ⟶ 4Q(Phys-Transp)

The earlier cross-level analysis of the discipline of physics, shown in expression (3.1) on page 56, as well as the cross-level analysis of the Human Genome Project, shown in expression (3.2) on page 57, were partly the reason I found it conceptually necessary to extend Beck's 4Q/8L framework to encompass explicit levels 'below' Beige. I felt that 'Beige' was inappropriate as a level-descriptor for either of these, and I found myself forced to write 'sub-Beige' in the parentheses. It was then just a short step to introducing 'Phys' and 'Biol'.

3.9.2 An applied use of cross-level analysis – 'meta-scanning'

I use cross-level analysis in my own scanning work (and I've now begun using it in the design of a scanning frame for my organisation) because it is simply not possible for me to single-handedly cover as much of the world as I would like. Therefore, I now 'meta-scan' (to use Slaughter's term) what other scanners have done, using cross-level analysis as described above. That is to say, I have begun analysing the scanning of others in order to determine their particular strengths and interests, and I am using these insights in the construction of a more complete scanning frame, drawing upon their expertise by placing them appropriately into a 4Q/*n*L framework (where *n* depends on the exact chosen form and emphasis). I distinguish between primary sources (producers of information to scan); secondary sources (other scanners); tertiary sources (scanners of other scanners), and so on. This allows me to cover the scanning sectors of the framework map with a more informed and judicious selection of primary, secondary, tertiary, etc, sources.

3.10 ALL QUADRANTS, ALL LEVELS…AND ALL LINES

Finally, it is useful to make a few comments about breadth in this scanning framework. Wilber often speaks of an integral approach as consisting, in part, of 'All Quadrants, All Levels, All Lines' (as well as a few other things).[29] Here I have described one possible form of 'All Quadrants, All Levels'. In the context of present-day futures work (focused

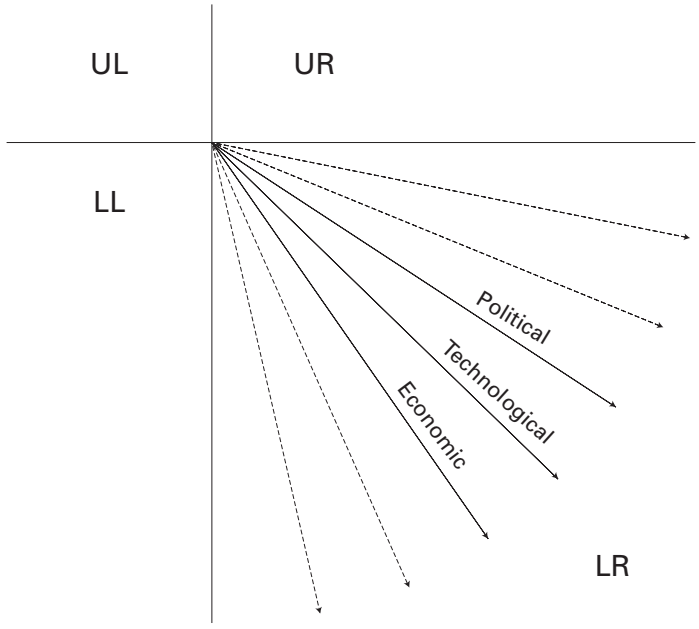


Figure 3.5: Schematic view of multiple 'lines' of development in the Lower Right quadrant

as it is mostly in the lower-right quadrant), 'lines' would correspond to the horizontal 'breadth' typologies of the five familiar STEEP factors – Social, Technological, Economic, Environmental and Political. The notion of treating these factors as different *lines* of development is shown in schematic (not literal) form in Figure 3.5.

