
ACADEMY OF THE SOCIAL SCIENCES
IN AUSTRALIA
SOCIAL SCIENCE
RESEARCH
&
INTELLIGENCE
in Australia
FINAL REPORT
September 2019

Acknowledgements

This report was commissioned by the Office of National Intelligence (April 2019) and delivered by the Academy of the Social Sciences in Australia (July 2019, embargoed until September 2019).

REPORT AUTHORS

- Professor Glenn Withers AO FASSA
- Dr Elizabeth Buchanan
- Ms Liz West
- Mr Dylan Clements
- Professor Greg Austin

EXPERT WORKING GROUP

- Professor Andrew Goldsmith FASSA
- Professor Peter Grabosky
- Associate Professor Seth Lazar
- Ms Michelle Price
- Dr Lesley Seebeck
- Professor Glenn Withers AO FASSA

PEER REVIEWERS

- Dr Sujeeta Bhat (National Academies of Sciences, Engineering, and Medicine)
- Associate Professor Patrick F Walsh (Australian Graduate School of Policing & Security)

The Academy acknowledges the Traditional Custodians of the land upon which we work, the Ngunnawal people, and recognises their continuing connection to land, waters and culture. We pay our respects to their Elders past, present and emerging.

Suggested Citation:

Academy of the Social Sciences in Australia Inc. (2019). *Social Science Research and Intelligence in Australia*.

ISBN: 978-0-9598578-0-1 (online)

Disclaimer:

This report has been prepared by the Academy of the Social Sciences in Australia. The analysis and findings in the report are subject to the limitations of the multiple sources of data and consulting expert advice used.

This is an independent assessment. All information used for this project is open-source and unclassified.

WORKSHOP PARTICIPANTS

- **Professor Greg Austin** (Professor of Cyber Security, Strategy and Diplomacy, University of New South Wales Canberra)
- **Professor John Blaxland** (Strategic Defence Studies Centre, Australian National University)
- **Professor Roderic Broadhurst** (Professor of Criminology, Australian National University)
- **Dr Rick Brown** (Deputy Director, Australian Institute of Criminology)
- **Professor Janet Chan** (Professor, Faculty of Law, University of New South Wales Sydney)
- **Professor Noshir Contractor** (Director of the Science of Networks in Communities (SONIC) Research Group, Northwestern University)
- **Professor Simon Dennis** (Lead Researcher, SWARM Project, University of Melbourne)
- **Dr Shannon Ford** (School of Media, Creative Arts and Social Inquiry, Curtin University)
- **Professor Jane Goodman-Delahunty** (Australian Graduate School of Policing and Security, Charles Sturt University)
- **Professor Peter Grabosky** (Professor Emeritus, Australian National University)
- **Dr Jennifer Hunt** (Lecturer, National Security College, Australian National University)
- **Professor Mike Innes** (Australian College of Applied Psychology)
- **Professor Yoshihisa Kashima** (School of Psychological Sciences, University of Melbourne)
- **Associate Professor Seth Lazar** (Head of School of Philosophy, Australian National University)
- **Dr Cathy Moloney** (Centre for Defence Research, Australian Defence College)
- **Mr Byron Nagy** (Program Manager, AustCyber)
- **Dr John Powers** (Cyber Institute, Australian National University)
- **Ms Michelle Price** (CEO, AustCyber)
- **Professor Kate Reynolds** (College of Health and Medicine, Australian National University)
- **Ms Catherine Rushforth** (National Strategic Intelligence, Australian Criminal Intelligence Commission)
- **Dr Debra Smith** (Senior Research Fellow, Victoria University)
- **Professor Michael Wesley** (Dean of the College of Asia and the Pacific, Australian National University)
- **Professor Bob Williamson** (College of Engineering and Computer Science, Australian National University)
- **Dr Kate Willis** (Strategic Intelligence Capability, Australian Criminal Intelligence Commission)
- **Professor Glenn Withers AO** (Professor, Australian National University and University of New South Wales Canberra)

Executive Summary

The Academy of the Social Sciences in Australia has been commissioned by the Australian Office of National Intelligence (ONI), on behalf of the National Intelligence Community (NIC), to prepare an analysis of the United States National Academies of Sciences, Engineering, and Medicine's *Decadal Survey of the Social and Behavioral Sciences: A Research Agenda for Advancing Intelligence Analysis* (the *Survey*). This analysis aims to provide an Australian academic perspective on the *Survey*, with a particular focus on its 10-year vision and to examine the capacity for the Australian social science research community to offer insights in relation to this agenda for its own national intelligence sector.

The Academy project was overseen by a six-person Expert Working Group who engaged over 30 leading Australian practitioners and researchers in intelligence studies, cyber security, and broader social science disciplines. The activities of the project included client consultations, briefing papers, research reports, and a two-day Expert Workshop in Canberra.

Contained herein is the ***Social Science Research & Intelligence in Australia: Final Report*** (this Report). It provides an assessment of the US *Survey* with a focus on its strengths and gaps, as well as the important areas of difference in the Australian and US intelligence and research landscapes. This Report outlines relevant research areas of Australia's comparative advantage and the ways in which these could be utilised to help to provide insight on the US *Survey's* vision. It also provides a number of recommendations for addressing the gap between the research and intelligence communities in Australia and ways the research community can contribute to ensure that intelligence analysts are prepared for the future security environment.

Intelligence analysis must consider the social sciences - economic, political, societal and cultural forces - and the human behaviours and motivations that underpin them. The systematic, transparent and transferable knowledge that formal social science research provides is an essential foundation and complement to an intelligence analyst's intuition and training. Fortunately, Australia has a high-quality research sector that is resilient, truth-seeking, and well-tailored to Australian concerns.

Of the nine Australian university departments reaching the world top ten in rankings, five are in the social sciences (anthropology, education, law, politics and international studies, and development studies). The Australian Research Council's 2018 *Excellence in Research Australia* report ranked 106 units of evaluation in the social sciences "well-above world standard". These rankings include fields of research from: psychology and cognitive sciences; law and legal studies; history and archaeology; education; economics; commerce and management; studies in human society; and philosophy and religion. This assessment clearly demonstrates Australia's significant capability in a number of social science fields directly relevant to intelligence analysis.

Australian social science research into social network analysis, disinformation research, the science of social influence (when/how attitudes change), and social psychology are significant comparative advantages. By bringing together academic and intelligence expertise and linking broad social science research agendas and government security priorities, human behaviour expertise can be used to benefit academia and the NIC.

Further, social science research in Australia has existing research capacity to assist in the application of the *Survey*'s vision in Australia, especially in the areas of:

1. The new human-machine ecosystem and implications for social science and NIC research
2. Emerging ethical and legal challenges posed by new technologies
3. The impact working with automated systems has on human judgment, and ways to mitigate any potential cognitive risks
4. Social network and narrative analysis
5. Sensemaking across sectors including social identity, group factors, emotions, human intelligence, open-source analysis
6. Methods to showcase how valuable the work of the Australian social science community is to the Five Eyes community.

In order to effectively make good sense of the security environment, intelligence analysts require a fundamental conceptual understanding of issues such as: power and influence; deception; threats and diplomatic opportunities; and complex and wicked problems. It is here that the multidisciplinary nature of the social sciences can provide assistance to the NIC in tackling security mysteries and their component parts.

This Report recommends the following:

01

Recommendation 1: In order to ensure that intelligence agencies have the right skills and knowledge base to combat future security challenges, and capabilities to mitigate any unintended consequences of increased AI integration, the NIC should undertake or commission the development of a **strategic workforce training and recruitment plan** for the next decade.

Social science research can provide an improved understanding of learning and development requirements, emerging trends in social networks and systems, cyber security threats, impact and engagement of messaging, and other emerging needs of this kind. Engaging social science research in this process will be vital to ensuring that the NIC has a comprehensive understanding of human and social behaviour in order to identify and assess threats.

02

Recommendation 2: In order to systematically access a broad, multidisciplinary spectrum of social science research and methodological expertise, the NIC should establish a dedicated **academic outreach branch** to coordinate and oversee interactions with the social science research community.

