

## Chapter 10: Discussion and review

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To recap the beginning of this thesis, the central purpose of this research was to develop a viable new method of anticipating the future. The main argument (as presented in chapter 1) is that a viable Process for Scenario Network Mapping has been developed. The research question drawn from that argument was

**What are the characteristics of a scenario-based anticipation process that best meets emerging needs that were identified from the literature of foresighting?**

A review of the literature (chapter 2) concluded that the Process to be developed would be more flexible than normal scenario planning, with readily modifiable possibilities, and more suited to development on a modest scale. A network-based approach to scenarios was used, using many small scenarios rather than a few large ones. Criteria for a suitable Process were identified (chapter 3 and appendix 1). A conceptual framework (chapter 4), embodying a layered view of futures (similar to causal layered analysis) was developed to guide the development of the Process (chapter 5).

The original intention was that a standard method of developing a social inquiry methodology would be found, and that method would be used to develop the Process. However, after finding no such method, one was developed (chapters 6 and 7): a variant of action research, with more explicit use of cycling than normal. Seven case studies were undertaken (chapter 8), and assessed (in chapter 9) against the execution criteria from chapter 3. The broad conclusion was that most criteria were fulfilled to some extent, particularly those relating to implementation and application of findings. Criteria relating to the influence of the Process on participants were fulfilled to a lesser extent. No criterion remained clearly unfulfilled, except the one relating to the convergence of plausibility (E3).

This final chapter includes:

- A comparison of the evidence presented in chapter 9 relating the central argument back to the literature review in chapter 2;
- A critical review of the work carried out, covering the Process itself, the evaluation criteria, the conceptual framework that was developed, and the method of development.
- The limitations of this research and its findings.
- Outstanding issues for further research.

The chapter concludes by assessing the possible contribution to knowledge made by this thesis, in two separate areas: the methodologies of foresighting and of methodological development.

## 10.1 Comparison of findings with literature

The literature review in chapter 2 found that a futures method able to handle emergent issues would have six key characteristics: it would be scalable, verifiable, transparent, nimble, eclectic, and usable:

1. **Scalable.** From the findings of a single exercise, it should be possible to divide or combine scenarios or their equivalents.
2. **Verifiable.** It should be possible to confirm whether an envisaged future is occurring.
3. **Transparent.** The means by which input data become anticipations should be obvious (or at least easily explained) to all involved; this makes it possible to identify and challenge assumptions.
4. **Nimble.** A process which could be completed in a few weeks, if necessary, and updated at least as quickly.
5. **Eclectic.** Able to incorporate a diverse range of input data.
6. **Useful.** Able to help those involve anticipate change – *and better attain their desired futures.*<sup>1</sup>

To what extent did the final form of the Process fulfil those indicators? As demonstrated in chapter 6, the first four indicators are accomplished by the design of the Process. The use of holons enables **scalability**, both in terms of time and in terms of social group. The use of small, focused scenarios enables **verifiability**. In addition, the assessment in chapter 9 of the execution criteria, of which this was one, confirmed that view.

**Transparency** is enabled by the qualitative means of generation of the scenario network, the components of which are developed by participants using simple pen-and-paper technology, then jointly creating a network map.

**Nimbleness** is ensured initially by having four workshops, usually a week apart, with time for data collection and dissemination between them. Nimbleness on follow-up is more pronounced, because holons that turned out to be dead ends need not be pursued, while those of current interest can be expanded (using the scalability property).

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1. The italicized words after the dash were not originally included under “usable” in chapter 2, but were added after finding a strong desire for normative futures, as discussed in chapter 8, section 8.7.2, reflection 6.

**Eclecticism**, using a broad variety of input data, depends on having the widest possible range of stakeholders involved in the workshops. Though this was inherent in the design of the process, it did not always occur in the execution. One solution, proposed in chapter 9, and to be trialled soon after completion of this thesis, is to partially redesign the Process, to convert execution criteria (sometimes not fulfilled) into design criteria (always fulfilled, as long as the Process methodology is followed).

The sixth indicator, **usefulness**, must always be an execution criterion: it is an outcome, rather than an output, and as such cannot be designed into the methodology. Much of chapter 9 covers this indicator, divided into specific criteria. One indication of the usefulness of the Process is that elements of it have already been used independently by others. Thus Böhme et al (2004:55), in a study for the European Spatial Planning Observation Network, report being “inspired” by part of the conceptual framework in chapter 4, as reported in List (2004a). However, based on the analytic inductions of case studies reported in chapter 9, it cannot defensibly be claimed that this Process was always found useful, in the sense that it directly contributed to improved futures for all the cases studied.

