

AI Human Capital Investment Index

Research Note
7 July 2023



MANDALA



2535
878

MODEL:428

△ 58768

△ 7239
572

of this. But you more radical an idea than that the day each of us would have a personal computer. Remember the clunky old mainframe computers that used to own purchase a personal computer

The Artificial Intelligence (AI) market is projected to grow in 2016 to 2021, allowing Commercial Artificial Growth Field (CAGF).

All of this, of course, flies in the face of conventional wisdom. The fact is that the AI market is projected to grow in 2016 to 2021, allowing Commercial Artificial Growth Field (CAGF).

As in being used today to create collaborative robotics, an intelligent, learning environment and a self-organizing system that can adapt to its environment and learn from its experiences.

Much of the computing industry will have a major impact on the way we live and work. It will be a major force in the way we live and work.

Mandala adapted a methodology of Babina et al. to identify investment in AI by Australian industries

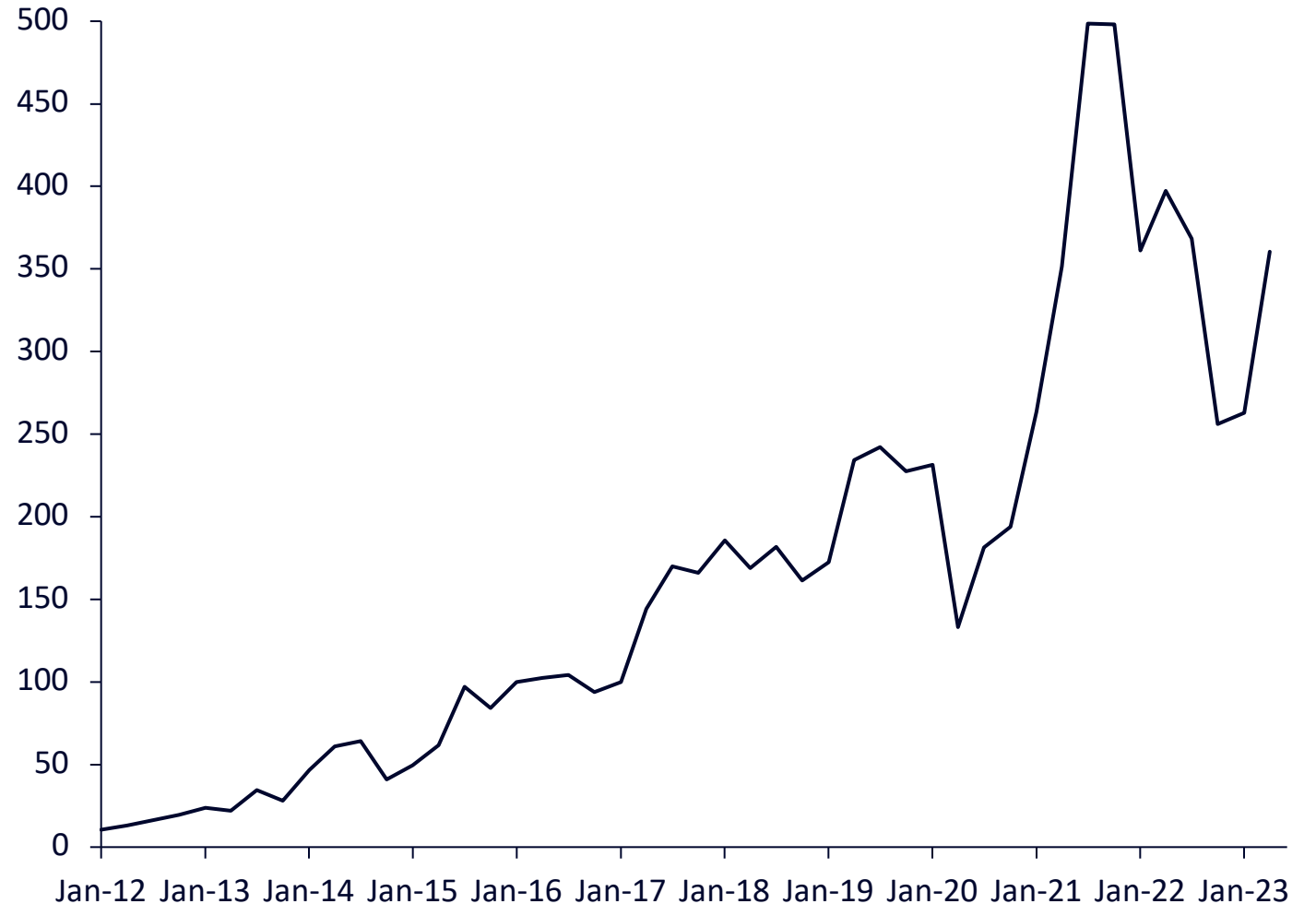
Babina et al. proposed an innovative approach to measuring AI investments at the firm level using job advertisements. By identifying job advertisements that seek skills in artificial intelligence it is possible to develop a proxy of instances of investment in the human expertise required to develop and deploy AI in products and processes.

