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Supporting responsible AI: discussion paper
Submission to the Australian Government

Dear Consultation Team,

Lext is an Australian legal innovation business based in Sydney. At Lext, our interdisciplinary team of lawyers and software engineers build artificial intelligence tools to make the law easier to access, and easier to practise.

At Lext, we believe that AI can solve many different challenges in Australian society, including improving access to justice.

Executive summary

Australia must:

1. Become a more attractive jurisdiction for AI entrepreneurs to start and headquarter new ventures.
2. Create the infrastructure to encourage and support sovereign innovation capability, including by partnering with private enterprise to accelerate both the creation and use of AI applications nationally.
3. Ensure our legislative framework remains fit for purpose in a changing environment, by reviewing the *Copyright Act* and the information monopolies which copyright protects.
4. Invest in education and training to manage the biggest risk of AI: misinformation.

On the backfoot: Australia must create an environment to support entrepreneurs

In June this year, Australia placed 62nd out of 64 nations on entrepreneurship due to poor economic complexity,[1] arguably because of a lack of support and investment in developing sovereign innovation capability.

If the status quo remains, Australia risks alienating entrepreneurs and encouraging them to establish their operations in more supportive jurisdictions.

Australia must support AI entrepreneurship, especially those which may contribute materially to the public interest. While public discourse about generative AI in Australia has generally focused on the risks, both real and hypothetical, of the technology, AI promises to radically reduce the cost

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[1] International Institute for Management Development (IMD) World Competitiveness Yearbook report

of accessing information and services in fields such as health, law and education.

In the past year, state and federal government grant programs supporting innovative Australian companies have been discontinued (such as MVP Ventures in NSW and Accelerating Commercialisation at the Commonwealth level). These programs were vital to offsetting the limited availability of venture capital in Australia, especially for pre-revenue companies that invest substantially in research and development. The cancellation of programs such as these should be revisited with a view to establishing grant criteria that promote AI innovation in the Australian public interest.

Australia must create and build infrastructure to encourage and support sovereign innovation capability in AI

Several governments have announced or actively invested in the creation of 'sovereign AI', including a 100 million pound investment by the United Kingdom in the exploration of sovereign AI development, and the United Arab Emirates' development and release of the open-source Falcon 40B parameter model.

Arguments for the development of national or sovereign AI include:
- ensuring equitable and affordable access to foundational AI models for entrepreneurs and the public
- encoding local languages, dialects and norms in a model, which may be unrepresented in Silicon Valley-development closed-source models.

In our view, the market for closed-source, commercial foundational model APIs and infrastructure is competitive, even in its infancy – OpenAI, Google, Cohere and Anthropic today offer largely substitutable products, with Mistral, StabilityAI, xAI and others promising to enter that market soon. In a developed economy like Australia's, tools are affordable for personal and commercial use.

Given that the preponderance of foundational models are trained on English corpora, and generate English text, the argument to develop national AI to encode or preserve language and dialects is not strong.

The promise of equitable, affordable access to personalised foundational models is best fulfilled not by public investment in centralised sovereign AI but by regulatory settings which support and encourage the development, training and use of open-source foundational AI models.

The open-source AI and machine learning communities have made tremendous strides in the development of affordable and easily customisable large language models. The Vicuna-13B parameter model, while not licensed for commercial use cases, can be trained at a cost of just $300.[2] Meta recently released its Llama-2 model under an open-source license that permits training of that model for commercial use cases, which can be trained even more affordably.

While market players such as OpenAI and Google will likely continue to battle for supremacy in the market for AI tools suitable for a wide variety of general language tasks, innovation in this field in Australia is most likely to occur where generative AI intersects with a domain-specific

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[2] https://lmsys.org/blog/2023-03-30-vicuna/

need or use case – in other words, the development of specialised AI tools for a particular need. At Lext, working at the intersection of Australian law and AI, we keenly understand the domain expertise and insight that is necessary to transform a general-use tool into a tool that is useful for a highly specific purpose.

The ability to fine-tune foundational models for these specific use cases is vital to fostering innovation, and the barrier to doing so is not the availability of foundational models – it is the availability of training data. All large language models are trained on a large corpus of language data, but copyright laws which, by reason of historical accident rather than design, arguably prevent the use copyrighted material in the training of these models. This is discussed further below.

Government can support the development of AI applications, products and start-ups in Australia by taking a permissive approach to the training data already help by the Australian Government. The government's approach to access quantitative data through APIs , such as the data programmatically available on data.gov.au, is commendable, and should be extended to language datasets in which the Australian Government holds copyright, such as legislation, case law, Hansard transcripts, as well as ASIC, ATO, CSIRO and Valuer-General data. Organisations and AI start-ups could leverage this data to improve both services and decision making. The Government is in a unique position to create the infrastructure to enable this data to be more easily accessible.

Government should invest in AI-powered digital government services

The Government should consider creating a publicly accessible application that enables Australians to safely engage with AI, both as a means of accessing government services and as a means of educating the public on the benefits of, and best practices when using, AI tools.

An application where people can ask questions about Commonwealth government services and resources and receive accurate and reliable answers is readily achievable using vector store-based knowledge retrieval architecture to guard against hallucinations and ensure that generated answers are based on a 'ground truth' composed of government publications and data sources.

