



REPORT
of the
SELECT COMMITTEE ON
ARTIFICIAL INTELLIGENCE

*Tabled in the House of Assembly and published pursuant to Standing Order 346 on 14
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1. EXECUTIVE SUMMARY

The Parliamentary Select Committee was established pursuant to a resolution in the House of Assembly on Thursday 6 July 2023, on the motion of Mr Michael Brown MP, to inquire into and report upon the current state of Artificial Intelligence (AI) development, deployment and application across various sectors, with a particular focus on the economic, social and ethical implications for South Australia.

AI is a rapidly expanding field. AI technology has integrated itself, almost invisibly, into the everyday lives of South Australians, from the use of virtual personal assistants like Apple's Siri or Google Home, to generative AI like ChatGPT, to everyday apps like Uber and Google Maps, or even tech devices like robot vacuum cleaners. However, many Australians still view AI with a great deal of trepidation, associating the technology with job losses, deepfakes, or decreased privacy.

South Australia has become a leader in AI, becoming home to research institutes like the Australian Institute for Machine Learning, MIT's Adelaide Living Lab, the collective of innovators at Lot Fourteen and offices of international companies like Amazon Web Services and Accenture.

The committee invited submissions over a 6-week period, from 10 July 2023 to 18 August 2023, through targeted emails, and advertising in *The Advertiser*, regional newspapers and online via *InDaily*. 46 submissions were received. The committee heard from a wide range of witnesses, with 21 people appearing before the committee representing State Government Departments, specialist artificial intelligence institutions, researchers, and AI experts.

Consistent across the submissions and hearings was excitement about the possibilities offered by AI, tempered by concerns that regulations surrounding privacy may not be stringent enough to keep up with progress in the field, thereby including recommendations regarding possible reforms of existing legislation. A strong emphasis has also been placed on the need for continual and further investment in the field to foster innovation and economic prosperity.

The committee has developed 15 recommendations that seek to foster this enthusiasm but also mitigate any risks involved with AI advancement, particularly those pertaining to privacy and image-based abuse.

The committee is particularly interested in how South Australia can further build on its reputation as a leader in AI technologies, and has developed several recommendations that look to continue to foster sovereign AI capability, while also educating the next generation of workers, exploring how AI can be used more effectively in the classroom and across the curriculum. Additionally, the committee believes that adequate instruction about AI and how to use it safely and ethically is essential across the educational spectrum, and in the community.

The committee is also aware of the importance of effective governance and human oversight and has developed recommendations that seek to build on existing frameworks but also collaborate with state and Commonwealth governments to ensure consistency of legislation as it pertains to AI.

Lastly, it is the hope of the committee that the recommendations contained in this report acknowledge, and allow South Australia to keep pace with, the rate at which AI technology is advancing.

2. INTRODUCTION BY THE CHAIR

The growing prevalence and sophistication of artificial intelligence (AI) is a topic that dominates public discourse. Debate has been spirited, with public sentiment ranging from boundless optimism to fearful distrust. Regardless of where one sits on the issue, it is clear that AI at least has the potential to improve our lives and build a more just society. It is equally true that any substantial advance in technology must be treated with reasonable caution. In this case, policy makers must find a balance that will allow every South Australian to experience the benefits of AI technology, whilst ensuring personal freedoms and public safety are not jeopardised. An aim of this report is to provide policy makers with some of the knowledge needed to find that balance and build the best framework for our state. The inquiry aimed to separate AI fact from fiction, and to distinguish informed prediction from wild speculation.

Like the telephone or the internet, the widespread adoption of AI has the potential to revolutionise our society. Much has been said about the use of AI in schools, particularly ChatGPT. When the model was unveiled, there was concern that the ease with which it could write essays would lead to an explosion of cheating and undermine the foundations of our teaching system. Many jurisdictions moved to introduce a ban. I was pleased to see that our state was forward thinking in committing to exploring ways in which AI can be used to improve educational outcomes. Another opportunity is crime prevention; AI is currently used by various police services to aid in their investigations. It has helped find murderers and rapists by sorting through vast amounts of data held by genealogy databases, and AI-enhanced facial recognition has located international fugitives and missing persons.

However, an early example of AI being used to commit a criminal offence was in 2019, when an official with a company in the United Kingdom was asked by someone she thought was her CEO to transfer money to a company in Hungary. In fact, the voice was computer generated, with the model likely trained on public appearances the CEO had made. Such crimes are now regularly attempted by organised groups across the world.

Another worrying trend is the increase in image-based abuse utilising AI technology. It is a sad indictment on our society that many women are unknowingly subjects of pornographic 'deepfake' videos. The technology is now regularly used to create videos that have been commissioned by men to humiliate women known to them.

Data models are improved by more data. The form of that data, where it is sourced, and who ultimately owns it, are questions that need to be tackled in our local context. South Australians should have confidence that their personal data is not misused, especially in the chase for profit. Bias, particularly in models of risk assessment, is an issue that has been raised internationally, with a number of jurisdictions in the United States ceasing the use of AI in crime prevention due to racial bias.

Sovereign capability of data for the control of our own information flow is a critical issue the committee feels South Australia has the physical capacity and vision to develop. This includes sovereign capability of pure research that keeps AI researchers engaged and staying in the state. Sovereign capability of data sets, that belong to the citizens of South Australia, and Australia enables us to build our own systems, have control of our own data sets and maintain data security. The value of pure research and resultant PhD students is critical to innovation, keeping educators in the state and establishing a well-educated sector of the economy.

We know that the mass introduction of AI technology will provide opportunities, but equally important is the identification of the skills required to take advantage of these opportunities. Just as basic computer knowledge and skills have been added to our school curriculum, I believe we will eventually add knowledge of AI concepts. South Australia has an ageing population, and we need to ensure that our older South Australians also have the capability and support to make the most of these new technologies so that discriminatory effects on the older population are diminished. At the same time, we must ensure that the younger generation are prepared and educated in AI related skills to embrace the technology and ensure digital literacy is a priority in the education curriculum.

During its inquiry, the select committee heard from individuals and associations, university departments and research groups, private companies, community action groups and government bodies; I am grateful to everyone who took the time to provide a submission and speak with us.

I would like to thank the members of the committee—Mr Fraser Ellis, Mr Lee Odenwalder, Mr Stephen Patterson, Mr Josh Teague, and Ms Erin Thompson—who share my interest on this important topic. We have collaborated well to form recommendations that we believe represent constructive steps forward on this complex matter. I would also like to thank the committee staff, Mrs Melissa Campaniello, Mr Hadi Slyman, and Dr Amy Mead, for their support.

A handwritten signature in black ink, appearing to read 'M Brown', with a long, sweeping horizontal line extending to the left.

Mr Michael Brown MP

Chair

13 November 2023

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3. ESTABLISHMENT OF THE COMMITTEE

3.1 Appointment of the Committee

On Thursday 6 July 2023, on the motion of Mr Michael Brown MP, the House of Assembly passed a resolution to establish a select committee to inquire into and report upon the current state of AI development, deployment and application across various sectors, with a particular focus on the economic, social and ethical implications for South Australia.

3.2 Membership

The membership of the select committee appointed by the House of Assembly consisted of the following members:

Mr Michael Brown MP	Member for Florey	Chair
Mr Fraser Ellis MP	Member for Narungga	
Mr Lee Odenwalder MP	Member for Elizabeth	
Mr Stephen Patterson MP	Member for Morphett	
Mr Josh Teague MP	Member for Heysen	
Ms Erin Thompson MP	Member for Davenport	

Mr Michael Brown MP was elected Chair of the select committee. Mrs Melissa Campaniello was assigned the role of secretary and Mr Hadi Slyman and Dr Amy Mead were assigned as Research Officers.

3.3 Terms of Reference

The Parliament of South Australia appointed a Select Committee on Artificial Intelligence (AI) to inquire into and report on:

- a) The current state of AI development, deployment, and application across various sectors, with a particular focus on the economic, social and ethical implications for South Australia;
- b) The potential for AI to transform sectors critical to the South Australian economy such as agriculture, mining, manufacturing, and services and the skills required for this transformation;
- c) Issues surrounding the use of AI in the commission of criminal offences;
- d) The challenges and opportunities of AI in relation to privacy, data security, and the ethical use of AI, including the risk of bias in AI decision making;
- e) The potential for South Australia to develop a competitive advantage in AI, including through the development of a strong AI research and development sector, the attraction of AI investment, and the training and retention of AI talent; and
- f) Any other related matter.

3.4 Disclosure of Evidence

Pursuant to Standing Order 339, the House of Assembly ordered that the select committee have power to authorise the disclosure or publication, as it saw fit, of any evidence presented to the committee prior to such evidence being reported to the House.

3.5 Conduct of Inquiry

During the course of this Inquiry, the committee received 46 written submissions from individuals and organisations. A list of written submissions is attached as Appendix 1.

Oral evidence was heard from 21 witnesses. A list of those who appeared before the committee to give evidence is attached as Appendix 2.

The committee met on 9 occasions to receive oral evidence, to consider written submissions and / or deliberate on the committee's findings.

The committee invited submissions over a 6-week period, from 10 July 2023 to 18 August 2023, through targeted emails, and advertising in *The Advertiser*, regional newspapers and online via *InDaily*.

3.6 Abbreviations

Ahpra	Australian Health Practitioner Regulation Agency
AIC	Australian Institute of Criminology
AIML	Australian Institute for Machine Learning
ANZPAA	Australia New Zealand Policing Advisory Agency
CSAM	Child sexual abuse material
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEM	Department for Energy and Mining
DIIS	Department for Industry, Innovation and Science
DE	Department for Education
DPC	Department of the Premier and Cabinet
FDSV	family, domestic, and sexual violence
GDP	gross domestic product
GVP	gross value of production
IoT	Internet of Things
JACET	Joint Anti Child Exploitation Team
ML	Machine Learning
PIRSA	Department of Primary Industries and Regions
QPS	Queensland Police Service
SAPOL	South Australia Police
SARDI	South Australian Research and Development Institute
STEM	science, technology, engineering, and mathematics
UUVs	Unmanned underwater vehicles
VAEs	variational autoencoders

4. SUMMARY LIST OF RECOMMENDATIONS

Recommendation 1: Develop sovereign AI capability

The select committee recommends that the development of sovereign AI capabilities are prioritised for use across government departments and agencies in South Australia.

Recommendation 2: Facilitate appropriate reskilling of impacted workers

The select committee recommends that the Department for Industry, Innovation and Science liaise with Business SA and industry groups to identify workers and industries most likely to be impacted by AI and provide appropriate levels of assistance to ease any transition.

Recommendation 3: Spearhead the training of AI professionals in South Australia

The select committee recommends that the state government spearhead custom initiatives to increase the number of AI professionals in South Australia, particularly within the state's largest employer, the public sector.

Recommendation 4: The State Government invest in public sector capacity to develop technical knowledge to incorporate AI into work tasks within government departments and support training programs for employees to understand how AI can enhance their roles

The committee considers that by automating tasks, AI has the potential to free up public service time and lead to improved service delivery, and boost productivity by streamlining administrative tasks.

Recommendation 5: South Australian government departments continually monitor the effectiveness of AI assisted programs

The committee recommends that with the increase in AI assisted programs used in work tasks, a human interface must be maintained as oversight, with AI's role in decision making used as a tool with humans remaining accountable for the application of those tools.

Recommendation 6: Develop a State Action Plan to market South Australia as the premier destination for AI investment in Australia

The committee recommends that the success of the Australian Institute for Machine Learning is built upon and that the Department of the Premier and Cabinet develop a plan with the Department for Trade and Investment to attract companies and research bodies with significant investment potential.

Recommendation 7: The State Government identify narrow, focused areas of specialised AI expertise, where South Australia can be the world's best

Rather than competing broadly with a multitude of AI technologies, the committee recommends that South Australia build a competitive advantage in selected areas and capitalise on this capability to deliver greater benefits to the community.

Recommendation 8: The Department for Industry, Innovation and Science consider the introduction of a Growth Accelerator to accelerate the adoption of AI technologies in industry

Similar to the Manufacturing Growth Accelerator, the committee recommends that the Department for Industry, Innovation and Science could provide a similar support pathway for the innovation and adoption of AI technologies to promote advancement in strategic economic areas.

Recommendation 9: Develop an evidence-based, best practice framework to guide schools in harnessing AI to support teaching and learning

The committee recommends that the framework from the Department for Education should have the following objectives: safe and ethical use of generative AI tools; best practice implementation of generative AI tools to lift student outcomes; reducing burden and administration using generative AI tools; and establishing education-specific standards and governance to meet the needs of schools.

Recommendation 10: Develop age specific education programs to promote public awareness of AI in online safety, data privacy, identifying misinformation and disinformation and digital consumer manipulation

AI technologies will not always be used ethically. The committee recommends that education programs tailored to address harmful impacts, will lead to a better understanding and protection for all individuals.

Recommendation 11: The Department for Education consider a pilot of AI technology related subjects in the curriculum

The committee believes that students and educators need to be aware and engaged in the changing capabilities of the technology and its impacts. Elevating STEM subjects to make them relevant to all students will provide a starting point for AI talent development and may lead to greater sovereign capability of research.

Recommendation 12: State government departments coordinate with Commonwealth government to provide clear, consistent and comprehensive laws for the AI industry

The committee considers that if laws are developed for the AI industry, this should be on a national level so that priorities and modes of governance are clear. This will serve as a theoretically sound starting point for endeavours relating to AI and will allow South Australians to realize the full potential of AI whilst ensuring that risk is effectively managed.

Recommendation 13: State government establish a *permanent* whole-of-government body dedicated to creating and implementing an AI framework based on accountability, transparency, societal and environmental well-being, universal access, fairness, safety and security, and human agency and oversight

The committee believes that findings may lead to AI specific legislation or amendments to current legislation, in order to prevent discrimination based on flawed datasets, and thwart reinforcement of offensive stereotypes.