This will be one step towards creating effective and secure pathways of sharing problems, approaches, and analyses between the NIC and social science researchers. The social science community also needs to find a way of gaining trusted access to the policy frameworks and security problems, which drive intelligence and the job of an intelligence analyst. Importantly, this body should also identify capability gaps and emerging research needs. The Canadian Security Intelligence Service Academic Outreach Program is an effective model on which the Australian branch could be designed.

03

Recommendation 3: The NIC should undertake an **audit of existing research schemes** to identify the social science disciplines already contributing to intelligence priorities and the potential for future contributions.

The national security needs flagged by the *Survey* show that social science security research should be made a priority in future funding. Existing research funding structures in the Department of Defence NextGen Fund, Australian Research Council, Defence Science and Technology Group, CSIRO, and the Department of Industry, Innovation and Science's CRC Programme and Industry Growth Centres do provide for intelligence requirements. They are amendable to topics prioritised by the *Survey* and could be expanded to embrace social science research more directly. An audit of current research funding would assist the NIC to identify both emerging researchers and research topics relevant to intelligence analysis. This audit could also provide a better understanding of funding gaps and topics of interest that are not being supported through existing funding streams.

04

Recommendation 4: In order to facilitate deeper engagement, build relationships, and allow for innovative analytical frameworks to be developed, the NIC should develop a **research-intelligence 'air-lock'** which will act as a secure space for social science researchers and the NIC to engage in an unclassified environment.

The air-lock model will ensure the NIC accesses expertise as needed, but it will also lay the foundation for building trust between the two communities. This model also ensures the communities move beyond narrow information exchange, whilst bolstering longstanding ties between the social science and intelligence sectors in Australia. Meeting in the middle ensures both communities are able to benefit from the relationship when based on common middle ground. This Report also provides examples of existing models, both domestically and internationally, of collaborative research spaces that bridge the secure/unsecure environment and allow for safe and secure exchange of data (page 22/23).

Australian social science scholars are internationally sought after to engage on security challenges and to advise foreign governments - including the US - about best policy practice and to provide timely security analysis. They also have well-established research collaborations with the US, UK, Canada, Netherlands, Germany, and France on intelligence issues, as well as strong overlap in research on the human factors of cyber-crime with Israel, the US, and Netherlands. By engaging with social science scholars in Australia on issues of international importance, the NIC can increase its opportunities for international collaboration and gain a fuller understanding of current and emerging research.

Now is the crucial time to identify and fund sustainable avenues of engagement between social science scholars and the NIC. This Report offers a blueprint to assist the NIC to increase awareness and understanding, and to support the development of a stronger, more beneficial relationship between the two communities, in order to serve Australian security interests into the future.

Table of Contents

1. Assessment of the US Decadal Survey

In March 2019, the United States National Academies of Sciences, Engineering, and Medicine released a 340-page report entitled *A Decadal Survey of the Social and Behavioral Sciences: A Research Agenda for Advancing Intelligence Analysis* (the *Survey*), commissioned by the US Office of the Director of National Intelligence. This report was the first such decadal survey on the social and behavioural sciences (SBS) undertaken by the National Academies. It sought to consider the potential of SBS research to inform the intelligence analysis process and enhance national security, and to provide guidance for the development of a 10-year research agenda in this area.

In response, the Academy of the Social Sciences in Australia has been commissioned by the Australian Government's Office of National Intelligence (ONI), on behalf of the National Intelligence Community (NIC), to provide an Australian academic perspective on the *Survey*, with a particular focus on its 10-year vision, and to examine the capacity of the Australian social science research community to offer insights in relation to this agenda for its own national intelligence sector. The Academy project was overseen by a six-person Expert Working Group who engaged over 30 leading Australian practitioners and researchers in intelligence studies, cyber security, and broader social science disciplines. The activities of the project included client consultations, briefing papers, research reports, and a two-day Expert Workshop in Canberra.

1.1 General Assessment of the Survey

The primary finding of the *Survey* is that targeted research in the social and behavioural sciences (SBS) will strengthen intelligence assessments and prepare intelligence agencies for confrontation with evolving security threats, primarily through development of tools and technologies for human use and human-machine interaction.

The *Survey* used four criteria to identify and examine the lines of research that inform these findings:

1. The potential for impact on urgent national security priorities
2. The strength of the supporting evidence-base
3. Technical readiness regarding the state of development on the continuum from basic research, to field testing and evaluation, to applied research and use
4. The potential to use or develop emerging data sources, methods, or other technical advances with potential to yield significant advances.

For the US National Academies, it is intended that the *Survey* findings be used to guide investment decisions by the US intelligence community and also the development of new channels of interchange between the research community and security agencies.

For global context, the *Survey* outlines the policy imperatives of the current US Administration. The outline is non-partisan, broad in scope, and identifies seven trends which are important for intelligence analysis:

1. Populations in developed countries (including Russia and China) are aging, which contrasts to developing countries
2. The global economy is in transition in ways that reduce investment in developing countries
3. Technology is accelerating but is causing discontinuities
4. Ideas and identities are driving a wave of exclusion
5. Governance is becoming more challenging
6. The nature of conflict is changing
7. Climate change, environment, and health issues will demand collective international action.

The *Survey* provides an overview of the role of intelligence analysts and their operating policy environment, grouping the content of its deliberations and findings under four headings: sensemaking; integration of SBS into analysis of cyberspace security; integration of SBS into design of human-machine interaction; and human capital development for intelligence. Emphasis is on the impact of advanced information technologies, and less on improvement or advance in traditional intelligence analysis.

The *Survey* seeks to examine the interactions of cyberspace security with other disciplines, but it excludes several major areas of social science research as it is conceived in Australia. This is important to highlight for an assessment of the report's relevance here.

The *Survey* breaks important ground in its account of what it calls "social cyber security science".[i] As it is conceived, the field is constituted by theoretical inquiry organised around two goals: to "characterise, understand, and forecast cyber-mediated changes in human behaviour and in social, cultural, and political outcomes"; and to "build a social cyber infrastructure that will allow the essential character of a society to persist in a cyber-mediated information environment that is characterised by changing conditions, actual or imminent social cyber threats, and cyber-mediated threats".[ii]

A focus of the *Survey* is the proposition, "if the intelligence community is to take advantage of advancing AI capabilities and adjust to evolving security threats, it will have to transform how it conducts intelligence analysis".[iii] How is the intelligence community to go about this? One possible response is to harness the capacity of artificial intelligence (AI). Here the *Survey* explains what it means to develop a human-machine ecosystem for intelligence analysis "composed of human analytic agents and autonomous AI systems".[iv]

The *Survey* recommends more generally that the leadership of the US intelligence community should give high priority to deeper and more sustained collaboration with the SBS research community. It provides recommendations to overcome institutional barriers related to academic freedom and the handling of classified material. It also recognises the importance of increasing learning opportunities for intelligence analysts. These are valuable directions and conclusions but they can be supplemented by Australian insight.

1.2 Gaps in the Survey

This Report finds that, alongside its strengths, the *Survey* does not adequately address the issue and challenge of intelligence failure. Rather, it focuses on the positive aspects of social science insights for intelligence analysis. Reducing the likelihood of intelligence failure is, and must remain, an overarching aim for sound security strategy.

When it comes to AI and other emerging technologies applicable to the intelligence environment, the priority is to know the limitations of the machine and manage over-reliance on developing technology. The *Survey* suggests AI will be used to conduct intelligence data collection and low-level intelligence analysis. It implies humans will no longer have to undertake this work and will be able to focus their time on work which requires circumspection in judgment, discretion, and intuition - capacities AI does not have. The *Survey* does not take seriously the possibility that reliance on systems that conduct these lower-level tasks would have adverse unintended consequences. For instance, it is a live question whether heavy reliance on these automated systems adversely impacts the development of the kinds of intuitive judgments that are necessary for good intelligence analysis.