The key circumstance in which usefulness does occur (from this small sample) seems to be when the top management of an organization feels an urgent need to change, but is not sure how this could be accomplished. In such cases, however, perhaps almost any OD or large-group intervention method might have been equally successful; because the focus in such cases is generally on a short-term future, a foresighting method may not be the best choice.

### **10.1.1 New developments in the literature**

The original review of the futures literature (chapter 2) took place during 2001. Since that time, further developments have become evident – in that literature, and in related areas. After that review, because academic literature lags several years behind professional practice, it became clear that the principle of scenario network mapping was not as unprecedented as it might seem from the foresighting literature. Thus I discovered that defence researchers in the UK, NATO, Australia, Finland, and the USA were using similar methods for anticipating military threats, but often considered them to be methods of operational research, systems dynamics, or strategic management, rather than foresighting or futures studies.

When initially reviewing the futures literature for chapter 2, the Process being designed here was unusual in that it involved a large number of small scenarios, rather than (the conventional wisdom) several detailed scenarios. However, during the last few years, other writers have been publishing similar ideas. In this new century, a number of journal articles have been

published on such topics, many of them not in the futures publications but in the literature of operational research and its offshoots. Morphological analysis and its derivatives such as Field Anomaly Relaxation (FAR), with few publications between 1980 and 2000, have experienced renewed interest. Recent publications in this area include Coyle (2000 and 2004), Dortmans (2005), Dortmans and Eiffe (2004), Lempert, Popper and Bankes (2002 and 2003), Powell and Powell (2004 – following Powell and Coyle, 1997, and Powell, 1999), Rhyne (2003), Ritchey (2002), and Sahin and Ülengin (2003). Though some of these have been mentioned in chapter 2, details came too late to be used in the initial development of SNM.

A second strand of recent writing, much of it in the management literature, is a renewed focus on the anticipation of surprise, stimulated by the terrorist attacks on the USA in September 2001, global climate change, and unexpected financial collapses of large corporations. Such publications include Bazerman and Watkins (2004), Botterill and Mazur (2004), Delaney (2003), Diamond (2003 and 2005), Kostoff, Boylan and Simons (2004), Liebl (2001 and 2002), Mendonça, Pina e Cunha and Kaivo-Oja (2004), Sikich (2003), Nutt (2004), Schneider (2001), Schneider and Kuntz-Duriseti (2002), Schneider, Rosencrantz and Niles (2002), van Notten, Slegers and van Asselt (2005), and Weick and Sutcliffe (2001). Several of these have been the source of ideas for improving the Process.

A third development has been the flowering of causal layered analysis (CLA). I had not initially considered SNM to be a form of CLA, but on studying that emerging literature (particularly in a special issue of *Futures*, volume 34, number 6, and more recent contributions such as Inayatullah, 2004a, and Voros, 2005), it became clear that the two are very similar in some respects. As human futures are in large part the outcomes of human actions, the layered approach seeks to anticipate the future by attempting to unearth the roots of those actions. Since those actions are rooted in actors' teleologies, a layered approach almost inevitably involves critical and normative elements. Underpinning the events layer, the key questions are "Who has power? Which futures are they pursuing? What are the desired futures of this entity? And how might those futures be reached, without being derailed by more powerful entities, and without derailing the desired futures of dependent entities?" In the course of this project, these questions became salient, but the only literatures directly addressing them were those of CLA, the closely related area of integral futures (e.g. Slaughter, 2004), and to a limited extent the literatures of conflict management and peacebuilding (e.g. Beyna et al, 2001; Galtung, 1996 and 2000; Glenn and Gordon, 2003; Irani and Funk, 2000; van Geelen, 2002).

A fourth recent trend is renewed interest in large-group and median-group participative processes. From the 1960s to the early 1980s, much was written in this area, on socio-technical systems, the search conference, and related methods (cf. Crombie, 1985), but until the late 1990s, little more was written on this. When the World Bank became interested (Narayan, 1995, found quite conclusively that in international development, participative methods were more effective than hierarchical) others followed. Subsequent writings on the value of participation in world development include those of Blackburn, Chambers, and Gaventa (2002), and the more critical Campbell (2002). In organizational development (“OD”) and its successors, new approaches similar to SNM include Bohmian dialogue (Bohm, 1996; Isaacs, 1999) and the related World Café (Brown, 2001; Brown and Isaacs, 2005) and presencing (Senge, 2004). Geurts and Joldersma (2001), Tegarden and Sheetz (2003), and Mathieson (2004) have written on participatory approaches in operational research, including group cognitive mapping. Steil and Gibbons-Carr (2005) have developed a large-group method of scenario planning, flowing more from the large-group intervention tradition than from that of futures studies. Midgley and his associates (Midgley, 2000; Midgley and Ochoa-Arias, 2004) have worked extensively on community operational research, further developing the work of Ulrich (1994) and Churchman (1971). My forthcoming paper in *Futures* (List, 2006) discusses participatory action research in futures work in more detail.