Recommendation 14: Review the applicability and suitability of current criminal law and privacy laws in relation to AI-enabled image-based abuse (i.e. 'deepfakes')

The committee queries if the current laws are adequate to protect South Australians from rogue deepfake technology and recommends a review into their applicability and suitability.

Recommendation 15: SA government to develop a framework for the use of AI technologies in investigations by applicable government departments and agencies.

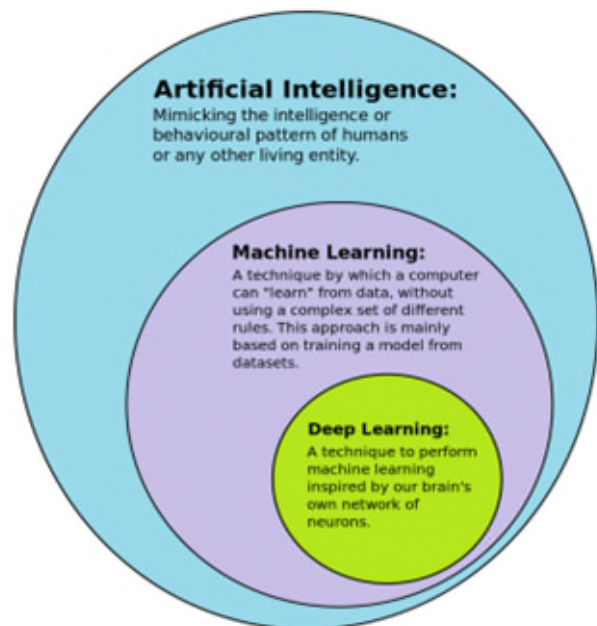
The committee recommends the development of a framework similar to the rationale of a search warrant in an investigative context: a framework for the use of AI technologies to establish a process that must be undertaken when using these technologies to support investigative functions.

5. BACKGROUND TO THE INQUIRY

Artificial intelligence: what is it?

Although there is no common consensus about a single definition of AI, there is overlap in definitions in terms of understanding AI as a system that has the capability to interpret and learn from data to achieve organisational and societal goals. More significantly, it is this capability perspective of AI with organisational and societal focus that attracts many organisations and national governments alike in large scale investments in AI capability building.¹

Artificial intelligence is a broad term describing machines that can perform tasks that would typically require human intelligence, such as learning, reasoning and problem solving. Artificial intelligence, as a term and academic field, is understood to have originated at a scientific workshop at Dartmouth College in 1956.²



Machine learning is a type of AI that involves the development of mathematical algorithms and models that allow computers to learn from data and improve their performance to recognise patterns and make predictions without being explicitly programmed to do so. The term machine learning was coined in 1959 but some of its basic mathematical underpinning's date back to the 1760's.

Deep learning is a form of machine learning that employs deeply layered neural networks – so called because they are inspired by the interconnected neurons in a human brain – to learn complex representations from data. The current rapid advancement in AI can be traced to around 2010, when advances in computer hardware increased the speed of some deep learning systems by about 100 times. Deep learning is used in computer vision tasks such as image recognition, natural language processing technology such as ChatGPT, and more.

Generative AI refers to deep-learning models that can take raw data and 'learn' to generate statistically probable outputs when prompted. At a high level, generative models encode a simplified representation of their training data and draw from it to create a new work that's similar, but not identical, to the original data. Generative models have been used for years in statistics to analyse numerical data. The rise of deep learning made it possible to extend them to images, speech, and other complex data types. Among the first class of models to achieve this cross-over feat were variational autoencoders, or VAEs, introduced in 2013. VAEs were the first deep-learning models to be widely used for generating realistic images and speech.³

Computer vision is a field of AI that focuses on enabling computers to interpret and understand meaningful information about the world using visual input such as images, video

¹ Australian Industrial Transformation Institute, Flinders University, Submission 42, p. 12.

² Australian Institute of Machine Learning, Submission 31, p. 3.

³ K Martineau, [What is generative AI?](#), IBM Research Blog, 20 April 2023, accessed 22 September 2023.

and other visual sensor data. Examples of applications for computer vision include: facial recognition on smartphones, autonomous vehicle technology, object detection in manufacturing processes, analysis of medical images, and more.⁴

Data Sovereignty

Data sovereignty is of great importance in the use of AI by governments and their agencies and departments, in that it refers to the control and security of the data generated and used by those entities. This is of particular concern in relation to sensitive data regarding members of the public (e.g. the digital health assets of SA Health) or matters relating to security (e.g. defence). It can be perceived that a holder of sovereignty possesses authority, and it is in the best interest to South Australia, and Australia that this authority is maintained. If Australia is sending data to larger AI providers operating offshore, how this data is processed, used, and stored is of key consideration regarding the data sovereignty of Australian assets. If South Australia is able to pursue our own sovereign capability and build globally competitive AI industries and capabilities within the government, it can be a starting point to improve services, determine economic capability and compete on the world stage⁵.

Data sovereignty can potentially lessen the risk of bias for Australian users. Rather than using AI technology developed overseas using an overseas data set that may bring vulnerabilities and limitations to the AI model, AI technologies developed using Australian data to train the model helps in the transparency and robustness of the technology and confidence in the accuracy of decision making. This is especially evident for Indigenous data governance and sovereignty unique to Australia.

AI in South Australia

South Australia already boasts several AI business success stories, including AI-powered talent marketplace Pickstar, event and stadium point-of-sale application developers MyVenue, visual effects studio Rising Sun Pictures, geospatial technology company Aerometrex, media insights company Amplified Intelligence, and open-source intelligence solutions developer Fivecast.⁶

According to CSIRO's data on Australia's AI ecosystem, in 2021, the University of Adelaide, Flinders University and the University of South Australia published 744 research papers on AI contributing 20.37% of the national total. With only 7% of Australia's population, South Australia contributes over 20% of AI research. Further, there are 24 AI companies from South Australia in analysis of Australia's AI sector.⁷

Global companies are choosing to conduct research and develop projects with the Australian Institute for Machine Learning, the School of Computer and Mathematical Sciences at the University of Adelaide, as well as the Industrial AI Research Centre and the Australian Institute for Interactive and Immersive Environments at the University of South Australia. The Australian Institute for Machine Learning (AIML), established in 2018 as a partnership between

⁴ Submission 31, p. 3.

⁵ Committee Hansard, 11 September 2023, p. 9.

⁶ Department of Industry, Innovation and Science, Submission 4, p. 4.

⁷ CSIRO, Submission 23, p. 4.

the University of Adelaide and the Government of South Australia, aims to develop a core capability in industrial AI and spur economic growth and job creation across a range of sectors.

Through this partnership, the state government has invested \$8.1 million over five years to September 2023. AIML has delivered significant returns for South Australia, attracting a further \$61 million in research income from external sources such as industry partnerships and federal grants.⁸ Access to AIML's talent pool has also been a key factor for international companies such as Accenture, Amazon, DTX, Google, and MTX establishing operations in Adelaide and the institute has helped attract and create more than 7,000 hi-tech jobs in South Australia. The institute has been highly effective at translating its research through partnerships with more than 35 businesses and 10 state government entities to create new products and automate processes to improve productivity and service quality.

AIML has grown into a state-of-the-art research institute, doubling in size from an initial base of 80 members to more than 180 in 2023, and is now the largest university machine learning research group in Australia.⁹ AIML members include senior University of Adelaide academics, postdoctoral researchers, PhD and Masters degree students, machine learning engineers, and professional and administrative staff. AIML is currently in negotiations with state and federal stakeholders regarding the funding of future programs.

South Australia's Competitive Advantage

By choosing to invest in the Australian Institute for Machine Learning in 2017, the Government of South Australia has achieved a good head start in creating its own competitive advantage in AI for the state. South Australia has strong foundations in its AI research and development capability, an established track record of attracting AI investment, and has built a high-quality AI talent pool. This capability is recognised internationally and has already led to significant investment and job creation in the state. However, rapid development of AI globally, combined with significant investments by international governments to scale up their own domestic AI research, means that South Australia must continue to prioritise the growth of its AI capability.

It is not realistic to attempt to compete broadly with the AI activity of the US and China; SA has instead selected narrow, focused areas of specialised AI in which to excel. South Australia's nascent but thriving AI-tech ecosystem is internationally recognised in academic and industry circles.¹⁰

There is strong potential for South Australia to increase its competitive advantage in AI, but this will require a significant and sustained focus across education, research, startup creation and industry development. Similarly, investing in the supporting capability of AI technologies such as communications and data management infrastructure will continue to help turn AI into an innovative industry for South Australia.

AI in the South Australian Public Sector

AI is ubiquitous in tools that already exist across the public sector to automate tasks. For example, Outlook emails pass through spellcheckers and filters, and are checked for events to add to a calendar. Salesforce is embedding generative AI into their offerings to make

⁸ Submission 31, p. 4.

⁹ Submission 31, p. 4.

¹⁰ Submission 31, p. 5.

searches more relevant and efficient. These features deliver efficiencies and cost savings with little risk. However, other widely accessible, easy to use products - such as ChatGPT – present a higher level of risk. The Office for the Chief Information Officer reports that gigabytes of data is downloaded from ChatGPT and similar platforms every day, following uploads to the platform in the form of prompts.¹¹

The South Australian public sector has pivoted towards a strategic focus and position on the use of AI. The prevalence and potential consequences of public sector data entering AI spaces prompted the creation of the South Australian Across Government AI Governance Working Group, which met in July 2023.¹² The Department of the Premier and Cabinet (DPC) is currently considering the Microsoft Azure OpenAI service for use in SA Government.¹³

Azure OpenAI gives customers the capabilities of the publicly available tools, with the security and enterprise features of the Microsoft Azure service. The DPC is currently in discussions with the University of Adelaide to establish a Global Research Alliance for Responsible AI within AIML, jointly funded by the University and CSIRO/Data61, with potential South Australian Government funding provided from the Research and Innovation Fund.¹⁴ This Alliance would leverage AIML's competitive strengths in machine learning and responsible AI to support key South Australian industrial sectors with AI technology that is world class, innovative and trusted, while also expanding the pipeline of domestic talent in advanced AI skills.

The Federal Data and Digital Ministers are considering national approval of NSW's Framework for AI Governance as fit for purpose and safe to use for all jurisdictions. The South Australian working group is considering a state government adoption or adaptation of this framework.¹⁵ The AI Assurance Framework assists agencies to design, build and use safe and quality AI. It complements the Artificial Intelligence Ethics Principles and is supported through an AI Advisory Committee comprised of experts from government, industry and academia that advises on the ethical use of AI for decision-making and service delivery.

¹¹ Office for Data Analytics, Department of the Premier and Cabinet, Submission 38, p. 3.

¹² Submission 38, p. 3.

¹³ Submission 4, p. 5.

¹⁴ Submission 4, p. 5.

¹⁵ Submission 38, p. 3.

6. OPPORTUNITIES AND CHALLENGES

The Technology Council of Australia and Microsoft have conducted a study on the potential economic impact of Generative AI in Australia. According to their estimates, by 2030, depending on the levels of adoption, Generative AI could contribute between \$45 billion and \$115 billion annually to the Australian economy. When adjusted for South Australia's 5.6% proportion of Australia's GDP, the opportunity represents between \$2.5 billion and \$6.4 billion to South Australia.¹⁶

AI may address the worldwide skills shortages and looming demographic collapse due to ageing, with routine tasks able to be replaced by AI and robotics, with the possibility of workerless manufacturing operations in the 2030s. AI will likely result in new roles being created, including AI-related roles yet to be imagined. However, some South Australians may have their positions partially or fully replaced as AI can help boost productivity by eliminating some routine tasks. Without education and a focus on skills, this may create structural unemployment and increase income inequality.¹⁷ A key consideration will be identifying the key industries likely to be impacted in order to provide ample transition time and support.

Energy and Mining

AI methodologies often rely upon large volumes of input data. The Department for Energy and Mining (DEM) provides vast amounts of publicly available exploration and mining data at no cost to the public.¹⁸ Free access to data is not only a competitive advantage, but it also facilitates reproducibility and reduces bias.

The majority of AI activity in the energy sector currently involves the application of natural language processing to help find and extract information from unstructured sources.¹⁹ Improved image analysis and utilisation are also highly sought, involving digital core photos, satellite/aerial imagery and other commodity-based geological data. In mineral exploration economics, the most important goals are reduced costs of exploration and a shorter time to discovery; AI has the potential to deliver both. Using all available data in digital form, along with AI techniques, can allow companies to explore more widely and faster, allowing more land to be evaluated sooner. Utilising AI techniques could provide the opportunity for more targeted exploration. Targeted exploration would have a direct impact on reducing the exploration footprint on country, reducing some land access concerns and shortening time frames on the exploration pathway.

South Australia has an extensive history in the energy sector and is at the forefront of both small- and large-scale development of renewables. Through innovative adoption of AI, South Australia can build upon its global competitiveness into the future. The state's unique position in renewable energy, combined with AIML's research capability, has a distinct offering to global companies seeking to redefine existing grid infrastructure and the model of energy purchase and use. This is pertinent to South Australia where high penetration of household solar infrastructure requires adaption and flexibility in an ageing transmission and distribution network, where demand below a certain level could result in network failure.²⁰ AI offers the capability to model complex multi-variate systems. The energy and mining industry in South Australia is prime for transformation using AI technology. Examples include:

¹⁶ Submission 4, p.2.

¹⁷ Submission 4, p.2.

¹⁸ Department of Energy and Mining, Submission 41, p. 2.

¹⁹ Submission 41, p.2.

²⁰ Submission 31, p.10.

