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A Layered Approach to Horizon Scanning: Identifying Future Issues in Military and Veterans' Health

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The Centre for Military and Veterans' Health, Australia undertook a horizon scanning process to identify issues in military and veterans' health services delivery for a series of future scenario workshops. Application of a critical futures framework, Causal Layered Analysis and the futures triangle, produced a novel matrix which enabled a deeper and more critical review of factors across all content areas.

Introduction

In 2007 the Think Tank at the Centre for Military and Veterans' Health (CMVH) established a two-year program of work on futures in the area of military and veterans' health service delivery. CMVH was a collaborative research centre funded by the Departments of Defence and Veterans' Affairs in Australia.

The program had the following components:

- Preliminary horizon scanning by CMVH and identification of potential areas of interest;
- Consultation with senior thought leaders in the Departments of Defence and Veterans' Affairs, other government departments, non-Government organisations (NGOs), and organisations in the private sector with an interest in either defence or health or both to establish specific areas of interest for an ideas development process;
- Open-ended ideas development in a wider forum (breakfast/lunch-time series of talks and discussions); and
- A major Think Tank event to identify priority issues for planning and action.

The objectives of the program were to:

1. Describe the likely future environments (2020) in which the Australian military and veterans' health services delivery will occur;
2. Describe what health services delivery would look like in these alternative environments;
3. Determine the impacts on research and skills enhancement needs for future health services delivery, for use in planning research and professional development programs; and
4. Establish a mechanism for ongoing horizon scanning with regard to health and health services by CMVH in partnership with other organisations.

This paper describes how the Think Tank, working within a “critical futures” framework, applied and adapted Causal Layered Analysis¹ to the horizon scanning and prioritisation of key issues for critical futures study.

Approach to the Think Tank futures project

We looked at work by a number of theorists in considering how best to approach the futures project.

Types of futures studies

We reviewed three main strands of futures thinking, described by Richard Slaughter:

- Forecasting (predicting);
- Scenarios; and
- Critical futures studies.²

We found forecasting and scenarios to be complementary and defined our two options as forecasting (including scenarios) and critical futures studies.

Forecasting, including scenarios

One major criticism of the process of projecting trends into the future is that it avoids addressing the fundamental causes of our problems. Slaughter suggests that “forecasting” or “predicting” now has very little to offer us about how we should solve the problems facing mankind: “Such questions are bound up with complex social and human issues, but forecasting is silent when confronted with the human predicament.”³ “Instead of future facts (trends or emerging issues), what is needed are new, culturally self-aware interpretations of the future.”⁴

Neither does the development of future scenarios necessarily ensure the most open approach to imagining possible futures. As Slaughter points out, standard approaches to scenario building accept current social reality as unproblematic, and bear little or no relationship to broader frameworks of understanding:

Many future scenarios skate around the (empirical) surface but fail to deal in depth with the problematics of people, organisations, cultures in stress and transformation.⁵

Thus in planning for market growth, for example, an organisation needs to look not just at scenarios which project greater or smaller numbers, but at its whole understanding of what it means by “growth”:⁶ “...most decision makers at all levels simply want information that can justify their pre-understandings of past, present and future...”⁷

Futurist Peter Schwartz works with scenarios to encourage people to examine their assumptions about the future. In *The Art of the Long View* he remarks that “people at resilient companies continually hold strategic conversations about the future.”⁸ Important factors in designing a strategic conversation process include:

- Beginning by looking at the present and the past;
- Evading the “Official Future” in organisational identity.

Critical Futures Studies presented us (the authors) with a way of both critiquing the past and stepping outside the official future.

Critical Futures Studies

To operate in an uncertain world, people needed to be able to reperceive – to question their assumptions about the way the world works, so that they could see the world more clearly.⁹

...a futures method... should not merely be seen as a predictive method; it can also be seen as a critical one.¹⁰

In order to open up alternative futures for military and veterans’ health, we concluded that the best option would be a critical futures studies approach. This approach is concerned with gaining perspective on current reality in order to open up more options for the future.¹¹ One of the roles of the futurist in this approach is to make the way we do things now “remarkable” rather than “normal”,¹² and through this “distancing” process enable us to look anew at the present. While future scenario writing by CMVH could help provide this distancing from the present, we concluded that work needed to be done to ensure that the scenarios not simply use the same categories and structures that exist today.

