

# Towards a More Comprehensive Understanding of Strategic Thinking

**Major Leon Young, Australian Army**

Developing organizational capability for strategic thinking can be one of the most significant contributions executives and managers can make to organizational performance.<sup>1</sup>

## Introduction

The absence of good strategic thinking may rest on a poor understanding of the epistemology. Recent online dialogues through the Australian Strategic Policy Institute (ASPI) and 'The Conversation' blog have demonstrated not only the diverse application of the word 'strategy' but also the commonly-acknowledged perception that we (Australia) need to be better at doing 'it'.<sup>2</sup>

It is the intention of this article to provide a working definition of 'it', that is, strategic thinking, to allow further structured development in this area. The article will explore the contemporary usage of the term 'strategy' and its associated cognitive process, 'strategic thinking'. This analysis will reveal that strategic thinking is a way of thinking that looks to create long-term value.

The ADF has not been immune to failures in strategic thinking. A senior Army commander deployed to the Middle Eastern Area of Operations during 2011 stated that the ADF needed to identify and develop commanders that thinking at the strategic (macro) level in order to design and implement effective campaign plans.<sup>3</sup> Similarly a senior RAAF officer from Air Force Headquarters stated in 2012 that there was plenty of room to improve the education of military planners to think in terms of effects instead of aircraft.<sup>4</sup>

The lack of strategic thinking is not limited to the military. Ingrid Bonn has argued that strategic thinking is crucial to remaining competitive in an increasing turbulent and global environment, and that the need for strategic thinking has never been greater.<sup>5</sup> This claim is based on a comprehensive research project of a large body of corporate executives, who all asserted that their main developmental problem was strategic thinking.

At the national level, Australia has arguably fared little better. Ross Babbage asserted in 2008 that the National Security Committee of Cabinet tended to focus much of its attention on immediate issues with far too little attention on 'longer-term strategic shaping'.<sup>6</sup> He contended that this short-term focus led, in turn, to senior officials neglecting the development of strategic staff skills. Along similar lines, Allan Behm proposed that this short-term focus is a consequence of Australia's lack of confidence in the conduct of strategic diplomacy, a view shared by former Prime Minister Malcolm Fraser, who asserted that it also contributed to Australia's perceived lack of strategic independence.<sup>7</sup> So what is strategic thinking? For that matter, what is strategy?

## A brief foray into strategy

According to Douglas Lovelace, Director of the US Strategic Studies Institute:

We tend to use strategy as a general term for a plan, a concept, a course of action, or a 'vision' of the direction in which to proceed at the personal, organizational, and governmental—local, state, or federal—levels. Such casual use of the term to describe nothing more than 'what we would like to do next' is inappropriate and belies the complexity of true strategy and strategic thinking.<sup>8</sup>

Any discussion on strategy is bound to include an argument over definitions. The term is widely used across a range of domains. For instance, there are currently 4.8 million articles listed on Google Scholar that contain the word 'strategy', with at least 391,000 articles containing 'strategy' in the title. The search revealed titles ranging from very specific tasks ('strategy for detection of prostate cancer' and 'the split-

apply-combine strategy for data analysis') to organisational ('international marketing strategy', 'human research strategy' and 'the luxury strategy') to the state ('competing visions for US grand strategy' and 'a grand strategy for America').

The unfortunate position is that the term strategy has, in the words of Hew Strachan, 'acquired a universality which has robbed it of meaning'.<sup>9</sup> Richard Hooker terms it a minefield where, in the military domain alone, we find national security strategy, national defence strategy, national military strategy, grand strategy, coalition strategy, regional strategy, theatre strategy, and campaign strategy.<sup>10</sup> Hooker goes on to explain that the word derives from the Greek *stratègia*, meaning 'generalship', or *stratègos*, meaning 'my leader'.

Classically, strategy was quite literally 'the art of the general' that eventually implied the duties of military governors. Colin Gray claims that the only accepted aspect of strategy that is 'known, indeed is uncontested, is the universal and eternal fact that strategy is always made by, in, and for a political process'.<sup>11</sup> The emphasis on political is quite deliberate because, as George Tovstiga has asserted, 'strategy is practised in social contexts'.<sup>12</sup>

Carl von Clausewitz stated that strategy is 'the employment of the battle as the means towards the attainment of the object of war'.<sup>13</sup> Gray expanded this definition to define it as:

[S]trategy is the bridge that relates military power to political purpose; it is neither military power *per se* nor political purpose. By strategy I mean the use that is made of force and the threat of force for the ends of policy.<sup>14</sup>

