

Australian report maps sovereign capability to build 'foundational' AI tech

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Australia's National
Science Agency

Artificial Intelligence foundation models

Industry enablement, productivity growth, policy levers
and sovereign capability considerations for Australia

March 2024



Credit: CSIRO

Foundation models, the technology underpinning the rise of generative artificial intelligence (AI), could boost Australia's productivity, bolster our economy, and transform industries according to a [new report](#) by CSIRO, Australia's national science agency.

Trained on vast amounts of data and able to perform wide-ranging, complex and generalized tasks, foundation models power AI products such as OpenAI's ChatGPT, Microsoft's Copilot and Google's Gemini.

At least 125 foundation models have been developed worldwide over the past few years with most coming from the United States (73%), China (15%) and Europe. Most are made by private-sector technology corporations.

CSIRO's report on AI foundation models provides an accessible overview of the fast-moving global foundation model landscape, outlining opportunities to minimize risks and maximize their benefit for Australians.

Lead author Dr. Stefan Hajkiewicz said beneath the hype lies the potential to localize this global technology and improve a broad spectrum of Australian industries and services.

"We've all been impressed by the way these models can write a wedding speech or a poem. But the speed, power, and colossal scale of the data

analysis they can achieve has the potential to help us solve our greatest challenges, boost productivity and save lives," Dr. Hajkowicz said.

"A foundation model for health care for example could help us untangle complex, hidden relationships in patients' health records, helping us reduce the 140,000+ medical misdiagnoses in Australia each year due to human error."

Professor Elanor Huntington, CSIRO's Digital, National Facilities & Collections Executive Director, said building Australia's sovereign capability in this new class of infrastructure requires an integrated approach.

"While there are significant benefits to fine-tuning existing models in terms of cost and the speed of innovation, using foreign models poses security and reliability risks," Professor Huntington said.

"It may also result in tools that aren't culturally appropriate in an Australian context, or that don't realize the benefits for our workers that we want to see."

Opportunities for Australia to maximize the positive impact of foundation models to benefit our citizens could include developing public sector AI models, democratizing access to high-performance computing, sharing datasets, promoting skills uplift, as well as fostering international collaborations.

"Australia needs to be alert to the risks and [opportunities](#) presented by this game-changing technology, and we hope this report will help make foundation models more accessible, start conversations and inspire further growth in our nation's foundation [model](#) capabilities," Professor Huntington said.

More information: Artificial Intelligence foundation models: Industry enablement, productivity growth, policy levers and sovereign capability considerations for Australia. www.csiro.au/en/research/technology/foundation-models-report

Provided by CSIRO

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