The research questions also overlooked the possibility of automation introducing cognitive biases. For example, automation helps human analysts process data so quickly that they may become accustomed to rapid, heuristic cognitive processes, thereby introducing biases. Further, AI-based machine learning techniques make use of data traces based on human behaviour patterns that contain inherent bias (towards gender, race, etc). These biases are then reproduced or, worse, amplified by the AI. These questions must be answered to get a full picture of the impact of technological development and its implementation.

Another gap in the *Survey* is its separation of the analysis of social science and technological disciplines. This limits an accurate understanding of the value of interdisciplinary fields, such as security studies, which range freely across social and technological disciplines. Social science research is well placed to provide an insight into the growing interplay between society and technology and the way it shapes behaviour and intelligence needs.

Legal and ethical questions were not assessed by the *Survey* in stand-alone sections. Where ethics was discussed, the focus was limited primarily to big data and privacy norms. The *Survey* did not analyse the significant ethical questions of secrecy and deception around big data. The social sciences are concerned not only with what the intelligence community does with the data, but also what the data reveals, and how the data is collected. Equally, the social sciences are concerned with the legal implications of security research. This has been emphasised in recent times by Australia's new national security legislation, which raises important concerns around academia's ability to question the NIC's methods. Incentives for collaboration are curtailed by new laws and threats of imprisonment. In seeking to increase engagement between the social sciences and the NIC, both the perception and the reality of this message must be negated. It is crucial that the NIC respects academic freedom and further efforts are needed to ensure the safety and protection of researchers.

A related issue not addressed thoroughly in the *Survey* was the need to develop pathways for social science researchers to exchange knowledge with the intelligence community. This is most likely due to the established and refined mechanisms already in place in the US system, which hold lessons for Australia. If Australia could develop effective and trusted pathways, the

quality of analysis could be enhanced. The social sciences and NIC would both benefit from better understanding each other's methodologies - how both sectors approach problems, identify knowledge gaps, and how each assess and analyse security issues.

Also requiring further analysis beyond that provided by the *Survey* is the treatment of highly-integrated political narratives and human emotions. It is imperative to understand the context of both, including how narratives and emotions mutually reinforce each other. This is especially necessary in the new security climate where cyber is enabling the emergence and exploitation of national security blind spots, and where targeted narratives and emotions are used to influence people and shape action. Australia is a world leader in the study of social identity and the impact a person's group memberships (ingroups/outgroups, religious, ideological, political) have in shaping their attitudes, emotion and behaviour.

The *Survey* also excluded consideration of space, despite the arena hosting many of the technological developments discussed. Instead, the *Survey*'s focus is on cyberspace and AI. The heavy cyber focus of the *Survey*'s vision illustrates the need for further social science input into other areas of future intelligence development. For example, there is a need for proper understanding of how online behaviour translates 'on the ground'. Social science scholarship can assist the NIC in better understanding this offline-online relationship.

Another area of interest not included in the *Survey* is that of human motivation. It is the *why* question - what makes people act in ways whereby they are security threats in the first place? This is a critical element of the broader discussion around how we reconcile trust with human-machine intelligence. Both the social science community and the NIC need to explore the limitations and strengths of this new human-machine ecosystem.

It is also critical to recognise that the US National Academies have not included areas such as economics, finance, and management in their conception of SBS, whereas these are seen as a vital part of the social sciences in Australia. Such disciplines have important contributions to make for analysing intelligence problems and threat motivations. It is especially difficult to understand the interplay of business, commerce, trade and investment with national security without these perspectives. The assessment provided by the *Survey* therefore demonstrates a values gap between the US and Australian communities. It is imperative that any Australian adoption of the *Survey* findings should comprehend the nature of this difference and the distinct set of values present in Australian culture.

1.3 Differences - Australia & US Intelligence

It is apparent from the *Survey* that the US prioritises global intelligence in a way no other country does. There is an asymmetry between the ecosystems of intelligence analysis and related academic research in the US and Australia at almost every level. Apart from obvious considerations of scale and resources, the US system is characterised by regular interchange of personnel between government, academia, and the private sector. The US system also features 'scholars-in-residence' within agencies, and 'analysts-in-residence' within universities.

This personnel interchange is most evident in the technology sector, where the US intelligence community maintains a list of around 10,000 cleared companies that might assist in evaluating foreign-sourced technologies, which might impact US intelligence collection

efforts. Regarding application of advanced technologies, the US remains the world's sole superpower, and it leads the most powerful suite of military and intelligence alliances and coalitions. It has an extensive global network of intelligence assets, including researchers in the social sciences in foreign countries. The same applies to its use of space-based systems for monitoring, collection, and communication of intelligence data and products.

The wealth and scale of the US intelligence community allows for higher degrees of specialisation than is possible in Australia. The US research community has a well-established discipline of intelligence studies seated in SBS, while Australia has only a small number of scholars researching in the field. Australian universities have a range of degree programs relevant to the skills of an intelligence analyst (**Table 1**), but no formal postgraduate degree programs in intelligence studies for national security. While much is being done on machine learning and AI in Australia, these courses do not yet sufficiently incorporate social science components (such as criminology and psychology) alongside the technical content.

There are also not currently any Australian Research Council (ARC) Centres of Excellence on intelligence or security-related projects. It is worth noting, however, that the Australian higher education experience delivering joint degrees through partnership, and its growing capability in executive programs and micro-credentials, highlight how systematic training could be further advanced in conjunction with the NIC.

TABLE 1 - Degree Programs in Australia[v]

Intelligence and Related Courses	Institution
Master of Data Science	Australian National University (ANU)
Master of Arts - Intelligence Analysis	Charles Sturt University (CSU)
Master of Cyber Studies and Investigations	Charles Sturt University (CSU)
Master of Cyber-Security, Policing, Intelligence and Counter Terrorism	Macquarie University (MU)
Master of International Security Studies	Macquarie University (MU)
Master of Security and Defence Management	University of New South Wales Canberra at ADFA (UNSW/ADFA)
Master of Decision Analytics	University of New South Wales Canberra at ADFA (UNSW/ADFA)
Master of Strategy and Security	University of New South Wales Canberra at ADFA (UNSW/ADFA)
Master of War Studies	University of New South Wales Canberra at ADFA (UNSW/ADFA)
Master of Analytics	University of New South Wales Sydney (UNSW)
Bachelor of Counter Terrorism, Security and Intelligence	Edith Cowan University (ECU)
Bachelor of International Security Studies	University of South Australia (UniSA)
Bachelor of Data Science	Western Sydney University (WSU)
Diploma of Intelligence Analysis	Canberra Institute of Technology (CIT)

The US and Australian approaches to public debate and discussion of intelligence assessments differ significantly. The US provides a far more transparent and accessible dialogue. In contrast, the NIC, by and large, follows the British tradition of only ever discussing intelligence work publicly in the most exceptional circumstances. The US intelligence community provides regular and detailed assessments at an unclassified level to Congress - a practice rarely followed elsewhere. Further, in the US, scholars enjoy security clearances for access to classified information on a scale that their Australian counterparts do not.

There are challenges for academia around the politicisation of scholarly research on certain topics. The *Survey* aims to bring out the agreement and shared interests of national security agencies and researchers. In most cases, especially in mainstream research, these considerations are manageable, but there are challenges where scholars have a different view from the intelligence agencies on either the process or purpose of research. The social science community strives to contribute disinterested and ethically-informed research to relevant issues, especially those in sensitive areas. This approach seeks to avoid the influence of political dynamics, and maintain the objectivity and independence of scholars.

Despite broad agreement amongst Australian social science researchers engaged in this project regarding the global context of the *Survey*, Australia has fewer policy options to pursue a vision similar to that of the US. In Australia, a comprehensive response will face a number of unique challenges, including: workforce limitations in the NIC (scale and capacity) and academia (with only pockets of research in the capability sets identified by the *Survey*), and institutional intolerance for disruptive organisational change precipitated by new technologies.

1.4 Australia's Strengths

Australian intelligence analysts are generally well trained and educated broadly across social science fields. In order to effectively make good sense of the security environment, intelligence analysts require a fundamental conceptual understanding of issues such as: power and influence; deception; threats and diplomatic opportunities; and complex and wicked problems. These are areas in which the Australian social science community is strong.