Gray takes great pains to ensure the reader understands the difference between cause and consequence or instrument from effect. Using the example of airpower, Gray states that the term 'strategic airpower' is wrong, as it confuses the 'capability with effect'. Instead one should refer to the 'strategic effect of airpower', as this ensures that the capability or instrument (airpower) is not mistaken for the effect. He argues that airpower in this case is merely a tool that can be employed to achieve tactical or strategic effects, and that strategic always refers to the consequences of military behaviour, not its conduct.<sup>15</sup>

To link strategy to the military domain is understandable given its epistemological ancestry. To state that strategy furthers policy ends would, however—in the view of Robert Kennedy—misrepresent the 'end-ways-means' strategic framework and strip it as 'an important tool of at every level of human endeavour'.<sup>16</sup> Kennedy argues that policy should be viewed as a means and thus serve broader national goals; in fact, the sum total of such policies is (or at least should be) a product of a grander strategy and, under such circumstances, policies serve strategy.<sup>17</sup> Policy then is merely another means, or even capability, within the national arsenal that can be used to further national ends or goals.

Late last century, Williamson Murray and Mark Grimsley remarked that confining strategy to military matters was overly restrictive and did not really reflect the contemporary understanding of strategy.<sup>18</sup> Julia Sloan summarises the contemporary (non-military) understanding of strategy as 'imply[ing] a will to win, an element of competition, a process or framework to win, an extended time horizon, determination of a broad and major aim, unifying intent, and decision about resource allocation'.<sup>19</sup> Tony Grundy, in his recent book on management strategy, describes strategy as 'how you get from where you are now to where you want to be—and with real competitive advantage'.<sup>20</sup>

## What makes strategy, strategy?

I see strategy as the purposeful actions undertaken by an actor within a specific environment with the intention of shaping future outcomes to the actor's benefit.<sup>21</sup>

Good strategy almost always looks this simple and obvious.<sup>22</sup>

### *Connecting capabilities with effects*

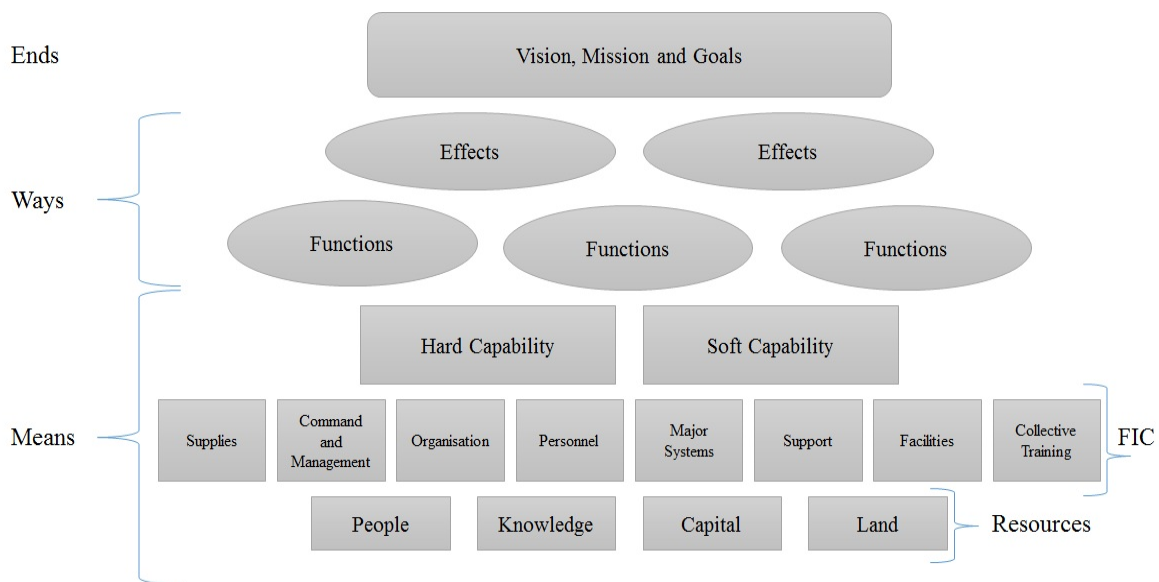
Strategy is about connecting your capabilities with your intended effects or 'the integrated application of available means to accomplish desired ends'.<sup>23</sup> The US Army War College defines the strategy framework as:

[T]he relationship among ends, ways, and means. Ends are the objectives or goals sought. Means are the resources available to pursue the objectives. And ways or methods are how one organizes and applies the resources.<sup>24</sup>

Recently adopted by the ADF, this framework has proven to be very popular in modern strategy literature.<sup>25</sup> Indeed, Richard Chilcoat has similarly defined strategic art as the ‘skilful formulation, coordination, and application of ends (objectives), ways (courses of action), and means (supporting resources) to promote and defend the national interests’.<sup>26</sup>

While this strategic framework is very military-centric, and does not appear to be fully embraced by the business world, there is still some utility in this thinking. The ‘means’ are another term for an organisation’s capabilities, the ‘ways’ can be viewed as the functions and effects of the capabilities, and the ‘ends’ are the organisation’s positioning or vision. In these terms, Hussein Abbass defines strategy as ‘the “ways” in which we use the “means” (resources and capabilities) to reach and achieve the “ends” (objectives and goals)’.<sup>27</sup>

This view certainly aligns with Gray’s thoughts on separating the strategic effects (ends) from the capabilities (means), and David Jablonsky’s reworking of the traditional definition of strategy as ‘the calculated relationship of ends and means’.<sup>28</sup> Combining our understanding of resources, inputs to capability, capabilities and effects, with this understanding of the strategic framework can be presented as shown at Figure 1.



**Figure 1: Mapping capability to strategy<sup>29</sup>**

***Planning for the long term***

Strategy is also about planning not doing. Quoting Wayne Hughes, Gray states that ‘[s]trategists plan, tacticians do’.<sup>30</sup> Sloan has called it a ‘framework to win’, while William Cook saw that strategy pushed the ‘existing system towards that [planned] reality’.<sup>31</sup> In his insightful book on the difference between good and bad strategy, Richard Rumelt has asserted that good strategy has ‘coherence, coordinating actions, policies and resources so as to accomplish an important end’.<sup>32</sup> Strategy, to his mind, is not a proven method but rather a ‘new hypothesis and its implementation an experiment’. Hence, it is about planning, with Rumelt also making a clear connection between ends and resources.

Strategy is also focused on the future. Sloan believes that strategy involves an extended time horizon, which is because strategy provides a 'coherent blueprint to bridge the gap between the realities of today and a desired future'.<sup>33</sup> This view is endorsed by Cook, who believes that planning can only really be strategic when it sees a new reality and pushes the existing system to that reality.<sup>34</sup>

### ***Competition between actors***

Strategy involves competition between actors or wilful entities. The previous quotes by Sloan clearly define a level of competition, while Gray has stated that strategy was not a game played against nature. Thirty years earlier, Malvern Lumsden stated that a model only became strategic when 'the source of uncertainty in the outside world is another actor (an individual or a group), as it implied a choice of action that may result in more than one outcome'.<sup>35</sup>

More recently, Renee Malan, Ronel Erwee and Dennis Rose have articulated strategy as a competition for advantage.<sup>36</sup> This theme was reinforced by Kennedy, who saw it not just as an act of 'human intercourse' but about influencing behaviour by getting into the decision loop of others to 'get them to do what they might not otherwise have done'.<sup>37</sup>

### ***Independent action***

Strategy can only be practised by independent entities. While the use of the term strategy is varied and within a wide range of contexts, what appears to be common is that an effect is only strategic when it affects the whole system. Writers such as Lumsden and Malan refer to the organisation when they define strategy. Harry Yarger states that strategy 'differs from operational art and tactics in functional, temporal, and geographic aspects'.<sup>38</sup> Often, tactical actions are taken in response to a given task and accomplished with provided resources. Strategy, however, appears to rely on organic assets and the specific path is not directed by an external or superior agency.

Reflecting on the earlier quote from Lyon, strategy then is a future-orientated intent by an independent actor that connects capability with effect and seeks to create competitive advantage. However, as strategy results from strategic planning, can we conclude that strategic thinking is merely the act of strategic planning conducted by strategic thinkers? This, as it turns out, is a fallacy perpetuated by consistent misuse of the taxonomy. So how does strategic planning differ from strategic thinking? And what is strategic planning?