As a concrete example, consider the lower-right quadrant of Figure 3.4. Figure 3.4 does *not* show separate lines as such, for reasons of simplicity in the diagram, but simply shows, by way of summary, the major political and techno-economic forms at the various levels along a single main axis. This quadrant is more correctly regarded as having many different lines of development, each with different structures at the different levels. The axis shown in Figure 3.4 shows the development of organisational/political structures through the various levels, including survival bands (Beige), ethnic tribes (Purple), feudal empires (Red), ancient nations (Blue), corporate states (Orange) and value communities (Green), as well as the development of the very familiar sequence (to futurists) of the techno-economic modes of production: hunter-gathering (foraging), agriculture (horticultural and agrarian), industrial, and informational (I have also tentatively added 'sustainable?' as a 'future' mode). Clearly, any chosen line of development ('STEEP factor') will have

a different form at each of the different levels, so the choice of a scanning line (factor) implies an evolving *sequence* of development along that line. Scanning a STEEP factor then requires us to ask the further question 'what *level* of this line of development am I scanning?' In the 'technology line' of development, for example, Beige-level technology includes simple hand-made and -held implements, such as stone axes, flint knives, arrowheads, etc, while Orange-level technology includes the computer on which I am writing this paper. Thus, when I meta-scan my technology scanning sources to see how broadly and deeply I am scanning, I might discover that I am actually *only* scanning sources dealing with Orange-level technology. This discovery would reveal that there are gaps in my scanning of technology sources, such as would be filled by sources focusing on levels other than the Orange level. I might then decide to use primary, secondary, tertiary or higher-type sources to fill these gaps. Naturally, the ideas in this discussion could be extended into other and different 'lines' of development in the inter-objective domain of the lower-right quadrant beyond the five familiar STEEP factors, as is implied in Figure 3.5.

Once we recognise that each of the STEEP factors in the lower right can be conceived of as a developmental line (or perhaps as a *cluster* of closely-related lines), it is but a small step to considering the extension of this idea into other factors, not only in the lower-right quadrant, but in *all* other quadrants. In other words, in the remaining quadrants, different lines of development could be used to explicitly create more breadth in the scanning frame.

In the lower-left, for example, aspects of culture such as ethics, values, morals, philosophy, lifestyle choices, academia and learning, religion, language, etc might form a basis for breadth. In the upper right, lines might include body, medicine, health (physical and mental, the latter from the perspective of the structural health of the brain), and so on. In the upper left, lines might include spirituality (as an individual experience as opposed to organised LL religion), mind/consciousness, self-identity, mental health (from the perspective of a 'felt sense' of a 'healthy mind'), and so on (Wilber's model focuses most explicitly on two-dozen or so lines in the LH realms).

I am not suggesting that this list of factors is by any means definitive. What I am suggesting is that the familiar notion of STEEP factors in the lower-right quadrant (for breadth), has an analogous extension to each of the other quadrants, and that there will be appropriate 'lines' of development (or factors) in each of them. What futurists currently do in the lower right with STEEP needs to be extended in number in the LR, as well as to other quadrants, with other factors or lines appropriate to those quadrants.

The cross-level analysis notation can also be extended to incorporate these different lines or factors, and adapted into the chosen scanning framework. For example, suppose that one of the factors is technology, designated by, say, 'Tech'. Then, the Rocky Mountain

Institute's well-known focus on cleaner and more efficient technology[30] might be rendered as

RMI | Yellow ⟶ LR (Tech[Green+])

which shows both the line 'Tech' and the level(s) of the line being scanned '[Green+]'. In this example this is technology which is Green-level or higher (indicated by the *plus* symbol), because 'Tech[Orange]' (i.e. 'orange-level technology') tends to be 'industrial'-level and usually polluting, while RMI are focused on looking beyond the wasteful and polluting technology of late Industrialism to newer forms.

3.11 CONCLUDING REMARKS

The essential point underpinning this paper is the observation that, when you boil it all down, all of our scanning is undertaken through perceptual filters. It's *all* about filters, mindsets and worldviews. Work on the psychology of intelligence analysis has revealed that these filters are not conscious; rather they act as pre-conscious conditioners of not only what we do see, but also what we *can* see.[31] We tend to see what we expect to see, so any framework that helps to expand our perceptions will help us to become more attuned to more of the world out there. Environmental scanners and intelligence analysts are involved in basically the same work – trying to generate knowledge and intelligence out of incomplete or ambiguous information. Scanners might be at an advantage because there is (probably) no counter-intelligence activity trying to obfuscate the information stream.