- Beach Energy engaged AIML to explore the use of AI for oil exploration and predict well characteristics before drilling; with potential benefits including improved prospecting accuracy and precision, greater returns on investment and reduced environmental impact.
- Clean Carnegie Energy worked with AIML to develop AI-based wave prediction algorithms for optimal control in wave energy converters.
- A team from the University of Adelaide won second place in the OzMinerals 2019 Explorer Challenge, an international competition involving more than 1,000 participants. AI predictive modelling and computer vision was used to identify potential mineral deposits and inform potential exploration sites.²¹
- MaxMine is an Australian tech startup based in Eastwood, South Australia that creates technology solutions, automated data processing and analytics, military-grade IoT (Internet of Things), and mining expertise powered by AI to enhance productivity for open-pit mines sites.²²

AI powered innovations can improve productivity in the mining and energy sector. AI has the potential to make mine sites safer, more efficient, and environmentally sustainable. This can be realized through the adoption of AI systems that enable predictive maintenance, proactively prevent asset failures, and increase operational efficiency. Drill core scanning techniques using AI can be used to identify mineral composition, or automatically scan drill core images to identify and log rock types downhole. Large amounts of data can be accessed, integrated and applied by companies at all scales quickly, potentially levelling the playing field across the industry.

The potential for new methods to develop exploration models is huge, but just the potential to identify what data is most impactful within a model, and where the data gaps are, has significant potential to improve exploration efficiency, leading to reduced costs and increased shareholder value. Examples of mine efficiencies and safety improvements already realized include automated ore sorting, water and power monitoring, predictive maintenance, supply chain and environmental monitoring, robotics, and autonomous vehicles.²³

With the use of remote sensing using AI and Machine Learning (ML) technologies, it is possible to observe and collect data over land without needing to obtain community permission. Currently, land access agreements under the *Mining Act* and *Petroleum and Geothermal Energy Act* are only required to physically step onto the land in question. Remote data collection (using satellites/drones etc.) could be used to collect information for which the data collector does not have a licence to operate. This means less land is disturbed and less time is spent on the land, reducing any risk of damage to the environmental or heritage.

SA is known globally for its high-quality geophysical database. Providing extensive high quality geological datasets, core photos and associated data, as well as digital maps in a consumable format (readily ingestible into AI models), is the focus of a new DEM Flagship Digital Delivery Project.²⁴ The project aims to keep SA at the forefront of digital data delivery, with the goal of delivering new data and maintaining the State's digital database. It will provide an opportunity for mineral and petroleum exploration leadership world-wide, by facilitating virtual exploration in the State from anywhere in the world.

Coupling education with data science studies can alleviate the current skills shortage by drawing young people to geoscience through their interest in data science, and by developing

²¹ Submission 31, p.11.

²² Tech Council of Australia, Submission 39, p. 11.

²³ Submission 41, p.3.

²⁴ Submission 41, p.4.

these skills at university level, ensuring graduates are job ready. SA is well positioned in this area with universities coupling geoscience with AI studies.²⁵

Lot Fourteen has attracted several organisations working in this area, and linking these groups effectively could create significant opportunities. Continued support and growth of Lot Fourteen or equivalent would help to minimise losing graduates to other jurisdictions or industries. DEM has a recent history of embracing methods such as the Gawler Challenge and Thinking Critical Challenge to attract new thoughts, ideas and companies working in these fields to SA. Aligning with others and leveraging off other projects with grants, co-funding Co-operative Research Centres and innovative research is an efficient and cost-effective way of maintaining pace.²⁶

Along with the opportunities, the energy and mining sector are likely to face the following challenges:

- determining how to assess the validity and accuracy of AI approaches;
- identifying bias both in the input data and in the human interpreter of AI outputs;
- fostering market competition and fairness by ensuring the cost of AI is not a barrier for smaller explorers;
- accessing or training people who understand both geoscience and data science; and
- understanding the potential job impacts of AI and adapting accordingly.

Education

The submission from the Department for Education, South Australia (DE) outlines the department's position on the use of generative AI in government schools. It discusses the benefits and challenges of generative AI tools in education and describes how the DE is supporting educators as they navigate the evolving digital landscape. During a select committee hearing, Professor Martin Westwell, Chief Executive of the DE, stated:

*The approach that we have taken...is certainly a safety-first one to ensure that we are minimising the risks, we are maximising safety and security for our students and our teachers, but also a cautiously ambitious approach as well to make sure that South Australia can get the most value out of the opportunities created by artificial intelligence in education.*²⁷

It is clear that while the transformative potential of AI is yet to fully emerge, AI is here to stay, and its evolving use will undoubtedly become more prevalent in schools and workplaces. Education systems will need to be holistic and balance academic with non-academic factors to reflect a broadening understanding of student success and establish children's place as global citizens in a rapidly changing world.

The potential benefits that generative AI presents in education are undeniable. The challenge for all education systems is harnessing these benefits while carefully considering learning design, and tackling a range of challenges concerning access, privacy, security, and intellectual property.²⁸ The DE has stated its commitment to supporting its educators, leaders, support staff, students, and corporate staff as they seek to take advantage of AI responsibly and ethically.

²⁵ Submission 41, p.4.

²⁶ Submission 41, p.4.

²⁷ Committee Hansard, 5 October 2023, p.30.

²⁸ Department for Education, Submission 37, p.4.

The opportunities associated with generative AI in education have been well identified, and include supporting students with personalised content, providing learning support and targeted feedback, and helping teachers with planning, instruction, and assessment. Just how impactful each of these use cases are, however, remains to be fully understood. The DE has identified three opportunities within the South Australian government systems. Firstly, generative AI, particularly chatbots, can **support equity** and help students in their learning by:

- explaining information in different ways to enable better understanding
- summarising complex information
- creating a study timetable or program
- testing student knowledge
- aiding in the synthesis of information from different sources
- assisting in paraphrasing information

The second area of opportunity is **personalised learning**. AI tutoring systems have been around for several years. Their progress and utility are likely to be bolstered by advancements in generative AI through dialogue-based tutoring, which can receive a written or spoken response which is then evaluated with feedback. Providing appropriate controls are in place, generative AI can play a role in permitting educators to build more personalised learning plans for students, allowing students to receive more adaptive and frequent feedback. This could be powerful for students that struggle with traditional learning or have particular learning needs.

The third area of opportunity is the ability to **streamline teaching tasks and school administration**.²⁹ Generative AI shows significant potential in this regard. There are tasks that educators undertake frequently which generative AI could streamline. For example, generative AI could be used as a starting point for lesson planning – inputting lesson objectives and other parameters and using the outputs as ideas for design and activities. Generative AI can also automate a wide variety of tasks, freeing up employees to focus on higher value work. The capabilities of these technologies can be applied to nearly all aspects of business, including report writing, content creation, marketing campaigns, social media posts, PowerPoint presentations and brainstorming.

Risks and Challenges

Every invention poses new challenges and generative AI, as a component of broader digital transformation, is no different. In some cases, these challenges present significant hurdles to realising the benefits outlined above. In others, the risks can be controlled currently to a suitable degree to enable meaningful use. Risks include:

- i) Generative AI chatbots sometimes provide answers that cannot be backtracked to the source information. They can produce false references to support the answers they provide (which seem convincing on their face) and even make things up, which is referred to as ‘hallucination’.³⁰
- ii) AI methodologies are trained using large data sets and may produce inappropriate content for students based on questions asked. Moderation is still rudimentary and often difficult.

²⁹ Submission 37, p.5.

³⁰ Submission 37, p.6.

- iii) There may be implicit or explicit biases against individuals or groups in AI responses, which may serve to perpetuate offensive stereotypes. These may be due to incomplete or biased datasets, or to the flawed training underpinning the model.
- iv) Over time, generative AI chatbots will learn more about users based on their digital footprint and will customise responses accordingly. These responses may serve to reinforce narrow views of the world.
- v) The terms of service for some AI tools require users to be over a certain age. In the case of ChatGPT and DALL-E this is 13 years old, with those under 18 requiring parental consent to use the platform. Some generative AI sites do not request proof of age during registration. Others only require an email or Google or Microsoft account to register. This makes it difficult to control access.
- vi) The data and information entered into generative AI tools becomes the property of the owners of the tools. It may not be clear how the tools protect the privacy and security of data. This is compounded where the products build profiles of users over time.
- vii) Generative AI chatbots raise particular considerations in relation to assessment integrity. Because content is generated (and not copied) it can be difficult to identify – even for automated anti-plagiarism tools – where a student may have used a generative chatbot to support their work. Schools and teachers will need to consider appropriate controls, and strategies to identify misuse.³¹
- viii) If the benefits of AI are not equally shared across South Australian schools, there is a danger that current equity gaps that exist between schools will widen.³²

Commission of Criminal Offences

The role that AI can play in the effort to reduce crime in our state was a major consideration of the select committee. It is clear that AI is capable of enhancing the critical services that the South Australia Police (SAPOL) provides to the community. It is already used for Automatic Number Plate Recognition systems, as well as facial recognition of wanted or monitored persons; during a meeting of the select committee on October 5, Assistant Commissioner John Venditto, of Crime Service, SAPOL, stated that:

*Facial recognition is critical for serious investigations within SAPOL. There has been enormous success in this regard. A stranger rape or a serious robbery in a public place that could otherwise take a long time to identify and develop investigative leads is an example, yet if the suspect's image is detected at, near, before, or after the event on unrelated CCTV, facial recognition technology can then provide police with a shortlist of suspects in the dozens, as opposed to no clue at all. At this point, a human is always involved in the decision-making. The quick identification means police can seize important perishable or disposable evidence, which can be used to convict the offender.*³³

³¹ Submission 37, p.6.

³² Committee Hansard, 5 October 2023, p.35.

³³ Committee Hansard, 5 October 2023, p.30.

SAPOL has identified the following additional opportunities:

Crime Reduction

AI analyses large data sets and uses pattern recognition in social behaviours to predict geographical areas of emerging crime trends, violent crimes, or to identify high risk individuals. This use is open to criticism due to scope for bias in the data to influence AI predictions which may discriminate against individual or community groups. When managed ethically and responsibly, this AI use can facilitate more efficient human police resource allocation, decrease response times, and assist to prevent serious violent or national security crimes.

A positive example is the Queensland Police Service (QPS) trial of preventative policing. Starting in 2022, QPS trialled the identification of high-risk family, domestic, and sexual violence (FDSV) offenders through an AI 'actuarial tool' which uses data from the police computer system to develop a risk assessment of potential offenders. The trial allowed officers to use the data to make unannounced visits to high-risk perpetrators without waiting for a crisis point. QPS report that perpetrators outside the point of crisis and not in a heightened emotional state or affected by drugs or alcohol were generally more amenable to recognising the visit as a turning point opportunity. Trial results indicated a 56% reduction in incidents in one cohort of high-risk, high-harm offenders, with no further violence experienced as a consequence of the unexpected visits.³⁴

In order for SAPOL to leverage AI technologies in the interest and advancement of community safety, increased government funding would be beneficial so that similar positive cases such as the QPS preventative policing trial for harm minimisation can be achieved. Through increasing the investment in the detection of offences using AI technology, this can increase the speed and scale of enforcement capabilities and enhance policing functions and could be a potential consideration for the South Australian government.

Another positive example on the topic of FDSV involves the use of AI to detect abusive messages. A form of abuse that perpetrators have exploited relates to online banking. If the perpetrators send money to an individual's bank account, they can also send abusive messages as part of the transaction, compounding the harm that victim-survivors experience. Commonwealth Bank launched a filter in 2020 that blocks offensive words in transactions, and significant work has since been undertaken to use AI to flag abusive messages even if they don't contain profanity. That new model was developed in Australia and allows the banks to proactively identify instances of technology-facilitated abuse.³⁵

CCTV Monitoring

AI can remove the flawed human chore of viewing CCTV footage of all different qualities to look for a suspicious package or a high-risk offender entering a certain area. Instead of having detectives viewing thousands of hours of vision from hundreds of cameras, AI can quickly identify critical movements or persons.

Online Crime Detection

AI can conduct analysis and pattern recognition to identify online criminal identities involved in drug offences, firearm offences, sex offences, harassment/stalking, financial crimes, deception, child sex offences and terrorism. It can locate and track online profiles and assist in identifying the human behind the profile. The use of chatbots can be used to significantly expand the scope of SAPOL's covert online presence in investigating serious offences including child sex offences, drug trafficking and terrorism.³⁶

³⁴ Minister for Women and the Prevention of Domestic and Family Violence, Submission 18, p. 2.

³⁵ Committee Hansard, 5 October 2023, p.31.

³⁶ SA Police, Submission 16, p.2.

Report Production

AI's ability to review large volumes of data quickly with high accuracy, makes it an ideal tool for report production. This would reduce time on administration and internal reporting and assist investigations, community events and large operations with Intelligence Reports. Any reports generated should only be used to assist and not replace human decision making. AI intelligence reports can incorporate a wider range of sources, more accurately and faster than a human. These reports can assist community and officer safety, reduce costs, time and resources.

Community Engagement

South Australia has more than 200 cultural, linguistic and religious communities and nearly 20% of South Australians live with disability.³⁷ AI can assist SAPOL with language translation, non-verbal communication and understanding the diversity in our community. This benefits crime reporting, community engagement, enhances service delivery and reduces discrimination.

Enhanced Training and Skill Development for SAPOL Staff

AI can identify knowledge and skill development gaps and create up-to-date, accurate training packages. AI can produce simulation and scenario-based training, reducing costs of recruitment, training and development. By recognising new trends and issues in the community, AI developed training would assist SAPOL to prepare for and respond to emerging trends as a progressive and innovative organisation, increasing community confidence in services provided.