A further recent development has been in concept-mapping software. Initially I knew of only Inspiration and Decision Explorer, but in the last few years, a much greater variety has become available, with details published not in journals but on the Web. Such software includes CMap, Compendium, Octopus Lite (an Excel add-in), Omnigraffle, VisualMap, and several others. Reviews can be found at [www.cul.co.uk/software/istruct.htm](http://www.cul.co.uk/software/istruct.htm) and on my own site at [www.audienceialogue.org/soft-visu.html](http://www.audienceialogue.org/soft-visu.html)<sup>2</sup>. Though none of this software was designed specifically for depicting scenario networks, some of is usable for that purpose.

Despite the convergence of these strands of work, I have found no new futures method that closely resembles SNM. Coyle’s (2004) simplified form of FAR is one of the most similar: it produces maps similar to SNM. However, the nodes represent “situations” rather than events, and the holonic and causal layered elements of SNM are lacking from Coyle’s FAR. Another network-based method is Johnson’s (2004) “networks of predictions.” Though this could produce maps similar to those of SNM, the networks are derived purely from content analysis, are not built using a systematic, participative procedure, and are not layered. Thus, despite these recent developments, the SNM method still appears to be unique.

## 10.2 Critical review of the work

This section reviews four elements of the work described in this thesis: the Process itself (as described in chapter 5, applied in chapter 8 and appendix 4, and evaluated in chapter 9), the evaluation criteria used (from chapter 3), the conceptual framework (from chapter 4), and the method of development (from chapters 6 and 7).

### 10.2.1 Review of the Process

During the application of the conceptual framework during the Process, various practical weaknesses were identified. Following the case studies and the review in chapter 9, the workshop activities, in the creation of scenario maps, were altered as follows.

TABLE 10.1 CHANGES IN THE APPLIED CONCEPTUAL FRAMEWORK

| Element                       | Initial   | Problem with initial position   | Final   |
|-------------------------------|---|---|---|
| Hemisphere model              | 4 layers: events, motives, values, worldview.                               | Worldviews proved to affect all perceptions; difficult to clearly differentiate three lower layers. | 3 layers: events, intentions, visions. Worldviews pervade all layers.   |
| Leaf of Goals                 | Undifferentiated in the vertical dimension.                                 | Some intentions are more important than others, and their importance varies with time.              | Addition of a second dimension: current salience of main goals.   |
| Futures wheel and backcasting | Create “weaving”, forward from recent past and back from future milestones. | Sequence of possible events unclear and/or arbitrary.   | Place event trees on the scenario map so as to minimize length of links..                                     |
| Paths for backcasting         | Not included.   | Difficult to legibly organize hundreds of event trees.  | Group event trees (scenarios) into related paths, based on morphology, or organization’s goals or activities. |
| Midcasting                    | Name = middlecasting<br>Placed anywhere in centre of scenario map.          | Not clearly relevant to any part of the network.  | Name = midcasting<br>Placed to interrupt critical links on scenario map.                                      |
| Stakeholder star              | Focal entity in centre, surrounded by first-level actors.                   | Did not take account of intermediaries between focal entity and actors it also deals with directly. | Add paths from focal entity through intermediaries to first-level actors.                                     |
| Envisioning preferred futures | Not included – regarded as deleterious.                                     | Strong desire among participants to move to a desired future, rather than adopt neutral viewpoint.  | Delineate several preferred visions to backcast from; use SNM to build multiple paths to those visions.       |

2. Accessed 4 May 2005.

However, even if the workshops had been conducted perfectly, another problem remains: the issue of all actor groups being fully represented. Despite ever-increasing efforts on my part throughout the sequence of case studies to ensure that all relevant groups were participating, this did not always occur. Even in the SC case study, the most successful in terms of stakeholder representation, the less-interested members were – almost by definition – not included. Those who were quite happy with SC would not want to waste five Saturday mornings considering its future. The only solution to this difficulty is probably to organize an environment in which less-interested people can participate easily, perhaps using a central venue, in the manner of the charrette process (Lennertz, 1999). As noted in chapter 8, section 8.8.3, this change should ideally become part of the Process design, to ensure its execution as long as the Process is followed faithfully. Taking into account the above findings, a manual was prepared for a revised version of the Process. This is reproduced in Appendix 5.

