BLACK SWAN

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THE US-AUSTRALIA ALLIANCE IN THE AGE OF AUTOMATED MECHANISM DESIGN

DEFENCE AND SECURITY THROUGH AN INDO-PACIFIC LENS

UWA DEFENCE & SECURITY

THE UNIVERSITY OF WESTERN AUSTRALIA

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About the Black Swan Strategy Papers

The *Black Swan Strategy Papers* are the flagship publication of the UWA Defence and Security Institute (DSI). They represent the intersection between Western Australia and strategic studies – both of which are famous for their black swans. The series aims to provide high-quality analysis and strategic insights into the Indo-Pacific region through a defence and security lens, with the hope of reducing the number of 'black swan' events with which Australian strategy and Indo-Pacific security has to contend. Each of the Black Swan Strategy Papers are generally between 5,000 and 15,000 words and are written for a policy-oriented audience. The Black Swan Strategy Papers are commission works by the UWA DSI by invitation only. Any comments or suggestions for the series can be directed to the editor.

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Executive Summary

- An emphasis on foregrounding trust and transparency in the governance of digital technologies will be pivotal to the navigation of Australia's uncertain strategic future and the future of the US-Australia Alliance ('the Alliance').
- Advanced information technologies that disrupt the ways knowledge is generated, used and attributed in our society should be a topic of interest in Alliance studies, equal in status to the study of finance, energy, politics and war.
- The growing prevalence of automated mechanism design (AMD), deployed at scale by privately owned digital platforms, poses a challenge to the foundations of the US-Australia Alliance. It does so by changing the nature of the public-facing and institutionally negotiated preference formations that sit at the core of the relationship.
- When the critical supply chains Australian society depends on are increasingly becoming controlled by proprietary corporate AMDs, the shared histories and values that bind the Alliance relationship will be operationally subordinated to opaque algorithmic optimisation functions.
- The reactionary temptation in response to this techno-challenge could well be to abandon core liberal values of openness and accountability in favour of opaque, automated, command-and-control technologies. This would be a major strategic mistake and must be avoided.
- At the nexus of this challenge is an erosion of the fabric of trust that binds, facilitates and ultimately legitimises Australia's participation in its most important international partnership.

POLICY RECOMMENDATIONS

- A whole-of-government approach to raising awareness of the socio-political implications of the AMDs that power the digital platforms must be cultivated. This is particularly important with regard to the managers of our strategic alliance with the United States, and to those entrusted with the administration of critical national supply chains.
- To facilitate this, a senior posting to Defence International Policy Division should be established to carry out the role of strategic technology specialist (STS), with the chief aim of connecting each departmental purview to the strategic role digital administrative technologies such as AMD play in reconstituting the social foundations of Australia's open society and thus legitimising its Alliance role.
- The STS must be equipped with the appropriate techno-political understanding provided by Australia's national security, intelligence and defence communities in combination with academia, industry, civil society and communities.
- Government, through the ARC's National Intelligence and Security Discovery Research Grants Program and Defence's Strategic Policy Grants et al, must fund the expansion of Alliance scholarship to incorporate research into the implications of digitised algorithmic information technologies.

INTRODUCTION

The rapidly digitising economies of Australia and America mean that traditional human-centred, institutionally mediated interactions between government and citizen, vendor and consumer, are being captured by automated mechanisms.

While a growing discourse focuses attention on these techno-political shifts and the implications for each society[1], little attention has been paid to the implications in international relations terms. For our purposes, this means the study of how AMD impacts societies should nest with the more well-established areas of Alliance studies.

Mechanisms for predicting and manipulating consumer behaviour using advanced information technologies are seeping into broader parts of policy making and society-to-society relations. As custodians of the Alliance, we should hypothesise that this is having repercussions, especially in the broader move from persuasion-through-deliberation policy making to predictive/prescriptive policy making, as the behavioural and cognitive sciences have established a strong institutional presence in both public and private sectors. The influence of AMD on strategic partnerships such as the Alliance could have unforeseen consequences, including the erosion of trust, distortions in the information environment democracy relies on, and a reduction in public support for the relationship. As the Alliance moves into new areas of strategic engagement, as outlined in the AUKUS agreement, and we collectively enter an era of heightened uncertainty, the risk of the negative impact of AMD on alliance management needs to be acknowledged, understood and managed accordingly.

The legitimacy of accountable democratic governance in Australia has long been organised around norms based in the persuasion of public constituencies through open and transparent processes. The ANZUS Alliance – as the keystone of Australia's strategic security and arguably its most significant policy item – is an expression of these norms. Successive Australian governments have enjoyed majority public support for the Alliance, even in its most difficult times.[2] Public attitudes reflect the respect with which Australian governments have treated the public's views of this often fraught but historically unwavering commitment. The considered engagement of an informed public, through its understanding of the costs and benefits of the Alliance based on transparency and deliberation, matters.