Evidence Review and Preparation

The dynamic ability to analyse large volumes of data across multiple mediums makes AI useful for time and resource intensive tasks, susceptible to human error. Reviewing CCTV, lawfully obtained data from intercepts and surveillance, documents, online accounts and statements requires significant resources, sometimes multi-officer taskforces. AI would significantly reduce costs, allow more efficient allocation of human resources, and yield more accurate results. Suspect identification would increase and occur faster, and innocent persons would be ruled out quicker.³⁸

Crime Scene Analysis

AI could be used to examine crime scenes, using robotics and drones. It could accurately preserve a scene in video, images and alternate light sources including entry and exit routes and secondary scenes without human contamination, a constant consideration for forensic investigators. This would require forensic officers with sufficient experience and knowledge to use and keep up with developments in the technology. AI pattern recognition is superior to human analysis. It can accurately compare and analyse material from multiple crime scenes almost instantly to detect foreign items, the presence of finger, tyre, foot, shoe, and tool marks, and identify suspects, crime series or additional scenes. Similarly, comparisons are possible with AI blood splatter analysis.³⁹

Protecting the Mental Health of Investigators

The Joint Anti Child Exploitation Team (JACET) use AI to limit their exposure to distressing material. If certain videos or images have previously been tagged by another law enforcement agency as child exploitation, AI blurs it automatically.⁴⁰

³⁷ Submission 16, p2.

³⁸ Submission 16, p.4.

³⁹ Submission 16, p.5.

⁴⁰ Committee Hansard, 5 October 2023, p.30.

Road Safety

AI plays an important preventative role in identifying behaviour that is likely to cause or end in a crash. The mobile phone detection camera project will use object detection AI to detect people using phones while driving. Once the detection is complete, a human will investigate and compile the brief of evidence.⁴¹

Risks

Impersonations and Deepfakes

A deepfake is a digital photo, video or sound file of a real person that has been edited to create a realistic but false depiction of them doing or saying something they did not actually do or say. Deepfake technology is widely used in the creation of nonconsensual pornography, with an estimated 90% of deepfakes being pornographic in nature.⁴² The use of deepfakes is one of the most pervasive uses of AI and poses a particular risk to victim-survivors of FDSV. AI is being increasingly used to create non-consensual sexual deepfakes, a form of image-based sexual abuse or image-based sexual exploitation, previously dubbed 'digital rape' and 'revenge porn' (however, this term is now considered ill-advisable due to the suggestion that the abuse was in response to a grievance, effectively 'blaming' the victim). A 2020 study in the United States found that one in 12 participants (comprising 54% women) reported at least one experience of non-consensual pornography victimisation, with one in 20 admitting to perpetration.⁴³ A single image can dominate the search engine results for a person's name and result in significant emotional harm, including post-traumatic stress disorder, depression, and anxiety.

AI-supported password guessing, and AI-supported hacking can assist perpetrators of FDSV to gain unauthorised access to private information such as bank accounts, medical records, social media accounts and email accounts, allowing them to misuse information, post harmful content, delete or modify sensitive data, and distribute correspondence, images and videos. This can worsen coercive control and financial abuse of FDSV victim-survivors.

In relation to public order and governance, deepfake technology could incite large scale anti-social and violent behaviour. The more criminals use this technology, the greater public distrust may become, through an inability to distinguish real from fake news.⁴⁴ There are also concerns that deepfakes may have pertinent impact in high-stake decision making during military or international crises. The spreading of hyper-realistic deepfake images could adversely affect decision making where time is of the essence. For example, well timed deepfake content could allow actors to justify the incitement of violence against a marginalised group, or even depict military personnel engaging in war crimes as justification for a violent military response.

Criminals can create automated impersonations of legitimate people, businesses, or organisations, indistinguishable from authentic representations. Lower-level, opportunistic criminals can expand their offending due to the quality of the impersonation and vast quantity of victims able to be targeted. Criminal gains can be financial or the facilitation of other crimes (identity theft, blackmail/extortion, social disruption). Organised criminals and terrorists could target commercial businesses for financial gain, to disrupt markets and economies or to compromise national security.⁴⁵

⁴¹ Committee Hansard, 5 October 2023, p.30.

⁴² Australian Human Rights Commission, Submission 3, p. 31.

⁴³ Submission 18, p. 2.

⁴⁴ Submission 16, p.5.

⁴⁵ Submission 16, p.5.

Child Abuse

In August 2023, Australia's eSafety Commissioner publicly announced the first reports of children using AI to generate sexually explicit images of other children, for the purposes of bullying and humiliation.⁴⁶ It is clear that if the creation of deepfakes becomes increasingly easy and rapid through enhanced AI technologies, while simultaneously lacking in appropriate intervention and safety protocols, image-based abuse involving adult and child victims will likely increase in the future.

In addition, there is a risk that AI chatbots could be used to groom children for sexual abuse and extortion.⁴⁷ Chatbots could be trained to find young people online, gain their trust, and then request sexual images or videos. The AI could be trained to take this a step further by extorting more images from victims under the threat of sharing the original images with friends and family. Reports of sexual extortion have increased notably in recent years, and this perpetration could be automated further with AI. Children who were not victims of sexual abuse can be victimized through the use of Generative AI to produce fake abuse material by altering non-sexual images found online.

Infiltration and Disruption of Legitimate AI Systems

AI can infiltrate other AI systems. Individuals could have personal assistants like Google Home infiltrated, allowing criminals to turn off security systems and gain undetected access to homes. Businesses and organisations could have functional and security services turned off to disrupt or corrupt internal systems or facilitate physical and digital access. This poses significant security and public safety issues if government agencies, critical infrastructure or public services are disrupted, potentially impacting food distribution, energy supply, public transport, economic stability and national security. If AI systems are infiltrated, they can also be susceptible to data poisoning, digital theft of information and online eviction (denial of services). Attacks of this type on financial and stock markets would have catastrophic impacts on economies.

Recently, Australia's Cyber Security Cooperative Research Centre published a report, *Poison the Well*, that outlined how AI data sets could be infiltrated and "poisoned" by bad actors, causing potentially catastrophic effects, both for citizens and democratic processes. Their report states that 'cyber attacks aimed at manipulating AI data sets must be considered as a serious emerging cyber threat vector'. Additionally, foreign interference activities via malicious state actors could 'poison' data sets, thereby skewing information to contravene that of the national interest and potentially spreading disinformation, undermining public confidence in government.⁴⁸

AI and Organized Crime

Criminal organisations could use AI to legitimise and optimise their operations, control the supply, demand and price for their products, and avoid police detection.⁴⁹ AI could be used to identify and monitor competition and monitor the market to expand their customer base. It can assist in the development of new products, creating more potent or addictive drugs. It can monitor law enforcement to predict police location or alert them to potential investigations into their operations. Traffic and logistics applications can be used to find more efficient transport routes that are less susceptible to detection.

Facial recognition can assist criminals to avoid detection by other facial recognition systems or identify police officers for retribution. This creates safety risks if a police officer is identified and monitored; family, associates, home addresses, vehicles and places frequented could be

⁴⁶ Australian Institute of Criminology, Submission 44, p.4.

⁴⁷ Submission 44, p.5.

⁴⁸ Sarah Ison, 'Alarm over cyber crims "poisoning" AI data', *The Australian*, 30 October 2023, p.4 [print].

⁴⁹ Submission 16, p.6.

identified, potentially resulting in blackmail and corruption attempts. If covert police are identified, it could negate covert investigational techniques and create safety issues for officers.

AI operated unmanned vehicles can facilitate significant imports of controlled drugs, firearms and other regulated materials. Unmanned underwater vehicles (UUVs) have been detected and seized overseas.⁵⁰ They can be programmed to delete or corrupt on interception, hindering investigations into those responsible. Attaching imports to cargo ships entering Australian waters is a method already used by criminal organisations; it is feasible UUVs would appeal to these organisations. AI driven vehicles can pose terror and national security threats through large scale crowd attacks and bombings, with the advantage of reduced detection and apprehension.

Criminal Liability for Offences Involving AI

A unique issue for AI crime is the attribution of criminal liability to the actions of a non-human entity.⁵¹ An important element of criminal offences is fault, proving the *mens rea* of an accused; traditionally only attributable to a human. AI acts independently of humans who deploy or use it, making proof of knowledge or intent for resultant criminal acts difficult. This can be exploited by criminals by claiming a legitimate intended use and blaming the technology, manufacturers or developers for any criminal outcome.

Agriculture

Primary industries are vital to South Australia's economy with grains, livestock, horticulture, wine, seafood, forests, and dairy sectors making major contributions to the state's export revenue. In 2021-22, primary industries and agribusiness revenue increased by 12% totalling \$17.3 billion, while the sector also supported 71,000 jobs.⁵² Australian agriculture increased its gross value of production (GVP) estimated to be \$91 billion in 2021-22. Australian agriculture has a goal of reaching \$100 billion farm-gate output by 2030 from \$69 billion in 2018-19.

PIRSA (Department of Primary Industries and Regions) recognises the potential for AI to transform the sector, and South Australia to develop a competitive advantage in AI. In its submission to the inquiry, PIRSA states that AI can play a critical role by increasing productivity, mitigating biosecurity risks, and supporting the adoption of sustainability targets. In South Australia, machine learning and AI already play significant roles in precision agriculture by mapping crop yields and identifying weeds. AI also the potential to forecast milk production for newborn calves, and assist in soil carbon sequestration.

The PIRSA submission states that machine learning can identify a multitude of issues through data analysis. Snail management is a large component of pest management and places strain on management costs and grain yields. The South Australian Research and Development Institute (SARDI), in collaboration with the University of Adelaide, has utilised AI to identify snails in grain crops, which impact the grading of the grain at delivery. CSIRO has also developed technology to identify fruit fly; the world's largest agricultural trade pest. These

⁵⁰ Submission 16, p.6.

⁵¹ Submission 16, p. 7.

⁵² Department of Primary Industries and Regions, Submission 46, p. 1.

technologies have allowed Australian agriculture to continue to innovate and push boundaries on production and quality.⁵³

AI and machine learning play an important role in the industry's transition to more automated services. A transition to self-driving tractors and robotic harvesters is inevitable in some sectors.

AI applications are likely to lead to farmers:

- achieving higher outputs with lower inputs by directing the latter more effectively, including labour inputs and autonomous vehicles;
- reducing wastage and spoilage in the food industry by allowing producers to forecast yields and demand more accurately;
- more efficiently distributing resources within the agricultural sector by allowing more dynamic and effective planning within enterprises and new mechanisms whereby different enterprises can pool their resources or compete to bid for resources offered by third parties;
- improving traceability and informing customers of the origins and safety of their food;
- increasing their predictive power for various forecasts relevant to the decisions of the sector, including climate models and long-range weather forecasts, estimates of the likelihood of outbreaks of (and predictions about the spread of) pests and diseases, and economic modelling; and
- improving product quality through automatic separation of product on quality indicators.⁵⁴

The term AgTech, which encompasses AI, is a term for the application of technology to farming. AgTech provides an opportunity to innovate, grow and implement more efficient production practices. The potential economic benefit for the state could be up to \$2.6 billion per annum in extra gross value of production. A key PIRSA priority is to enhance the adoption of AgTech through the implementation of AgTech programs. The South Australian AgTech Strategic Plan², released in 2020, considers the opportunities and challenges facing AgTech adoption in the state. The plan provides PIRSA with a platform to encourage research, collaboration and entrepreneurial capabilities through the AgTech Growth Fund, now in its second round of funding. Round 1 of the Fund financed several AI based projects, including AI and machine learning designed to assist with grain classification, the development of weed killing robots, the collation of data for vineyard management, and the commercialisation of virtual fencing for livestock.⁵⁵

Risks

The benefits of AI to precision agriculture and biosecurity must be considered in equal measure with the risks. These risks need to be managed as the use of AI and machine learning progresses. High level risks include risk of cyberattack, interoperability, reliability and relevance of agricultural data, unintended socio-ecological consequences, and safety and security concerns associated with deployment of machine learning platforms at scale.

More specifically, jobs in the agricultural sector are likely to be significantly transformed by the wider adoption of AI.⁵⁶ By potentially requiring fewer people to supervise more machines, AI systems will make farmers' jobs more white-collar. Taken to its extreme, in the future,

⁵³ Submission 46, p. 2.

⁵⁴ Submission 46, p. 2.

⁵⁵ Submission 46, p. 6.

⁵⁶ Submission 46, p. 4.

management of the farm may differ little from management of any other complex enterprise carried out by teams of humans and robots.

With the need for large data sets, technology and network capability, cyber security requirements and significant software and hardware, implementation of AI will likely lead to the increased or accelerated amalgamation of farms.

Data access, management and exploitation is a risk. Larger technology firms accessing, using and/or selling farmers data could lead to an imbalance in power relations between farmers and larger organisations. For example, the data may be used to undertake overt or covert compliance activities on farmers and/or their workers. The National Farmers Federation is working to identify and reduce these risks. The Australian Farm Data Code aims to promote adoption of digital technology, by ensuring that farmers have comfort in how their data is used, managed, and shared.

Typically, AI algorithms are only as good as the data used to train them. Although there is often a large amount available, the data can be expensive and unsuitable. This creates a risk of technologies that are not fit for purpose, having been developed using flawed data sets. Although ML can greatly reduce the error in systems, when it fails or makes errors, it tends to do so severely. This risk increases with low volumes or poor quality of data. There are also long-term risks for AI with its data often degrees of iterations away from the original source, which can create a significant disconnect from the real world.⁵⁷

Manufacturing

AI may address Australia's skills shortages and demographic challenges due to ageing, with some forms of labour increasingly replaced by AI and robotics, with the possibility of workerless manufacturing operations in the 2030s. AI will likely result in new roles being created, including AI-related roles yet to be imagined.⁵⁸ Since it processes information faster and more efficiently than a human, AI can boost organisational productivity. Effective use and integration of AI into an employee's skillset – making them more capable and able to perform rote tasks faster - will be highly advantageous in the job market. AI can improve manufacturing challenges by providing improved energy supply and distribution systems, as well as smarter supply chains and increased automation, reducing transportation distance and time.

