Creating Futures Scenarios To Aid In Military Planning: The Use Of The *Field Anomaly Relaxation* Systems Approach

Guy Duczynski and Mark Campbell Williams

School of Management Information Systems
Faculty of Business and Public Administration
ECU, Churchlands, Western Australia, 6018
Fax: 08 3 8754 Phone: 08 9273 8523 email: m.williams@cowan.edu.au

ABSTRACT

This paper explains the use of Field Anomaly Relaxation, a systems approach to futures planning, in a planning unit of a large international security organisation. Seven drivers*, major influences which cannot be changed, act to provide the boundaries for five future world situations arrayed on a* Faustian tree*, a map of interconnected scenarios. These future worlds are further developed into rich narratives that describe 20 individual scenarios. The product of the futures work is linked back to the organisation to provoke creative thought and unconfined dialogue designed to contribute to initiatives for fruitful change.*

INTRODUCTION

> The past is of no importance. The present is of no importance. It is with the future that we have to deal. For the past is what man should not have been. The present is what man ought not to be. The future is what artists are.
>
> Oscar Wilde

Scenario planning, and numerous other, albeit somewhat lesser known, methods have become increasingly popularised through the proliferation of management books dealing with futures thinking, coupled with a widening acknowledgement that systems thinking and practice may provide answers to many of the unstructured problems that plague organisations. For scenario planning to be effective, a *useful set* of scenarios must be constructed against which the organisation or area of interest can be tested.

This useful set of scenarios must encompass a sufficiently broad range of conditional ingredients that offer enough possibilities for variation and divergence. Without this possibility for divergence a single path into the future is formed which, despite the boldest imagination, cannot accommodate more than a single scenario or a narrow collection of qualitatively similar (and therefore, not useful) scenarios.

This paper presents an account of the use of FAR to build scenarios for a large security organisation (fictitiously named Security Planning (SP) for confidentiality) faced with an increasing rate of change in its operational environment. Its aim was to provide a relatively unbounded forum for creative thoughts and ideas regarding organisational renewal such that novel concepts and imperatives could be expressed within a broadened perspective of the future.

A GENERALIST UNDERSTANDING OF SCENARIOS

Many emergency response organisations: law enforcement, military, fire fighters, paramedics and disaster relief, to name just a few, use scenarios on almost a daily basis to sharpen their capacity to deal with the unexpected. Through a comprehensive set of 'what if' statements and structured events they are able to rapidly cycle themselves through a bewildering array of problem situations. The result of this focussed training and the associated flexibility of mind it demands is a highly agile team that can rapidly adapt structures, techniques and procedures to overcome situations in which indecision and hesitancy are not options. Pilots undergo multiple repetitions of emergency situations in simulators to create this necessary rapidity of response and action such that problem-solving is reduced to an instinctive sequence of behaviours, in effect allowing the mind to remain clear and unencumbered to deal with those few contextual aspects.

The same signals and noise that invoke this stimulus-response mechanism are present in areas where a slower rate of adaptation (evolution?) can be appropriate. Nevertheless, the perceived equilibrium can be punctuated by rapidly

changing events that accelerate quicker than policy making can contend with (the escalation in violence following the East Timor independence elections provides a vivid recent example). As stated by Schwartz (1991, p. 3) "not having tried to foresee surprising events, they are at a loss for ways to act when upheaval continues".

These scenarios, and more importantly the use of them for long-term planning, are certainly not *predictors* of events, nor are they attempting to *forecast* the likelihood of particular situations they simply aid in the provocation of new ideas. Before proceeding, these terms of *forecast* and *predict* require clarification as they are often used interchangeably in practice and within the futures literature. Borrowing Coyle's (1997, p. 78) explanations to distinguish between them he states that "prediction [gives] a sense of telling beforehand, whereas forecast has a sense of general assessment of a likely course of events. Thus forecasting means to think systematically about the unknowable future in such a way as to generate understanding to support effective intervention in, or protection against, events yet to occur". *Projection* is another term that has become synonymous with scenarios, but its use should remain restricted to those methods that employ mathematical or statistical data to extrapolate trend lines into the future where some degree of reliability and validity offer the necessary (technical) confidence.