### **10.2.2 Review of the evaluation criteria**

As the case studies took place, the evaluation criteria – particularly those related to execution – were frequently modified. The final list of criteria, as used in chapter 9, is shorter than the original list (from 19 execution criteria to 13) because some of the original criteria were so similar that their attainment could not easily be separated in practice. By the same token, the amalgamated criteria were broader than the original ones, and thus their evaluation had to be less specifically directed. The problem is thus one of attaining a suitable balance between highly specific hypotheses (as in a typical hypothetico-deductive study, the execution of which can be tested rigorously) and more general propositions, which accommodate more variation in the means of fulfilment, but the successful execution of which is more arguable. The present study may have erred in the latter direction, but for developing a method, my contention is that the broader criteria are more useful when using a formative approach.

#### **Was this an appropriate way of testing a new method?**

Some might claim that the criterion-based approach used here was not the most productive way of testing a new and still-developing method. Given that no evidence could be found of such an approach having been used for the development of any previous social inquiry method, and that most methods seem to have developed intuitively, is the laborious approach of defining criteria and testing the method against them any improvement?

My argument is that the criterion-based method used here, because of its rigour, is likely to result in a shorter development time – when combined with the explicit use of action research cycles. In the absence of the action research component, a criterion-based development

method would certainly result in rapid iteration to the point where the criteria were being met. However, if cycling had not been actively used to modify the criteria, the danger would be that a method would have met its original criteria perfectly, but would not be relevant to the needs of its potential users.

Also, despite the obvious limitations of the same researcher both establishing criteria and evaluating them, no other useful method of evaluating foresighting has so far been found. For example, Glenn, Gordon, and Dator (2001), reviewing previous attempts to evaluate futures work, note that findings have been inconclusive. Georghiou (2003) reviewing the evaluation of national foresight programs, reaches a similar conclusion. Thus I suggest that, even though this study may also be inconclusive, its multiple-criteria-based approach, adapting the Kirkpatrick model, has enhanced the development of a method that at least provides a way of viewing the future – even if such views are not applied by the participating entities.

### **10.2.3 Review of the conceptual framework**

The conceptual framework could be divided into two: the more theoretical aspect (covered in chapter 4: the axioms and components), and the more applied aspect (in chapter 5). With the theoretical aspect, minor changes were made, mostly in the set of axioms. Chapter 4 as it stands includes those changes, which had no effect on the development of the Process.

#### **10.2.3.1 Relating the Leaf of Goals to the levels of the hemisphere**

The major uncertainty in the conceptual framework applied to the relationship between the Leaf of Goals and the hemispherical model. Both were useful in practice, but the precise nature of their obvious interrelationship was not clarified until the last case study. In some circumstances it seemed possible to align the Leaf of Goals with the hemisphere layers: moving toward the right on the Leaf is similar to moving down through the levels, particularly for the top two layers: events and motives. In principle, though the two are not quite commensurable. This again reveals the difference between *chronos* and *kairos*: The Leaf of Goals embodies *kairos*: the future of purpose. *Chronos* corresponds to left-right movement on the hemisphere. Descending through the hemisphere is not quite the same as *kairos*.

A way to view the two together is to superimpose the Leaves of Goals (one for each actor group) onto the hemisphere, as in the following diagram:

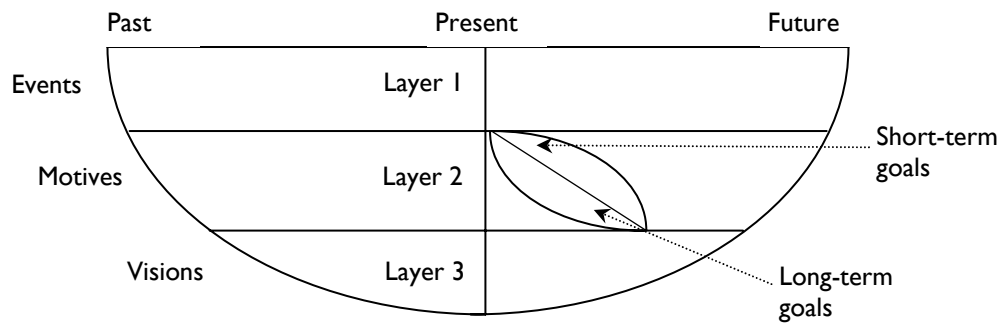


FIGURE 10.1 ALIGNMENT OF THE LEAF OF GOALS WITH THE HEMISPHERE

In this view, the Leaf of Goals can be seen as a scoop that gathers together motives, and feeds them up into events. The movement is upward and to the left: in other words, from visions toward actions, and from long-term goals to short-term. The long timescale of the bottom layer corresponds to strategic goals at the right of the leaf; visions drive medium-term intentions in the centre of the leaf, and motives drive short-term tactics to the left of the leaf. At the upper left point of the leaf, those tactics guide the actor’s decisions about activities.