According to the Australian Government's Department of Education, in 2017, Australia had 16,807 full-time equivalent academics researching and teaching in the social sciences in higher education institutions, representing 26% of the cohort across all disciplines.[vi] Australian scholars are internationally sought after to engage on security challenges and to advise foreign governments - including the US - about best policy practice and to provide timely security analysis. Australian researchers are also well-represented at international conferences that deal with intelligence challenges, such as the International Institute for Counter Terrorism's Annual Summit, and the International Studies Association's Conference and Intelligence Studies and International Security Studies sections.

Australian scholars have well-established research collaborations with the US, UK, Canada, Netherlands, Germany, and France on intelligence issues, as well as strong overlap in research on the human factors of cyber-crime with Israel, the US, and Netherlands. They are

also heavily engaged in international organised crime research and investigative analysis, in support of law enforcement agencies. By engaging with social science scholars in Australia on issues of international importance, the NIC can increase their opportunities for international collaboration and gain a fuller understanding of current and emerging research. A formal unclassified framework to bridge the social sciences and NIC could also be utilised to facilitate collaboration with international experts.

A further strength of Australian researchers is that, although smaller, they are comparatively well trained in multidisciplinary research methods, covering a broad range of theoretical perspectives. This is a distinct advantage of a smaller research community operating at high levels of excellence. Australia stands well in the global rankings of its social science researchers, within what is overall a very well ranked university research system.

One measurement of Australian social science standing is world discipline rankings. Of the nine Australian university departments reaching the world top ten in rankings, five are in the social sciences (anthropology, education, law, politics and international studies, and development studies).[vii]

Another indicator is the ARC's *Excellence in Research Australia* (ERA) report on how well units of evaluation in Australia measure up to world research standards. In 2018, the social sciences accounted for 106 units or locations where research is "well-above world standard", and 242 "above world standard".[viii] This ranking was determined by assessing eight ERA criteria: quantitative; internationally recognised; comparable indicators; excellence identification; research relevance; repeatability and verification; time-bound indicators; and behavioural impact.

Table 2 (page 28) details the 2018 ranking of high-level research capability in major social science fields and sub-fields that are "well-above world standard". The ERA outcomes clearly demonstrate Australia's significant capability in a number of social science fields directly relevant to intelligence analysis.

The ARC also measures engagement and impact of higher education institutions across fields of research. In Psychology and Cognitive Science for example, 12 institutions in Australia rank at "well-above world standard". Of these, University of Melbourne, University of Queensland, University of New South Wales, Deakin University, and Central Queensland University also achieved a "High" impact rating in 2018.[ix] Over the past four years, the ARC has also funded a number of projects relevant to the work of intelligence analysts. **Table 3** (page 29) provides a summary of some of these.

Australia's geopolitical location at the heart of the Indo-Pacific region gives its social science researchers, as well as the NIC, an international edge. By design, the *Survey* has no geopolitical frame of focus. But this is a point of strength that Australia should incorporate into its own approach. Integrating our geopolitical location into security scholarship perspectives presents the opportunity for the NIC to adopt an out-of-the-box problem-solving approach.

Intelligence analysis must consider the social sciences - economic, political, societal and cultural forces - and the human behaviours and motivations that underpin them. The systematic, transparent and transferable knowledge that formal social science provides is an essential foundation and complement to an intelligence analyst's intuition and training. Fortunately, Australia has a high-quality research sector, which is resilient, truth-seeking, and well-tailored to Australian concerns, both domestically and in a global context.

2. Assessment of the Survey's Vision

The *Survey* provides a 10-year research vision, the highlight of which is the affirmation of the critical need for a commitment from the intelligence community to integrate SBS research into intelligence analysis. Without this commitment it cannot ensure a suitable knowledge base from which to face the challenges of the future. This does not mean the regular work of analysts will be transformed altogether. Many of the fundamental tasks of intelligence analysts will continue, but will be augmented by the incorporation of dedicated AI information gathering and data analysis support.

A further area for consideration is the study of the social and behavioural impact on humans working with AI. How do humans work with automation in a team setting? What behaviours change when AI is introduced? What, if any, deskilling of the analyst occurs? These are just a few examples of areas of where further training will be required for the analyst of the future, and which can be supported by the Australian social science community.

The *Survey* seeks to harness the opportunities and address the challenges presented by the emerging human-machine ecosystem. These include the possibility of new methods to answer intelligence questions and the enhancement of the ways in which society thinks about security. Success will largely rely on the capacity for government to prepare its analytical workforce for this future ecosystem.

Recommendation 1: In order to ensure that intelligence agencies have the right skills and knowledge base to combat future security challenges, and capabilities to mitigate any unintended consequences of increased AI integration, the NIC should undertake or commission the development of a **strategic workforce training and recruitment plan** for the next decade.

Social science research can provide an improved understanding of learning and development requirements, emerging trends in social networks and systems, cyber security threats, impact and engagement of messaging, and other emerging needs of this kind. Engaging social science research in this process will be vital to ensuring that the NIC has a comprehensive understanding of human and social behaviour in order to identify and assess threats.[x]

Successfully implementing this recommendation will depend on the ability of the social science sphere to strengthen multidisciplinary ties within its own community, including under a broader understanding of the relevant social science disciplines needed in the intelligence space. Presently, research collaboration and knowledge sharing across international borders is commonplace in the Australian social sciences, both directly and indirectly, through a high level of participation in joint international authorship in journals and in academic projects and conferences.

The Australian social science sector has the capacity to assist in the application of the *Survey*'s vision in Australia. Social science can inform the intelligence analyst of the future to better understand: the implications for and strategies to mitigate unintended consequences

of automation and AI; narrative, emotions, and social influence; and the context of human behaviour for threat prediction and analysis.

In light of the vision of the *Survey*, the experts assembled by the Academy recommended exploring Australian capacity to develop or expand research on the following *Survey*-derived topics:

1. The new human-machine ecosystem and implications for social science and NIC research
2. Emerging ethical and legal challenges posed by new technologies
3. The impact working with automated systems has on human judgment, and ways to mitigate any potential cognitive risks
4. Social network and narrative analysis
5. Sensemaking across sectors including social identity, group factors, emotions, human intelligence, open-source analysis
6. Methods to showcase how valuable the work of the Australian social science community is to the Five Eyes community.

The development of research should not be limited to the *Survey*'s framing of SBS, which excludes law, ethics, economics, finance and management. The Academy-managed project, which has produced this Report, is a step towards increased research/intelligence understanding in Australia. But there also exists division and reticence of the two communities, which act as a barrier to collaboration.

The question of supporting next steps for Australian scholars may ultimately come to this: either develop low-cost pilot projects starting from scratch, or augment existing budgets in fields like high performance computing or big data analytics, to resource a shift to incorporating social science tasks of high intelligence priority.

Priority areas in which Australia's social science sector can engage with the NIC include:

1. Developing human performance within the human-machine space. This is crucial to hedge against the negative consequences of automation in intelligence analysis in the longer term
2. Addressing the ironies of automation - AI will require the continual upskilling of human intelligence analysts
3. Bolstering human intelligence focus, and treating it as equally important to cyber priorities
4. Focusing on developing a social media network analysis toolset to better analyse social networks and group relations between users and the content of social media data, in order to track data manipulation and efforts to influence narratives and emotions amongst the general population (for social science and NIC dual-use).

The *Survey* therefore has a range of direct implications for Australia. It speaks to choices about the balance between sovereign research capabilities, alliance capabilities, and those existing in the open and globalised research community. And it raises questions about the limits of research capability inside Australia, and the optimal structure and focus of its research community.

3. Australia's Existing Capability

3.1 Opportunities for Australia

The Report has outlined how Australia's capability to contribute to the *Survey*'s vision is constrained by limited interaction between social science scholars and the NIC. But Australia has great potential to contribute if its intelligence community recognises that this expertise is crucial for understanding why humans act the way they do. An effective interchange mechanism between Australian scholars and the NIC will strengthen the cultural bridge between the two.