Causal Layered Analysis, described elsewhere in this volume, is an approach which allows us to look both critically and deeply, at a number of levels, at the way things are done now. We describe below how we adapted CLA to deepen our approach to horizon scanning, so that it provided us with a deeper perspective on both current conditions as well as trends influencing the future.

Methodological approach to horizon scanning

In undertaking the horizon scanning process for the Think Tank, we realised we needed an approach that would assist us in reviewing the information we collected from a fresh perspective and in identifying critical issues for the future. In particular,

identifying areas of contradiction, synergy, and (dis)connection between the various factors would enable us to see which areas should be the focus of the Think Tank's attention.

The transdisciplinary enterprise of bringing together factors affecting both military futures and health futures (including social, geopolitical, environmental, economic and technological factors), meant that any horizon scanning needed to be ordered and layered in a way that allowed the connections between a wide range of factors to become visible. One type of order which could obviously be imposed on the data we collected was categorisation into STEEP – Social, Technological/Scientific, Environmental, Economic and Political.¹³ In addition, however, we needed to include specifically military-, veterans- and health-related factors. A combination of these categories (STEEP-plus) became our starting point.

Early in the data gathering process, and using a critical futures framework, we looked at what kind of information was going to be most useful to scan. The Push-Weight-Pull triangle used by Inayatullah¹⁴ set out the way in which futures were influenced by more than just the trajectory of existing trends:

- *Push* factors are the trends and wildcards which will push us into the future;
- *Weight* factors are the way things have been historically up to now; and
- *Pull* factors are our preferred futures which are pulling us forward.

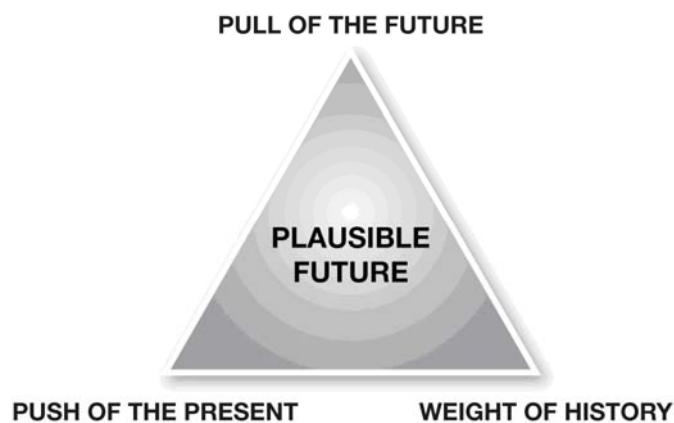


Figure 1. The *Push-Weight-Pull* Triangle¹⁵

To critically overview the past and present as well as scanning the horizon for possible futures, we decided to use the horizon-scanning process as a way of assembling data about Push, Weight and Pull factors.

Causal Layered Analysis (CLA) presented a layered way of ordering our Push-Weight-Pull data, in a way which would allow us to see contradictions and synergies between worldviews, between systemic factors, and within the surface litany. The comparisons drawn at each level and then across levels would turn out to be invaluable in gaining a clearer perspective and better description of Push, Weight and Pull factors.

For the purpose of horizon scanning, we combined the Push-Weight-Pull triangle with the deeper layers proposed by CLA. The outcomes in the centre thus became “Plausible Future Issues” rather than “Plausible Futures”:

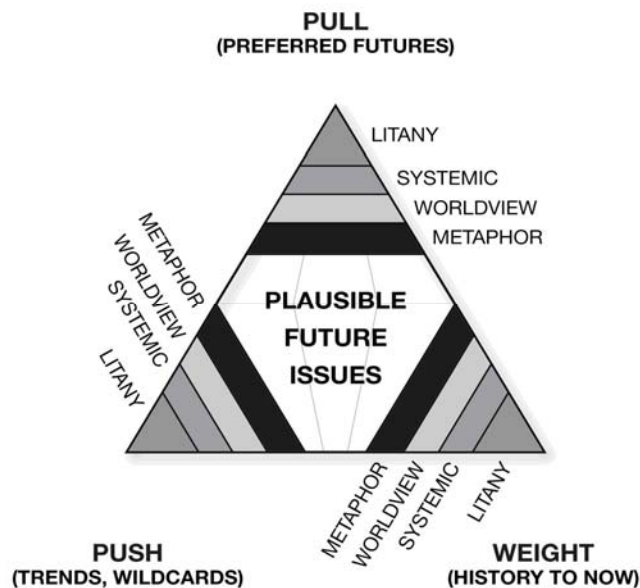


Figure 2. The Push-Weight-Pull Triangle of factors in CLA futures analysis

Collecting and sorting the data

Over several weeks we collected information from major journals, annual reports, research reports, newspaper articles on:

- Global future trends and wildcards (social, technological, economic, environmental and political (STEEP)), health futures, military futures and veterans’ futures (the Push factors)
- Where we are now in health, military and veterans issues (the Weight factors)
- Preferred futures in health, military and veterans issues (the Pull factors)

In all, 75 documents were collected and a content analysis was undertaken for any information on global (social, technological, economic, environmental or political), military and health trends; either predicted trends (Push), current trends (Weight) or preferred future trends (Pull). Each piece of information categorised from the documents was referred to as a factor.*

* For a full list of sources, see: Centre for Military and Veterans’ Health, Think Tank Report: Futures in Military and Veterans’ Health Service Delivery, retrieved 9 February 2014, from <http://www.camvh.org.au/ThinkTank/CMVH2008ThinkTankReport.pdf>.

The factors we had assembled were tabulated within the Push-Weight-Pull groupings, by Causal Layered Analysis level – Litany, Worldview, Systemic Causes (the Metaphor level was not used at this stage due to a lack of relevant data), and within the STEEP-plus categories. A representation of this matrix is shown in Figure 3, below.

First analysis of the data for possible future issues

Once the factors were tabulated it was possible to scan within and across the CLA levels to look for areas where there was either a significant conflict or a strong synergy between the factors in the various cells. For example, conflicts or disconnects were obvious between future technology (Litany) and likely technology literacy (Systemic Causes), rising health costs (Litany and Systemic Causes) and the priority given to prevention (Worldview), resource or health workforce shortages (Systemic Causes) and rising demand (Litany). Strong mutual reinforcements were noted between rising concern with post-deployment quality of life and health costs (Worldview and Systemic Causes) and increasing focus on surveillance and early intervention (Systemic Causes), and between Australia's increasing commitment to international security agreements (Worldview) and greater focus on training for interoperability (Systemic Causes).

As a result of this comparison process, a tentative list of futures issues for the Think Tank to focus on were drawn up for further review and verification.



Figure 3. Mapping the data and first analysis: Matrix of factors by CLA, STEEP-plus and Push-Weight-Pull categories

Analysis check – factor-tagging by issue

Each factor listed in the table (Figure 3) was then tagged to identify it as belonging, at least primarily, to *one* of the fifteen tentative issues. All of the factors were then re-sorted by issue, so that Push-Pull-Weight, Litany, Systemic Causes, Worldview, social, technological or scientific, economic, environmental, political, military, veterans and health factors were enumerated simply in one long list under the relevant issue heading. This factor-tagging process is outlined in Figure 4, below. It helped us to describe the issue in question and allowed a quick scan across all identified issues to see whether any anomalies appeared in the list of factors under each.

As a result of the factor-tagging process, two of the issues collapsed into one (the two lists of factors complemented each other and seemed to cover both sides of one issue), and one new issue emerged (the list of factors under one issue seemed to deal with too broad an area to be covered by one issue description).



Figure 4. Factor-tagging table: second analysis

Possible Future Issues

The fifteen possible future issues which arose from the horizon scanning process in 2007 are listed below. It can be seen that each issue description lies across more than one level of the litany-systemic-worldview layers of CLA:

1. Technology smart prevention
 - 1a *Designing out threats to health, designing in prevention*

Future trends e.g. in gene- and nano-technology showed great potential for technology in preventing illness and injury, as well as potential for harm. At present it appeared there could be more collaboration between the providers of health services and the designers of equipment, clothing, food supply packaging etc. to reduce risks to health of military personnel.