In contrast, across liberal democracies around the world over the last decade and a half, norms of persuasion, transparency, and deliberation have been subsumed by the rise of the administrative state. Leading this transformation have been the behavioural and cognitive sciences, whose methods have been incorporated into public policy making, regulatory and legislative reform, and industry engagement.[3]

Connected digital technologies have supercharged this trend and introduced a range of uncertainties. As Matthew B. Crawford has noted, 'the innovation achieved [in the United States], at scale, is in the way government conceives its subjects: not as citizens whose considered consent must be secured, but as particles to be steered through a science of behaviour management that relies on our pre-reflective biases.'[4]

In Crawford's analysis, public persuasion in policy making has given way to paternalistic digital manipulation.[5] Underpinning this trend is the process of consumer 'steering', whereby digital data is employed by private sector actors to model, predict, and manipulate individual behaviour. Consumer steering is powered by designer mechanisms, first developed under the auspices of economic theory and in part driven by the need for new ways to legitimise the role of the 'economist' after the collapse of centralised economic control.[6]

Consumer steering and predictive modelling has potentially significant implications if we consider its capacity to impact on broader areas of public policy, whether directly through the rise in popularity of government 'nudge units', or indirectly through the unintended side effects and accidents these complex interactions represent.[7] In strategic policy, such an approach to the information environment and its role in public knowledge production and deliberation could threaten the public legitimacy of the US-Australia strategic relationship. The risk lies not necessarily in directly countering positive public attitudes toward the Alliance, but rather in the erosion of trust in institutional legitimacy in general and its unanticipated flow-on effects.

The underlying risk in an era of digital hyper-connectivity is that we see an erosion in the conditions required for democratic societies to function and prosper. As Zygmunt Bauman described it, our 'liquid modernity' is defined by the demolished boundaries between and across domains.[8] New media technologies alter and distort the information flows that support institutional authority and legitimacy. Matthew Ford describes a similar dynamic in shifts in the conduct of conventional war, as new forms of media distort traditional boundaries, intended effects, and opportunities to respond.[9] Such concerns are now being raised across the security spectrum with scholars of nuclear strategy. Rebecca Hersman raises the alarm on the prospect of non-linear or 'wormhole' escalation whereby conventional and strategic firebreaks become not only indiscernible but inexplicably entangled via the uncertainties introduced by digital media technologies.[10]

The key outcome of these concerns is that in a world of rapidly accelerating digitisation, the application of new technologies designed to enhance administrative efficiency in areas such as economic, industrial, financial, energy and social policy, could have unexpected consequences in other contexts. As Ford and Hersman pre-empt, the potential effects in national security and strategic policy could be profound, yet they remain largely absent from the mainstream research agendas of these fields. Thus 'black swans' lurk in these types of unexplored spaces.

CHAPTER 1
Automated mechanism design

Originally conceived as methods by which the privately held preferences of rational agents were revealed in market interactions, digital platforms deploying AMD work by algorithmically *inferring* agent preferences from multiple, opaque and proprietary data streams. In other words, the means to better understand people's incentives in market interactions are now employed to manipulate them in any context, propelled by the flood of data available via the platform economy. Designing and engineering the ways and means of consumer manipulation have been central to the rise of automated (or algorithmic) mechanism design in economics.[11] Its status as the operational engine underpinning modern capitalism is not widely understood.

AMD itself represents a controversial convergence of scientific and economic research streams, pulling together information theory, game theory, cybernetics, social choice theory and behaviourism. In the contemporary era of platforms and big data, it has found fertile ground in the application of artificial intelligence/machine learning and various iterations of auction market design.[12] As Viljoen et al argue, as AMD has developed it has reached the point of breaching the confines of its early theoretical and empirical justifications, such as the promotion of socially responsible and politically accountable coordination goals, and is now entering into increasingly controversial territory.[13]

As we enter into a new Alliance age personified by the AUKUS agreement and strategic competition, the focus is turning toward a more expansive conception of security.