An opportunity exists to combine AI with Australia's strengths in research and technology to lead in these areas, as well as improve our position in trade. The South Australian opportunity is even greater with the state's existing investments in defence, space, cyber and machine learning. However, it will require investment in a local skills base and ecosystem to remain competitive with other Australian jurisdictions and other countries.⁵⁹

Risks

South Australians in employment positions with routine responsibilities may have their positions partially or fully replaced. Without retraining or a focus on new skills, this may create structural unemployment and increase income inequality. A key consideration will be

⁵⁷ Submission 46, p. 5.

⁵⁸ Submission 4, p. 2.

⁵⁹ Submission 38, p. 6.

understanding the roles and industries which are likely to need support.⁶⁰ Sectors in the economy will face asymmetric advantages from domestic and foreign competitors with more advanced AI technologies and faster adoption. For example, deployment of more advanced AI and robots in manufacturing in the US and China will potentially bring them asymmetric competitive advantages over South Australian manufacturers.⁶¹

Legal Services

The select committee received submissions from stakeholders who use AI to provide legal services and advice. Legal Services Commission of South Australia received seed funding from the Commonwealth Government in 2017 to investigate the introduction of an online dispute resolution system for couples that are separating or divorcing in Australia.⁶² The project has been managed by Legal Services in South Australia, on behalf of National Legal Aid, and developed in partnership with Portable. AI is used to provide users with a suggested division of assets based on their circumstances, agreements commonly reached by other couples in similar situations, and/or legal precedents. The offer suggested by the program is designed to inform the negotiation process; users can elect to agree or use it as a guide to formulate their own percentage split.

Generative AI has the potential to transform the legal assistance sector and improve access to justice in the coming years. This could include: divorce and dispute resolution, legal process automation (research, document generation), early case assessment (precedents, arguments, penalties), AI powered chatbots, triage and assistance, customised legal guidance, real time translation and interpretation, and predictive analytics (pattern identification).⁶³ The use of technology to assist areas such as triage, provision of minor assistance, advice and practice management could provide greater opportunities for legal professionals to be utilised in the support of vulnerable community members.

Risks

The Law Society of South Australia raised the following concerns regarding the increased use of AI in the provision of legal services:

- The complexity and variety of the multi-faceted and many layered technologies that underlie any transaction that utilises AI, whether it is the voice assistant on a smartphone setting a reminder or ChatGPT preparing a first draft of a legal document, means that it may not be possible for any single human to entirely explain how a system has arrived at the answer offered up. Experts in the field may not know how the system works.
- Lawyers are obliged to understand and articulate the reasoning that underpins the advice given to clients. If lawyers use AI to assist in formulating advice, lawyers must nevertheless understand the logic underlying the advice and check it independently of any 'black box' system. Lawyers are obliged to implement transactions using systems of which they have sufficient understanding to ensure that they use the systems correctly and safely. Given that experts in information technology do not often know at every layer how complex systems work, a lawyer can also not be expected to understand every aspect of a system.⁶⁴

⁶⁰ Submission 4, p. 2.

⁶¹ Submission 23, p. 4.

⁶² Legal Services Commission of South Australia, Submission 10, p. 1.

⁶³ Submission 10, p. 3.

⁶⁴ Law Society of South Australia, Submission 34, p. 1.

Additionally, there has been concern within the legal profession regarding AI advancements and the repercussions there may be in terms of billing and how lawyers are remunerated for their time and expertise. If clients are using an online platform for legal advice, current billing practices and associated Legal Practitioners Acts and Regulations would need to be taken into consideration in the employment of AI in regards to legal matters.⁶⁵ Ensuring a 'human-in-the-loop' to oversee the AI decision making – a legal practitioner – and in the development, or use of, AI in legal matters may circumvent these concerns.

Health Services

The submission from the Robinson Research Institute at the University of Adelaide highlighted a number of opportunities for AI to advance medical research in South Australia. The Institute has more than 40 research teams with over 400 members.⁶⁶ It attracts around \$25M per year in research funds and publishes approximately 500-600 publications annually. Researchers at the institute are collaborating with experts in AI on a range of projects, such as:

- the IMAGENDO® group to diagnose endometriosis with imaging and AI,
- the Adelaide Cerebral Palsy (CP) Research team to update clinically relevant genetic variants in near real time, and
- the PremML group to develop sensitive and specific outcome prediction tools for newborns born extremely preterm.

The Robinson Institute asserts that the potential for further application and development of all three projects is significant:

High level AI expertise in Australia, particularly in South Australia, has the potential to transform the health sector with powerful health informatics critical to the development of a learning healthcare system benefiting all South Australians. Developments in this area will not only improve health and well-being, they will build significant research capacity in the state and significantly enhance the South Australian economy.⁶⁷

An example of a positive use case in the medical field was presented to the committee by harrison.ai, which is a company that develop, commercialise and deploy AI tools for clinical diagnosis. During his appearance before the committee on September 18, co-founder Mr Dimitry Tran stated that:

*The technology that we have developed right here in Australia can flag and identify a list of findings it has detected...and help to guide the radiologist to get the answer quickly and more accurately. We have published this in top medical journals, including The Lancet Digital Health, which is a top medical journal in our field, to show that AI increases accuracy by 45 per cent and improves reading time, making the radiologist faster as well by 12 per cent.*⁶⁸

With these opportunities in mind, the Australian Health Practitioner Regulation Agency (Ahpra) has stated in its submission to the committee that it is imperative a human element remains in the use of AI within healthcare decision making and that the health practitioner, in conjunction with the patient, remains the final decision-maker. This is consistent with the emphasis in National Boards' Codes of Conduct or equivalent about patient/client centred care. The agency states that it is working on developing a legal and ethical framework to

⁶⁵ M Bailes, ['Making a case for legal billing reform'](#), *InDaily*, 4 May 2023, accessed 7 November 2023.

⁶⁶ Robinson Research Institute, Submission 5, p. 1.

⁶⁷ Submission 5, p. 1.

⁶⁸ Committee Hansard, 18 September 2023, p. 2.

support the use of AI in its work regulating Australia's 850,000+ registered health practitioners, drawing on good practice examples in Australia and internationally.⁶⁹

In AIML's appearance before the committee, Professor Lyle Palmer stated that the use of AI in a medical context is a rapidly evolving space and has introduced new challenges. But, with the health setting being a highly regulated environment with strong ethical oversight and having a strong set of international guidelines and protocols, AI is making the health industry more efficient and enabling doctors to do better medicine. Professor Palmer stated similar to Ahpra, that they would not give AI autonomous decision making where AI will be an aid, not a replacement.

The submission from CSIRO contends that if healthcare and other essential services evolve into a paradigm in which online, AI and automation-driven services become the norm, ageing populations may find more challenges in interacting with such services and products. While these services might be more convenient and accessible for younger generations, they may also have discriminatory effects on the older population or even cause harm.⁷⁰

⁶⁹ Australian Health Practitioner Regulation Agency, Submission 6, p. 1.

⁷⁰ Submission 23, p. 4.

7. BIAS, PRIVACY AND SECURITY

The submission from the Australian Human Rights Commission (the Commission) expresses concern regarding the development and deployment of AI, particularly in relation to privacy. The Commission states that:

- AI's ability to make invasive predictions using personal data may adversely impact people's autonomy; It also draws into question other rights, such as the right to freedom of expression, and the right to a fair trial;⁷¹
- AI poses increased risks to privacy as anonymised data can be reidentified. The gathering of seemingly innocuous pieces of personal data (browser history, biometric information etc) can, accumulatively, provide a detailed profile of an individual. Cyberattacks can expose and extract this data; its potential misuse, in tandem with other forms of personal data, is a matter of special concern.
- Individuals engage with privacy-adverse products and services even when they are highly aware of the risks; the reluctance, or inability, to avoid products or services which threaten privacy may be partly due to a lack of effective competition or alternatives. It is therefore ineffective to place the onus on individuals to protect their own data.
- When individuals do not understand how their data is being used, they will still disapprove of its misuse. Individuals have been shown to have a strong negative reaction when shown the difference between the perception and reality of personal data usage by corporations.

The Commission states that in its current form, *the Privacy Act 1988 (Cth)* is the principal piece of legislation regulating and protecting personal information and data, yet it provides insufficient protection in respect of AI and automated-decision making processes.⁷² In its submission to the inquiry, the Law Society of South Australia states that South Australia and Western Australia remain the only States without state-based privacy legislation. The Society expresses concern regarding the infringement of privacy by AI technologies:

...the uptake of such technologies presents numerous challenges associated with privacy and data security...the Privacy Act 1988 (Cth) does not extend to South Australian government agencies, such that determining the privacy challenges presented by AI in a South Australian context is difficult.⁷³

The submission noted that the challenges would be particularly relevant in areas where ethical considerations are paramount, such as in the provision of health care or legal advice. According to the Law Society, the use of AI heightens the risk that protections that are fundamental to privacy law will be eroded: notice, adequate and informed consent and choice, advising, 'these embody rights that should remain vested in each individual to which personal information pertains'.⁷⁴

The Human Rights Commission expressed its concern about a rather startling threat posed by AI powered neurotechnology:

The boundary between the external world and one's internal mental cognition has traditionally been an impenetrable one. Mental privacy is the last true bastion of protected information which is secret to ourselves. However, neurotechnologies

⁷¹ Submission 3, p. 10.

⁷² Submission 3, p. 13.

⁷³ Submission 34, p. 3.

⁷⁴ Submission 34, p. 3.

challenge this, as unchallengeable statements about internal thoughts and feelings such as ‘that’s how I feel’ can now be analysed, examined and tested.⁷⁵

The Commission claims that the collection of brain data, in collaboration with AI, will make it possible for companies and repressive governments to track, analyse and predict the actions and attitudes of individuals about anything from political leaning, sexual orientation or health status.

Troubling claims were also made in the submission from Digital Rights Watch, an advocacy group lobbying for the protection of human rights in the digital landscape. Its submission expressed concern that profit has been prioritised at the expense of individual freedoms and security.⁷⁶ The group asserts that biased AI algorithms can lead to discrimination and other harmful outcomes, such as:

- Facial recognition being used by law enforcement resulting in wrongful arrest;
- Racial profiling through predictive policing;
- Discriminatory allotment of, or unequal access to, products or resources;
- Racially biased AI tools used to assess a defendant's likelihood of reoffending.

The concern around racial bias is expressed numerous times in the various submissions received by the committee. Historically, data has not been collected well from those living in remote communities or from First Nations peoples. Current AI models are therefore unlikely to have been trained on pertinent, accurate data freely provided by Indigenous people, rendering some model outputs highly questionable.

Data Security

The submission from the DPC outlines their concerns regarding data security in the public sector:

Australian data and privacy legislation has struggled to keep up with the rapid advances in technology. Legislation typically takes three to five years to amend in comparison to technological innovations which can happen in as little as one year. For example, intellectual property rights rely on regulatory legislation created before AI was widely implemented (sic).⁷⁷

According to the DPC, South Australia lacks privacy legislation that could complement the *Public Sector (Data Sharing) Act 2016* to build trust and public confidence.

Currently, AI research and applications have to comply with different but overlapping laws and guidelines. This leads to delays in data access, and people ignoring any guidelines at all. Ignoring the guidelines results in illegal access to and use of data as well as data breaches.⁷⁸

Data breaches represent a serious risk to government data security. Worst case scenarios include foreign competitors accessing commercially sensitive material, adversarial nation states viewing confidential information about state interests and investments, unauthorised companies obtaining private health information of South Australians, and foreign software systems gaining control of agricultural and mining operations. The risk is substantially

⁷⁵ Submission 3, p. 15.

⁷⁶ Digital Rights Watch, Submission 11, p. 5.

⁷⁷ Submission 38, p. 8.

⁷⁸ Submission 38, p. 8.

increased when workers and researchers take sensitive datasets home, use insecure networks, or poorly managed devices and environments.

8. CONCLUSION

While South Australia has quickly established itself as a leading destination in the field of Artificial Intelligence, the speed at which AI technologies are developed is currently working at a faster pace. The committee is mindful that for the state to maintain its reputation as an AI hub, continual, significant work must be done to keep and attract research and investment.

While the government, business and STEM communities share excitement about the growth opportunities that lie in the field, community attitudes are sometimes more fearful. The committee is mindful that there is a tangible amount of trepidation and concern in the community regarding the progress and proliferation of AI, largely around how it may affect the privacy of citizens. The committee has taken these concerns into consideration, and has developed several recommendations that seek to allay these concerns by prompting further education and regulation around AI. Further education at school level fosters the next generation of AI-savvy workers and research specialists, and tighter regulation ensures that they, and the community, is kept safe.

Some members of the workforce may also express fear that AI is coming for their jobs – that AI might render them obsolete – however, from what the committee has heard, human oversight is absolutely essential to the successful, and moreover, ethical use of AI. As AI replaces some tasks, workers may be able to focus more on other tasks that are less repetitive, or they may have the opportunity to build upon their skillset.

The committee is impressed at how state government departments and agencies are integrating AI into their work practices and wishes for this to continue and recommends that workforces and frameworks are put in place to enable success in these areas and highlight the need for oversight.

The committee's 15 recommendations look to how South Australia can continue to succeed and be innovative in AI, how AI can be used safely and ethically, building on AI literacy in the community and the classroom, and ensuring that AI is used on the right side of the law, by combatting AI-enabled image-based abuse. Furthermore, from an authoritative spectrum, the committee recommends South Australian government agencies develop a framework for AI used in an investigative context to maintain community confidence in its use.

The committee acknowledges the speed at which AI innovation and technology is advancing. Indeed, as the final touches were being made to this report, US President Biden issued an Executive Order establishing new standards for AI safety and security to safeguard the privacy of American citizens and protect their national interests.⁷⁹ Additionally, announcements from OpenAI and X (formerly Twitter) regarding their new AI products are imminent. By the time this report is tabled, some technologies mentioned in the body of the report may be obsolescent or superseded by a new, updated, product: such is the pace at which the field moves.