Procurement, training and strategy were also areas where input from health providers would help with assessing and managing health implications.

1b Future technology literacy

There had been criticism of all governments that they have low scientific literacy, a lack of understanding of the role of science in policy and a lack of commitment to technology adoption. Health providers in particular needed a proactive, horizon scanning approach to new technology, changing environmental threats, new diseases and their impact on the delivery of health services.

2. New models of health care

2a Coordination and collaboration with other agencies

In view of limited funding, rising costs of health (see 2d, below), trends towards new models of delivery (see 2e and 2f, below) and new future working environments (see 5a and 5b, below), there would be pressure to work more cost-effectively with other government and non-government agencies including health providers, educators and trainers, aid agencies, in providing prevention and treatment services.

2b Quality

There was worldwide inconsistency in treatment and prevention programs, and currently only limited monitoring, feedback and review.

Changes in models of service delivery, including more consumer responsibility (see 2f below), changing health roles of personnel (2e below), and use of new technologies would require a greater focus on quality assessment criteria, monitoring and review systems.

2c Communications and information

Communications and information technology was changing more rapidly and globally than almost any other area of technology. This would continue to catalyse paradigm shifts in education and information dissemination, including health records and public health information. It would also have a huge impact on how health services operate in the field, in access to patient information, supplies, transport and provision of advice and counselling.

Health providers needed to be constantly assessing available technologies and having input to service-wide or department-wide decisions on technology, training and infrastructure.

2d Funding – “more bang for the buck”

Rising costs associated with new diagnostics, pharmogenomics and other new procedures, combined with the costs of an ageing population and potentially fierce competition for scarce resources, would mean service-wide, department-wide and whole-of-government review of cost-

effectiveness and new models of health service delivery. Spending on public health and prevention was then only a very small part of government budgets. The balance between expenditure on prevention and illness was likely to be drastically reviewed in the future.

2e *New health roles*

The silos of current health professionals were already being broken down, despite strong professional resistance. In this future, it was likely that increased customer focus and customer responsibility would result in “blended” health systems with new jobs as “gatekeepers” of quality, advocates for local health services, and in research interpretation, health service brokerage.

This would also change education and training programs to cross professional boundaries and increase emphasis on customer interface.

2f *Consumer focus, consumer responsibility*

More educated consumers demanding value for money, more consumer-driven health plans, community-run health centres, an emphasis on wellness rather than illness, personalised gene-technology programs, and cost-shifting from stretched government health budgets to individuals were all likely futures. Quality (of treatments, information) would become an important issue (see 2b, above).

The planning and design of future prevention and treatment programs, customer interface, e.g. with clinicians and hospital administration, information and education programs would be radically different from current arrangements.

3. Health workforce

3a *Recruitment shortages*

Changing demographics in developed countries would mean severe shortages of skilled workers in-country, and fierce competition for a global labour force. There were already severe shortages of nurses and doctors in Australia.

The “war for talent” would mean mass movement of labour between nations, both to take up jobs and to obtain training and education offered by developed countries.

Employment conditions, organisational image, and cross-cultural acceptance were all likely to be important issues.

3b *Training (for interoperability, new technologies, roles and environments)*

New security and training alliances were constantly being formed and Australia was increasingly seeking joint training with the US, Indonesia and other countries.

Other factors in future training included the likely impact of nanotechnology on military and medical practice, increasing demand from the workforce for personal development and training, future changes in clinical roles and the many roles performed by one person during a complex deployment, new, more threatening environments, more environmental regulation of activities, more cross-cultural environments and the role of e-learning (see 2c, above).

3c Retention (morale, team-building and employment conditions)

There had been criticism of the ADF regarding its “psychological contract” with its personnel, organisational morale, the change by its workforce to situational, short-term commitment with a view to transferring quickly to the civilian sector, and the changes needed for the ADF to be seen as an “employer of choice”.

The health workforce in general had been described as depleted and demoralised. These broader issues would also have an increasing impact on military and veterans’ health providers in the future.