Mandala adapted this approach for Australian industries by identifying job ads seeking skills in AI. This allowed us to construct an index of AI Human Capital Investment over time.

The analysis identified a substantial increase AI human capital investment over time. The index peaked in late 2021 during the height of the technology hiring cycle before falling. Following the growing interest in generative AI this index has grown as businesses increase investment to catch up.

AI Human Capital Investment index over time

AI Human Capital Investment index, January 2017 = 100



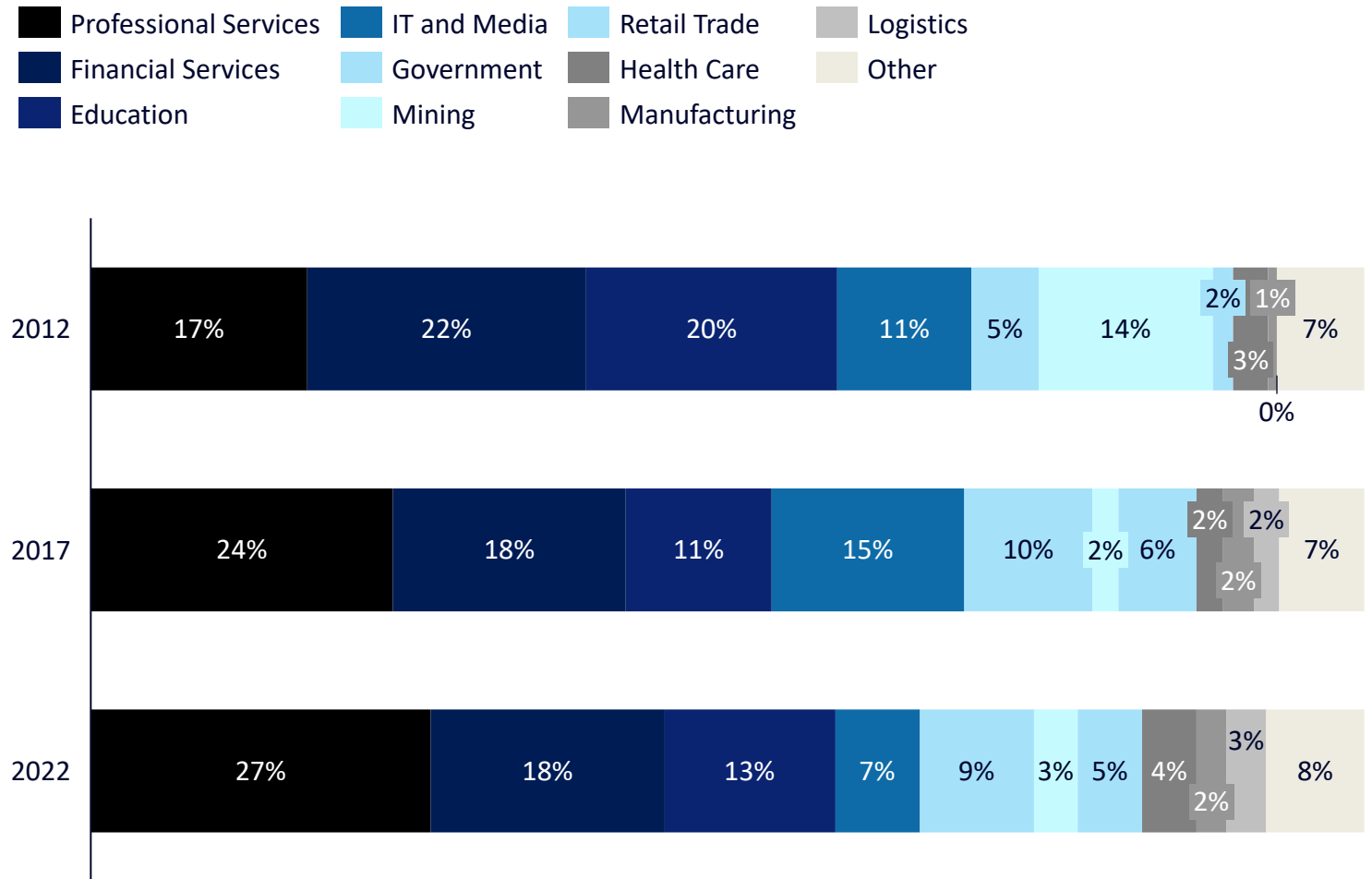
As AI has moved from theory to practice, investment has moved from universities to the private sector.

Mandala identified the contribution of Australian industries to the AI Human Capital Investment index over time.

In 2012, when AI applications were more nascent, investment was dominated by universities in the education sector and cutting edge, data-rich sectors like financial services and mining.