02

Recommendation 2: In order to systematically access a broad, multidisciplinary spectrum of social science research and methodological expertise, the NIC should establish a dedicated **academic outreach branch** to coordinate and oversee interactions with the social science research community.

This will be one step towards creating effective and secure pathways of sharing problems, approaches, and analyses between the NIC and social science researchers. The social science community also needs to find a way of gaining trusted access to the policy frameworks and security problems, which drive intelligence and the job of an intelligence analyst. Importantly, this body should also identify capability gaps and emerging research needs. The Canadian Security Intelligence Service Academic Outreach Program is an effective model on which the Australian branch could be designed.

SNAPSHOT

CSIS Academic Outreach Program[xi]

Canadian Security Intelligence Service | Service canadien du renseignement de sécurité

The Canadian Security Intelligence Service's Academic Outreach program seeks to better understand current and emerging issues related to security and intelligence. The program draws on experts from within government, academia, private business and other external bodies across the world. It aims to help create a clearer understanding of security issues and develop a long-term view of various trends and problems, in order to challenge assumptions and cultural biases as well as sharpen research and analytical capacities. Academic Outreach supports and hosts conferences, seminars, papers, presentations and roundtable discussions. The results of Academic Outreach activities are published to stimulate debate and encourage the exchange of views and perspectives with other organisations and individual thinkers.

Australian social science research has a significant comparative advantage in the areas of social network analysis, disinformation research, the science of social influence (when/how attitudes change), and social psychology. By bringing together academic and intelligence expertise and linking broad social science research agendas and government security priorities, human behaviour expertise can be used to benefit academia and the NIC.

The same applies in the *Survey* gap areas such as economic modeling. Australia has been a world leader in simulation modeling for the economy and has been deployed to provide such models for mainstream economic analysis for China, Malaysia, Singapore, and Hong Kong, among others. Through Victoria University's Centre of Policy Studies, the US Department of Homeland Security funded an *Analysis of Economic Effects of Terrorism*.[xii] This study uses Australian economic modeling to assess the impact of nuclear attack, chlorine gas attack, border closure in response to a threat scenario, and radiological dispersal device attack. Limited awareness of social science research tools in Australian security circles has seemingly inhibited local defence and security use of such approaches.

3.2 Challenges and Further Development

The NIC and social science communities face a number of shared challenges. First, both communities need to contribute to the rebuilding of public respect for expertise and rigorous analysis. Second, both communities face credibility issues following heavily publicised intelligence/prediction failures; for instance, Iraq's possession (or otherwise) of weapons of mass destruction, the Global Financial Crisis, and Western democratic election polling failures. In order to overcome the challenge to institutional credibility, both communities need to exercise greater caution about judgments and acknowledge uncertainties in their analysis.

Where once many of the problems the intelligence community sought to understand and address could be comprehended through sustained exposure to the light of research, the exponential increase in social complexity has rendered the idea of providing clear and distinct answers to security problems less plausible. This increased complexity, coupled with significant technological advances, has put both the social science and intelligence communities in a position of dealing with the uncharted.

It is important to understand what this means. It does not mean the social sciences and the NIC are seeking intelligence about hostile parties, but cannot penetrate their defences. This would be the standard problem of cracking the secrets of security threats ('known unknowns'). Rather, the issue in socially very complex situations is this: there are threats which social science and the NIC have an interest in understanding, but which these communities cannot even conceive. In the former US Defense Secretary's terms, these are 'unknown unknowns'. Where 'known unknowns' are effectively secrets, 'unknown unknowns' are mysteries.

That today's threats are mysteries rather than secrets is a new operational reality within which the NIC must adapt. It is here that the multidisciplinary nature of the social science sector can provide assistance to the NIC in tackling security mysteries, or at least specific components of them. The social sciences can help the NIC to dispose itself to uncertainty in the best informed and most appropriate ways. Working with mysteries is much of the foundation of social science scholarship and the broader identity of researchers. Solving

security mysteries therefore stands as an existing basis for engagement between the NIC and social science experts in Australia.

Both communities are at risk of being shaped by political agendas in Australia. As a government sector the NIC is mandated by government policy. Academia often finds itself shaping research agendas based on government priorities in order to obtain research funding. However, the influence of political priorities also presents an opportunity for Australia's social sciences and the NIC to position themselves to contribute evidence, research, and substance to these agendas. An increase in the transparency of NIC funding of social science fields, clarity and consensus around values and ethics measures, and an ongoing dialogue concerning research ethics - particularly with regards to new technologies and the implications for privacy - would assist this contribution.

Both the NIC and social sciences have limited resources and must direct their analysis efforts carefully. In intelligence, much emphasis over the last two decades has focused on violent global Salafist-jihadism, to the neglect of studying other ideological movements, such as extreme right-wing and extreme left-wing motivations for political violence and terrorism. Social science researchers, however, especially in fields such as cultural and religious studies, political science, and history, as well as modern analysis in social identity, narratives and messaging, have continued to analyse these movements - especially the re-emergence of right-wing extremism - and are well placed to provide comprehensive assessments to the NIC from this knowledge base.

Recognising US and Australian differences regarding engagement between the social sciences and intelligence is an important area for further development. The US has a more open intelligence system with an established practice of seeking informal academic advice. By comparison, Australia is less open, with less academic consultation with the NIC. This shortcoming is exacerbated by the general culture of secrecy in the intelligence world.

Social science research in areas relevant to intelligence is not consistently funded, which hampers long-term research progress and capability growth. This is compounded by the fact that much of the best research work in Australia is funded at the State, rather than Federal, level. It is worth noting that in 2018 the Australian Department of Defence launched a strategic policy research grants scheme, one third of which were won by foreign institutions. For Australian institutions to compete, more capacity needs to be developed and relevance to intelligence priorities clearly demonstrated.

There are clear areas for further development to deepen social science and NIC engagement. In order for these to be effective, the atmosphere of distrust and capture must be mitigated. Engagement between the social science and intelligence communities can be increased through an effective and flexible framework, which allows the NIC to access a wider range of research perspectives. The NIC is not currently tapping into the multidisciplinary nature of social science research in Australia and therefore is not acquiring the full security picture. The limited capacity of the NIC to engage with academic expertise and social science research deeply, likely due to time and resource constraints, poses the risk of analysis of an incomplete picture. Intelligence analysis based on incomplete data increases the risk of an intelligence failure. An integration pathway to more readily supply accurate and comprehensive research to the NIC would support the quality and integrity of intelligence analysis. This would also allow both communities to benefit from the expertise of one another when developing lines of enquiry and research priorities.

4. Improving Engagement in Australia

4.1 Incentivising Engagement

Australia's intelligence and social science communities have a history of limited interaction. While intelligence analysts have training in the social science fields, the NIC has a limited number of area or topic experts. This points to an important reality - the NIC values expertise from the social science sector but, due to time constraints, is not able to engage critically in a systematic and sustained way. Further, the NIC necessarily mandates a culture of secrecy, in which conversations with academia are often one-way. This central institutional barrier needs attention.

Academia is constrained by institutional barriers of its own. Universities are forced to justify their activities by a quantification of 'excellence'. This has been measured through international journal publication, which has inhibited an Australian focus. But 'impact' is now emerging as a complementary measure, increasingly shifting Australian universities' focus on social science researchers' ability to impact the policy making processes. This presents a growing force for the social science community to foster deeper engagement with the NIC, particularly, if accompanied by external funding priority.

There are driving forces within the NIC which can cultivate closer engagement with the social science sector. Indeed, various reports (for instance the 2017 Independent Intelligence Review[xiii]) have called for the NIC to increase its engagement externally to leverage expertise and critical review. These pressures on both academia and the NIC pose a potential convergence from both sides.

Recommendation 3: The NIC should undertake an **audit of existing research schemes** to identify the social science disciplines already contributing to intelligence priorities and the potential for future contributions.