The committee thanks those who submitted to the inquiry, or attended a hearing, and values their contributions in developing these recommendations.

⁷⁹ ['FACT SHEET: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence'](#), The White House, 30 October 2023, accessed 7 November 2023.

9. RECOMMENDATIONS AND RATIONALE

Recommendation 1: Develop sovereign AI capability

The select committee recommends that the development of sovereign AI capabilities are prioritised for use across government departments and agencies in South Australia.

The committee believes that opportunities for the successful use of AI exist across the South Australian public sector but contends that developing sovereign capability is necessary to ensure the sound use of such technologies. This also ensures that South Australia reaps the economic benefits of these technological advancements, both in a reputational and a fiscal sense.

In a committee hearing, staff from the Australian Institute for Machine Learning pointed out that for Australia to maintain a competitive edge in AI, sovereign capability is essential for a number of reasons, namely for Australia to remain competitive on the world stage but also to maintain a degree of self-reliance in an unpredictable world. AIML Director, Professor Anton van den Hengel explained to the committee that sovereign capabilities serve as contingency:

The only way that we can compete and where we can maintain control is to have our own sovereign capability irrespective of what the future holds. We used to build car factories in order that we would have places to make munitions if we had a war, and this is the same kind of a process, where we need to have our own capability because we need to be self-reliant in this critical space. This isn't something that's going away. This technology is going to be here forever, and it is going to be a critical determinant of economic capability for the rest of the future.⁸⁰

The development of sovereign AI capabilities mitigates security risks associated with using AI developed offshore, by ensuring the proprietary rights to those assets (which covers the research, the technology itself and the data output) stay in Australia.

This also ensures that data gathered through these means is dealt with according to strict ethical guidelines, in accordance with Australian privacy principles. This is particularly important in the healthcare sector.

The committee recommends that AI developers work in collaboration with the public sector, and puts forth the following examples of how these capabilities could be used in government departments and agencies:

Department for Education

In a committee hearing with staff from the Department for Education, members heard about the development of EdChat, a ChatGPT-like tool being trialled by the department. Professor Martin Westwell advised the committee that they have ensured the integrity of the tool: 'through our arrangements with Microsoft, none of the students' information would be used by the system to learn from. So, none of the students' data, anything personal that they might put into the tool, none of that gets sucked up into the system and used by the system'.⁸¹ He went on to state:

[...] our students are going to need to work in a world where AI exists, and we need to teach them to use that technology ethically and productively. The tool has allowed us

⁸⁰ Committee Hansard, 11 September 2023, p.7.

⁸¹ Committee Hansard, 5 October 2023, p. 31.

*to do that. As to the point about where this kind of technology fits and do we need a sovereign capability, certainly in education one of the things that we are seeing is actually South Australia is very much at the front of this. We are one of the leading jurisdictions in the world taking this cautious step forward. Others are learning from us, but it allows us to learn from others, so having a global reach around AI. Whilst some of these tools are similar globally, having our local protections means we are getting the best of both worlds at the moment at least out of that.*⁸²

The committee believes that the department can further build on this success and recommends that they work in conjunction with AI developers to continue to prioritise the development of sovereign AI capability for use in government schools, with data sets and models hosted in South Australia.

SA Health

Submissions from the Robinson Institute, HeartAI, CSIRO and the Australian Health Practitioner Regulation Agency (Ahpra) demonstrate to the committee the innovation taking place in the use of AI in the Australian healthcare and medical research sectors, and the exciting developments and opportunities in this space that will benefit the health of South Australians.

However, the submission from CSIRO does caution that 'there is limited consideration around the use of AI with vulnerable populations, such as aging and people living with a disability', and that healthcare data relating to the Aboriginal and Torres Strait Islander population is often flawed, being subject to the 'indigenous data paradox'.⁸³ The committee considers that by developing sovereign AI capabilities for use in South Australian public health settings, there is great opportunity to ensure more equitable use of these technologies that can benefit all South Australians, including groups that may commonly experience poorer health outcomes.

SA Police

Security is of the utmost importance in policing, and data security must fall under this umbrella. This was made clear by Mr Hamish Cameron, Executive Director of Information Systems and Technology at SAPOL, in a committee hearing, who stated that:

*[...] Australia should be leveraging Australian built and designed AI capabilities, particularly from a law enforcement point of view, because the information that we're feeding into systems, or potentially going to feed into systems, is of a much higher sensitivity than many other agencies.*⁸⁴

Prioritising sovereign capabilities regarding AI used in law enforcement ensures not only judicial due process (for example, by ensuring that bias in overseas developed models does not translate to South Australian investigations) but also that data regarding both ongoing and completed investigations is secure, protecting the privacy of victims of crime.

Department of Primary Industries and Regions

In their submission to the committee, PIRSA detailed the benefits that AI can offer South Australia's primary industry sectors, 'in increasing productivity, mitigating biosecurity risks and supporting South Australia's adoption of sustainability targets'.⁸⁵ The submission outlines the exciting work being undertaken by SARDI and the University of Adelaide using AI to identify snails in grain crops, and CSIRO's efforts using AI to combat fruit fly. Both of these projects can help agriculturalists get greater yields and healthier crops. However, their

⁸² Committee Hansard, 5 October 2023, p.31.

⁸³ Submission 23, p. 10.

⁸⁴ Committee Hansard, 5 October 2023, p. 37.

⁸⁵ Submission 46, p.3.

submission points out the risks of AI to agriculture and biosecurity, stating that there are 'long-term risks for AI with its data often degrees of iterations away from the original source, which can create a significant disconnect from the real world'.⁸⁶

In a committee hearing, Professor Peter Appleford, Executive Director, Major Programs and Regions at PIRSA spoke about the AgTech Growth Fund administered by the department, 'to bring technology to market quicker so the end user can use it and it is fit for purpose'.⁸⁷ Professor Appleford spoke enthusiastically about the expertise based in this state, and the opportunity for further development in the AgTech sector. The committee sees the development of sovereign AI building upon these developments in the primary industries, particularly in agriculture, and recommends that data sets and models are controlled by the state government or a government agency such as PIRSA.

Recommendation 2: Facilitate appropriate reskilling of impacted workers

The select committee recommends that the Department for Industry, Innovation and Science liaise with Business SA and industry groups to identify workers and industries most likely to be impacted by AI and provide appropriate levels of assistance to ease any transition.

While AI does, and is likely to, assist workers and make some jobs more efficient, the inverse of this is that there is a possibility some workers and industries could be adversely affected by developments in the field. The submission from the Queensland AI Hub acknowledges the disruption that AI has already brought to some occupations:

*Some examples of types of small businesses that are feeling the impacts of the growth of AI are local travel agents, small scale manufacturers, basic data and IT services, human resource management and recruitment, event management, accounting, legal, independent photographers, artists, copywriters, small real-estate agents and medical transcription services. This list is a small view of the scale of disruption.*⁸⁸

This 'disruption' does not always equate to job losses but may mean that some workers may require upskilling due to certain tasks they perform being superseded by AI. The committee recommends that appropriate steps are taken by the Department for Industry, Innovation and Science (DIIS), Business SA and other industry groups, to provide practical levels of assistance to ease these transitions, thereby allaying these concerns. In their submission to the committee, DIIS wrote that:

*AI will likely result in new roles being created, including AI-related roles yet to be imagined. However, South Australians with employment positions with repetitive responsibilities may have their positions partially or fully replaced. Without education and a focus on skills, this may create structural unemployment and increase income inequality. A key consideration will be understanding the roles / industries which are likely to need support in scaling back / offboarding human delivery is an area of importance to ensure ample transition time is accounted for and adequate preparation and support are provided.*⁸⁹

⁸⁶ Submission 46, p. 6.

⁸⁷ Committee Hansard, 5 October 2023, p. 30.

⁸⁸ Queensland AI Hub, Submission 15, p.9.

⁸⁹ Submission 4, p. 2.

The committee recommends that ample consideration is paid to this preparation and support, so that South Australians are able to view AI advancements with enthusiasm, rather than fear that their employment and economic livelihood may be affected.

Recommendation 3: Spearhead the training of AI professionals in South Australia

The select committee recommends that the state government spearhead custom initiatives to increase the number of AI professionals in South Australia, particularly within the state's largest employer, the public sector.

South Australia is fast obtaining a reputation as a leader in AI – this is validated by submissions from entities such as the Queensland AI Hub, who write that 'in South Australia, there is a growing AI ecosystem, with a number of startups, research organizations, and government agencies working on AI-related projects'.⁹⁰ The committee recommends that this momentum is built upon and that the state government work to spearhead custom initiatives to increase the number of AI professions in the state, particularly in the public sector.

DIIS's submission cautions that

The primary risk that AI poses to the future of work in South Australia is not automation within our industries, but rather the potential for our businesses to be outcompeted by domestic and international jurisdictions that are quicker to embrace AI innovation. A lack of depth of knowledge and skills in the field may hamper our ability to keep pace and to generate the cultural shift at speed.⁹¹

The committee considers that this risk can be mitigated by retaining AI professionals and upskilling professionals keen to work in the area, but also attracting quality talent to the state. In their submission to the committee, the AIML write that:

South Australia's nascent but thriving AI-tech ecosystem is internationally recognised in academic and industry circles. But we can capitalise on this capability, and deliver greater benefits to the community more broadly, by positioning ourselves as Australia's AI State.

There is strong potential for South Australia to increase its competitive advantage in AI, but this will require significant and sustained investment across education, research, startup creation and industry development.⁹²

The committee recommends that the government identify opportunities for investment in these areas to ensure that the number of AI professionals can increase, both by training South Australians, but also attracting talent to the state. This should also extend to ensuring that the state's public sector workforce is trained appropriately to deal with AI tools even in jobs that may not be considered 'AI-specific'.

⁹⁰ Submission 15, p.2.

⁹¹ Submission 4, p.3.

⁹² Submission 31, p.5.

Recommendation 4: The State Government invest in public sector capacity to develop technical knowledge to incorporate AI into work tasks in government departments and support training programs for employees to understand how AI can enhance their roles.

The committee considers that by automating tasks, AI has the potential to free up public service time and lead to improved service delivery, and boost productivity by streamlining administrative tasks.

As discussed in Recommendation 2, AI is often seen as a 'threat' to workers – that the bulk of us will be replaced by machines, and that AI will lead to greater unemployment – however the committee contends that rather than replace workers, AI can *enhance* their working lives, improving efficiency in a number of ways. One of which is the automation of repetitive tasks. This is mentioned by DIIS in their submission to the committee; they write:

*Machine learning can automate or streamline many monotonous, time-consuming, or low value physical and cognitive tasks, freeing workers to focus on more valuable or less unpleasant tasks.*⁹³

This can lead to greater productivity, improved service delivery and the improvement of employee's well-being.

A submission co-authored by Mr Bert Verhoeven, Program Director of Innovation and Enterprise at Flinders University, and Dr Vishal Rana, from the Department of Business, Strategy and Innovation at Griffith University, urges that we 'rethink our understanding of meaningful work', suggesting that 'we can choose to perceive it as a collaborative ally rather than a threat'. The committee recommends that training programs take these ideas into consideration, acknowledging that some employees may feel some level of trepidation regarding the integration of AI into their work tasks.

The committee recommends that the state government develop technical knowledge to incorporate AI into work tasks in the public sector and examine how AI can enhance government employee's existing roles and shape new roles, creating new opportunities for the sector. Furthermore, government working groups such as the South Australian Across Government AI Governance Working Group, as chaired by the Office of Data Analytics, are well placed to work towards this recommendation.⁹⁴

⁹³ Submission 4, p.2.

⁹⁴ Submission 38, p. 2.

Recommendation 5: South Australian government departments continually monitor the effectiveness of AI assisted programs

The committee recommends that with the increase in AI assisted programs used in work tasks, a human interface must be maintained as oversight, with AI's role in decision making used as a tool with humans remaining accountable for the application of those tools.

The Committee acknowledges that a 'human-in-the-loop' is already common practice for some agencies and departments that use AI technology. SAPOL states that AI used for policing functions requires human oversight, and AI is only used to inform decision making not make the decision⁹⁵ attributing human accountability to its use. In SAPOL's appearance before the committee Mr Hamish Cameron stated for AI technology such as voice-to-text transcription, it would still need to be reviewed by a human for accuracy. Similarly, for facial recognition technology in an investigative context and in the road safety sphere for mobile phone detection use, a human is always involved in the decision making and compiling the brief of evidence⁹⁶.

Several submissions stated the need for oversight of AI technologies used in the workplace, especially as AI is data-driven and prone to bias. A joint submission from Mr Bert Verhoeven from Flinders University and Dr Vishal Rana from Griffith University, suggests once a new AI structure is in place a pilot program for the AI-enhanced roles can be rolled out to gather feedback and monitor the program's effectiveness to optimise the AI technology within the workplace. The assessment should include AI efficiency/productivity and any unforeseen issues or benefits⁹⁷. Ultimately, the end goal is to continue to explore human-AI success creating value for the organisation and society.

In their submission, Mr Robert Chalmers, Dr Andreas Cebulla, Dr Rajesh Johnsam, Dr James Scheibner and Professor Tania Leiman from Flinders University, College of Business Government and Law state there should be an 'Internal processes involvement' with a monitoring function to ensure proper implementation of responsible AI practices including for impact assessment, auditing trails, bias testing, compliance procedures and accountability traces resulting in risk mitigation from the design to the deployment stages of the AI technology⁹⁸.