### ***Strategic planning is not strategic thinking***

Strategic thinking is often used as a synonym for strategic planning. It is actually the very utility of the word strategy and its many offspring that seem to create this confusion. The use of the terms 'strategic art' and 'strategic management' are two classic examples that serve to illustrate that one of the basic conceptions still widely accepted is analogising 'strategic thinking' with 'thinking about strategy'.<sup>39</sup>

This is despite the highly-acclaimed and widely-accepted work of Henry Mintzberg, expounded in 1994, that strategic thinking could be distinguished from strategic planning, with Mintzberg arguing that 'strategic planning does not mean strategic thinking so much as formalized thinking about strategy—rationalized, decomposed, articulated'.<sup>40</sup>

This is not to say that strategic planning is outmoded or has no place in contemporary usage; rather, it should never be confused with strategic thinking. Ingrid Bonn is in good company when she describes strategic planning as 'a process that takes place after strategic thinking'.<sup>41</sup> Strategic thinking is not strategic planning, even if it is comprehensive and long term. Strategic thinking generally takes place before strategic planning, although it also should be engaged throughout the whole process.

## What is strategic thinking?

Strategic thinking, in contrast, is about synthesis. It involves intuition and creativity.<sup>42</sup>

Countries that invest in strategic thinking and planning have more capacity to deliver better quality policy. Countries that don't take strategy seriously risk policy drift and ultimately losing national advantage.<sup>43</sup>

Like the term strategy, strategic thinking is equally mired in confusion. According to Bonn, there is no agreement in the literature on what strategic thinking is, which is perhaps because it has almost become accepted as an axiom within the strategy field.<sup>44</sup> It could refer to simple interactions between two competitors, such as that used in game theory and cognitive heuristics.<sup>45</sup> Alternatively, it could refer to the ability to think in a manner that is creative, innovative and with vision.<sup>46</sup>

Reflecting back on the 'ends, ways, means' strategic framework, Abbass defines strategic thinking as 'the creative process used to design and connect the means, ways and ends'.<sup>47</sup> Given the diversity of uses of the term 'strategic thinking', any study into strategic thinking models would logically require a working definition based on the consensus of contemporary experts in the field.

When reviewing the literature for this research, almost all of the authors prefaced their articles and text on strategic thinking with a short comment stating that there is very little consensus on the meaning of strategic thinking. Some, like Lara Jelenc and Paul Swiercz, claimed that strategic thinking has turned into a synonym for almost all of the concepts, with strategic as their first word.<sup>48</sup> It was seen to be difficult because there did not exist a clear definition, rather a number of 'slightly moderated descriptions and attributes'.<sup>49</sup>

However, the epistemology allows us to understand the foundations and common usage of the term 'strategic thinking'. Due to the variety of use, this article seeks to establish the key concepts common among authors, and use these to map strategic thinking domains. The domains are then used to create a definition that reflects contemporary usage of strategic thinking across business and government sectors.

### ***Strategic thinking domains***

Since 1978, the evolution of the concept 'strategic thinking' has occurred over four quite stable domains: creating value; means-ends thinking; future orientation; and way of thinking. Interestingly, several of the definitions provided cross-references across several of the domains (such as future orientation/create value or way of thinking/future orientation).

#### *Create value*

Strategic thinking, be it from a national, military or commercial perspective, has always been about creating an advantage for your organisation or system. In fact, this domain was front-and-centre from the start of the literature review. Kenichi Ohmae saw it as a combination of analytical method and mental elasticity used to gain competitive advantage.<sup>50</sup> The two great writers on business strategy, Henry Mintzberg and Michael Porter, both reinforced this view as simply creating value. However, over the next two decades, the domain evolved to include innovation and developing unique opportunities.<sup>51</sup>

This focus on creative development appears to be influenced from the cognitive traits that started to appear in the 'way of thinking' domain. The cross-domain influences are most apparent in the description that is summed up as a 'cognitive process that contemplates the future to create a competitive advantage'.<sup>52</sup>

#### *Means-ends thinking*

The domain of 'means-ends thinking is derived from military theorists such as Chilcoat, Gray and Yarger, and others such as Reed Larson and David Hansen, who strongly support the ends-ways-means strategic framework.<sup>53</sup> This domain really looks at grounding strategic thinking and calls for practical application. The goals or aspirations need to be connected to the resources and capabilities (means) that are available or required by the organisation to produce the advantage or effect (ends).

Interestingly, this domain had the least number of references, which were almost solely sourced from military theorists. The lack of recent literature that specifically mention mean-ends could be due to strong agreement within the military field, yet little cross-pollination in the organisational management fields, although Malan's description (way of solving strategic problems) resonates in this domain.

