

Thursday, 9 May 2024

Senate Select Committee on Adopting Artificial Intelligence (AI)

The committee's terms of reference include:

- a. recent trends and opportunities in the development and adoption of AI technologies in Australia and overseas, in particular regarding generative AI;*
- b. risks and harms arising from the adoption of AI technologies, including bias, discrimination and error;*
- c. emerging international approaches to mitigating AI risks;*
- d. opportunities to adopt AI in ways that benefit citizens, the environment and/or economic growth, for example in health and climate management;*
- e. opportunities to foster a responsible AI industry in Australia;*
- f. potential threats to democracy and trust in institutions from generative AI; and*
- g. environmental impacts of AI technologies and opportunities for limiting and mitigating impacts.*

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Nuvento is a 100% Australian owned and operated A.I., data analytics, data and software engineering practice based in the ACT (2019). The organisation specialises in A.I, data (including data governance and best practice approaches), and software development and implementation.

The company employs approximately 40 technical specialists working on highly specialised Government projects (including major Commonwealth Departments and Defence Agencies), as well as the Private sector.

Nuvento Directors David Hohnke and David Sheard have vast experience working throughout the public and private sectors, and are leaders in the field on A.I. software, data, and its various applications and impacts.

This submission is co-authored by Nuvento Directors David Hohnke and David Sheard, who both welcome the opportunity to address the Senate Select Committee on Adopting Artificial Intelligence (AI) in person, to further discuss the matters outlined in this submission, if the committee thought it was appropriate to do so.

Opportunities and impacts for Australia arising out of the uptake of AI technologies in Australia.

Unleashing the Potential of AI in Australia

Artificial Intelligence (AI) is no longer a futuristic concept but a transformative technology that is reshaping industries, economies, and societies around the world. In Australia, the adoption of AI technologies is gathering momentum, driven by recent trends and opportunities both locally and overseas.

The potential benefits of AI are vast, ranging from increased productivity and efficiency to new business models and innovative solutions in various sectors. In Australia, AI has the power to drive economic growth, create jobs, and improve public services. However, it also presents challenges related to ethical, legal, and social issues that need to be addressed.

Recent Trends and Opportunities in AI Development and Adoption in Australia and Overseas

Artificial Intelligence (AI) is a transformative technology that presents significant opportunities for productivity growth and economic development in Australia. Recent trends indicate an accelerating adoption of AI technologies, both domestically and internationally (Andrews et al., 2022).

In Australia, the uptake of AI has been driven by advances in machine learning algorithms, which have enabled solutions to increasingly complex real-world problems (Research paper 1).

Moreover, overseas markets are leading the way in AI development and adoption. For instance, the European Union is planning to implement specific laws for AI, while the United States has issued guidelines but not yet legislated (DISR, 2023). Australia, as a 'regulation taker' in international AI markets, will be influenced by regulatory approaches in its key overseas markets.

One of the most exciting developments in AI is generative AI, which can create new content, such as text, images, and music. Generative AI has significant potential for various industries, including health, education, and creative arts (IP Australia, 2023).

In healthcare, generative AI could assist in diagnosing diseases or creating personalised treatment plans. In education, it could generate customised learning materials based on individual students' needs. In the creative arts, it could help artists create new works or even compose music.

However, with these opportunities come risks that must be addressed. For instance, there is a need to mitigate potential threats to democracy and trust in institutions from

generative AI (Brown, 2023). Clear guidelines for accountability and transparency are essential to ensure that AI systems do not perpetuate or amplify biases or misinformation.

Furthermore, Australia has an opportunity to foster a responsible AI industry by adopting best practices in ethical AI development and use (Babina et al., 2020). This could include investing in research and development, establishing regulatory frameworks, and promoting public awareness and education about AI.

Moreover, the adoption of AI technologies can contribute to environmental sustainability and economic growth. For example, AI can be used to optimise energy usage in industries or develop more efficient agricultural practices (Australian Government, 2023).

Generative AI: Transforming Industries and Creating New Opportunities

Generative Artificial Intelligence (AI) is revolutionising industries by creating new opportunities for innovation and growth. In Australia, the adoption of generative AI is gaining momentum as businesses recognise its potential to transform their operations and create value.

This technology goes beyond traditional AI applications, such as image recognition or speech synthesis, by generating original content, including text, images, music, and even art (Hughes, 2023).

Recent trends in the development and adoption of generative AI are not limited to Australia; they are a global phenomenon. For instance, Europe has adopted the 'privacy-by-design' approach in their General Data Protection Regulation (GDPR), while the United States is exploring ways to strengthen privacy requirements in the context of AI (Lima & Zakrzewski, 2023). These international developments will have spill over effects for Australia.

The opportunities for generative AI in Australia are vast and can benefit citizens, the environment, and economic growth. In healthcare, generative AI can be used to develop personalised treatment plans based on patients' medical histories and genetic information (Attorney-General's Department, 2023a). In climate management, it can help predict weather patterns and suggest mitigation strategies (DISR, 2022).

However, while this momentum to investigate the use of AI is substantial, there remains a systemic perception that only internationally recognised providers have the answers, when in fact we should be looking first in our own backyard.