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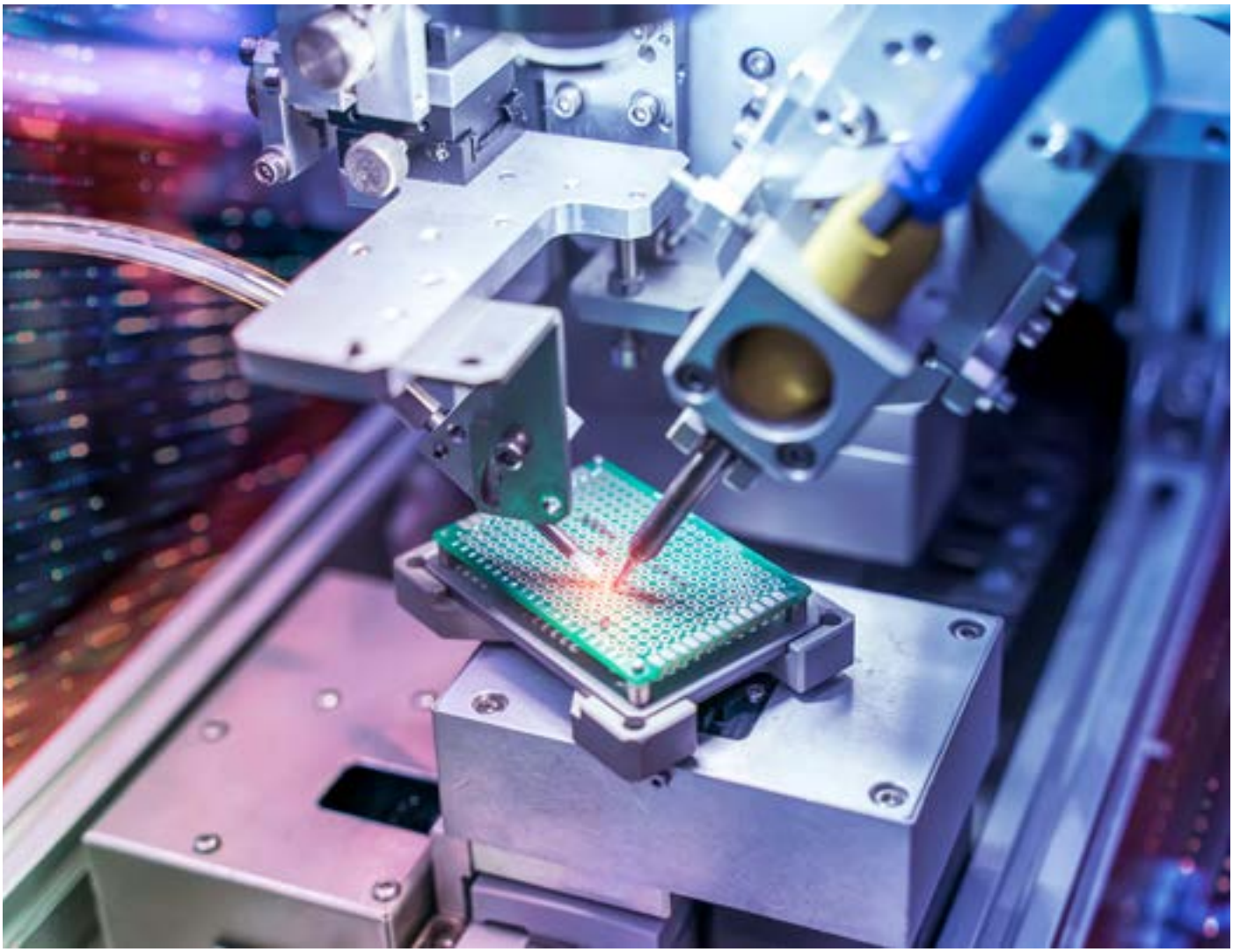
Automation of the information environment may be of equal or greater disruptive potential than the more well understood automation of the physical environment. Both will have significant implications for national security and Alliance relations.



AMD sits at the core of the platform operations of global tech titans Google, Facebook, Amazon, Uber and many others. These operations mark a break from early utilitarian justifications of mechanism design as applied to various markets. Viljoen et al explain the distinction:

> The agents operationalised in these mechanism systems are not the game theoretical rational agents of analytical mechanism design, but merely an empirical preference relation between model, action, and a black box linking informational inputs and behavioural outputs. It is frequently this kind of agent, whose behaviour and decision making can be channelled algorithmically through massive data collection and repeated experimentation, that is put to work in the privately controlled market-like mechanisms of digital platforms.[14]

Platform capitalism is encroaching on every sector of the contemporary economy.[15] As we enter into a new Alliance age personified by the AUKUS agreement and strategic competition, the focus is turning toward a more expansive conception of security. This is seeing sectors such as health and pharmaceuticals, manufacturing, agriculture, education, insurance, raw materials, retail, open finance and technology playing important roles in security conversations alongside traditional Alliance concerns of the national security, intelligence and defence enterprises.[16]

Early pre-Internet 'manual' mechanism design sought access to the privately held information of individuals, in order to ascertain hidden preferences via the design of auction processes. By setting in place rules of interaction that posit the agent's rationality in game-like scenarios, economists theorised that they had a way to reveal 'true' information about people's preferences, such as what price consumers would really pay for goods and services. This version of mechanism design attracted significant criticism for the way it speculated on rationality, but at least it did so in pursuit of transparent goals.

AMD started to transform as we entered into an age of big data and the platform economy. The glut of data available has meant that the assumption of rationality has been replaced by *inferred* preferences derived from agglomerated behavioural data streams. The multiplicity of inferences derivable from big data streams means platforms can iteratively experiment with the agent preferences that meet the predetermined, private and undisclosed goals of the platform. The transparent rational agent model, for all its flaws, has now been replaced by whatever agent model the platform prefers in order to meet its goals of increased data aggregation. In these shifting circumstances, we have entered a 'brave new world' of contractual and normative relations between the citizen/consumer and the state, labour and capital, and the individual and liberal democratic institutions.

When the tools and methods of measurement overtake the purpose of measurement, as with algorithmic markets, we have travelled some distance from merely coordinating transparently (if not uncontroversial) held goals to steering, constructing and manipulating opaquely held private corporate preferences. Justin Joque has argued persuasively that the chief application and commercial viability of this regime of technology has turned out to be the production of knowledge-for-effect – as opposed to knowledge-for-truth.[17] The latter describes knowledge aimed at inferring the best explanation, as per the philosophy of scientific method. The former, as Joque explains, describes that which is profitable or 'effective' to *act as though it were true.*[18]

Markets that favour freedom of choice have been transformed into closed, controlled, choice-steering markets. Consumers and citizens, as the central stakeholders in open, accountable and fair society, remain largely unaware of the mechanics – and the underlying mathematics – behind these developments. But the opaque manipulation of consumer want does not exhaust the depth of concern here.

CHAPTER 2
AMD and the strategic environment

The strategic environment that Australia inhabits is rapidly changing. This was manifested notably in the 2021 AUKUS agreement. The pivotal aspect of this change is shifts in the regional balance of power and competing influence, particularly in energy and finance, in the region to Australia's north.