The expansion of a scanning framework from its current confinement in the lower-right quadrant to encompass the other three quadrants is a first step to opening out the 'mindspace' that scanners need to inhabit if they are to see the weak signals coming from the future. But it is also necessary for scanners to become aware of how they perceive the world, and of what types of filtering are likely in their own minds. That was one aim of this paper – to open out an understanding of how human minds filter and perceive the world – that is, to become aware more explicitly of different ways of knowing.

Another aim was to produce a scanning framework that contains explicit levels within the four quadrants. Spiral Dynamics, situated inside the broader mind level of the Great Nest of Being, provides both the finer structure of this broad level of the Great Nest as well as itself being an analytical tool to understand how human minds filter their perceptions. The whole of the Great Nest needs to be included in any framework that purports to be comprehensive in covering the world, which is, after all, the purpose of environmental scanning. While the broader levels may be expanded or shrunk to suit individual scanning preferences, none should be excluded *a priori* from the frame.

Finally, the framework presents an analytical tool (cross-level analysis) for examining worldviews in terms of both the subject doing the viewing and the level of reality (object) being viewed, as well as a notational system to describe it. This tool can also be used to analyse how other scanners do their scanning. This meta-scanning allows scanners to fill in the whole of the scanning frame by using sources explicitly chosen for their focus on distinct areas of the overall framework. This might also include scanning done by other scanners, in those instances when our own scanning resources are limited.

NOTES AND REFERENCES

[1] See, Slaughter, R.A, 'Ken Wilber's path to transformational futures', *New Renaissance*, vol. 7, 1997, 23–5; Slaughter, R.A, 'Transcending Flatland: Implications of Ken Wilber's meta-narrative for futures studies', *Futures*, vol. 30, no. 6, 1998, 519–33; Slaughter, R.A, 'A new framework for environmental scanning', *Foresight*, vol. 1, no. 5, 1999, 387–97 (Reprinted here as Chapter 2); Slaughter, R.A, 'Knowledge creation, futures studies and the integral agenda', *Foresight*, vol. 3, no. 5, 2001, 407–18.

[2] Slaughter, 'New framework'.

[3] For discussions on the use of 'depth' in futures thinking, see: Slaughter, R.A, 'Beyond the mundane: Reconciling breadth and depth in futures enquiry', *Futures*, vol. 34, no. 6, 2002, 493–507; and Inayatullah, S, 'Causal layered analysis: Poststructuralism as method', *Futures*, vol. 30, no. 8, 1998, 815–29.

[4] The term 'meta-scanning' has been used in discussions within the Australian Foresight Institute since 1999 (Slaughter, R.A, Metascanning: a new way of seeing the world, unpublished work in progress, Australian Foresight Institute, 2000).

[5] See, for example, Wilber, K, 'An integral theory of consciousness', *Journal of Consciousness Studies*, vol. 4, no. 1, 1997, 71–92, and numerous references therein. Also available online at http://www.imprint.co.uk/Wilber.htm

[6] Wilber, K, I*ntegral Psychology: Consciousness, Spirit, Psychology, Therapy*, Shambala, Boston, 2000.

[7] Wilber, K, *A Theory of Everything: An Integral Vision for Business, Politics, Science and Spirituality*, Shambala, Boston, 2000.

[8] Based on a combination of Figures 1 and 6 of Wilber, *Integral Psychology*.

[9] From Wilber, 'An integral theory of consciousness'.

[10] The UR quadrant structures that correlate with the UL structures of 'concrete operational thinking' (conop), 'formal operational thinking' (formop) and vision-logic are, respectively called SF1, SF2, and SF3 on the diagram. These are labels for higher-order 'structure-functions' that are assumed to exist within the brain system.

[11] See, for example, Wilber, *Integral Psychology*, for numerous references to these transpersonal structures and the evidence supporting their inclusion in the model.