4. Pre-empting illness

4a Surveillance, hazard profiling and early intervention

Potential future funding limitations (see 2d above) on long-term care and reports on diminished post-deployment quality of life had resulted in recommendations for hazard profiling of each deployment and better health surveillance of ADF personnel and veterans upon transition from the ADF to allow for early intervention in any likely health condition. Mental health and chronic pain were examples of areas where systematic approaches to pre-emption could reduce long-term health complications for serving and former ADF members.

4b Support at home (social/community/family)

The Department of Veterans’ Affairs was increasing its focus on family and community support for veterans. Statistics showed that there was a direct correlation between community and family support and positive health outcomes for veterans, and that many veterans had reduced quality of life post-deployment.

There was a disconnect between nongovernment organisations serving veterans, and the younger generation of former servicemen and women (from Vietnam onwards) who do not identify with WW2 veterans. There may have also been unintended consequences of contact with families while on deployment which have not been examined (for example the fracturing of roles resulting from contact with family during stressful deployments).

5. Future operating environments

5a Global resource shortages and infrastructure shut-downs

The forecasts for environmental and social conditions in the near future indicated potential serious shortages of resources, including energy, water, and metals needed for pharmaceuticals, machinery and infrastructure.

Shortages and shut-downs were likely to increase the pressure on delivery of health services both on overseas deployments and in Australia. A vigilant horizon scanning process needed to be in place to anticipate shortages and to investigate alternatives (see 1b, above).

5b International interoperability

Australia was increasingly engaging in formal security and training agreements with countries such as the US and Indonesia, and saw part of its future military role in joint operations overseas. It was likely to become increasingly interdependent with other nations economically and politically.

As the ADF moved towards greater interoperability in terms of equipment, communications and training, its health services would also need to be able to operate jointly with other nations' health services, in terms of command, equipment, clinical practice, education and training and health promotion. This was likely to have cost-saving as well as efficiency and humanitarian advantages.

Testing possible future issues

At a subsequent meeting of the Think Tank Steering Committee, comprising representatives from CMVH and from the military and veterans' health sector, this list of fifteen issues was considered in the form of a draft Discussion Paper.

There was strong agreement that all of the issues were priorities for consideration in a futures process, and that there were no significant omissions. After some further discussion however, it was agreed that one more issue could be identified separately within the area "New Models of Health Care". This became issue 2g:

2g Mandating health choices and standards

Escalating funding shortages and insurance costs would drive the emphasis on wellness rather than illness, and on an array of requirements and incentives for standardised, quality compliant health services and risk reduction/preventive health strategies.

Incentives and mandated requirements will apply to both the health services offered by providers and to the health choices of consumers.

Further circulation of the Discussion Paper for comment within the military and veterans' community, the wider health community and among other government and non-government organisations indicated that the issues list was considered to be credible and useful.

Lessons learned

Repeatability of the process

The three stage process described above (collection and identification of factors from written sources, first analysis for tentative issues and second analysis after tagging-and-checking of factors against tentative issues) relies on a synthesis of Causal Layered Analysis levels, the Push-Pull-Weight triangle, and the STEEP-plus categories. Such a synthesis could prove useful for horizon scanning in other areas, especially where the factors are likely to cross many disciplines and sectors, and operate at different levels of influence. The matrix of categories not only divides a plethora of information into manageable portions, it also facilitates identification of the issues and enriches their descriptions – descriptions of conflicts and synergies within and across systemic causes, worldviews and base data.

The factor-tagging step acts to check the process. Scanning a list of factors without paying attention to future or present, political, economic or technological categories, or whether a factor reflects a worldview or a systemic cause, gives a “fresh look” at the factors and a way of detecting anomalies without other conceptual “distraction”. Again, this checking process could be usefully applied wherever the list of factors is complex, multi-layered, multi-disciplinary and trans-sectoral.

Framework for collecting and analysing data

This horizon scanning process is obviously a small version of many larger, and more automated processes, where the greater breadth of information gathered means less likelihood of omissions. In fact in a subsequent project in another sector, the authors used this framework to shape the search questions for a very large automated search. However, regardless of the quantity of data, adopting a taxonomy early in our project for sorting and analysing the information assisted greatly in ensuring that data was collected across a range of categories (STEPP-plus), and within at least the first three levels of the CLA model (Litany, Systemic and Worldview). Data (factors) that we collected from the source documents before this taxonomy was finalised, tended to fall into a few categories only; later data collection became more systematic and more efficient. Once the factors had been sorted into the initial table the (in)consistencies, (dis)connections and threats or opportunities became evident and formed themselves into a list of possible future issues.