The width of the leaf at each point along its length corresponds to the number of options available: a few visions, a few more options for immediate action, but a larger range of possible tactics (driven by motives) and strategies (driven by visions). The important point revealed by the above diagram (which I had not realized initially) is that the movement along the Leaf of Goals is from right to left, which seems counter-intuitive: but the leaf is teleological, not chronological, and long-term aspirations can drive present actions.

Though the above diagram is obviously a gross oversimplification, the purpose of that framework is usefulness: it was designed to help participants frame and distinguish the possible future actions of actors who might affect their entity’s future. A tacit understanding of the various actors and their likely future behaviour is thus intended to create more realistic scenario maps.

### 10.2.3.2 Simplification of the framework

In summary, the case studies led to the simplification of the original conceptual framework, as published respectively in List (2001b, 2004a) and List (2002a, 2003a, 2004d). The original concept of the hemisphere, with four layers, each influencing the one above it, did not clearly correspond with the reality of the cases. Though the first two layers (“events” and “motives”) were substantiated, the original lower layers of “values” and “worldview” could not be found to demonstrate a clear chain of influence. Though I made numerous attempts at modifying the conceptual framework to more accurately represent the influences on decisions, these

models were so complex that they could not readily be applied in workshops. As the original purpose of the conceptual framework was to create a minimal underpinning for the Process, the decision was made to apply Occam’s Razor and remove unnecessary complexity. The original fourth layer, “worldviews,” was found not to be a layer, but to pervade all the other layers.

### 10.2.4 Review of the development method

Two issues arose in reviewing the development method: the use of action research cycling for generalization, and the need to clarify the issue of facilitator involvement.

#### 10.2.4.1 Action research cycling for generalization

The diagram of action research cycles shown in chapter 7 (Figure 7.2) includes an outer loop representing inter-case reflection. This implies that reflections from each case would be applied to the next case. However, due to the long time (months) it took to organize each case, and the time limits for this thesis work, often it was not possible to apply reflective changes to the subsequent case. The result of these two factors was that reflections from one case found solutions in another case that occurred up to several years later. For example, the problems with the morphological framework developed in the RN case (mid-2001) led to a revision of the Leaf of Goals concept in the Iraq case (early 2003). Thus, instead of representing the application of reflection between cycles thus (with arrows showing considerations carried forward) ...

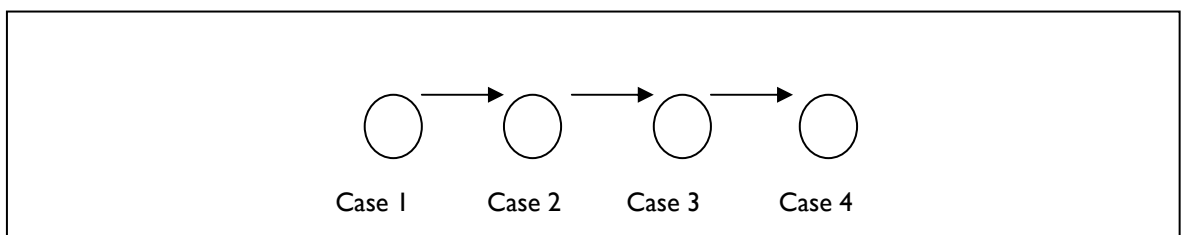


FIGURE 10.2 SIMPLIFIED FORM OF FIGURE 7.2, SHOWING ONLY BETWEEN-CASE CYCLES

...the use of reflection could be more accurately represented thus...