The explanation of 'forecast' is more useful for our purposes here and is certainly an ample descriptor for those personnel involved in those emergency, short-term situations mentioned earlier. What then for organisations seeking to adapt to changing events that may span many years and involve complex inter-relationships that conspire in ways that are not immediately evident?

As organisational practitioners in need of a systematic and disciplined approach to developing a useful set of futures FAR has proven to be highly valuable.

RHYNE'S FOUR STEP METHOD

Russell Rhyne, the original architect of the Field Anomaly Relaxation technique, advocates adherence to a four-step process to projecting futures (Rhyne, 1974, 1981, 1995 & 1998):

Step 1: Form an initial view of the alternative futures that could unfold within the area of interest.

Step 2: Construct a language using *Sectors* that will become the dimensions of describing the area of interest; and *Factors*, which become the alternative states within each Sector and array these on a matrix to form whole field descriptors of all possible configurations.

Step 3: Eliminate those Factor pairs that are illogical or cannot co-exist, forming a reduced set of whole field (full sector range) configurations.

Step 4: Position the surviving whole field configurations on a 'tree' whose branches represent possible future states and transitions from one configuration to the next.

Little evidence is available of FARs use outside of the extensive list of publications by Coyle and a series of co-authors (Coyle, 1984, 1985; Coyle, Crawshay & Sutton 1994; Coyle & Yong 1996; Coyle 1997) and an article by Wood and Christakas (1984).

A HYBRID METHOD

This has been found to be somewhat limiting at Step 1 in the current work so a different approach was used that involved: generating a large list of drivers, with the criteria being that they must be beyond the organisation's ability to influence; compressing this list of drivers into broadened 'themes' that embodied the main thought being presented as the driver; and then entering step 2. Step 4 was followed by the construction of a strategic planning space that was bounded by the axes of a cube using three primary drivers outwards from a point of origin at one corner.

These modifications have been necessary due to the need to link this futures work into a larger study of organisational transformation using a technique that I have chosen to call 'effects-based' planning. Rhyne (1981, p. 349) has identified the importance of doing something useful with the results that engages a wider body of thought about change "…the payoff from projections of this kind [FAR] usually dribbles away unless solid uses for them are visualised from the start and pursued.

AN OPEN SYSTEMS ORIENTATION

The slightly modified Step 1 allowed an integration of the ideas of complexity and systems behaviour as set out by Emery and Trist in their foundational work on organisational environments, wherein "A main problem with organisational change is that the environmental contexts in which organisations exist are themselves changing, at an increasing rate and towards increasing complexity" (Emery and Trist, 1965, p. 21). The central premise was an acknowledgement that "a comprehensive understanding of organisational behaviour requires some knowledge of the lawful interdependencies" that flow unceasingly within, through and across environmental and contextual boundaries.

These were expressed as:

L_{11} - the processes at work *within* the organisation.

L_{12} - the *transactions* and *exchanges* that penetrate the organisation/environment boundary flowing *outwards*.

L_{21} - those *transactions* and *exchanges* that flow *inwards*.

L_{22} - the processes through which parts of the environment become entangled and inter-related.

These interdependencies can lead to self-organising behaviour wherein “the components of a system in effect spontaneously communicate with each other and abruptly cooperate in coordinated and concerted common behaviour" (Stacey, 1996, p. 330). Or they can behave destructively and deliver many unintended consequences that often run counter to our goals. As stated by Jervis "we cannot develop or find a highly specific agent which will do only one thing … we can never merely do one thing" (Jervis, 1998, p. 261). Furthermore, "the apparent randomness … can be shown to contain repeating patterns and the theory is valuable because it enables the search for "order within chaos" (Wing, 1999, p. 18).

The paradox of this has been neatly described by Rosenau (1997, p. 73) as “fragmegration” in order "to summarily capture the tensions between the [simultaneous] fragmenting and integrating forces that sustain world affairs"; furthermore "The parts or agents of a complex adaptive system, being related to each sufficiently to form recurrent patters, do in fact self-organise their patterned behaviour into an orderly whole" (p. 84). The ongoing dilemma for systems practitioners is that the orderly whole may not be of our design.