Further submissions from the Australian Academy of Technological Science and Engineering suggest that all government users of AI are subject to requirements to continually report aggregated outcomes to help identify systemic issues and support individuals who wish to contest decisions⁹⁹, and the Australian Industrial Transformation Institute at Flinders University cites the words of B. Shneiderman that employees or humans need to have control or surveillance of AI technology because it is humans who are responsible for the outcomes of actions and not AI technology.¹⁰⁰ These measures can minimise the potential risks of AI technologies and recognise errors before becoming detrimental.

⁹⁵ Submission No 16, p.2.

⁹⁶ Committee Hansard, 5 October 2023, pp. 30 and 36.

⁹⁷ Flinders University Innovation and Enterprise and Griffith University Department of Business, Strategy and Innovation, Submission 27, p.3.

⁹⁸ Flinders University College of Business, Government and Law, Submission 9, pp 5-6.

⁹⁹ Australian Academy of Technological Sciences and Engineering, Submission 32, p. 3.

¹⁰⁰ Submission 42, p. 18.

While AI can reshape roles by automating tasks and lead to increased productivity for the workplace, the Committee considers that relying too heavily on AI decision making without oversight, may lead to unforeseen risks. AI should be used to provide and support government services and the committee recommends regular reporting and monitoring of AI assisted programs should be a priority of government to maintain critical review and reflection by users, particularly where they affect government service delivery.

Recommendation 6: Develop a State Action Plan to market South Australia as the premier destination for AI investment in Australia

The committee recommends that the success of the Australian Institute for Machine Learning is built upon and that the Department of the Premier and Cabinet develop a plan with the Department for Trade and Investment to attract companies and research bodies with significant investment potential.

As previously mentioned, South Australia already has a reputation for being an AI 'hub', and is home to research leaders such as the Australian Institute for Machine Learning and the collective of innovators at Lot Fourteen, which includes the MIT Adelaide Living Lab. In their submission to the committee, the MIT Adelaide Living Lab reiterate:

South Australia is a recognised global leader in artificial intelligence research. Global companies are choosing to undertake research and development projects with the Australian Institute for Machine Learning, and the School of Computer and Mathematical sciences at the University of Adelaide, as well as the Industrial AI Research Centre and the Australian Institute for Interactive and Immersive Environments at the University of South Australia.¹⁰¹

However, they posit that there needs to be significant policy work to make South Australia a 'world leading data economy', stating that the state will need to 'develop an investment policy and strategy focused on building the industrial ecosystem around world leading areas of AI research. e.g., data centres, high performance compute, telecommunication, IoT, and human machine interfaces'.¹⁰²

Many submissions received by the committee also featured similar sentiments: echoing that South Australia is a leader in AI research but advising that significant work will need to be done, and investment made, for this to continue. The committee recommends that the DPC work with the Department for Trade and Investment on a plan to further attract companies and research bodies with significant investment potential. The DPC acknowledges the 'scale of potential AI-driven economic growth' in their submission.¹⁰³

¹⁰¹ MIT Living Lab Submission 28, p.3.

¹⁰² Submission 28, p.11.

¹⁰³ Department of the Premier and Cabinet, Submission 35, p.5.

Recommendation 7: The State Government identify narrow, focused areas of specialised AI expertise, where South Australia can be the world's best

Rather than competing broadly with a multitude of AI technologies, the committee recommends that South Australia build a competitive advantage in selected areas and capitalise on this capability to deliver greater benefits to the community.

Rather than be the proverbial 'Jack of all trades, master of none', the committee recommends that South Australia build a competitive advantage by identifying selected areas of AI to champion and develop world-leading levels of expertise in.

In a committee hearing, Professor Simon Lucey, Director at the Australian Institute for Machine Learning, elaborated on this, explaining that due to Australia's size, competing with the AI industry of superpowers like China is somewhat impractical, so instead, Australia should focus on its strengths. He said that South Australia has 'strategically chosen certain pockets of AI to excel at', such as computer vision, in which the state is classed as a global leader.¹⁰⁴

The submission from the Flinders University College of Business, Government and Law similarly caution that AI remains 'a busy space', writing that:

*Realistically in AI as in every other field Australia is and will remain a net importer. Still, pockets of opportunity may remain to excel in various niches twinned to areas of existing or emerging competitive strength or natural advantage such as defence, agriculture, and environmental applications. SA should be able to use its general advantages as a place to live and work to help develop and attract talent. We should make more of a virtue of the realities of our position: our smaller scale makes collaboration and action easier - if there is common will and co-operation across different sectors.*¹⁰⁵

The Office of Data Analytics concurs that 'an action plan would enable a targeted focus on areas that match South Australia's needs'.¹⁰⁶ The committee recommends that these needs, as well as strengths, are considered, so that South Australia can build on its reputation in AI.

¹⁰⁴ Committee Hansard, 11 September 2023, p.7.

¹⁰⁵ Submission 9, p.10.

¹⁰⁶ Submission 38, p. 12.

Recommendation 8: The Department for Industry, Innovation and Science consider the introduction of a Growth Accelerator to accelerate the adoption of AI technologies in industry

Similar to the Manufacturing Growth Accelerator, the committee recommends that the Department for Industry, Innovation and Science could provide a similar support pathway for the innovation and adoption of AI technologies to promote advancement in strategic economic areas.

The Committee agrees with the Department for Industry, Innovation and Science's (the department) stance on South Australia having the opportunity to harness critical technologies, including artificial intelligence to drive both innovation and South Australia's economic growth in some of the State's most key strategic economic areas¹⁰⁷.

The Submission from the Office of Data Analytics, Department of the Premier and Cabinet touches on the development of an AI action plan to enable a supportive ecosystem to encourage entrepreneurs to trial innovative AI approaches and facilitate start up growth. This could also pave the way to enable targeted focus areas that match South Australia's needs¹⁰⁸ and further support recommendation 7.

The Jeff Bleich Centre, Flinders University suggests the South Australian Government develop AI-focused training programs with industry stakeholders and educational institutions¹⁰⁹ with a main aim being similar to the Manufacturing Growth Accelerator provided by the department to 'bridge the gap' of AI with a focus on AI education regarding the role, deployment, risks and limitations of the technology. This proposal would further support an enabling environment and adopt supportive infrastructure to promote the innovation and adoption of AI technologies.

The Queensland AI Hub suggests an 'apprenticeship approach' that combines the personalised guidance of expert human tutors with AI-enabled decision support and question-driven learning. This can offer real-time support, guide people through problems, enable the asking of pertinent questions and assist people in decision-making¹¹⁰. This model can facilitate continuous learning and development and drive innovation, offering a support pathway already adopted by the Manufacturing Growth Accelerator by providing funding for information sessions, bespoke accelerator projects and industry assessments.

Similar to the department partnering with Flinders University to establish the Manufacturing Growth Accelerator, the Committee recommends the Department for Industry, Innovation and Science partner with key artificial intelligence institutions such as the Australian Institute for Machine Learning to introduce a similar initiative to accelerate the adoption of artificial intelligence products and solutions in industry to help South Australia become a world leading digital economy. This could include a funding component direct to companies to increase the level of innovation and investment to help integrate AI technologies into operations under this initiative.

¹⁰⁷ Government of South Australia, Department for Industry, Innovation and Science, [Driving economic growth through Critical Technologies](#), 2023, accessed 25 October 2023.

¹⁰⁸ Submission 38, p. 12.

¹⁰⁹ Jeff Bleich Centre, Flinders University, Submission 14, p. 2.

¹¹⁰ Submission 15, p.4.

Recommendation 9: Develop an evidence-based, best practice framework to guide schools in harnessing AI to support teaching and learning

The committee recommends that the framework from the Department for Education should have the following objectives: safe and ethical use of generative AI tools; best practice implementation of generative AI tools to lift student outcomes; reducing burden and administration using generative AI tools; and establishing education-specific standards and governance to meet the needs of schools.

The Department for Education have advised the committee they have:

chosen not to issue any blanket bans on generative AI tools in South Australian government schools. Schools will determine when it is suitable for teachers and students to use AI-enabled technologies for teaching and learning, taking into account privacy, security, and students' learning needs, as they do now with other digital technologies. They will be supported by departmental guidance and tools.¹¹¹

The committee appreciates the department's commitment to incorporating appropriate AI tools into South Australian government schools in a safe and pedagogically equitable manner, ensuring that the use of generative AI in classrooms supports students, enabling 'personalised learning'. This was detailed in their submission to the committee, in which they detailed the trial of generative AI chatbot technology called EdChat, similar to ChatGPT, with several secondary state government schools. The committee was impressed by the measures taken by the department to ensure that this trial was conducted in safe and ethical manner, with control over the data received, entered, and generated by the platform.

The Australian Academy of Technological Sciences and Engineering (ATSE) praised the department in their submission, writing, 'ATSE applauds the South Australian Government for standing alone as the only Australian state to allow the use of generative AI in public schools (Jaeger, 2023), a stance ATSE has previously recommended the other states adopt'.¹¹²

Based on evidence received by the committee, the committee is confident that the Department for Education is taking a diligent approach regarding AI use in South Australian government schools. The committee is assured that the department is exercising great care to ensure student's safety and security, but still capitalising on how AI can enhance teaching and learning.

The committee would like to build on this momentum and provide further tools to the department that can help guide educators and administrators in their appropriate use of AI, focussing on ethics, safety, and positive pedagogical outcomes, via a best practice framework to further guide schools in how they can use AI in the classroom to support teaching and learning. The committee is mindful of the sentiments of Professor Martin Westwell, Chief Executive of the department, who told the committee that 'our students are going to need to work in a world where AI exists, and we need to teach them to use that technology ethically and productively'.¹¹³ A best practice framework should incorporate the work that the department has already conducted and build on this to anticipate further advancements.

¹¹¹ Submission 37, p. 3.

¹¹² Submission 32, p.2.

¹¹³ Committee Hansard, 5 October 2023, p.31.

Recommendation 10: Develop age specific education programs to promote public awareness of AI in online safety, data privacy, identifying misinformation and disinformation and digital consumer manipulation

AI technologies will not always be used ethically. The committee recommends that education programs tailored to address harmful impacts will lead to a better understanding and protection for all individuals.

As AI technology advances, so must awareness and literacy, of its potential and of its pitfalls, in the general population. This will help to ensure that technology is used in a safe and ethical way that does not cause harm or compromise the privacy or wellbeing of South Australians. The committee recommends that education programs be developed by the Department for Education that suit South Australians at all life cycles, beginning from early primary school age and onwards.

ATSE recommend that educators be sufficiently trained to meet these goals, suggesting that the following be provided: 'professional development opportunities, supported by professional development leave, to teach existing educators how to engage with AI both inside and outside the classroom'.¹¹⁴

It may also be pertinent to liaise with higher education institutions and vocational training providers to embed these programs within their courses.

Additionally, community education programs beyond the classroom, for groups such as senior citizens – who may not be as technologically literate – would be most beneficial, to ensure inclusivity, and that their data privacy is maintained and that they do not fall victim to scams using AI. These programs could also form part of public information campaigns or promote existing resources such as the Australian Government's National Anti-Scam Centre's Scamwatch program. The community considers adequate community education and awareness about AI to address fears that the public may have around the increasing use of these technologies.

Recommendation 11: The Department for Education consider a pilot of AI technology related subjects in the curriculum

The committee believes that students and educators need to be aware and engaged in the changing capabilities of the technology and its impacts. Elevating STEM subjects to make them relevant to all students will provide a starting point for AI talent development and may lead to greater sovereign capability of research.

While Recommendation 9 discusses a framework around the use of AI in government classrooms, the committee also recommends that the department consider how AI can be further integrated into the curriculum, both by embedding AI technology into existing subjects, but also via a pilot elevating STEM topics to make them relevant to all students. There is often

¹¹⁴ Submission 32, p. 2.

an academic divide that occurs in schooling, in that some students consider themselves more humanities-focussed rather than STEM – the committee wishes to gently challenge this notion and suggest that STEM topics are made more accessible for all students, rather than just those who may display particular inclinations towards, or aptitude for them.

The committee is of the view that elevating these subjects earlier in a student's educational journey will foster talent in AI-related areas, thereby building an AI-ready workforce for the future, leading to greater sovereign capability.

The committee is encouraged by the department's submission, which discusses how they are 'preparing young people for an AI-enabled world', writing that 'our children and young people need to be equipped with skills, knowledge and capabilities that will allow them to thrive in a future economy and society that has harnessed AI-enabled technologies'.¹¹⁵

Recommendation 12: State government departments coordinate with Commonwealth government to provide clear, consistent and comprehensive laws for the AI industry

The committee considers that if laws are developed for the AI industry, this should be on a national level so that priorities and modes of governance are clear. This will serve as a theoretically sound starting point for endeavours relating to AI and will allow South Australians to realize the full potential of AI whilst ensuring that risk is effectively managed.

The committee believes that consistency is key in AI-related legislation: that laws in South Australia should not be more or less lenient than other states, and hence, recommends that state government coordinates with the Commonwealth to work on a robust, yet not restrictive, legislative framework governing the AI industry. In their submission to the committee, the Tech Council of Australia concurs that regulation needs to be nationally consistent:

*South Australia should ensure its governance approach to AI is nationally coordinated and that it supports existing regulators to clarify and enforce existing laws. This could be supported by the establishment of an expert advisory and coordination model to support regulators, just like countries like the UK have done.*¹¹⁶

This is in keeping with the spirit of the Bletchley Declaration, of which Australia became a signatory, with 27 other countries and the European Union, at the AI Safety Summit in the UK on 1 November 2023. The Bletchley Declaration addresses the urgency and necessity of proper regulation of AI technologies, and cooperation between governments at national and international level.¹¹⁷ The committee assert that cooperation across state governments is also key.

In a committee hearing, Dr Ian Oppermann, Chief Data Scientist and Chair of the NSW Artificial Intelligence Advisory Committee, New South Wales Government, advised that,

¹¹⁵ Submission 37, p.2.

¹¹⁶ Submission 39, p.3.