This is complicated by the uncertainty in Australia's major power ally, especially that generated by the presidency of Donald Trump and his lingering impact on the Republican Party, and the breakdown of consensus building in America's two-party system. Yet in many ways, shifting power balances based on often conflicting interests among geopolitical actors are the normal cycles of international politics. Of equal or greater concern to policymakers should be the fundamental changes in how power flows among networks of actors and institutions, and how conflicts of interest are contested and mediated. Here the implications of the digital age and the impact of AMD are pivotal.

Now well-documented, combined dis/mis/mal-information and disruption campaigns waged by authoritarian states are premised on assumptions about the risk of being drawn into a conventional war, or at least that traditional forms of kinetic conflict can be delayed until a more advantageous time, while adversary states are weakened via other means. Scholars are now debating the veracity and meaning of these presumptions in the context of the war in Ukraine, and indeed examining new ways of understanding the interaction of information operations and kinetic war. While these discourses proceed, it remains the case that agile and unscrupulous actors with a range of political intentions can wage a 'cognitive war' against a whole open society without ever firing a shot.[19]

Growing cognitive insecurity degrades our ability to form knowledge and understanding reliably from data and information.[20] Digital platforms offer new vectors for these attacks, with a range of actors now able to persistently access the hearts and minds of a whole society.[21] While the governments of open societies grapple to respond, the increasing prevalence of dis/mis/mal-information belies a broader shift to an era in which the modes and means by which people contend with others have expanded in scope and scale. This is what Freier and Dagle describe as the 'weaponisation of everything'.[22] As a consequence, the very nature of inter-state and intra-state conflict is undergoing a reorientation while, at the same time, traditional modes of contending employed by incumbent institutions are left struggling for a response.[23] The result is widening societal disruption and disorientation.

These changes exhibit four main features, each of which interlock in the expanded 'grey zone' of competition and conflict:

- a shift from vertical to horizontal networks of power
- the expansion of information warfare into the cognitive battlespace
- the normalisation of constant and unrestricted warfare
- the erosion of trust in existing social, political, and economic institutions[24]

In the digital era, state and non-state actors alike exploit and manipulate information for commercial and strategic effect. Power flows between a diversity of actors connected through horizontal networks. These networks have been described by Ford as 'new war ecologies'[25], in which the state's roles and its ability to exercise power are unclear.

Unconventional and irregular forms of political warfare are a constant between and across whole societies. Chaos and disorder in the information domain undermine the democratic political tradition and degrade the basis of authority, legitimacy and trust in the rules-based order. It's under these conditions that private corporate AMDs are being implemented, radically multiplying the opportunities for adversaries and competitors of open democratic societies to intervene, disrupt, disable and defeat.[26]

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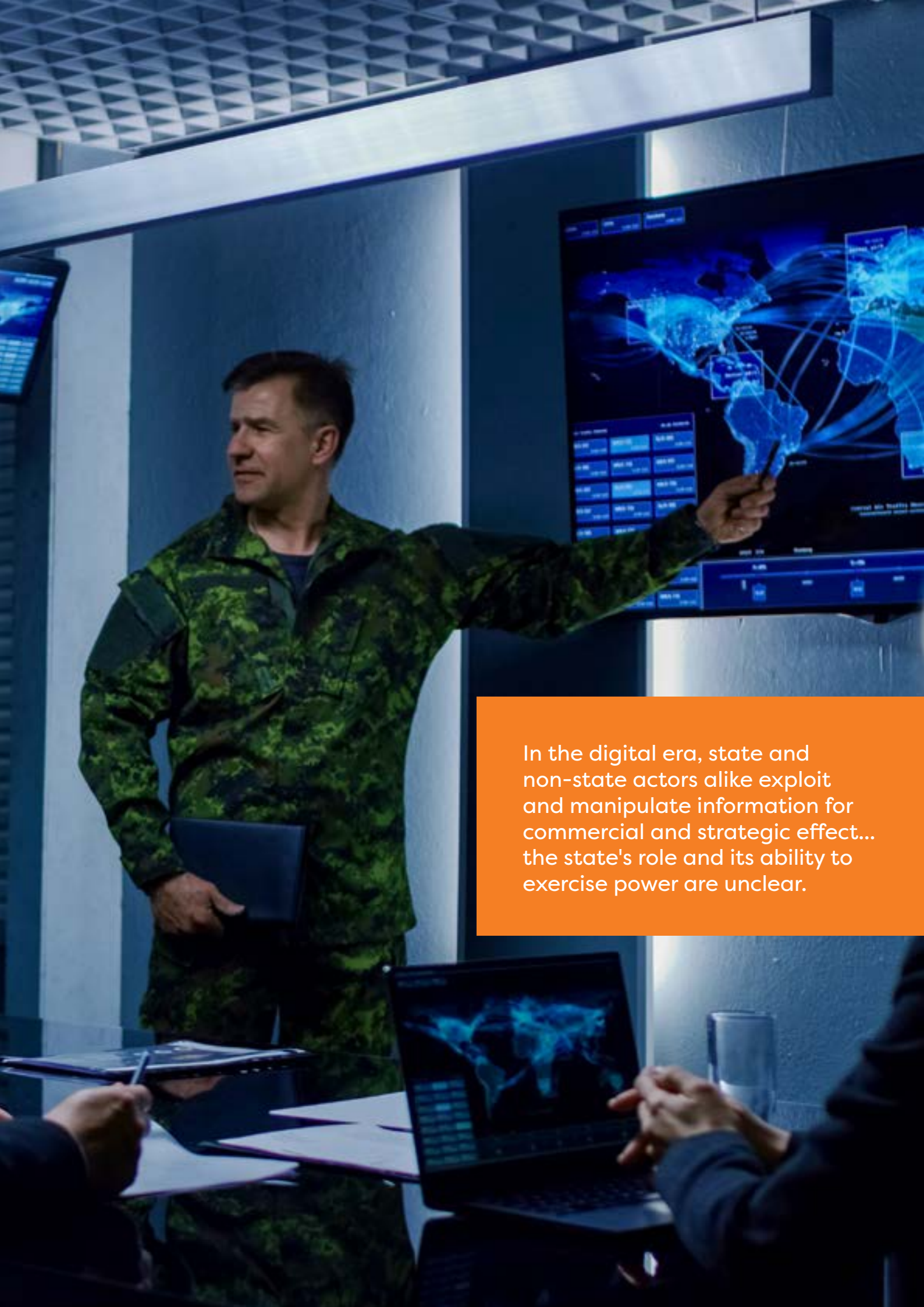
Dashboards and "data cultures" are all the rage, at a time when understanding the plumbing that underpins automated digital representations is a growing imperative.