So it was armed with a knowledge of systems behaviour that the focus group began the task of crafting futures.

IDENTIFYING THE DRIVERS

The first step was to identify the drivers that would be most influential in shaping events. As stated earlier these drivers need to be beyond the planner's ability to influence, the only acceptable response being adaptation. Over 60 candidate drivers were identified at this first stage.

These 60 drivers were then collapsed using *affinity diagrams* to reveal the major forces at work. The list that was taken to the next stage comprised seven key drivers, which is consistent with Rhyne's recommendations (1974, p. 139 and 1981, p. 339); there is also a mathematically imposed limitation wherein the 'whole field' possibilities grow exponentially. Reducing the list to seven in this way does carry a risk that a driver (Sector) may become more dominant than others, embodying too many dissimilar items. This can be avoided at a later step in the process. It does, however, offer the advantage that reducing the numbers of drivers forces participants in the process "…to reach past several trends to find the unifying themes behind them" (Engelbrecht et al, 1996, Chap 2, p. 7).

The drivers selected were:

- Political Will
- Regional Stability
- Economic Situation
- Domestic Stability
- International Stability
- Condition of the Environment
- Technology

BUILDING THE SECTOR/FACTOR ARRAY

When positioned as headings on a table these became our Sectors, incorporating the meta-syntactic language, PREDICT, to be used later when referring to different settings. The columns within each heading were then expanded to form a possible range of Factors or states in which the Sector could exist. The final row in the table provides a brief descriptor of the factors' foci.

	Political Will	Regional Stability	Economic Situation	Domestic Stability	International Stability	Condition of the Environ-ment	Technology
	P	R	E	D	I	C	T
1	Adventurous bold	Cohesion	Booming Superior	Cohesion	Minor conflicts	Improving	Overwhelming rate of change or development
2	Fencesitting, procrastinat-ion, cautious	Generally stable	Parity Competitive	Generally stable	Regional conflicts	Manageable/ fixable	Continuing rate
3	Avoidance, extreme reluctance	Localised unrest, discontent	Inferior, declining	Localised unrest, discontent	Major theatre wars, multinational	Continuing degradation	No further development
4	Paralysis, catatonia	Widespread unrest, public uprisings		Widespread unrest, public uprisings	Mass destruction	Meltdown, catastrophe	
5		Anarchy		Anarchy			
	Propensity to take risks	Political, military, socio - economic stability of region	State of Australian economy relative to that of the region	Socio-political stability	Scale of military conflict elsewhere in the world	Effects on and of the physical environment	Development of technology on an international scale

Table 1. Sector/Factor Array

From this was produced a total of 14 400 possible whole field configurations (4x5x3…). Clearly there are many illogical pairs that need to be discarded through a process of relaxation. As stated earlier, and which can now be seen, the exponential growth to unmanageable numbers of permutations can be similarly collapsed through a process of pair-wise comparison which, as well as defining pairs that cannot coexist, removes entire whole fields that contain a single illogical pair.

PAIR-WISE COMPARISON

This process can take a number of forms, all are judgmental and involve reaching some measure of consensus using a Yes/No decision, numbered scale or some other means to determine the degree of 'fit'.