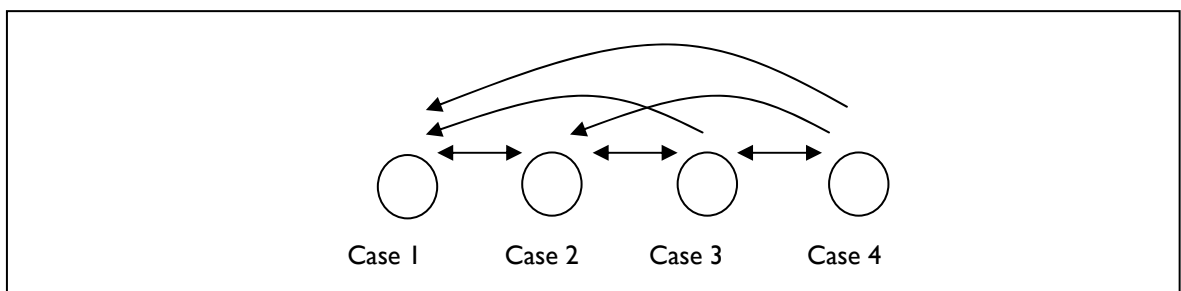


FIGURE 10.3 MORE COMPLEX TRANSMISSION OF REFLECTIONS BETWEEN CASES

In explanation of Figure 10.3: I did not initially realize that my design for between-case reflection had been incomplete. While it is true that cycle 1 produces implications that can be used in cycle 2, which then has implications for cycle 3, and so on, it also is also true that for each new cycle, reflection dwells on all previous cycles, seeking learning from earlier cases that could be relevant to the new cycle. This is analogous to the difference between generalization (in the positivist sense, as exemplified by Cook, 1991) and its qualitative parallel of transferability (Lincoln and Guba, 1985). Generalizability is an output (“Are these findings generalizable?”) while transferability is an input (“What previous findings can be applied in this situation?”) The general view among writers on action research (Carr and Kemmis, 1986, for example) is that reflection is an output. Because it occurs after the action phase, this normal form of reflection could be labelled *post-reflection*. However, another form of reflection, that might be labelled *pre-reflection*, involves reflecting on a variety of past situations in order to solve a new problem – similar to the *retrospective sensemaking* of Weick (1979) but with more emphasis on subsequent action. This is represented by the left-pointing arrows in Figure 10.3.

Another factor that standard post-reflection does not reveal is that a new situation can change old knowledge. Notably, in the present study, the original plan was that scenario networks would not include any element of the normative. A scenario map would show a wide range of possibilities, of which some paths might be more desirable than others. But late in the development of the Process, I finally realized that the main reason why the entities I had been working with wanted to examine their futures was that they had a strong impulse to work towards futures that they desired. Most of them had identified specific desired outcomes, but could not see a clear route to attaining them – hence their interest in working with the Process. This applied in almost every case study, but it took five case studies before I belatedly realized that the initial plan for the Process was mistaken in excluding normative futures. One implication of that finding is that learning is slower when unquestioned, so it would be better to develop a Process with other people who are equally involved. (Though I frequently discussed the Process with friends and colleagues, none was involved enough to keep up with the changes.)

#### **10.2.4.2 Process consultation vs. involvement**

The initial intention was that my own role (apart from being an observer in the research process) with each case would be purely consultative, in the sense of Schein (1988): the client or entity I was working with was expected to find its own futures. In practice, with most cases, I became drawn into the activity to some extent; if not during the workshops, then during the planning sessions. The following table notes the extent of my involvement.

TABLE 10.2 INVESTIGATOR'S ROLES FOR EACH CASE STUDY

| Case                         | Role   |
|------------------------------|--|
| RN: radio network            | Trainer, facilitator, observer   |
| EM: engineering manufacturer | Semi-structured interviewer (not facilitation in the normal sense), observer |
| Iraq war                     | Observer (through media sources only)  |
| LS: legal services           | Observer (others did the facilitation, following my instructions)            |
| CU: credit union             | Facilitator, observer, devil's advocate                                      |
| SC: service club             | Facilitator, observer, strategy adviser                                      |
| Barossa Valley               | Facilitator, observer  |

The above table covers my role in the workshops and substantive interviews. What I did not realize till late in the project, however, was that preliminary planning sessions and follow-up sessions were in many cases as important in providing material for scenario maps as were the formal workshops. However, none of these involvements was as pronounced as Schein's (1988) medical model, in which the consultant diagnoses and solves problems. The closest approach to that was in the service club case, in which (at the clients' request) I helped formulate an application of multiple futures within that organization.

Reflecting on reasons for this role creep, it occurred because I became drawn into the organizations I was working with. They were helping me by co-operating with the Process and I thus felt it would have been unethical to refuse to help in return, according to the "principle of beneficence" of Beauchamp et al (1982, p19). However, in order not to influence the main part of the Process, I refrained from any advisory involvement until almost at the end of the work with that entity.