In the digital era, state and non-state actors alike exploit and manipulate information for commercial and strategic effect... the state's role and its ability to exercise power are unclear.

CHAPTER 3
Grey zone activities make experimental information technologies more risky

For much of the post-9/11 era, the focus of Australian national security, defence and intelligence communities has been on adjusting to asymmetric conflict against mostly non-state actors, or irregular entities acting as proxies for state actors. However, great power competition has returned to levels not seen since the Cold War, albeit transformed in character, tempo and scope. In military affairs, Australia's competitors and adversaries know that to contend on the traditional battlefield in conventional warfare against a US-led collation is disadvantageous. As a result, they have expertly manoeuvred in the expanded battlespace to embrace conflict below the threshold of conventional warfare.

Perhaps more importantly, while the US and allied militaries have moved slowly to bolster their capabilities below this threshold, adversarial actors have been able to alter the rules of the game. The breakdown of internationally recognised norms of state behaviour, precariously established after the Second World War, has coincided with the emergence of the digital medium. Operating in this expanded grey zone of political warfare has problematised the strategic utility of traditional military force. This is particularly true of its capacity to reassure allies and mitigate the risks of regional decoupling and unpredictable re-alignment.[27]

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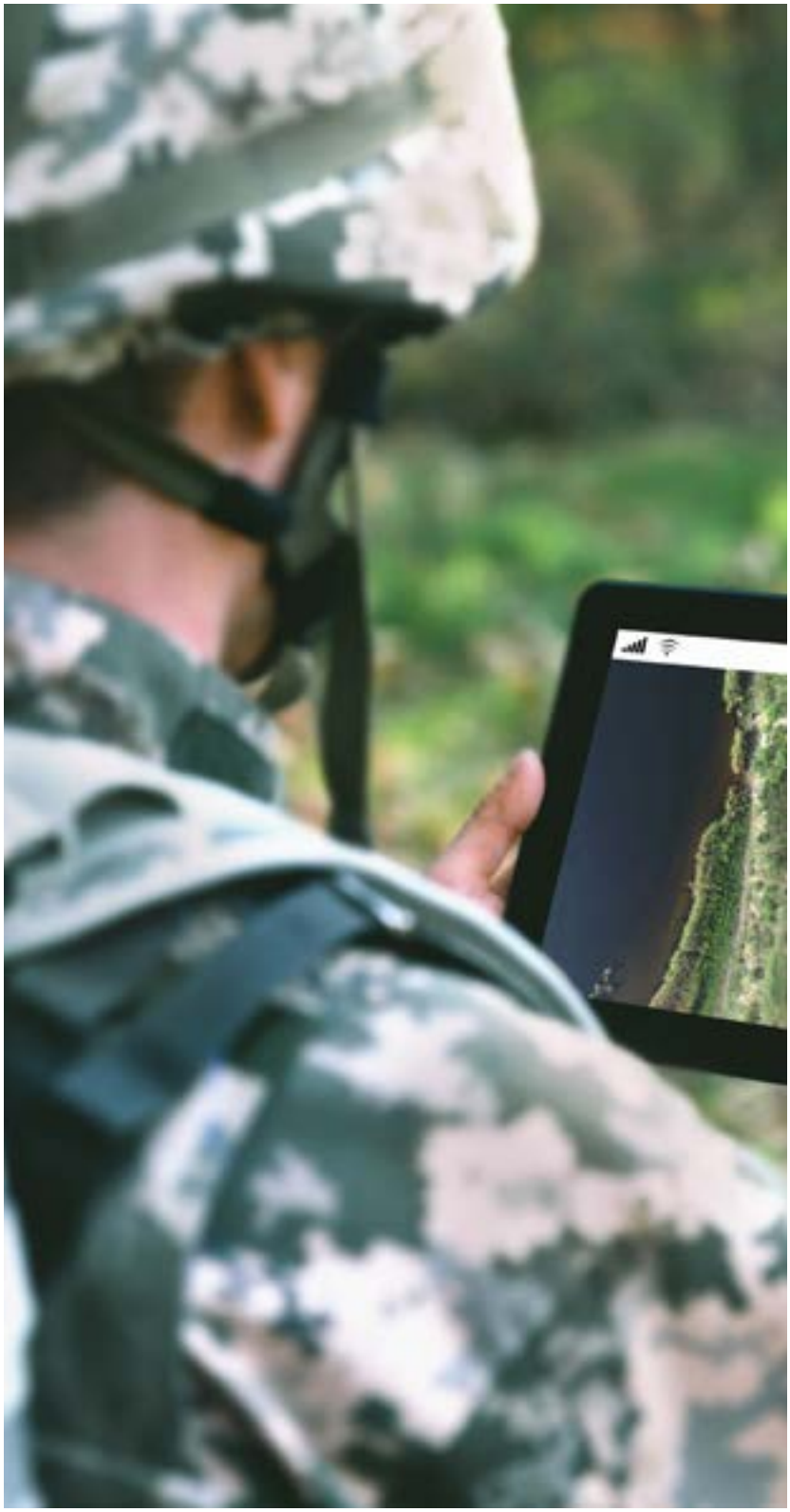