	R1	R2	R3	R4	R5	E1	E2	E3	D1	D2	D3	D4	D5	I1	I2	I3	I4	C1	C2	C3	C4	T1	T2	T3
P1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
P2	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	N	Y	Y	Y
P3	Y	Y	Y	Y	N	Y	Y	N	Y	N	Y	Y	N	Y	Y/N	N	N	N	N	Y	N	Y/N	Y	Y
P4	N	N	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	Y	Y	N	Y/N	Y	Y	Y	N	Y	N	Y
R1						Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
R2						Y	Y	Y	Y	Y	Y	N	N	Y	N	N	N	Y	Y	Y	N	Y	Y	N
R3						Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	Y	N	Y	Y	Y
R4						Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y
R5						Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N	N	Y	Y	Y	Y	Y
E1									Y	Y	Y	N	N	Y	Y	Y	N	Y/N	Y	Y	N	Y	Y	N
E2									Y	Y	Y	Y	N	Y	Y	N	N	Y	Y	Y	N	N	Y	N
E3									Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
D1														Y	Y	N	Y	Y/N	Y	Y	N	Y	Y	N
D2														Y	Y	N	N	N	Y	Y	N	Y	Y	N
D3														Y	Y	Y	Y	N	N	Y	N	N	Y	N
D4														Y	Y	Y	Y	N	Y	Y	N	Y	N	Y
D5														Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y
I1																		Y	Y	Y	Y	Y	Y	N
I2																		Y	Y	Y	Y	Y	Y	N
I3																		N	N	Y	Y	Y	Y	N
I4																		N	N	Y	Y	N	Y	Y
C1																						Y	Y	N
C2																						Y	Y	N
C3																						Y	Y	Y
C4																						Y	Y	Y

Table 2. Results of Pair-wise Comparison

The table above allowed a relaxation down to 403 whole fields from 14 400. Not nearly as many as indicated by Rhyne (1998, p. 7) "the first filter [pairwise comparison] … normally filters out about 999 out of 1000; the second [whole field overall coherence] gets rid of about half those passed by the first". Nevertheless, the reduction was significant and achieved the aim of this step in the process.

In a further deviation from the method outlined by Rhyne, the surviving whole field configurations were clustered together, reducing the 403 to 46, a number now approaching manageability for further analysis. The clustering was based on the conclusion that if an individual PREDICT configuration changed by one Factor up or down across no more than three of the seven Sectors then the underlying theme would be preserved.

We acknowledge that there was a significant risk of diluting the purity of the exercise up to this point. It was accepted, however, that in order to achieve the necessary further reduction this 'bundling' of configurations was no more significant than the logic used to group together the full list of drivers using the affinity diagram in the opening stage. The PREDICT settings which carry a qualitatively similar setting are set out in the table below. The further breakdown into a,b, c and d sub categories was forced through the need to not violate the 'one up or down' rule mentioned earlier. These sub-groups were treated as a single entity in the later stages of Faustian tree construction and the generation of scenarios.

No	PREDICT Configuration						
1a	P_{1-2}	R_1	E_1	D_1	I_{1-2}	C_{2-3}	T_{1-2}
1b	P_{1-2}	R_{1-2}	E_2	D_1	I_1	C_2	T_2
1c	P_{1-2}	R_2	E_1	D_{1-2}	I_1	C_{2-3}	T_{1-2}
1d	P_{1-2}	R_{1-2}	E_1	D_2	I_{1-2}	C_3	T_{1-2}
2a	P_{1-2}	R_1	E_2	D_{1-2}	I_{1-2}	C_{2-3}	T_2
2b	P_{1-2}	R_1	E_1	D_{1-2}	I_{1-2}	C_3	T_2
3	P_{1-2}	R_1	E_1	D_3	I_{2-3}	C_3	T_2
4	P_{1-2}	R_1	E_{1-2}	D_{3-4}	I_{1-2}	C_3	T_2
4a	P_{1-2}	R_2	E_{1-2}	D_{2-3}	I_1	C_3	T_2
5	P_{1-2}	R_1	E_3	D_1	I_{1-2}	C_{2-3}	T_{1-2}
6	P_1	R_1	E_3	D_1	I_{1-2}	C_4	T_{1-2}
7	P_1	R_1	E_3	D_1	I_4	C_{3-4}	T_2
8a	P_1	R_1	E_3	D_{2-3}	I_{1-2}	C_{3-4}	T_{1-2}
8b	P_2	R_1	E_3	D_{2-3}	I_{1-2}	C_{3-4}	T_{1-2}
9	P_{1-2}	R_1	E_3	D_3	I_{2-3}	C_{3-4}	T_2
10.13	P_1	R_1	E_3	D_{3-4}	I_4	C_{3-4}	T_{2-3}
11	P_{1-2}	R_1	E_3	D_4	I_{1-2}	C_{3-4}	T_{1-2}
12	P_{1-2}	R_1	E_3	D_4	I_{3-4}	C_{3-4}	T_{1-2}
14	P_1	R_1	E_3	D_5	I_{1-2}	C_{3-4}	T_1
15	P_1	R_1	E_3	D_5	I_3	C_{3-4}	T_1
16	P_1	R_1	E_3	D_5	I_4	C_{3-4}	T_3
17a	P_1	R_2	E_{2-3}	D_{1-2}	I_1	C_{2-3}	T_{1-2}
17b	P_2	R_2	E_{2-3}	D_{1-2}	I_1	C_{2-3}	T_{1-2}
18	P_2	R_{2-3}	E_{2-3}	D_{2-3}	I_1	C_3	T_{1-2}
19a	P_1	R_3	E_{1-2}	D_{1-2}	I_{1-2}	C_3	T_{1-2}
19b	P_2	R_3	E_{1-2}	D_{1-2}	I_{1-2}	C_3	T_{1-2}
20	P_1	R_2	E_3	D_{2-3}	I_1	C_3	T_{1-2}
21	P_{1-2}	R_3	E_{1-2}	D_{2-3}	I_{1-2}	C_3	T_2
22	P_{1-2}	R_{3-4}	E_1	D_3	I_3	C_3	T_2
23	P_2	R_3	E_{2-3}	D_{3-4}	I_{1-2}	C_3	T_{1-2}