The national security needs flagged by the *Survey* show that social science security research should be made a priority in future funding. Existing research funding structures in the Department of Defence NextGen Fund, Australian Research Council, Defence Science and Technology Group, CSIRO, and the Department of Industry, Innovation and Science's CRC Programme and Industry Growth Centres do provide for intelligence requirements. They are amendable to topics prioritised by the *Survey* and could be expanded to embrace social science research more directly. An audit of current research funding would assist the NIC to identify both emerging researchers and research topics relevant to intelligence analysis. This audit could also provide a better understanding of funding gaps and topics of interest that are not being supported through existing funding streams.[xiv]

Australian social science academics have much to offer the NIC. Going forward, engagement can be based on translating the knowledge social science already holds, including in intelligence-neglected areas of these disciplines, and applying it in the context of the

NIC. However, the social sciences and NIC must overcome the challenges of information asymmetry. Academia brings critical review, but intelligence agencies must interact in a trusted environment in order to operate in a meaningful way.

It is possible to overcome this challenge by developing targeted and prioritised research projects towards a framework model for social science and NIC engagement. These projects can be undertaken in a mutual facility that cultivates data sharing, collaboration and education to advance the institutional relationship between the two communities in Australia.

An institutionalised relationship between the two communities will go some way to building strong ties whilst providing a forum in which there can be more public review of intelligence decisions. This will also facilitate greater public engagement with experts in the social sciences. Research collaboration could start with small projects on priority Australian intelligence missions as well as others identified by the mission intelligence group.

There are more commonalities between the two communities than differences, and these can be built upon as common ground. Research methods including tradecrafts (in which both the social science and intelligence sectors draw upon qualitative interviews) and narrative methods of exposition (both grand and case studies) are contemporary examples of such commonalities. It is likely that the NIC has much to learn from social science research methodology, as does the social science community of the NIC methods.

4.2 Facilitating Engagement

Australian social science research strengths are significant and the NIC could make better use of them, and borrow from the US approach, increasing the number of researchers provided with security clearances. Given domestic clearance constraints in Australia, the development of an ‘air-lock’ for social science scholars and intelligence analysts to foster research ties is a viable alternative. Here, tradecraft and case specifics are not delved into and the requirement for clearances is muted.

This air-lock is a safe space, which could take the form of a formal centre or institution, and would allow the NIC to draw upon social science expertise and share ideas for countering security challenges. This is done in conventional international relations, national security and defence studies and can be applied to the emerging required interaction between intelligence, technology, and social and economic behaviour studies. Fostering this transdisciplinary culture will be complementary to the activities of the NIC. Through facilitating an air-lock for social science scholars and the NIC to interact with each other, a practical step forward to institutionalise dialogue between the two communities could be provided. This space could focus on what both communities need and find an overlap in their requirements.

04

Recommendation 4: In order to facilitate deeper engagement, build relationships, and allow for innovative analytical frameworks to be developed, the NIC should develop a **research-intelligence 'air-lock'** which will act as a secure space for social science researchers and the NIC to engage in an unclassified environment.

The air-lock model will ensure the NIC accesses expertise as needed, but it will also lay the foundation for building trust between the two communities. This model also ensures the communities move beyond narrow information exchange, whilst bolstering longstanding ties between the social science and intelligence sectors in Australia. Meeting in the middle ensures both communities are able to benefit from the relationship when based on common middle ground.

There are a number of existing models, both domestically and internationally, of collaborative research spaces that bridge the secure/unsecure environment and allow for safe and secure exchange of data.

SNAPSHOT

In Australia:

- Monash University, in collaboration with the Australian Federal Police (AFP), is running the **Artificial Intelligence for Law Enforcement and Community Safety (AiLECS)** Lab which furthers ethical use of artificial intelligence in law enforcement, automated classification of distressing materials, characterisation of behaviour on the dark web, and prioritised file search. In order to achieve this mission AiLECS has partnered with Data61 and the AFP to create server architecture that acts as an "illicit data air-lock". (https://www.monash.edu/it/ailecs/research)
- The **Australian Cyber Security Centre (ACSC)**, a division of the Australian Signals Directorate (ASD), operates a fusion model in Canberra. The ACSC includes staff from the Australian Criminal Intelligence Commission, AFP, Australian Security Intelligence Organisation, ASD, Defence Intelligence Organisation, and (collocated) Department of Home Affairs. The ACSC also focuses on cyber security issues facing industry and the public. The Centre's ground floor provides a meeting space for scholars and selected cyber security industry representatives to engage with Centre individuals without requiring security clearances. (https://www.asd.gov.au/cyber)
- The **Australian Transaction Reports and Analysis Centre** (AUSTRAC) has established the **Fintel Alliance**, which allows law enforcement and the banking industry to work alongside each other by sharing financial intelligence that helps law enforcement to protect the community from the threats of serious financial crime. AUSTRAC is also developing an anti-money laundering air-lock, currently being tested at the Australian National University, based on a platform using advanced crypto such as sigBF for FINTECH related data analysis. (https://www.austrac.gov.au)

SNAPSHOT

Internationally:

- In the US, North Carolina State University, in partnership with the National Security Agency, has established the **Lab for Analytic Sciences (LAS)**. The LAS fosters close, ongoing collaborations between technologists and practitioners from government, industry, and academia to develop tools to address intelligence community challenges. LAS collaborators have the opportunity to develop state-of-the-art technologies and to demonstrate them against relevant exemplars across multiple domains. (https://ncsu-las.org/)
- In the UK, the **Centre for Research and Evidence on Security Threats (CREST)** is a national hub for maximising behavioural and social science research into understanding, countering and mitigating security threats. CREST brings together expertise in understanding the psychological and social drivers of the threat, the skills and technologies that enable its effective investigation, and the protective security measures that help counter the threat in the first place. CREST meets its mission by bringing together existing research and knowledge, drawing on multiple disciplines and methodologies, to find solutions to challenges. CREST also conducts original research aimed at filling gaps in the existing knowledge base or applying existing research to field testing in the security environment. In order to continue to build expertise relevant to security professionals, CREST runs commissioning programs targeted at industry and academia across social science fields. To ensure that practitioners have access to knowledge, CREST also prioritises a communications program of dedicated research communicators who prepare briefs, training packages for security professionals, and a quarterly magazine. (https://crestresearch.ac.uk)

Three immediate areas for collaboration in an Australian approach could include:

1. **Translation.** Social science scholars can translate theoretical approaches or research findings for the NIC and the NIC can translate (providing more information and guidance) their research requirements and research questions.

2. **Mutual Directions.** The cyber security environment is also impacting social science research capabilities - in terms of information overload and confusion around trusted sources. Both communities are facing the challenge of sensemaking vast information pools to find data of relevance and importance that can also be trusted.

3. **Building Capacity.** Social science research and NIC workforces will need to work together to educate and future-proof their employees in line with new requirements of the human-machine intelligence ecosystem.

4.3 Developmental Engagement

The *Survey* also opens discussion of the need to revisit recruitment approaches to craft a multidisciplinary workforce. Government requires holistic answers, drawing on the best sources and methods for knowledge creation. This means blending knowledge based on logic and evidence from an array of approaches. Indeed 'triangulation', whereby multiple methods test the veracity of single approach insights, would strengthen intelligence and social science alike.

Recruitment processes should aim therefore to develop and build workforces that are multidisciplinary across social science and STEM fields. As **Recommendation 1** highlights, a strategic workforce forecast, which incorporates both targeted skills recruitment and expanded training for future and existing analysts, will assist the NIC to prepare for the security challenges of the future. We must know what the relevant workforce of the future should be and how graduates can be 'work-ready'. This is a social science question, and will need to encompass intelligence skill needs, wider national security needs and the capacity of the education, training and professional development systems, to predict these requirements. To bring together scenarios, workforce data, modeling and policy analysis could advance this planning admirably for the big picture, with side models, case studies, and 'deep dives' looking at the particularly knotty intersections and puzzles.

Universities also have a role to play in this integration. For example, University College London has nested their Crime and Security Science courses within the Faculty of Engineering, bringing systems, technology and social science thinking together in the one faculty. This diversity of thinking, problem solving, and subject matter expertise will bolster against blind spots in intelligence analysis.