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Militaries operating in and through the information environment are crossing invisible boundaries. Automation technologies exacerbate the importance of a fuller understanding of digital ecosystems.

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Media tour of the new Range Operations Centre at Woomera Test Range during the Hayabusa2 Return Mission. Photographer: CPL Brenton Kwaterski

CHAPTER 4
What the digital age promised

First seen during the Cold War – and accelerating since – was a belief that strategic advantage could be sought through the commercial development of dual-use defence-relevant technologies that would also deliver benefits to other sectors.[28]

These included both conventional military technologies and emerging ICT technologies. The belief was that the defining characteristics of democratic societies – openness, transparency, a commitment to the rule-of-law, free market competition and innovation – would see these advantages uniquely accrue to the US and its allies.

Early hopes of the developing ICT regime held the view that dominance in the knowledge economy could act as a strategic multiplier, as commerce would take a more central role in geopolitics. If used wisely, the US could leverage its dominance to not only deter open military aggression, but to dissuade competitors from even embarking down a revisionist path.[29]

CHAPTER 5
What the digital age is delivering

Reality, however, has not matched this theoretical proposition. At best, the protean development of dual-use technologies delivered a levelling effect and at worst a relative advantage to asymmetric competitors.[30]

Advantages gained in the development of high-precision technologies and ICT were offset via the inherent vulnerabilities of the cyber domain and the vulnerable nature of global supply chains.[31] Further, competitors have learnt to leverage the vulnerabilities associated with the daily use of digital technologies, bringing the vulnerabilities of AMD to the fore.

This new era of persistent, persuasive and exploitive digital technology offers strategic competitors the means for sowing distrust and chaos.[32] However, *before* democratic societies see the impact of dis/mis/mal-information as a result of malign actors, the tools of this trade are used by large corporate actors who offer the means for behavioural prediction and social engineering for profit. It is here that the potential roots of democratic erosion occur.[33]

This goes to reiterate that the Alliance's national security, intelligence and defence communities are entangled in a complex and difficult transformation brought on by the digital age. Multiple and conflicting imperatives and motivations are in play. The speed of change means that the polities are grappling with the opacity of change, which is outstripping the capacity for regulatory mitigation.

For a time, Australia and other liberal democracies have stood watching from the sidelines. But the same vectors of disruption and destabilisation exist here, waiting to be exploited. Awareness of the activities of foreign influence has grown in Australia, but discussions related to espionage, bribery, coercion, and unwelcome political and economic influence address only part of the question for open society in the digital age. Australian democracy is only beginning to address its own internal sovereign approach to the downsides of digital technologies.

The risks to social cohesion are real. History teaches us that people require a sense of identity to be reflected in the political, social, and economic institutions to which they accede legitimacy.[34] Increasingly well-documented research on everyday digital use shows that the dominant internet business model of attention-harvesting via machine recommendation is having major impacts.[35] These impacts are particularly prevalent on brain development and cognitive development in the very young.[36] The legitimacy of Australia's social and political institutions, of which the Alliance is a central element, can be expected to come under strain if these impacts are left unaddressed.

CHAPTER 6
Reactionary nihilism

Another observable response to these challenges, prevalent in military circles, is to lament the constraining implications of reputational risk.

This logic argues that as our adversaries do not self-limit by signing up to norms and expectations of ethical and accountable behaviour in an era of hyper-competition, we are hamstrung by our values. Pressure then mounts to abandon values and norms to compete and prevail. Private-sector vendors and consulting firms, seeking short-term profits over long-term democratic resilience, have exploited these dynamics.

Adversaries of open society, seeking to embroil it in a race to the bottom – effectively nullifying the very strengths that they remain unable to achieve – are the winners.

Productive, open and adaptive societies are built on a foundation of trust. When we lapse into a race to the bottom in standards of ethics, values and norms, we make three concurrent mistakes:

- We mistake weakness for strength. We underestimate the level to which our national and international identity are compromised via the political, cultural and ethical audit of behaviour supplied by digital transparency.
- We accrue the mounting transaction costs that low-trust societies labour under.

To paraphrase Matthew Ford, we are not 'defending Sparta'. We cannot close the gates, arm the populace, implement total information control, and wait indefinitely for our adversaries to collapse.

Productive, open and adaptive societies are built on a foundation of trust.

CHAPTER 7
Building trust as a strategic resource

While never without its blemishes, Australia's identity as an open, democratic, rules-based, fair-minded nation is arguably one of the most potent and under-utilised strategic resources we have.