#### Future orientation

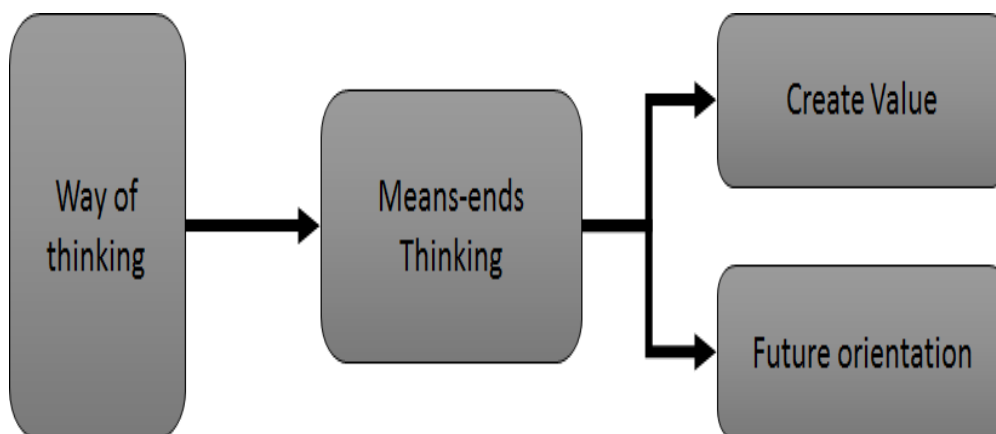
The focus on the future is sporadic until Bonn invoked the use of visions. This could be seen as a cross-over from means-ends as an influence of ensuring that strategic thinking focuses on the ends or goals. This, according to Bonn, would require a vision of the future. From 2001, there is support for a future or temporal orientation within strategic thinking, with a number of writers describing strategic thinking as affecting the future of the system or organisation.<sup>54</sup>

#### Way of thinking

Mintzberg pushed the point that strategic thinking was not strategic planning. While this has already been discussed, the recurring domain throughout the literature is that strategic thinking is a way of thinking or a state of mind. Jeanne Liedtka specifically states that it is a way of thinking, and both Bonn and Malan describe it as a 'way of solving strategic problems'.<sup>55</sup> It appears to be from this perspective that we start to see the introduction of cognitive styles, from K. Pelligrino and Jerry Carbo and the investigation by Bonn, Liedtka, Malan and others of specific cognitive traits that correlate to strategic thinking.<sup>56</sup>

#### **Strategic thinking definition**

Importantly, each domain is independent of the other, as indicated by the number of definitions that only link to one domain. However, there appears to be a distinct flow. For instance, Fiona Graetz has stated that strategic thinking seeks 'innovation and imagines very different futures', indicating that 'different futures' (future orientation) is a result of 'innovation' (way of thinking).<sup>57</sup> Similarly, Iraj Tavakoli and Judith Lawton state that strategic thinking is a cognitive process (way of thinking) that creates competitive advantage (create value).<sup>58</sup> This flow is represented in Figure 2.



**Figure 2: Strategic thinking domain flow**

#### **Implications for the ADF**

Based on the review of the literature, this article would define strategy as 'a future-orientated intent by an independent actor that connects capability with effect and seeks to create competitive advantage' and strategic thinking as a 'means-ends way of thinking that is future orientated and seeks to create value or

an advantage for the system'. This foundational work then allows us to understand the implications for the ADF.

Firstly, it can be argued that contemporary military forces (specifically the ADF) no longer make strategy. This is primarily based on the logic that the military is no longer an independent actor. While contentious, this view understands that the ADF rarely operates, either domestically or internationally, by itself. That is, the ADF is almost always accompanied by other Australian government agencies. These other agencies, such as Department of Foreign Affairs and Trade or the Attorney-General's Department, have primacy in an emergency or security response. Thus the ADF does not create strategy even though it provides a strategic effect.

As a profession, we always rely on a provided direction and rarely, if ever, operate alone. Usually, the direction is given through the political system and always shows itself as 'commander's intent' within the military-planning tools. This does not mean the military should abandon the development of strategic thinking. The military often plans for low-probability, high-impact events and should always be prepared to operate in a command vacuum, where intent is either not provided or unclear. Secondly, and probably more importantly, strategic thinkers have huge utility in modern warfare. The complex and dynamic nature of war requires strategic thinking. Additionally, it is often the military which is best placed to advise political leadership on the most appropriate strategy, in the holistic sense.