5. Conclusion & Recommendations

The world of intelligence is changing. Strategic context is shifting and exposing a deepening rivalry between states in the international system. At the same time, the scope of competition is broadening between and within the existing rules-based international structure. Our interdependence and societies' growing reliance on information networks has broadened and made less predictable where and how this rivalry will be pursued. In addition, there is growing complexity of the intelligence target. There has been a proliferation of threat types and a proliferation of open source intelligence avenues, making more complex the challenge of an intelligence analyst.

Intelligence analysts are dealing with problems that are getting more difficult to address with the traditional intelligence toolbox, and are at risk of being inundated with information as a result of burgeoning open-source data. As the *Survey* found, the intelligence sector will need to adapt and incorporate emerging technology and social science research to combat the threats of the future. While Australia's capability to assist the NIC is more limited than the US in terms of scale, the Australian social science sector has strong comparative advantages and capacity to engage.

Social science research can assist in shaping how AI is used - automation will involve confirmation bias and risks will remain throughout AI's evolution. High-level skills will need to be cultivated within the NIC, and the role of the intelligence analyst will continue to be an essential component of analysis. Such high-level skills are reserved only to humans and will remain as such. AI may further assist with pattern recognition, but social science expertise can be tapped by the NIC to help inform context and more rigorous analysis. The more AI accounts for intelligence gathering and the easier tasks made possible by big data, the higher the level of human ability will be required. This education and upskilling of the intelligence analyst can be achieved through engagement with social science research.

Social science researchers and the NIC share a natural affinity for the quest for knowledge and answers. However, this quest serves different objectives for each community. Social science scholars want to contribute to knowledge and have a requirement to produce scholarly output and, increasingly, have policy impact. The NIC is focused on seeking answers to the security challenges it is presented with and is less interested in building knowledge for its own sake. Still, both communities start with a desire for sensemaking - for answering the unknown. This is the natural basis for increased engagement between the two communities. Collaboration between the two communities needs to be equal and both communities need to engage to achieve this.

The social science community should define clearly its value-add to the NIC. Instead of focusing on methods to gain access to sensitive information, the social science community should demonstrate ways in which the NIC can apply social science models, methodologies and approaches (based on open-source development) to better position itself to solve emerging security mysteries.

This Report illustrates the requirement for the NIC to move beyond the current practice of accessing a narrow band of academic expertise. There is a broad ecosystem of social science research in Australia, often characterised by cross-disciplinary disagreements. These disagreements are critical for evolving Australia's intellectual edge as interdisciplinary

perspectives yield greater value than individual expertise. Here, the role of the Academy is apparent. Given the associations' eminent membership, the Academy could operate as the interlocutor between social science scholars and the NIC. The NIC would simply indicate to the Academy its social science expertise requirement and the Academy could then arrange for relevant scholars to meet with the NIC in the appropriate secure space.

Australia has a comparative advantage in the social sciences. In this stable, peaceful, prosperous democracy, social science researchers have been able to develop knowledge in a skilled, balanced, and open way. It is no accident that despite relatively small research funding, Australian university social science rankings are higher than for many other disciplines. This strength must be enhanced and its contribution, both domestically and internationally, exploited even more. This will include the basic ideas and speculations and interrogations that feed intelligence research and impact.

This Report recommends the following:

01

Recommendation 1: In order to ensure that intelligence agencies have the right skills and knowledge base to combat future security challenges, and capabilities to mitigate any unintended consequences of increased AI integration, the NIC should undertake or commission the development of a **strategic workforce training and recruitment plan** for the next decade.

Social science research can provide an improved understanding of learning and development requirements, emerging trends in social networks and systems, cyber security threats, impact and engagement of messaging, and other emerging needs of this kind. Engaging social science research in this process will be vital to ensuring that the NIC has a comprehensive understanding of human and social behaviour in order to identify and assess threats.

02

Recommendation 2: In order to systematically access a broad, multidisciplinary spectrum of social science research and methodological expertise, the NIC should establish a dedicated **academic outreach branch** to coordinate and oversee interactions with the social science research community.

This will be one step towards creating effective and secure pathways of sharing problems, approaches, and analyses between the NIC and social science researchers. The social science community also needs to find a way of gaining trusted access to the policy frameworks and security problems, which drive intelligence and the job of an intelligence analyst. Importantly, this body should also identify capability gaps and emerging research needs. The Canadian Security Intelligence Service Academic Outreach Program is an effective model on which the Australian branch could be designed.

Recommendation 3: The NIC should undertake an **audit of existing research schemes** to identify the social science disciplines already contributing to intelligence priorities and the potential for future contributions.

The national security needs flagged by the *Survey* show that social science security research should be made a priority in future funding. Existing research funding structures in the Department of Defence NextGen Fund, Australian Research Council, Defence Science and Technology Group, CSIRO, and the Department of Industry, Innovation and Science's CRC Programme and Industry Growth Centres do provide for intelligence requirements. They are amendable to topics prioritised by the *Survey* and could be expanded to embrace social science research more directly. An audit of current research funding would assist the NIC to identify both emerging researchers and research topics relevant to intelligence analysis. This audit could also provide a better understanding of funding gaps and topics of interest that are not being supported through existing funding streams.

Recommendation 4: In order to facilitate deeper engagement, build relationships, and allow for innovative analytical frameworks to be developed, the NIC should develop a **research-intelligence 'air-lock'** which will act as a secure space for social science researchers and the NIC to engage in an unclassified environment.

The air-lock model will ensure the NIC accesses expertise as needed, but it will also lay the foundation for building trust between the two communities. This model also ensures the communities move beyond narrow information exchange, whilst bolstering longstanding ties between the social science and intelligence sectors in Australia. Meeting in the middle ensures both communities are able to benefit from the relationship when based on common middle ground.

In line with the *Survey*'s findings, this Report confirms that "technological and other developments in intelligence analysis that proceed without the benefit of SBS research are likely to be limited in their effectiveness or worse, to results in misleading or distorted analysis".[xv]

Ultimately, intelligence analysis in Australia needs to free some of its capacity from event-driven reporting and analysis, using engagement with Australian social science researchers to provide truly strategic advice to policymakers on difficult topics. Tackling abstract security topics will bolster the NIC's capability to be more agile and better equipped to serve Australian interests, regardless of technological advances. As this Report has discussed, the human element and indeed the role of an intelligence analyst will continue to be crucial components of the NIC, despite AI and workforce automation.

Now is the crucial time to identify and fund sustainable avenues of engagement between social science scholars and the NIC. This Report offers a blueprint to assist the NIC to increase awareness and understanding, and to support the development of a stronger, more beneficial relationship between the two communities, in order to serve Australian security interests into the future.

6. Data Tables

Table 1 - see page 12

Table 2 - ERA 2018 Outcomes - Social Sciences[xvi]

Field of Research	Sub-Fields of Research	Well Above World Standard
Psychology & Cognitive	Psychology Cognitive Science	23
Law & Legal Studies	Law Maori Law	15
History & Archaeology	Archaeology Curatorial and Related Studies Historical Studies	13
Education	Education Systems Curriculum and Pedagogy Specialist Studies in Education	10
Economics	Economic Theory Applied Economics Econometrics	9
Commerce & Management	Accounting, Auditing and Accountability Banking, Finance and Investment Business and Management Commercial Services Marketing Tourism Transportation and Freight Services	9
Studies in Human Society	Anthropology Criminology Demography Human Geography Policy and Administration Political Science Social Work Sociology	9
Philosophy & Religion	Applied Ethics History and Philosophy of Specific Fields Philosophy Religion and Religious Studies	9
	Total Social Sciences	**106**

TABLE 3 - Sample of ARC Funded Projects Related to Intelligence Analysis 2014-19[xvii]