Its under-utilisation is partly attitudinal and partly organisational. To address strategic organisational issues, the current disparate and *ad hoc* lines of effort across whole-of-government can be better aligned and leveraged through the creation of a strategic technology specialist (STS) role in the Department of Defence. Such a role could exist in the International Policy Division of Defence in any of the following circumstances:

- as a defence liaison posting to be staffed by a senior officer as it expands on its existing remit as the International Engagement lead agency
- as part of an expansion of DFAT's remit
- as part of the creation of a new departmental purview via which the social implications of administrative technologies are foregrounded.

Inter-governmental trust develops over time through deepened and sustained cross-departmental interactions, something scholars of alliances are intimately aware of. The STS role would be to foster and develop such interactions horizontally and from the bottom up, across civilian and military cohorts, expanding the sense of stakeholder ownership in national security. A further key role would be to work outside of the traditional bounds of this community by cultivating strategic alignment with civil society, industry, communities and individuals.

Attitudinal shifts represent a much bigger hurdle. Even so, Australia's national security culture has little choice but to adapt. Trust actuation is an active strategy to push forward the preferred narrative in support of Australia's natural democratic strengths. Without the trust component, the narrative and associated order becomes one of self-interest and short-term transactionalism. Transactionalism provides benefits to the highest bidder and the most powerful. Power and influence become a numbers game, one in which low-trust societies are advantaged. Actuating trust avoids succumbing to the strategies of the weak. These strategies aim to alter the rules of the game to one in which Australia's strategic strengths – the enduring strength of its democracy, and the public legitimacy of the Alliance – are problematised, if not negated.

National security agencies, in addition, should be alert to the protean security consequences of digital administrative technologies, and should play a role in policy development led by other portfolios which informs them of such consequences. Concept vetting and auditing of strategic technology horizons should be elevated in, for example, competition and consumer protection, industrial design, technology standard setting and procurement, public education and media policy, as imperatives with implications for national cohesion, democratic stakeholdership and security.

Without the trust component, the narrative and associated order becomes one of self-interest and short-term transactionalism.

ENDNOTES

1 See Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information* (Harvard University Press, 2015).

2 See Lowy Institute Poll 2021, https://poll.lowyinstitute.org/report/2021

3 Zac Rogers, "Living Under the Influence: Behaviourism and the Hidden Costs of Intervening in Human Complexity," *Australian Quarterly*, January-March 2022.

4 Matthew B. Crawford, "The New Public Health Despotism," UnHerd, October 22, 2021, https://unherd.com/2021/10/the-new-covid-despotism/.

5 Matthew B. Crawford, "Algorithmic Governance and Political Legitimacy," American Affairs Journal, May 20, 2019, https://americanaffairsjournal.org/2019/05/algorithmic-governance-and-political-legitimacy/.

6 Philip Mirowski and Edward M. Nik-Khah, *The Knowledge We Have Lost in Information: The History of Information in Modern Economics* (Oxford University Press, 2017).

7 Rogers, "Living Under the Influence,"

8 Zygmunt Bauman, *Liquid Modernity* (John Wiley & Sons, 2013).

9 Matthew Ford, "Radical War | The Relationship between Data, Attention & Control," Radical War, accessed August 12, 2021, http://www.radicalwar.com/.

10 Rebecca Hersman, "Wormhole Escalation in the New Nuclear Age," Texas National Security Review 3, no. 3 (Autumn 2020), https://doi.org/10.26153/tsw/10220.

11 Kyu Sang Lee, "Mechanism Design Theory Embodying an Algorithm-Centered Vision of Markets/Organizations/Institutions," *History of Political Economy* 38, no. Suppl_1 (December 1, 2006): 283–304, https://doi.org/10.1215/00182702-2005-026.

12 Kyu Sang Lee, "Mechanism Designers in Alliance: A Portrayal of a Scholarly Network in Support of Experimental Economics," *History of Political Economy* 48, no. 2 (June 1, 2016): 191–223, https://doi.org/10.1215/00182702-3494108.

13 Salomé Viljoen, Jake Goldenfein, and Lee McGuigan, "Design Choices: Mechanism Design and Platform Capitalism," *Big Data & Society* 8, no. 2 (July 1, 2021): 20539517211034310, https://doi.org/10.1177/20539517211034312.

14 Viljoen, Goldenfein, and McGuigan, 7.

15 Jathan Sadowski, "The Internet of Landlords: Digital Platforms and New Mechanisms of Rentier Capitalism," *Antipode* 52, no. 2 (2020): 562–80, https://doi.org/10.1111/anti.12595.

16 Zac Rogers, "What Can the Military Learn from Uberisation and the Gig Economy?," *Grounded Curiosity* (blog), June 25, 2020, https://groundedcuriosity.com/what-can-the-military-learn-from-uberisation-and-the-gig-economy/.

17 Justin Joque, "Chances Are: The Bayesian revolution ties knowledge to its material value," *Real Life*, 28 March 2019, https://reallifemag.com/chances-are/

18 See Justin Joque, *Revolutionary Mathematics: Artificial Intelligence, Statistics and the Logic of Capitalism* (Verso Books, 2022).

19 Maryanne Kelton et al., "Australia, the Utility of Force and the Society-Centric Battlespace," *International Affairs*, May 28, 2019, https://doi.org/10.1093/ia/iiz080.