#### 10.2.4.3 Limitations of the initial concept

Towards the end of the fieldwork, notably in the service club case, I at last noted the limitations of the initial concept: of developing a methodology. With the service club, I realized that part of the problem with fulfilling the workshop design was that I was trying to impose on the participants an arduous methodology. Though simple and obvious to me – because I had worked on it with five previous cases – it seemed arcane and impenetrable to some participants. I now suspected that the methodology was simply too complex for others to follow. Even though I made a point of being flexible in the facilitation, perhaps the methodology itself, simply by virtue of being a methodology, was unrealistically ambitious. The test will be if others use it, in anything approaching the form laid out in Appendix 5.

### **10.3 Limitations of this research**

Four types of limitations and reservations were identified: the small sample, the restricted scope of the sample, the possibility of investigator bias, and the possibility of a placebo effect.

#### **10.3.1 Limitation 1: small sample**

The total number of case studies was seven, and the total number of participants was officially 89 (though in fact more). Because new information was still obtained in the final case study, the point of sampling redundancy, when no new data is being added (Lincoln and Guba, 1985, p202) has not quite been reached.

#### **10.3.2 Limitation 2: restricted sample**

The sample had two clear limitations. Firstly, all but two of the cases were based in South Australia. Secondly, none of the cases involved the future of an abstract concept, though the content analysis of published futures studies described in chapter 7, section 7.1.3, had classified 41% of those articles as including such futures. (This was not for want of trying, but it turned out that such studies were difficult to organize, due to their lack of constituencies.)

#### **10.3.3 Limitation 3: the possibility of investigator bias**

A limitation perhaps inherent in qualitative theses is the possibility of investigator bias; here, particularly in respect to chapter 9. In such cases, the chief investigator serves as “judge and jury” and may feel under psychological pressure to report that the null hypothesis (or its qualitative equivalent) was rejected. One solution might have been to have others review the conclusions drawn from the data; though I sought somebody to do this, I was unable to find anybody willing to devote the time required: several months’ full-time work. But in this case, the potentially biased investigator now suggests that this was not a significant factor, for several reasons:

1. This has been a formative study, not a summative one (Scriven, 1967). The outcome was never intended to be “this Process is better than method X” or “this Process fulfils all requirements for the new ISO Futures Methodology standard,” but rather “by working through a series of cases, this Process has been steadily improved, to the point where it can now be applied by others, with reasonable confidence of attaining a useful outcome.”
2. Having previously developed two methods of qualitative inquiry (as described in Chapter 6, section 6.2.1.3) I have both a realistic view of the time-frame and effort needed for such a project, and little to gain from prematurely claiming the present method to be viable.

The International Association of Facilitators' Statement of Values and Code of Ethics (2002), the spirit of which is deeply ingrained in my facilitation and moderation work, states that "We are vigilant to minimize our influence on group outcomes."<sup>3</sup> Though the term "outcomes" seems deliberately vague, the principle's intention in this context is clear: not to influence the *content* of outcomes. It would be pointless to try to do that: even if a specific sample could be influenced, this would not affect the population from which it was drawn, the active consent of which would be required for any consequent action.

#### **10.3.4 Limitation 4: the possibility of a placebo effect**

One might argue that, though this Process has been reported as successful, perhaps the same result would have been obtained from any futures process. Though Kienle and Kiene (1997) in a review of Beecher's widely-reported 1955 paper on the placebo effect, reported that such effects have seldom been identified, and though Draper's (2004) comprehensive review confirmed that expectancy effects in general are not common, this remains a possibility.

However, as noted in chapter 6 (section 6.2.2, Issue 3), demonstrating the presence or absence of a placebo effect would require an enormously expensive and time-consuming experiment. Also, because many criteria were not evaluated solely on the basis of participants' reactions, a placebo effect could account for only part of the findings. On the other hand, given the nature of this study, it was not possible to demonstrate conclusively that the usefulness of this Process was specifically due to the nature of the Process. It is possible that the use of any other method of facilitated workshops could have led to similar organizational outcomes.

#### **10.3.5 Limitation 5: Coverage of multiple perspectives approach**

Linstone (1984, 1999) and Mitroff and Linstone (1993) discuss the multiple perspectives approach using the TOP typology, in which T represents the technical perspective, O the organizational, and P the personal. This approach, though familiar to the author and often borne in mind, has not been explicitly woven into scenario network mapping. It may have been advantageous to have more deeply embedded this approach into the SNM methodology. One consequence of this lack of embedding has been that the methodology does not explicitly recognize the differential level of time discounting inherent in the three perspectives: the short-term horizons of the personal, the medium-term horizon of the organizational, and the long-term horizon of the technological perspective. The assumptional analysis of Mitroff and Linstone (Linstone, 1999, p283; Mitroff and Linstone, 1993, p144) would also be useful in creating a Leaf of Goals for each main actor group.