Institution	Title	Summary	Grant Code
Charles Sturt University	Intelligence and national security: ethics, efficacy and accountability.	This project aims to generate an ethically informed set of practice and policy guidelines for viable security intelligence collection and analysis of electronic data by liberal democracies. In the context of global terrorism and the resurgence of technologically sophisticated authoritarian states, effective intelligence collection and analysis of electronic data is crucial for the national security of liberal democratic states.	DP180103439
University of Queensland	Creating perceptual experts in Australia's policing and security agencies.	This project aims to create the next generation of experts in Australia's policing and national security agencies, by improving crime scene evidence interpretation. Agencies are under pressure to develop more rigorous training practices that go beyond mere intuition and tradition. This project will use a novel approach that directs learning toward the most diagnostic perceptual cues.	LP170100086
University of the Sunshine Coast	Optimising illicit dark net marketplace interventions.	This project aims to develop and test a series of interventions to disrupt identify theft activities, and design an operational risk framework that will aid law enforcement agencies and organisations to timely and appropriately intervene in cyberspace.	LP160100277
RMIT University	Privacy-preserving cloud data mining-as-a-service.	This project aims to explore practical privacy-preserving solutions for cloud data mining-as-a-service based on the Intel Software Guard Extensions (SGX) technology. The research addresses privacy concerns of users when outsourcing data mining needs to the cloud. These concerns have increased as more businesses evaluate data mining-as-an outsourced service due to lack of expertise or computation resources. The expected outcomes from the research will include new data privacy models, new privacy-preserving data mining algorithms, and a prototype of cloud data mining software.	LP160101766
University of Technology Sydney	Drift learning for decision-making in dynamic multi-stream environments.	This project aims to provide application-ready real-time decision support systems for big data situations. Real-time support for organisational decisions is crucial in fast-changing environments that are highly dependent on data from multiple large streams. Unforeseen changes in data distribution (drift) are inevitable. The ability to learn drift in dynamic environments with multiple large data streams will benefit innovation and decision quality in challenging data situations.	DP190101733

TABLE 3 - Sample of ARC Funded Projects Relevant to Intelligence Analysis 2014-19[xvii] (continued)

Institution	Title	Summary	Grant Code
University of Sydney	Advanced search of cohesive subgraphs in big graphs.	This project aims to study advanced cohesive subgraph searches, as well as design efficient and scalable techniques to conduct such searches. Cohesive subgraph search over big graphs is demanded by many applications, such as risk management, analysis of users' behaviours, cyber security, crime detection, social marketing and community search.	FT180100256
University of Western Australia	View and shape invariant modeling of human actions for smart surveillance.	This project aims to enable surveillance cameras to interpret videos and detect unexpected activity in real time. Existing surveillance cameras are unable to interpret videos. Because most are not monitored in real time, they play no role in improving security response time. The project plans to develop algorithms to detect actions from any camera viewpoint in continuous videos, a capability that is imperative for smart surveillance yet missing in current techniques.	DP160101458
University of New South Wales	Efficient and effective location-aware search on social networks.	This project aims to develop, analyse, implement, and evaluate novel indexing techniques and algorithms to support effective and efficient search on large scale social networks with location awareness. Most existing techniques for social network searches do not support or have very limited support for location-aware searches. The project expects to utilise the geographical information of both users and locations to advance the existing social network search mechanisms by providing users more relevant results.	DE190100663
University of New South Wales	Next-generation search on social networks.	This project aims to design effective and intelligent search techniques for large scale social network data. The project expects to advance existing social network search systems in utilising the geographical locations of queries and social network data to provide more relevant results, acknowledging and handling inherent uncertainties in the data, and exploiting knowledge graphs to produce intelligent search results.	DP180103411
Monash University	Towards data-efficient future action prediction in the wild.	This project aims to build state-of-the-art deep learning models to predict future actions in videos. The project expects to produce the next great step for machine intelligence, with the potential to explore a handful of labelled examples to better understand, interpret and infer human actions.	DE190100626

7. Additional Research

The following recent and upcoming publications may be relevant to those with interests in further research on the topic of this Report:

- Austin, G. (ed) (2020) (in publication). Cyber Security Education: Principles and Practice. London. Routledge.
- Blaxland, J. (2019). A Geostrategic SWOT Analysis for Australia. Canberra: ANU Strategic and Defence Studies Centre.
- Broadhurst, R. & Maxim, D. & Brown, P. & Trivedi, H. (2019). Artificial Intelligence and Crime: A Report for the Korean Institute of Criminology.
- Burcher, M. & Whelan, C. (2018) Social network analysis as a tool for criminal intelligence: understanding its potential from the perspectives of intelligence analysts. Trends in Organised Crime, 21: 278.
- Crawley, Rhys, and Ford, S. Brandt (2018). "The Current State of Intelligence Studies." In D. Baldino and R. Crawley (Eds.), Intelligence and the Function of Government. Melbourne: Melbourne University Press.
- Dixon, P.B., M. Jerie, M.T. Rimmer and G. Wittwer (2019) (forthcoming). Rapid assessments of the economic implications of terrorism events using a regional CGE model: creating GRAD-ECAT (Generalized,Regional And Dynamic Economic Consequence Analysis Tool). Modeling Spatial and Economic Impacts of Disasters. Germany: Springer.
- Lusthaus, J. (2018). Industry of Anonymity: Inside the Business of Cybercrime. Harvard University Press.
- Maurer, T. (2018). Cyber Mercenaries: The State, Hackers, and Power. Cambridge University Press.
- Nassios, J. and J. A. Giesecke. (2018). Informing ex-ante event studies with macro-econometric evidence on the structural and policy impacts of terrorism, Risk Analysis, Vol. 38, No. 4, pp. 804-825.
- Sanger, D. (2018). The Perfect Weapon: War, Sabotage, and Fear in the Cyber Age. New York: Crown Publishers.
- Walsh, P. F. (2017). Improving strategic intelligence analytical practice through qualitative social research. Intelligence and National Security, 32(5), 548-562.

8. References

i National Academies of Sciences, Engineering, and Medicine (2019). A Decadal Survey of the Social and Behavioral Sciences: A Research Agenda for Advancing Intelligence Analysis. Washington, DC: The National Academies Press. https://doi.org/10.17226/25335.

ii Ibid.

iii Ibid.

iv Ibid.

v The Good Universities Guide (2019). How to become a Intelligence Analyst. https://www.gooduniversitiesguide.com.au/careers-guide/browse/intelligence-analyst.

vi Australian Government Department of Education (2018). Selected Higher Education Statistics – 2018 Staff data. https://www.education.gov.au/selected-higher-education-statistics-2018-staff-data

vii Top Universities (2019). QS World University Rankings. http://www.topuniversities.com/qs-world-university-rankings

viii Australian Research Council (2019). Excellence in Research for Australia (ERA) 2018 National Report State of Research. https://dataportal.arc.gov.au/ERA/NationalReport/2018/

ix Australian Research Council (2019). Engagement and Impact Assessment: 2018-19 National Report. https://dataportal.arc.gov.au/EI/NationalReport/2018/

x Peer Review, P. Walsh.

xi Government of Canada (2019). Canadian Security Intelligence Service - Academic Outreach. https://www.canada.ca/en/security-intelligence-service/corporate/academic-outreach.html

xii Workshop Participant, D. Smith.

xiii Commonwealth of Australia (2017), Department of the Prime Minister and Cabinet, Independent Intelligence Review.

xiv Peer Review, P. Walsh.

xv National Academies of Sciences, Engineering, and Medicine (2019). A Decadal Survey of the Social and Behavioral Sciences: A Research Agenda for Advancing Intelligence Analysis. Washington, DC: The National Academies Press. https://doi.org/10.17226/25335.

xvi Australian Research Council (2019). Excellence in Research for Australia (ERA) 2018 National Report State of Research. https://dataportal.arc.gov.au/ERA/NationalReport/2018/

xvii Australian Research Council (2019). Grant Outcomes - Grant Dataset. https://www.arc.gov.au/grants-and-funding/apply-funding/grants-dataset

ACADEMY OF THE SOCIAL SCIENCES
IN AUSTRALIA

Enquiries should be addressed to secretariat@assa.edu.au

WWW.ASSA.EDU.AU

Cover Image: KJPargeterImages.com