## Conclusion

An historical analysis of the modern evolution of the use of strategic thinking allows us to understand its current place in world. While strategy is firmly rooted in a strong military foundation, the versatility of the word has seen a proliferation across most modern domains. However, this should not excuse the misuse or dilution of the term.

What this article has shown is that there has been a consistent trend since the end of Vietnam War to link strategic thinking with the proper use of strategy. That is, strategy is a 'future-orientated intent by an independent actor that connects capability with effect and seeks to create competitive advantage'; while strategic thinking is a 'means-ends way of thinking that is future orientated and seeks to create value or an advantage for the system'.

By limiting the strategy to independent actors, it has been argued that most modern militaries are unable to create strategy. While a contentious point, perhaps it is this unconscious realisation that has led to our past failures in strategic thinking. However, it is also clear that the military profession should not abandon strategic thinking. It is the military that is generally best placed to advise the often short-term political leadership on the most appropriate strategies for the increasingly-complex and dynamic environments we find ourselves in.

*Major Leon D. Young was the 2015 Chief of Defence Force Fellow. He has deployed on operations, been part of joint, coalition and international operational planning headquarters, and provided input and advice on strategic policy. He has taught post-graduate courses on strategy, capability and future studies. He is a member of the Association of Professional Futurists, World Futures Society, Australian Society of Operations Research and an international speaker on futures. He holds a Bachelor of Science and Master of Science in Operations Research.*

## Notes

---

- 1 Julia Sloan, *Learning to Think Strategically*, Butterworth-Heinemann: Oxford, 2006, p. 3.
- 2 Peter Jennings *et al.*, 'Strategy and its discontents: the place of strategy in national policymaking', *Australian Strategic Policy Institute (ASPI)* [website], 17 July 2014, pp. 1-14, available at <<https://www.aspi.org.au/publications/strategy-and-its-discontents-the-place-of-strategy-in-national-policy-making>> accessed 14 May 15; also Mark Beeson, 'Substandard strategic thinking', *The Conversation* [blog], 11 February 2015, available at <<http://theconversation.com/substandard-strategic-thinking-37459>> accessed 11 November 2015.
- 3 Army Lessons Online, 'OBS000026034 Develop commanders to think truly strategically', *Observation*, 21 June 2012, available internally to Department of Defence at <<http://alo.sor.defence.gov.au/wps/portal/CAL/>>
- 4 Army Lessons Online, 'OBS000020475 Strategic level thinking assets instead of effects', *Observation*, 27 June 2011, available internally to Department of Defence at <<http://alo.sor.defence.gov.au/wps/portal/CAL/>>
- 5 Ingrid Bonn, 'Developing strategic thinking as a core competency', *Management Decision*, Vol. 39, No. 1, 2001, pp. 63-71.
- 6 Ross Babbage, 'Strategic Decision Making: optimising Australia's national security planning and coordination for 2015', Kokoda Paper No. 8, The Kokoda Foundation: Canberra, 2008.
- 7 Allan Behm 'Strategic Tides: positioning Australia's security policy to 2050', Kokoda Paper No. 6, The Kokoda Foundation: Canberra, 2007; also Malcolm Fraser, 'Australia must strive for strategic independence', *The Drum* [blog], 11 June 2014, available at <<http://www.abc.net.au/news/2014-04-29/fraser-australia-must-strive-for-strategic-independence/5417712>> accessed 4 February 2016.
- 8 Harry Yarger, *Strategic Theory for the 21<sup>st</sup> Century: the little book on big strategy*, Strategic Studies Institute: Carlisle, 2006.
- 9 Hew Strachan, 'The Lost Meaning of Strategy', *Survival*, Vol. 47, No. 3, 2005, pp. 33-54.
- 10 Richard D. Hooker, 'The Strange Voyage: a short précis on strategy', *Parameters*, Vol. 42, No. 4, 2013, pp. 59-68.
- 11 Colin Gray, 'Strategy and Security', *Infinity Journal*, Vol. 4, No. 3, 2015, pp. 11-5.
- 12 George Tovstiga, *Strategy in Practice: a practitioner's guide to strategic thinking*, John Wiley & Sons: Hoboken, 2013.
- 13 Carl von Clausewitz, *On War*, Translation by J.J. Graham, NuVision Publications: Sioux Falls, 2004.
- 14 Colin S. Gray, *Modern strategy*, Vol. 1, Oxford University Press: Oxford, 1999.
- 15 Gray, *Modern strategy*; see also IJ Brief, 'What is Strategy', *Infinity Journal* [website], 4 March 2013, available at <[http://www.infinityjournal.com/article/91/What\\_is\\_Strategy](http://www.infinityjournal.com/article/91/What_is_Strategy)> accessed on 9 November 2015.
- 16 Robert Kennedy, 'The Elements of Strategic Thinking: a practical guide', in Gabriel Marcella (ed.), *Teaching Strategy: challenge and response*, Strategic Studies Institute: Carlisle, 2010, pp. 9-46, available at <[http://www.au.af.mil/au/awc/awcgate/ssi/teaching\\_strategy.pdf](http://www.au.af.mil/au/awc/awcgate/ssi/teaching_strategy.pdf)> accessed 4 February 2016.
- 17 Kennedy, 'The Elements of Strategic Thinking'.
- 18 Williamson Murray and Mark Grimsley, *The Making of Strategy: rulers, states, and war*, Cambridge University Press: Cambridge, 1994.
- 19 Sloan, *Learning to Think Strategically*, p. 4.
- 20 Tony Grundy, *Demystifying Strategic Thinking: lessons from leading CEOs*, Kogan Page Publishers: London, 2014.
- 21 Rod Lyon, 'Making Strategic Policy: what's involved?', *ASPI* [website], 7 May 2015, available at <<https://www.aspi.org.au/publications/making-strategic-policy-whats-involved>> accessed 4 February 2016.
- 22 Richard Rumelt, *Good Strategy/Bad Strategy: the difference and why it matters*, Profile Books: London, 2011.
- 23 Kennedy, 'The Elements of Strategic Thinking', p. 14.
- 24 Robert H. Dorff, 'A Primer in Strategy Development', in Joseph R. Cerami and James F. Holcomb (eds.), *US Army War College Guide to Strategy*, Vol. 11, Strategic Studies Institute: Carlisle, 2001, p. 11, available at <<http://www.au.af.mil/au/awc/awcgate/army-usawc/strategy/index.htm>> accessed 4 February 2016.
- 25 Australian Army, *The Strategy Framework*, Department of Defence: Canberra, 2010, p. 1.