¹¹⁷ Australian Government Department of Industry, Science and Resources, ['The Bletchley Declaration by Countries Attending the AI Safety Summit, 1–2 November 2023'](#), 2 November 2023, accessed 6 November 2023.

Increasingly we have been promoting a nationally consistent approach to AI assurance. We have been collaborating quite well with our equivalent in Adelaide in South Australia and it was accepted that in June 2023 we would have a nationally consistent approach to AI assurance—so how to assure appropriate use of AI—and that the baseline of that nationally consistent approach would be the version 1 of the New South Wales assurance framework.¹¹⁸

The committee was pleased to hear from Dr Oppermann that this collaboration between NSW and SA is already in place and looks forward to it continuing, together with other states and territory governments, as well as the federal government.

Recommendation 13: State government establish a *permanent* whole-of-government body dedicated to creating and implementing an AI framework based on accountability, transparency, societal and environmental well-being, universal access, fairness, safety and security, and human agency and oversight

The committee believes that findings may lead to AI specific legislation or amendments to current legislation, in order to prevent discrimination based on flawed datasets, and thwart reinforcement of offensive stereotypes.

AI is multi-faceted – it touches many government departments and agencies, and as such, the committee recommends that a whole-of-government body is put in to place that acknowledges that breadth, and takes the above topics into consideration, ensuring safety, ethical use and equity.

Dr Ian Opperman spoke to the committee about NSW's AI Assurance Framework, which was released to cabinet for endorsement in December 2021. The committee suggests that an SA body look to the NSW framework as an example.¹¹⁹

Additionally, the submission from the UNSW Allens Hub for Technology, Law and Innovation ('UNSW Allens Hub') advises that the Australian National University's Tech Policy Design Centre has done significant work on the topic of AI governance, and as such, the committee suggests that their work be consulted.¹²⁰

The already-existent South Australian Across Government AI Governance Working Group, as chaired by the Office of Data Analytics, may be able to expand or contribute to this body and it is advisable that their input is sought.

¹¹⁸ Committee Hansard, 30 October 2023, p.65.

¹¹⁹ Committee Hansard, 30 October 2023, p. 65.

¹²⁰ UNSW Allens Hub, Submission 21, p.10.

Recommendation 14: Review the applicability and suitability of current criminal law and privacy laws in relation to AI-enabled image-based abuse (i.e. 'deepfakes')

The committee queries if the current laws are adequate protect South Australians from rogue deepfake technology and recommends a review into their applicability and suitability.

The use of deepfake technology, and how deepfakes can be used to perpetuate image-based abuse or exploitation, is of grave concern to the committee. As we live in a social-media, image-saturated world, it is extremely easy to gain access to a person's image, and unfortunately, this accessibility brings with it significant concern that it could be used maliciously – to create a video or image that shows a false likeness of that person, indiscernible from reality. These deepfakes are often pornographic, creating a non-consensual sexual image of a person (including AI-enabled child sexual abuse material, or CSAM), which can then be distributed online, tarnishing the victim's reputation, and causing them and their family immense distress. Deepfakes can also be used in non-sexual ways that can have similarly adverse repercussions. Worryingly, both non-sexual and pornographic forms of deepfakes could also be used for the purposes of blackmail or extortion, or in concert with other forms of abuse, such as intimate partner violence.

The submission from the Australian Institute of Criminology (AIC) points out that these malicious uses of AI are likely to increase as more sophisticated forms of image manipulation become more accessible to the general public and could result in greater rates of mental health problems in the population due to the distress felt by victims.¹²¹ This was corroborated by SAPOL in their statement to the committee.

The committee recommends that the current criminal and privacy laws are reviewed in relation to AI-enabled image based-abuse, and whether or not they are applicable and suitable to protect South Australians from these forms of abuse.

The AIC have recommended several means to combat the scourge of AI-generated image-based abuse, their submission reading as follows:

- *Biasing AI models against child nudity.*
- *Watermarking and content provenance (to distinguish fake from real content).*
- *Passive detection mechanisms (technologies that identify fake content).*
- *Active monitoring of AI-generated CSAM production networks (material collected and hashes stored in databases, similar to real CSAM).*
- *Changes to industry CSAM classifications (to include AI-generated content as a separate category).*
- *Technical collaboration (large tech companies to collaborate on technologies to detect and remove AI-generated content).*
- *AI ethics and safety by design (incorporate safety by design elements at every stage of the AI development cycle). Safety by design should include: – service provider responsibility; – user empowerment and autonomy; and – transparency and accountability.*
- *Planning for future advances in generative AI.*
- *Prevention (education for children, parents, and professionals).*

¹²¹ Submission 44, p.5.

- *Protection through legislation (powers to hold tech companies accountable).*
- *Proactive and systemic change (tech companies to regularly report on actions for reducing harm).*¹²²

Some of their recommendations fall under recommendations from the committee contained within this report – for example, education for children, parents, and professionals falls within Recommendation 10 – and the committee acknowledges the interconnected nature of the topic. However, the committee recommends that the AIC's recommendations are taken into consideration in a review process.

Some submissions, such as the submission from the UNSW Allens Hub also contend that the existing federal privacy laws are outdated and do not provide adequate protection to Australians given the speed at which AI technology is increasing.¹²³ The committee suggests that a review takes into consideration federal as well as state legislation.

Recommendation 15: SA government to develop a framework for the use of AI technologies in investigations by applicable government departments and agencies

The committee recommends the development of a framework similar to the rationale of a search warrant in an investigative context: a framework for the use of AI technologies to establish a process that must be undertaken when using these technologies to support investigative functions.

In South Australia Police's (SAPOL) appearance before the Committee, Assistant Commissioner Venditto stated that AI technologies including Facial Recognition technology, Automated Number Plate recognition, voice to text transcription and AI within the road safety sphere are being used to assist policing functions. Assistant Commissioner Venditto and Mr Cameron stated that being able to leverage AI technology will have the potential to propel policing capabilities and provide significant advantages for SAPOL¹²⁴. The committee agrees with the Australia New Zealand Policing Advisory Agency (ANZPAA) Artificial Intelligence Principles, which SAPOL helped develop, to use AI in an ethical and consistent way to reflect SAPOL's commitment to community safety, to harm minimisation and to maintaining community confidence.

A way the committee believes community confidence can be maintained is for government agencies like SAPOL to develop a framework for its use of AI technologies in investigations. Assistant Commissioner Venditto stated that a legislative framework bound with the ANZPAA Artificial intelligence Principles and with public consultation, may be one way to support the increasing use of technology to keep the public safe¹²⁵.

Given SAPOL may be using AI technologies for gathering evidence through means such as CCTV footage, body worn camera footage, images and other material, the framework would provide requirements for the rationale of using AI technologies in an investigative context.

¹²² Submission 44, p. 6.

¹²³ Submission 21, p.10.

¹²⁴ Committee Hansard, 5 October 2023, pp. 31 and 36.

¹²⁵ Committee Hansard, 5 October 2023, p.31.

Detailing standard practice guidelines that describe and define the requirements for the use of AI as in standards for search warrants, this framework would provide essential components of the investigation process that either must or should be undertaken when using AI technologies and provide consistency in practices.

Acting Detective Senior Sergeant Cushnie stated that within the ANZPAA Artificial Intelligence Principles human oversight should be maintained for decision making, attributing human accountability to the use of AI¹²⁶. The Committee suggests that within this framework there needs to be specific reference to human oversight for AI based decision making, noting that the Committee is aware this is common practice within SAPOL currently.

While SAPOL is employed as the predominant example in this instance, the committee wishes to stress that this recommendation is not limited to SAPOL but extends to other government agencies who conduct investigative, or some forms of inspection work, with some level of authority, such as PIRSA (their Fisheries Officers, for example), or local government parking inspectors. The committee sees the use of a framework as a mechanism to provide greater community confidence, peace of mind and protection of the privacy of citizens.

¹²⁶ Committee Hansard, 5 October 2023, p.32.

10. REFERENCES

All submissions and Hansard transcripts are published on the committee's webpage on the Parliament of South Australia website: www.parliament.sa.gov.au

Submissions are numbered in Appendix 11.1.

Hearings are dated in Appendix 11.2.

Australian Government Department of Industry, Science and Resources, '[The Bletchley Declaration by Countries Attending the AI Safety Summit, 1–2 November 2023](#)', 2 November 2023, accessed 6 November 2023.

M Bailes, '[Making a case for legal billing reform](#)', *InDaily*, 4 May 2023, accessed 7 November 2023.

'[FACT SHEET: President Biden Issues Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence](#)', The White House, 30 October 2023, accessed 7 November 2023.

Government of South Australia, Department for Industry, Innovation and Science, '[Driving economic growth through Critical Technologies](#)', 2023, accessed 25 October 2023.

S Ison, 'Alarm over cyber crims "poisoning" AI data', *The Australian*, 30 October 2023, p.4 [print].

K Martineau, '[What is generative AI?](#)', IBM Research Blog, 20 April 2023, accessed 22 September 2023.

11. APPENDIX

11.1 Submissions received

	Name	Date received
1	Mr Peter A. Jaensch	23/7/2023
2	Dr Nick Jackson	12/8/2023
3	Australian Human Rights Commission	14/8/2023
4	Department for Industry, Innovation and Science (Government of South Australia)	15/8/2023
5	Robinson Research Institute	16/8/2023
6	Australian Health Practitioner Regulation Agency	17/8/2023
7	Elegant Media	17/8/2023
8	Portable	18/8/2023
9	Flinders University College of Business, Government and Law	18/8/2023
10	Legal Services Commission South Australia	18/8/2023
11	Digital Rights Watch	15/8/2023
12	Ernst & Young	18/8/2023
13	Confidential	18/8/2023
14	Jeff Bleich Centre, Flinders University	18/8/2023
15	Queensland Artificial Intelligence Hub	18/8/2023
16	SA Police	18/8/2023
17	CHOICE	18/8/2023
18	Minister for Women and the Prevention of Domestic and Family Violence	18/8/2023
19	Minister for Child Protection	18/8/2023
20	Campaign for AI Safety	18/8/2023
21	UNSW Allens Hub for Technology, Law and Innovation	18/8/2023
22	Youth Inc. Enterprise Academy	18/8/2023
23	CSIRO	18/8/2023
24	RMIT University	18/8/2023
25	Flinders University	18/8/2023
26	Costa Group Holdings Ltd	18/8/2023
27	Innovation and Enterprise Flinders University and Department of Business, Strategy and innovation Griffith University	18/8/2023
28	Invest SA (Department for Trade and Investment)	18/8/2023
29	HeartAI Pty Ltd	18/8/2023
30	Jay Pierce Wulf	18/8/2023
31	Australian Institute for Machine Learning	18/8/2023
32	Australian Academy of Technological Sciences and Engineering	18/8/2023
33	Professor Picard, Flinders University	18/8/2023
34	Law Society of Australia	21/8/2023
35	Office of the Premier of South Australia	22/8/2023
36	Property Exchange Australia Ltd	23/8/2023
37	Department for Education (Government of South Australia)	23/8/2023
38	Department of the Premier and Cabinet	25/8/2023
39	TechCouncil of Australia	28/8/2023
40	Office for Sport and Recreation	28/8/2023
41	Department for Energy and Mining	28/8/2023
42	Australian Industrial Transformation Institute	29/8/2023
43	Salesforce	01/9/2023
44	Australian Institute of Criminology	07/9/2023
45	Rob Kennedy	11/9/2023
46	Department of Primary Industries and Regions	11/9/2023

11.2 Hearings

All held in Old Parliament House, Adelaide between 11 September and 30 October 2023.

- 1 Professor Lyle Palmer
Professor of Genetic Epidemiology and Senior Researcher, Australian Institute for Machine Learning, University of Adelaide
- 2 Professor Simon Lucey
Director, Australian Institute for Machine Learning, University of Adelaide
- 3 Professor Anton van den Hengel
Director, Centre for Augmented Reasoning, Australian Institute for Machine Learning, University of Adelaide
- 4 Dr Paul Dalby
Business Development Advisor, Australian Institute for Machine Learning, University of Adelaide
- 5 Professor Edward Santow
Co-Director and Industry Professor - Responsible Technology, Human Technology Institute, University of Technology, Sydney
- 6 Professor Sally Cripps
Director of Technology, Human Technology Institute, University of Technology, Sydney
- 7 Dr Aengus Tran
Co-founder, Director, harrison.ai
- 8 Mr Dimitry Tran
Co-founder, Director, harrison.ai
- 9 Mr Tony Saliba
Head of Asia Pacific, annalise.ai
- 10 Mr Hamish Cameron
Executive Director, Information Systems and Technology, SA Police
- 11 Assistant Commissioner John Venditto
Crime Service, SA Police
- 12 Detective Superintendent Adam Rice
Officer in Charge, Financial and Cyber Crime Investigation Branch, SA Police
- 13 A/Detective Senior Sergeant Stevie Cushnie
Serious and Organised Crime Branch, SA Police
- 14 Dr Sanjugta Vas Dev
Director, Office for Women, Department of Human Services
- 15 Dr Bronwyn Camac
Acting Director, Department for Energy and Mining

- 16 Mr Peter Buxton
Program Coordinator, Geoscience Information Management and Delivery,
Department for Energy and Mining
- 17 Professor Peter Appleford
Executive Director, Major Programs and Regions, Department of Primary
Industries and Regions
- 18 Professor Martin Westwell
Chief Executive, Department for Education
- 19 Mr Dan Hughes
Chief Information Officer, Department for Education
- 20 Ms Julia Oakley
Executive Director, System Performance, Department for Education
- 21 Dr Ian Oppermann
Chief Data Scientist, Department of Customer Service, NSW Government

The full transcripts of public oral evidence taken by Hansard can be viewed at the committee's webpage on the Parliament of South Australia website: www.parliament.sa.gov.au