Nuvento has experienced this perception first-hand on numerous occasions. We have developed a highly sophisticated and effective AI tool which can analyse, summarise, generate, predict, and create new data instantly.

The tool (Nu42) has been built with the data principles of sovereignty, privacy, security, efficiency, effectiveness, and governance at the forefront of development; and is 100% safe, secure, and accurate; and ready to use across Government and private industry.

While Nuvento has taken a totally unique approach with our AI solution, scepticism remains amongst Government agencies and officials about the tool's capability and the fact a local Australian company could or has come up with a solution that major vendors simply cannot provide.

While Nuvento struggles to gain traction and attention within Government for our purpose-built AI solution (Nu42), interest from the private sector has been substantial, with active trials of Nu42 already underway with similar use cases.

For Nuvento, this highlights the need for education around what AI is (and is not), and the fact that local SME (small medium enterprise) technical experts have the solutions here and now and can help establish and grow a sovereign Australian AI industry with appropriate government assistance and support.

Moreover, fostering a responsible AI industry in Australia is crucial to ensure that this technology benefits society as a whole. This includes addressing ethical concerns related to the use of biased data or culturally sensitive information (Taylor, 2023; Carlson & Richards, 2023). By implementing robust regulatory frameworks and guidelines, Australia can foster an industry that prioritises fairness, transparency, and accountability.

However, the rise of generative AI also poses potential threats to democracy and trust in institutions. For instance, deepfakes and other forms of manipulated media could be used to spread misinformation or propaganda (International Copyright Issues & Artificial Intelligence, 2023).

To mitigate these risks, a strong constitutional legislative base for the oversight of AI technologies is essential. This will help ensure that the community's trust in institutions and democratic processes remains intact.

Mitigating Risks of AI: International Approaches and Best Practices

The rapid advancement of Artificial Intelligence (AI) technologies presents both opportunities and challenges for Australia. While AI has the potential to significantly boost productivity, improve services, and drive economic growth, it also raises

concerns regarding ethical implications, privacy, and security. In this context, it is essential that we adopt a proactive approach to mitigate risks associated with AI, drawing inspiration from international best practices.

Major economies worldwide are actively addressing the regulatory landscape for AI. For instance, the European Union (EU) has adopted the 'privacy-by-design' approach in their General Data Protection Regulation (GDPR), ensuring that privacy is a fundamental consideration throughout the design and development of AI systems. The United States is exploring ways to strengthen its privacy requirements in the context of AI.

Australia, as a small but innovative economy, should not impose idiosyncratic standards that may hinder the adoption and spread of AI technologies. Instead, we can influence international standards and agreements, ensuring that our regulatory framework remains aligned with major global economies. By doing so, we can ensure that imported AI models comply with the regulatory requirements of their source jurisdictions, providing incentives for Australian developers to meet these standards as well.

Moreover, fostering a responsible AI industry in Australia is crucial. This includes implementing ethical guidelines, promoting transparency and accountability, and ensuring that AI systems are designed and developed with human values in mind. By doing so, we can build trust within the community and ensure that AI technologies are used to benefit citizens, the environment, and economic growth.

However, it is essential to acknowledge potential threats to democracy and trust in institutions from generative AI. Misinformation, deepfakes, and other malicious uses of AI pose significant risks to our democratic processes and societal values. A strong constitutional legislative base for the oversight of AI technologies is crucial to mitigate these risks and maintain public trust.

Australia must embrace the opportunities presented by AI while addressing potential risks through international collaboration and best practices. By doing so, we can ensure that AI technologies are used responsibly, ethically, and in a manner that benefits our citizens, the environment, and economic growth.

Balancing Innovation with Trust: Addressing Potential Threats to Democracy and Institutions

Recent developments in generative AI have shown its ability to create deepfakes, manipulate data, and generate convincing text or images. While these advancements offer numerous benefits, they also pose a threat to the democratic process and public trust in institutions. Deepfakes can be used to spread misinformation, manipulate

public opinion, or even impersonate individuals, potentially leading to social unrest and political instability.

International approaches to mitigating these risks include strengthening regulatory frameworks, promoting transparency, and encouraging responsible AI development and deployment. For instance, the European Union's proposed Artificial Intelligence Act aims to establish a legal framework for the development, deployment, and use of AI systems, focusing on ensuring human oversight, accountability, and transparency.

Australia can foster a responsible AI industry by adopting similar measures. This includes investing in research and development, establishing clear guidelines for ethical AI usage, and collaborating with international partners to develop best practices. Furthermore, it is crucial to ensure that the regulatory frameworks are flexible enough to adapt to emerging technologies while maintaining public trust.

By addressing these potential threats through a strong constitutional legislative base, Australia can mitigate the risk of abuse and lack of trust within the community. This approach will enable us to harness the transformative power of AI while ensuring that it aligns with our values and democratic principles.

However, the potential threats to democracy and trust in institutions from generative AI cannot be ignored. Misinformation, deepfakes, and biased algorithms pose significant risks to our democratic processes and social cohesion (Smith, 2023).

To address these challenges, we must foster a responsible AI industry in Australia. This includes investing in research and development at the SME level, promoting ethical guidelines, and ensuring transparency and accountability in AI systems. A strong constitutional legislative base is essential to provide the necessary oversight and prevent potential abuses.

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