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3. Section 6, Stewardship. See <http://iaf-world.org/i4a/pages/index.cfm?pageid=3744>, accessed 4 May 2005.

### **10.3.6 Implications of the above limitations**

What is the likely impact of the above limitations on the findings? The small size and restricted scope of the sample restrict generalizability of findings. There is certainly no assurance that use of the Process to study the future of a concept will produce outcomes that meet the criteria for usefulness; this is yet to be tested. However, as explained in the previous two sections, there are no grounds for belief that investigator bias and placebo effect significantly impacted on the findings. The major implication is that the project is not yet completed. Further work is needed, outside the restrictions imposed by doing this as a doctoral thesis.

### **10.4 Outstanding issues for further research**

Following the review of execution criteria in chapter 9, as well as the modifications to the Process that arose from that, and the above catalogue of limitations, considerable work remains to be done. The main research issues are:

1. To what extent will SNM work in settings outside those in which it has so far been tested – for example, in other cultures, and in other languages?
2. To what extent will other interpretations of the method influence the Process and the outcomes? (It is likely that others who decide to apply SNM will vary some elements.)
3. Can the method be further simplified without losing its essence?
4. Since the preparatory meetings are used to decide which actors to include, and can occupy as much time as the workshops, guidelines should be created for those meetings, then evaluated against the design and execution criteria in the same way as for the main workshops in this thesis. For this, some new criteria will be needed.
5. It would be possible to create software to supplement (or even replace) the workshop method, thus allowing incorporation of the views of people unwilling or unable to attend four half-day workshops – but would the use of such software inhibit communication and thus the comprehensiveness of the scenario networks?
6. An extension to SNM is the possibility of creating a methodology for what might be called Emerging Constructs Analysis, as described in Reflection 5, section 8.4.2, on the war in Iraq. Some preliminary work suggests that such a method could be useful in studying the future of a concept: a type of future not included in cases for this thesis.

It would be useful to seek a situation in which control groups can be used. In retrospect, I missed a useful opportunity with the credit union case, which used two sets of workshops. Though it was helpful to compare the scenario maps produced by two well-matched groups in

the same organization, it might have been even more helpful to use two different methods, comparing SNM with, say, a set of scenarios generated by the Critical Uncertainties method.

The above questions can potentially be answered in several case studies that were not ready in time for the case studies, but are still imminent. Two in particular are:

1. a study of the future of lifelong learning in a suburb of Adelaide (the future of a concept: included in the original sample design but not carried out);
2. the continuation of the Barossa Valley project, but on a smaller scale than originally planned, as the second (large) grant application has been unsuccessful.

Both of these, being geographically based, are scheduled to use the charrette-like “rolling groups” format. It is also possible that the publication of this thesis (and the manual in Appendix 5) will stimulate further use of the Process by others. This could result in an independent evaluation of the foreshadowed changes, as well as the practicality of the SNM Process as a whole, when administered by people other than its originator.

## **10.5 Conclusion**

It is hoped that this thesis has made a contribution both to practice and to theory. Its contribution to practice includes (a) the development of a viable (though still imperfect) method of foresight, and (b) the development of a method for developing new methods of social inquiry. The contribution to theory is twofold. The comprehensive conceptual framework in chapter 4 (with its axioms, “formula for the future,” stakeholder-impingement model, hemispherical layered model, and Leaf of Goals) has broad application to the futures of human groups. The action research model (chapters 6 and 7), conceptualizing methodological development through a succession of triangular iterations (chapter 7: figures 7.2 and 7.3), could be used to guide the development of any social inquiry method, including qualitative research and OD large-group intervention techniques. Reviewing those elements (as well as other minor innovations noted in earlier chapters) it is not unreasonable to claim that this thesis has fulfilled the requirement of an original contribution to knowledge. It would have been heartening to be able to conclude the case studies with one in which everything worked flawlessly. On the other hand, continuing to add new cases in the hope that a perfect solution would eventually be reached would probably have uncovered more (though successively smaller) problems. I argue, however, based on the case studies completed to date, that enough has now been learned that the Process can be offered to other potential users, with reasonable assurance of their obtaining some useful outcomes. ■