No	PREDICT Configuration						
24	P_{1-2}	R_3	E_3	D_{1-2}	I_{1-2}	C_3	T_{1-2}
24b.25a	P_{1-2}	R_3	E_3	D_{3-4}	I_{2-3}	C_3	T_{1-2}
25	P_1	R_3	E_{2-3}	D_{3-4}	I_{1-2}	C_3	T_{1-2}
26	P_2	R_{3-4}	E_{2-3}	D_4	I_{2-3}	C_3	T_{1-2}
26a	P_1	R_{4-5}	E_1	D_{1-2}	I_{1-2}	C_3	T_{1-2}
26ab	P_1	R_4	E_2	D_{1-2}	I_{1-2}	C_3	T_2
26b.27a	P_2	R_4	E_{1-2}	D_{1-2}	I_{1-2}	C_3	T_{1-2}
28	P_{1-2}	R_4	E_{1-2}	D_{3-4}	I_{1-2}	C_3	T_2
29a	P_1	R_4	E_3	D_{1-2}	I_{1-2}	C_{3-4}	T_{1-2}
29b	P_2	R_4	E_3	D_{1-2}	I_{1-2}	C_{3-4}	T_{1-2}
30	P_1	R_4	E_3	D_3	I_{1-2}	C_{3-4}	T_2
31a	P_1	R_4	E_3	D_{4-5}	I_{1-2}	C_{3-4}	T_{1-2}
31b	P_2	R_4	E_3	D_4	I_{1-2}	C_3	T_{1-2}
32	P_{1-2}	R_4	E_3	D_{4-5}	I_3	C_{3-4}	T_{1-2}
33	P_1	R_{4-5}	E_{1-2}	D_{3-4}	I_{2-3}	C_3	T_2
34	P_1	R_5	E_{2-3}	D_{1-2}	I_2	C_{3-4}	T_{1-2}
35a	P_1	R_5	E_3	D_{3-4}	I_{3-4}	C_{3-4}	T_{1-2}
35b	P_1	R_5	E_3	D_4	I_2	C_{3-4}	T_{1-2}
36	P_1	R_5	E_3	D_1	I_4	C_{3-4}	T_2
37	P_1	R_5	E_3	D_5	I_{2-3}	C_{3-4}	T_1
38	P_1	R_5	E_3	D_{4-5}	I_4	C_{3-4}	T_{2-3}
39	P_1	R_5	E_3	D_{2-3}	I_2	C_{3-4}	T_{1-2}
40	P_3	R_1	E_{1-2}	D_1	I_1	C_3	T_{1-2}
41	P_3	R_{2-3}	E_{1-2}	D_1	I_1	C_3	T_{1-2}
42	P_3	R_{1-2}	E_{1-2}	D_{3-4}	I_1	C_3	T_2
43	P_3	R_{3-4}	E_{1-2}	D_{3-4}	I_1	C_3	T_2
44	P_3	R_4	E_{1-2}	D_1	I_1	C_3	T_{1-2}
45	P_4	R_{3-4}	E_3	D_{4-5}	I_{1-2}	C_3	T_1
46	P_4	R_5	E_3	D_{4-5}	I_2	C_3	T_1