[12] Slaughter, 'New framework'.

[13] See the extensive charts in Wilber, *Integral Psychology*, for a comprehensive map of the basic structures in the integral model, as well as comparisons with other maps of consciousness.

[14] See the section commencing on page 11, Wilber, *Integral Psychology*, for a discussion of this view of basic structures as enfolded potentials.

[15] For a discussion of macrohistory and its utility in futures work see, for example, Inayatullah, S, 'Macrohistory and futures studies', *Futures*, vol. 30, no. 5, 1998, 381–94. Also see Galtung, J & Inayatullah, S, (eds), *Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilisational Change*, Praeger, Westport, CT, 1997.

[16] The rationale for this is that, while the Wilber model is very complete, it is also very complex. In addition to the four quadrants and multiple levels within the quadrants, the full Wilber integral model of consciousness contains over two dozen different *lines* of development (cognition, morals, affect, needs, self-identity, etc). Each of these evolve largely independently through the various levels. There is also a compound model of 'the self' as the navigator and integrator of this multi-faceted development, as well as different states and types of consciousness, organic brain states, cultural and social forms, etc. The model therefore takes some time to fully appreciate and apply. For reasons of simplicity and, more importantly, *immediate practical applicability*, I would like to focus on a particular expression of the levels of mind (and the self-system) by using a related (sub-) model for minds which has had quite some degree of success as a practical tool in this regard.

[17] Graves, C.W, 'Human nature prepares for a momentous leap', *The Futurist*, vol. 8, no. 2, April 1974, 72–85.

[18] Beck, D.E & Cowan, C.C, S*piral Dynamics: Mastering Values, Leadership, and Change*, Blackwell Pubs., Malden, MA, 1996.

[19] See the Spiral Dynamics web site, where a great deal of information about the model may be found (www.spiraldynamics.com). Also, see the individual web sites of Beck (www.spiraldynamics.net) and Cowan (www.spiraldynamics.org) for their differing approaches and emphases.

[20] A form of this statement introduces a lengthy discussion of the SD structures, beginning on page 40, Beck & Cowan, where detailed descriptions are given of the structures.

[21] Much of the material on the SD structures in this section has been loosely adapted or taken almost directly from Beck & Cowan, and from some of Wilber's writings on SD, including *Integral Psychology* and *Theory of Everything*.

[22] See Wilber, *A Theory of Everything*, p43.

[23] For a precise explanation of what is meant by 'first tier' and 'second tier', see Beck & Cowan, or the SD web sites mentioned in Note 17. In essence, second-tier thinking is qualitatively different from first-tier thinking, as was hinted at in the description of the Yellow structure on page 49, in that second-tier thinking fully integrates preceding perspectives whereas first-tier does not.

[24] See the earlier discussion on the relationship between Figure 3.1 and Figure 3.2, and the correspondences between levels in each diagram.

[25] At one stage, I briefly used 'Coral' as a generic descriptor of the transpersonal realms, but the lack of clarity around Coral's precise structure has led to my dropping it from that role.

[26] Adapted from the 4Q/8L model of Beck and four quadrants of Wilber.

[27] Wilber, *Theory of Everything*, 132.

[28] Voros, J, 'Physical consequences of the interpretation of the skew part of $g_{\mu\nu}$ in Einstein's nonsymmetric unified field theory', Australian Journal of Physics, vol. 48, no. 1, 1995, 45–53.

[29] See Wilber, 'An integral theory of consciousness', *Integral Psychology* and *Theory of Everything*.

[30] See the Rocky Mountain Institute web site at http://www.rmi.org

[31] See, for example, the on-line book by Heuer, which details many of the issues around perception which intelligence analysts (and, of course, environmental scanners) need to be aware of (Heuer, Jr, R.J, *The Psychology of Intelligence Analysis*, Centre for the Study of Intelligence, Central Intelligence Agency, Washington DC, 1999. Available online at http://www.odci.gov/csi/books/19104/).