- 26 Richard A. Chilcoat, *Strategic Art: the new discipline for 21<sup>st</sup> century leaders*, Strategic Studies Institute: Carlisle, 1995, p. 205.
- 27 Hussein Abbass, *Computational Red Teaming*, Springer: New York, 2015, p. 169.
- 28 Gray, *Modern Strategy*; also David Jablonsky, 'Why is strategy difficult?', in Cerami and Holcomb, *US Army War College Guide to Strategy*, p. 143.
- 29 Leon Young, 'Defining and developing soft capability in defence', Proceedings of 21<sup>st</sup> International Congress on Modelling and Simulation, 29 November – 4 December 2015, available at <<http://www.mssanz.org.au/modsim2015/D3/young.pdf>> accessed 4 February 2016.
- 30 Gray, *Modern Strategy*, p. 20.
- 31 Sloan, *Learning to Think Strategically*, p. 4; also William J. Cook, 'At Odds: strategic planning-when the smoke clears', *Phi Delta Kappan*, Vol. 86, No. 1, 2004, p. 75.
- 32 Rumelt, *Good Strategy/Bad Strategy*, p. 11.
- 33 Yarger, *Strategic Theory for the 21<sup>st</sup> Century*, p. 5.
- 34 Cook, 'At Odds', p. 75.
- 35 Malvern Lumsden, 'Perception and Information in Strategic Thinking', *Journal of Peace Research*, Vol. 3, No. 3, 1966, p. 259; also Malvern Lumsden, 'Social Position and Cognitive Style in Strategic Thinking', *Journal of Peace Research*, 1967, p. 289.
- 36 Renee Malan, Ronel Erwee and Dennis Rose, 'The importance of individual mental models for strategic thinking in organisations', Proceedings of 23<sup>rd</sup> Annual Australian and New Zealand Academy of Management Conference, Monash University: Melbourne, 2009, p. 4, available at <<http://eprints.usq.edu.au/6126/>> accessed 4 February 2016.
- 37 Kennedy, 'The Elements of Strategic Thinking', pp. 15-6.
- 38 Yarger, *Strategic Theory for the 21<sup>st</sup> Century*, p. 12.
- 39 Esteban Masifern and Joaquim Vilà, *Strategic Thinking: strategy as a shared framework in the mind of managers*, IESE [Instituto de Estudios Superiores de la Empresa] Business School: Madrid, 2002, pp. 2-3; also Jeanne M. Liedtka, 'Strategic Thinking: can it be taught?', *Long Range Planning*, Vol. 31, No. 1, 1998, pp. 120-9.
- 40 Henry Mintzberg, 'Rethinking Strategic Planning Part I: pitfalls and fallacies', *Long Range Planning*, Vol. 27, No. 3, 1994, p. 13.
- 41 Bonn, 'Developing strategic thinking as a core competency', p. 64.
- 42 Henry Mintzberg, 'The Fall and Rise of Strategic Planning', *Harvard Business Review*, Vol. 72, No. 1, 1994, p108
- 43 Jennings *et al.*, 'Strategy and its discontents'.
- 44 Bonn, 'Developing strategic thinking as a core competency', p. 63; also Lara Jelenc and Paul M. Swiercz, 'Strategic Thinking Capability: conceptualization and measurement', Proceedings of the 56<sup>th</sup> Annual ICSB World Conference: Stockholm, 2011, p. 16.
- 45 Colin Camerer, Teck-Hua Ho and Juin Kuan Chong, 'A Psychological Approach to Strategic Thinking in Games', *Current Opinion in Behavioral Sciences*, Vol. 3, 2015, pp. 157-62; also Alexandre Linhares, 'The Emergence of Choice: decision-making and strategic thinking through analogies', *Information Sciences*, Vol. 259, 2014, pp. 36-56.
- 46 Richard Gross, *Psychology: the science of mind and behaviour*, Hodder Education: London, 2010, p. 8.
- 47 Abbass, *Computational Red Teaming*, p. 169.
- 48 Jelenc and Swiercz, 'Strategic Thinking Capability', p. 1.
- 49 Yarger, *Strategic Theory for the 21<sup>st</sup> Century*, p. 2; also Iraj Tavakoli and Judith Lawton, 'Strategic Thinking and Knowledge Management', *Handbook of Business Strategy*, Vol. 6, No. 1, 2005, pp. 155-60.
- 50 Kenichi Ohmae, *The Mind of the Strategist: the art of Japanese business*. McGraw-Hill Professional: New York, 1982.
- 51 Mintzberg, 'Rethinking Strategic Planning Part I; also Michael Porter, 'What is Strategy?', *Harvard Business Review*, November 1996; Stan Abraham, 'Stretching Strategic Thinking', *Strategy and Leadership*, Vol. 33, No. 5, 2005, pp. 5-12; Farzed Kamangar, Adel Salavati and Mohammad Sharif Karimi, 'Survey of strategic thinking relation on successful implement of EFQM model in company deployment in the unit of energy', *Archives Des Sciences*, Vol. 65, No. 8, 2012.