Such a resource could help Australians access the government information they need without having to know the arm, department or agency of government responsible for providing that information, while also providing a tangible example of AI that serves the public interest.

Australia's intellectual property laws should support innovation, and make it clear that copyright protection does not extend to the use of works in training data

Part 3.1 of the Paper lists some of the regulations that will be impacted by the advancement of AI. That list is not exhaustive; at one extreme, it is arguable that all regulations will to some degree be directly or indirectly affected by AI.

Of primary importance, however, is copyright. Australia's current copyright laws may hinder the advancement of AI capabilities and innovation in Australia. Unlike jurisdictions such as the United States, Australia lacks a broad 'fair use' exception to copyright infringement, instead protecting a limited set of strict exceptions under a 'fair dealing' defence to infringement.

Australia's strict approach to copyright infringement means that, if a search engine provider such as Google were domiciled in Australia, it would arguably be unable to lawfully provide its service because the presentation of search results may breach copyright in the retrieved extracts.

The Copyright Act neither permits nor prohibits the use of copyrighted material to train a large language model. However, widely publicised litigation against foundational model owners in the United States[3] puts the legality of the use of copyrighted works for this purpose in doubt globally.

Copyright has traditionally afforded a monopoly to the copyright owner over the republication, modification and storage of their copyrighted works. This monopoly is afforded to copyright owners ostensibly to promote and reward innovation, by creating a greater incentive to produce new copyrighted works.

The use of copyrighted work to train large language models does not resemble these traditional monopolies:

- In the course of training a large language model, copyrighted works may, as a matter of necessity, be stored electronically for a matter of hours or days, depending on volume; but once the training is complete, the model itself does not store the original training data at all. The output of training a large language model is not a human-readable facsimile of the original input (or, indeed, a machine-readable one) but rather a set of numerical model weights representing the strength of signals passed between billions of nodes or parameters in the model. It is impossible to extract the original training data from model weights. Training a model does not, therefore, result in the storage of copyrighted works.

- Once a model has been trained, it generates new text based on predicting the next 'token' (a word or part of a word) in a sequence. Which token the model predicts to be the next most likely token is based on the model weights – the signals passed between its parameters or nodes – but the model is not querying and then reproducing text from its training data. It is both probabilistic and non-deterministic in its output. For example, the original training data may contain the phrase '*Call me Ishmael*', but when prompted with the phrase '*Call me',* the model does not (and cannot) attempt to recall the phrase from the training data – instead, it attempts to predict the next token from the whole corpus of training data. By generating wholly new text, token by token, without direct reference to the original training data, large language models do not reproduce text but instead create a new and original work. Large language models therefore do not result in the republication or modification of copyrighted works.

From a policy perspective, the extension of copyright monopolies to the training of large language models creates a barrier to innovation. The monopoly afforded by copyright over the republication of copyrighted work makes sense because republication is a commercial exploitation of the copyrighted work that the copyright owner is capable of pursuing.

But large language model training datasets are very large – typically over 1 billion tokens, or around 750 million words – such that very few single copyright owners could effectively train a

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[3] *J Doe and Anor v Github Inc. and Ors,* USDC Case No. 4:22-cv-06823-J, concerning Github Copilot and OpenAI Codex and the infringement of copyright in open-source code repositories; *Silverman and Ors v OpenAI Inc. and Ors*, USDC Case No. 3:23-cv-03416, concerning the use of published novels in the training of GPT models.

large language model on their copyrighted work alone – it takes the work of many, many authors to compose a training dataset large enough to train a performant model. It makes no sense to grant a monopoly over a particular commercial use of a work to a person who is unable to put the work to that use.

In June 2023, the Japanese government issued a statement confirming that the use of copyrighted works in AI training datasets would not constitute copyright infringement under Japan's Copyright Law, in doing so clarifying an ambiguity concerning the interpretation of the Copyright Law. Australia should follow Japan's lead and consider an amendment to the *Copyright Act* to make it clear that use of copyrighted materials for AI training (the step of preparing the model for use, based on a large volume of training data) and inference (the step of actually using the model to generate new text) will not infringe the rights of copyright owners in Australia. Australia should also reconsider the introduction of a broader fair use defence to copyright infringement; the use of copyrighted material for AI training and inference could fall within the uses protected by such a defence.

There is no existential risk posed by generative AI; the real risk is misinformation

The most profound risk in the expansion and use of generative AI is the acceleration of information pollution and misinformation. This is not an issue unique to AI and has threatened and eroded trust in democratic institutions and processes globally for years; however, LLMs threaten to dramatically increase the pace at which misinformation is published and accessed. This threat can only be mitigated through education.

The ability to critically analyse information on the internet and question its accuracy and reliability is a critical skill in the modern age. Once it is accepted that Australians will use AI for a variety of information-gathering and research tasks, the only way to support safe use of AI is by educating people on how to determine if outputs are factual and reliable, analogous to the challenges of educating people on how to identify fake news on social media feeds. Providing access to a safe, reliable and accurate source of information about government resources and services through a knowledge retrieval-based government AI application would help to illustrate to Australian users how the design of AI applications can influence their reliability and trustworthiness, as well as provide a reliable source of information about their interactions with government.

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