Table 3. Result of Clustering

CONSTRUCTING THE FAUSTIAN TREE

To make the future believable it is necessary to string the transitions into a plausible history that marks out how a future world could evolve from the present. These transitions track outwards from a present PREDICT configuration and branch according to shaping triggers that underlie the factors. For instance, a movement of one level along the Political Will sector coupled with a multiplier in the Economic Situation can deliver dramatic changes in the direction of the lines and branches, in effect becoming an intermediate, but vital, point on the path to other transitions.

To maximise creative thought and discussion Coyle's recommendations (1996, p. 275) on the methods employed to build the tree were followed. A series of sticky notes covering all PREDICT configurations (46) were positioned on a wall and arranged and re-arranged as discussion surrounded the workability of this or that transition and the events surrounding it. After several discussion and evaluation sessions the positions of the notes had stabilised and agreement was reached that what was portrayed was a reasonably complete and plausible account of a future history. This point of stabilisation was also evident in the fact that discussion points surrounding various PREDICT settings and transitions had been exhausted.

An abbreviated view of the Faustian tree is set out in the figure below. The bold initial number refers to the cluster number. No attempt is made at this point to establish times to the diagram

The transitions, with their associated PREDICT settings are illustrated in the figure below. A possible explanation for the transition from cluster 17 to cluster 6, which is characterised by a worsening environmental condition C_{2-3} moving to C_4 and a lowering of economic performance E_{2-3} moving to E_3, may be found in the continuing massive

environmental damage resulting from forest burning in Malaysia and Indonesia with its effect on economic prosperity.

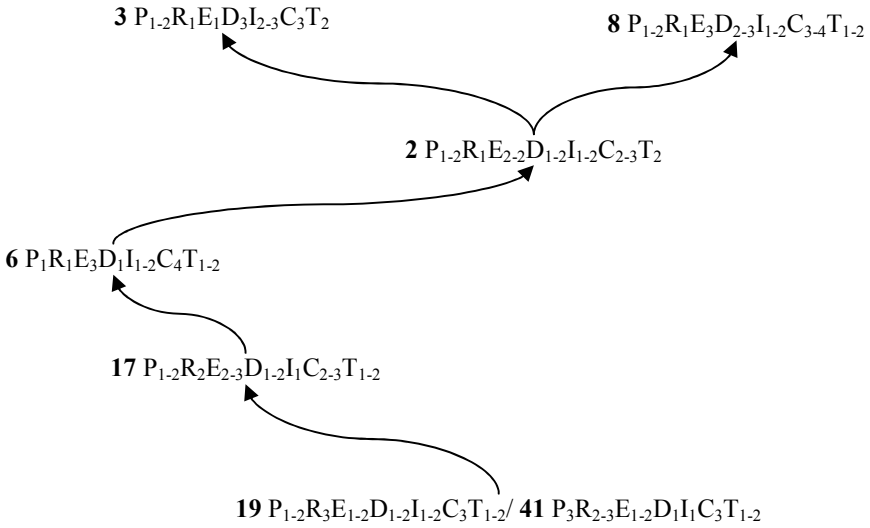

Figure 1. Simplified View of the Faustian Tree

NARRATIVES OF THE FUTURE

Having constructed the Faustian tree and, thereby, creating a series of pathways through which the single future trajectory may travel, a set of rich narratives are called for. These narratives link the present to the future in a manner that adds substance, depth and most importantly breadth, effectively putting 'flesh on the bones' of the earlier, more structured thinking stages.