- 
- 52 Tavakoli and Lawton, 'Strategic thinking and knowledge management', pp. 155-60.
- 53 Chilcoat, *Strategic Art*; also Gray, *Modern Strategy*; Reed Larson and David Hansen, 'The Development of Strategic Thinking: learning to impact human systems in a youth activism program', *Human Development*, Vol. 48, No. 6, 2005, pp. 327-49; Yarger, *Strategic Theory for the 21<sup>st</sup> Century*.
- 54 For example, Masifern and Vilà, *Strategic Thinking*; G. Henden, 'Intuition and its role in strategic thinking', PhD thesis, Norwegian School of Management: Sandvika, 2004; Ellen Goldman, 'Becoming an expert strategic thinker: the learning journey of healthcare CEOs', PhD thesis, George Washington University: Washington DC, 2005; Tavakoli and Lawton, 'Strategic thinking and knowledge management'; J.P. Eicher, 'Making strategy happen', *Performance Improvement*, Vol. 45, No. 10, 2006, pp. 31-7; Sloan, *Learning to Think Strategically*; Jelenc and Swiercz, 'Strategic Thinking Capability'.
- 55 Liedtka, 'Strategic Thinking: can it be taught?'; also Bonn, 'Developing strategic thinking as a core competency'; Malan *et al.*, 'The importance of individual mental models for strategic thinking in organisations'.
- 56 K. Pellegrino and J. Carbo, 'Behind the Mind of the Strategist', *TQM Magazine*, Vol. 13, No. 6, 2001, pp. 375-81.
- 57 Fiona Graetz, 'Strategic Thinking Versus Strategic Planning: towards understanding the complementarities', *Management Decision*, Vol. 40, No. 5, 2002, pp. 456-62.
- 58 Tavakoli and Lawton, 'Strategic thinking and knowledge management'.