20 Zac Rogers, "The Promise of Strategic Gain in the Information Age: What Happened?," *Cyber Defense Review* 6, no. 1 (Winter 2021): 81–105.

21 Zac Rogers and Emily Bienvenue, "Combined Information Overlay for Situational Awareness in the Digital Anthropological Terrain: Reclaiming Information for the Warfighter," *The Cyber Defense Review*, no. Summer Edition (2021), https://cyberdefensereview.army.mil/Portals/6/Documents/2021_summer_cdr/06_Rogers_Bienvenue_CDR_V6N3_2021.pdf?ver=6qlw1l02DXt1A_1n5KrL4g%3d%3d.

22 Jonathan Dagle and Nathan Freier, "The Weaponization of Everything," *Defense One*, September 9, 2018, https://www.defenseone.com/ideas/2018/09/weaponization-everything/151097/.

23 Zac Rogers, "Assessing the Cognitive Threat Posed by Technology Discourses Intended to Address Adversary Grey Zone Activities," *Divergent Options*, January 17, 2022, https://divergentoptions.org/2022/01/17/assessing-the-cognitive-threat-posed-by-technology-discourses-intended-to-address-adversary-grey-zone-activities/.

24 Emily Bienvenue and Zac Rogers, "Strategic Army: Developing Trust in the Shifting Strategic Landscape," *Joint Force Quarterly* 95 (November 2019): 4–14.

25 Ford, "Radical War | The Relationship between Data, Attention & Control."

26 Zachery Brown, "Myth Versus Lethality: Losing the Plot in the Information War," *The Strategy Bridge*, December 2, 2019, https://thestrategybridge.org/the-bridge/2019/12/2/myth-versus-lethality-losing-the-plot-in-the-information-war.

27 Kelton et al., "Australia, the Utility of Force and the Society-Centric Battlespace."

28 Linda Weiss, *America Inc.?: Innovation and Enterprise in the National Security State* (Cornell University Press, 2014); Mariana Mazzucato, *The Entrepreneurial State: Debunking Public vs. Private Sector Myths* (Penguin UK, 2018).

29 See Andrew F. Krepinevich and Robert Martinage, "Dissuasion Strategy" (Center for Strategic and Budgetary Assessments, 2008), http://www.csbaonline.org/publications/2008/05/dissuasion-strategy/.

30 James Giordano, Joseph Defranco, and L.R. Bremseth, "Radical Leveling and Emerging Technologies as Tools of Non-Kinetic Mass Disruption," Strategic Multilayer Assessment (NSI Inc., February 3, 2020), https://nsiteam.com/radical-leveling-and-emerging-technologies-as-tools-of-non-kinetic-mass-disruption/.

31 See John Arquilla, *Bitskrieg: The New Challenge of Cyberwarfare* (Wiley, 2021).

32 Zac Rogers, "The Digital Manipulation Society: From Altruistic Persuasion to Malign Exploitation at the Human Computer Interface," *Communications Law* 24, no. 4 (2019): 171–79.

33 Zac Rogers, "Deleting Democracy: Australia and the Surveillance Juggernaut," *Australian Quarterly*, September 2019.

34 John Gray, *Enlightenment's Wake: Politics and Culture at the Close of the Modern Age* (Routledge, 1995).

35 William Softky and Criscillia Benford, "Sensory Metrics of Neuromechanical Trust," *Neural Computation* 29, no. 9 (September 2017): 2293–2351, https://doi.org/10.1162/NECO_a_00988; William Softky, "The Science of Rebuilding Trust," *Fair Observer*, January 22, 2021, https://www.fairobserver.com/more/science/william-softky-rebuilding-trust-biden-administration-information-science-us-news-74467/.

36 Nicholas Carr, *The Shallows: What the Internet Is Doing to Our Brains*, Updated Edition (W. W. Norton & Company, 2020).

THE FUTURE OF THE AUSTRALIA – U.S. ALLIANCE

THE ALLIANCE NETWORK PROGRAM

This Black Swan Strategy Paper has been developed as part of the Alliance Network Program. This program supported by the Embassy of the United States of America, is a multi-year public diplomacy, research and engagement activity designed to bring together influential leaders and emerging scholars currently specialising in regional security, economics or public policy to discuss the state of the Australia-United States Alliance and explore new areas of knowledge.

The first itineration of the program, developed by the Perth USAsia Centre under the direction of Professor Peter J Dean, took place on 13-14 February 2020 at the Strategic and Defence Studies Centre at the Australian National University. The subsequent program in 2021, developed by the UWA Defence and Security Institute, held workshops in Perth (UWA DSI), Brisbane (Griffith Asia Institute) and Sydney (United States Studies Centre) between March and May 2021. The workshops were designed to ascertain Australian views of the Alliance relationship and were held under the Chatham House Rule to encourage a frank and open discussion. From each of these workshops, a small number of emerging and early career scholars were selected to undertake further policy work and travel to Washington DC to engage with US think tanks and policy makers. This Black Swan Strategy Paper represents a policy discussion from one of these emerging scholars.

About the Perth USAsia Centre

The Perth USAsia Centre, located at The University of Western Australia is a non-partisan, not-for profit institution strengthening relationships and strategic thinking between Australia, the Indo-Pacific and the USA. The centre is a leading think tank focusing on geopolitical issues, policy development and building a strategic affairs community across government, business and academia.

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