1	Global love, peace and harmony	Utopia
2	Australia dominated by domestic strife	Home Brew
3	Australia and Allies okay, Region finding it tough	Argy Bharji
4	Australia and Region in trouble, rest of international arena okay	Cast Adrift
5	Australia and Region okay, strife elsewhere	Trouble Elsewhere
6	Australia leading the rest of the world	Great Southern Cross
7	Australia and allies faced with a booming Region	King Khan
8	Everybody's brawling	WWIII

Table 4 Named Worlds

The named worlds provide "a reference point that helps internalise the world's implications" (Engelbrecht et al, 1996, Chap 1 p. 3). Set out in the table above are the eight named worlds in the current study.

An example narrative, entitled Ebola Outbreak, selected off the full list of 20 from the current study is set out below.

2003, February: Escalation of rebellion in the former B and G results in significant conflict embroiling U, K, T and Z military forces. Ecological crisis arises as Z forces employ defoliation by chemical and fire tactics to route rebel H and renegade T in and around R. U, T and K are swamped with refugees; collectively there is a call for international rescue of displaced populations. U additionally alerts the international community to the dire threats to gorilla and other primate populations forced to move also displaced. The sight of monkeys scavenging in the refugee camps becomes commonplace. Indian, European and US aid is forthcoming. Expatriate countries, Belgium, France, Germany and the United States offer a sponsored migration program to relieve an otherwise overwhelming refugee problem. International wildlife rescue bids relocate endangered gorillas and other primates to a variety of international zoos and refuges set up specifically to handle the scale of the problem. Displaced peoples are given an option under a quota for emigration to these same sponsor nations.

2003, May: Illness besets refugee camps in Africa and those quarantined in several host nations of USA, France, Germany, Belgium and India. Symptoms are variably a flu-like condition, progressing to febrile delirium or alternately dysentery with violent abdominal cramps progressing to unconsciousness. Morbidity and mortality rise to alarming proportions within eight days.

2003, September: Simultaneously, a world-wide 'Zookeepers Syndrome' is reported through toxicology web sites of similar symptomology. World Health Organisation (WHO) subsequently identifies the pathogen as Ebola Virus. Global quarantine measures are immediately effected; however, secondary cases outside refugee concentrations are reported in the next week. Panic arises in areas around reported Ebola spot fires, in Florida. A military mobilisation is necessitated to contain fleeing populations. In Europe, similar containment measures are also enforced. In India panicking mobs overcome police lines meant to confine them in villages and areas of outbreak. In a plethora of nations the so called 'Zookeeper Syndrome' results in such a scattered pattern of outbreaks that police with military assistance cannot move fast enough to contain those in contact.

2003, November: Throughout the western world a pin cushion pattern of outbreaks is generated as secondary Ebola cases propagate to tertiary contact patients. In most countries outbreaks are contained but in the near tropics of Florida, Southern India and in central Africa itself the outbreaks threaten anarchy as police and other security agents, hospital staff and medical workers also begin to be affected.

2004, January: Fragmentation of national administrations can only just be managed by police and military resources. In this month, however, some patients begin to recover, particularly in the temperate areas of Europe and northern United States of America.

Readers should be aware at this point that any number of fanciful stories could be utilised to portray disturbing series of events. The actual value is not in the geographic or situational detail of what is being described, but the ability to develop effective responses and national policies for coping.