The second stage of analysis was a checking process and required a re-sorting of the factors, as well as a decision on how they should be tagged; this allocated each factor to one of the issues identified in the first analysis. The lists of factors thus generated under each tentative issue might be more informative if the tagging occurred at, say, two levels – a primary level, which was the main issue with which the factor was identified, and a secondary level, which also allocated the factor, albeit less strongly, to another issue. The factor lists thus generated would make it easier to compare the claims of different issues to significance – an issue with a very large number of secondary factors but few primary factors could be as significant (possibly as an emerging issue) as one with a larger number of primary factors and few secondary factors.

Process or product?

It would be interesting to test the horizon scanning process described in this paper by separating the “cataloguer” from the “reviewer”. The process of collecting and cataloguing creates familiarity with the data (the “factors”). Perhaps it was this familiarity, rather than the particular taxonomy and its outputs, which enabled us to identify emerging issues; if this were the case, one way of arranging the data might have been just as effective as any other.

In a future case, if the data were collected and catalogued by one person and then presented “afresh” to another for review and identification of issues, we would be able to test the usefulness of the taxonomy proposed above as an aid to seeing anomalies, contradictions and synergies, and hence to identifying important issues.

It is also possible that the process of familiarisation with the data is more effective with one taxonomy than another – the *quality* (sophistication) of such familiarity may be a critical factor and one which is in part determined by the operations performed on the data e.g. whether the taxonomy is layered in a way which requires the cataloguer to critically consider data items in a certain way (as a statistic or a systemic feature or a worldview).

Conclusion

The Causal Layered Analysis approach to futures studies can usefully be applied to the preliminary activities of horizon scanning and issue identification. Along with the Push-Weight-Pull categories representing trends, preferred futures and history, and the STEEP categories, it provides a guide for data collection, increasing the likelihood of a set of data which is reasonably representative and ranges from “bigger picture” worldviews to the litany of published facts and figures.

Such a taxonomy also assists in comparing information within and across CLA levels, to find connections and tensions which give rise to the critical issues requiring consideration. The checking process, which lists the data by issue without regard to levels, content or Push-Weight-Pull categories, provides a “second glance” and a second chance to identify anomalies, additional issues or overlapping issues, as well as the opportunity to better describe the issues.

Responses from stakeholders to the list of issues generated above suggests that the CLA/Push-Weight-Pull horizon scanning process would be worthy of consideration for application in other complex or transdisciplinary areas of futures studies.

¹ S. Inayatullah, 'Causal layered analysis - Poststructuralism as method', *Futures*, Vol 30, No 8, 1998, 815-829.

² R.A. Slaughter, 'From forecasting and scenarios to social construction: changing methodological paradigms in futures studies', *Foresight*, Vol 4, No 3, 2002, 26-31.

³ *Ibid*, 27.

⁴ S. Inayatullah, 'Deconstructing and reconstructing the future: predictive, cultural and critical epistemologies', *Futures*, March 1990, 115-141, 122.

⁵ R. A. Slaughter (2002), op cit., 29.

⁶ S. Inayatullah, 1990, op cit., 123.

⁷ Ibid, 120.

⁸ P. Schwartz, *The Art of the Long View: Planning for the Future in an Uncertain World*, Chichester, John Wiley and Sons, 1991 (1996).

⁹ Ibid, 9.

¹⁰ S. Inayatullah (1998), op cit., 9.

¹¹ R. A. Slaughter (2002), op cit.

¹² S. Inayatullah (1990), op cit., 129.

¹³ J. L. Morrison, 'Environmental scanning', in M.A. Whitely, J.D. Porter & R.H. Fenske (eds), *A Primer for New Institutional Researchers*, Tallahassee, FL, The Association for Institutional Research, 1991.

¹⁴ S. Inayatullah (2008), op cit.

¹⁵ Ibid.