A STRATEGIC PLANNING SPACE FOR LOCATING THE PRINCIPAL DRIVERS

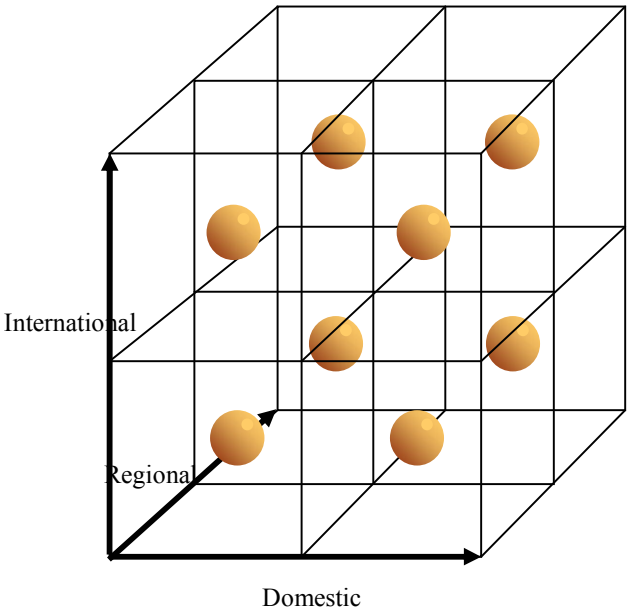

Figure 2. Strategic Planning Space

As stated earlier a further deviation from the FAR process was made at this point by positioning three principal drivers as the axes on a cube to form a strategic planning space. The drivers selected were International, Regional and Domestic Stability. Using this planning space it became possible to position the eight worlds at the vertices of the cube.

The low end is where levels of instability are extreme. The high end, or tips of the axes, allow an expression of high levels of stability across international, regional and domestic domains. The numbers correspond to the eight named worlds in Table 4.

CONCLUSION

FAR has proved to be a useful method for crafting futures in the planning unit of SP. It offers a systematic and disciplined approach to the formulation and manipulation of data and ideas. As can be seen from this case, however, there is a considerable amount of additional work that must be incorporated into the overall study to derive value.

Many interesting lines of enquiry and possibilities for further research have opened up through the completion of this work, including the possibility of automating many of FARs processes. These ideas will be addressed by the authors in a future paper.

REFERENCES

Coyle, R.G. & McGlone, G. (1995). Projecting scenarios for South-East Asia and the South-West Pacific. *Futures*. *27*(1), 65-79.

Coyle, R.G. (1984). East and West and North and South. *Futures*, 594-609.

Coyle, R.G. (1985). A system description for counter insurgency warfare. *Policy Sciences*. *18*, 55-78.

Coyle, R.G. (1997). The nature and value of futures studies or do futures have a future? *Futures*. *29*(1), 77-93.

Coyle, R.G., & Yong, Y. C. (1996). A scenario projection for the South China Sea. *Futures*. *28*(3), 269-283.

Coyle, R.G., Crawshay, R., & Sutton, L. (1994). Futures assessment by Field Anomaly Relaxation: a review and appraisal. *Futures*. *26*(1), 25-43.

Emery, F. & Trist, E. (1965). The causal texture of organisational environments, *Human Relations*, 18 (1), 21-32

Engelbrecht, J., Bivins, R., Condray, P., Fecteau, M., Geiss II, J., & Smith, K. (1996). *Alternative Futures for 2025* (Research Paper). Available at http:_www.au.af.mil_au_2025_monographs_A-F_a-f.htm#E-S

Jervis, R. (1998). From complex systems: The role of interactions. In T. Czerwinski (Ed.), *Coping With the Bounds: Speculations in Non-Linearity in Military Affairs* .

Rhyne, R. (1974). Technological forecasting within alternative whole futures projections. *Technological Forecasting and Social Change*. *6*, 133-162.

Rhyne, R. (1981). Whole-pattern futures projection, Using Field Anomaly Relaxation. *Technological Forecasting and Social Change*. *19*, 331-360.

Rhyne, R. (1995). Field Anomaly Relaxation, the Arts of usage, *Futures*, 27, 6 pp. 657-674

Rhyne, R. (1998). *Field Anomaly Relaxation - The FAR Method*, [Internet]. Available: http:_ilo.unibw-hamburg.de_ch..._Rhyne_Russell_5_Field_Anomaly_Relaxation_Abstr.ht [2000, March 20]. (PDF attached to web page).

Rosenau, J. (1999). Many damn things simultaneously: complexity theory and world affairs. In S. Alberts & T. Czerwinski (Eds.), *Complexity, Global Politics and National Security* (pp. 73-100). Washington: Institute for National Strategic Studies.

Shwartz, P. (1991). *The Art of the Long View*. (1st Ed.). Australian Business Network, Sydney.

Stacey, R. (1996). *Strategic Management and Organisational Dynamics*. (2 Ed.). Pitman, Melbourne.

Wing, I. (1999). A short introduction to alternative futures. *Australian Defence Force Journal*. (139), 18-23.