Between 2012 and 2017, as the applications of AI were realised, professional services and technology firms ramped up internal investment, in order to provide AI services to their clients. In 2022, as AI has proliferated, firms in other industries like logistics and manufacturing have begun to invest in internal AI capabilities.

Industries with the greatest investment in human capital for artificial intelligence over time
Contribution to AI Human Capital Investment index by industry, 2012, 2017, 2022

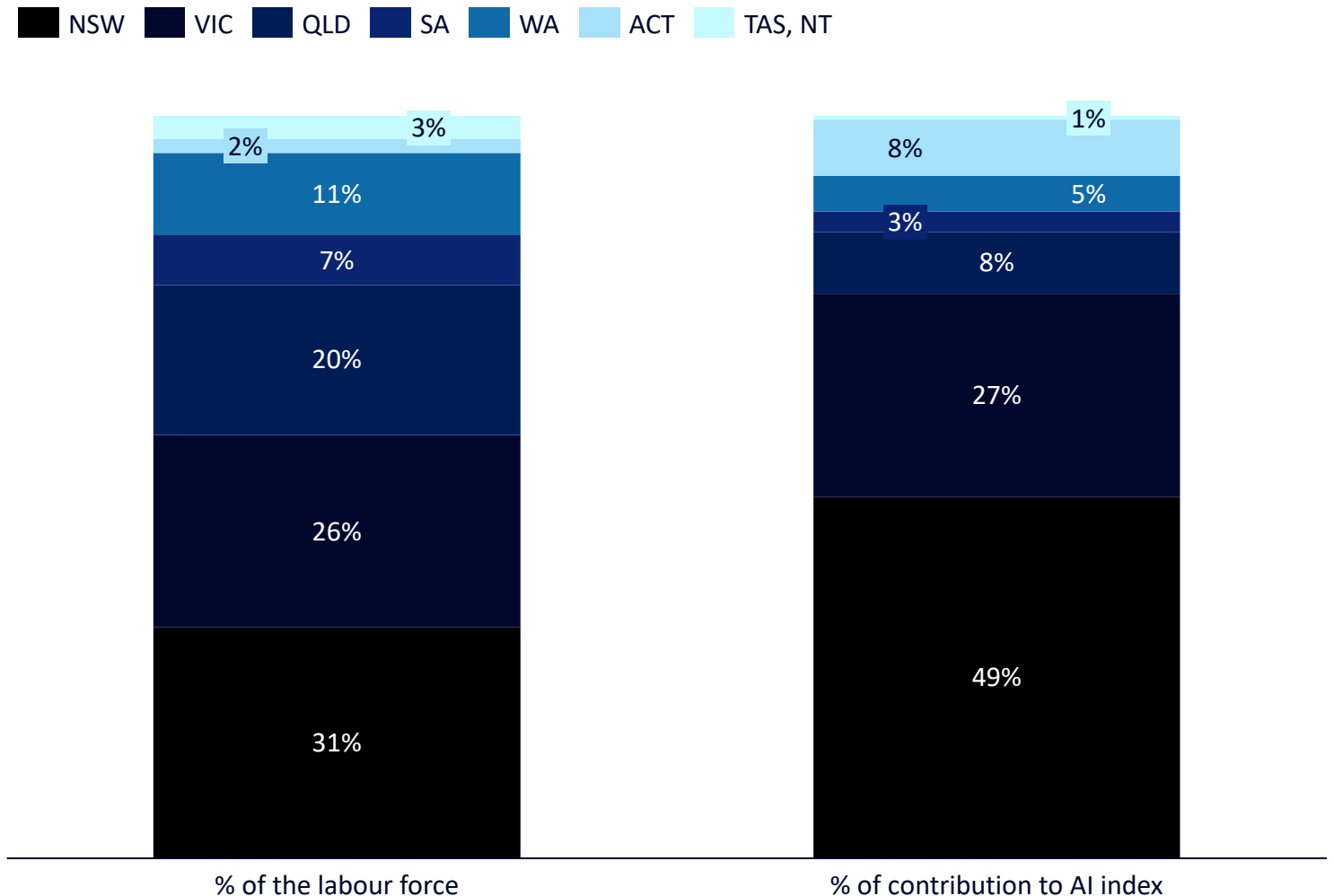


NSW and Victoria have dominated investment in AI, with Queensland and WA underperforming

Mandala identified the contribution to the AI Human Capital Investment index by state between 2012 and 2023. By comparing this contribution to the proportion of the labour force found in each state we can see which states are overperforming and underperforming in AI investment.

Mandala found that NSW and Victoria contributed 76% to the AI Human Capital Investment index, with NSW substantially overperforming its expected baseline. This reflects the substantial technology and financial sectors in the NSW economy. ACT also overperformed in investment, owing to substantial investment from the federal government. Queensland and WA were found to underperform, reflecting the dominance of mining in these states.

States with the greatest investment in human capital for artificial intelligence over time
Contribution to AI Human Capital Investment index by state 2012-2022



Sources: Lightcast; Mandala analysis

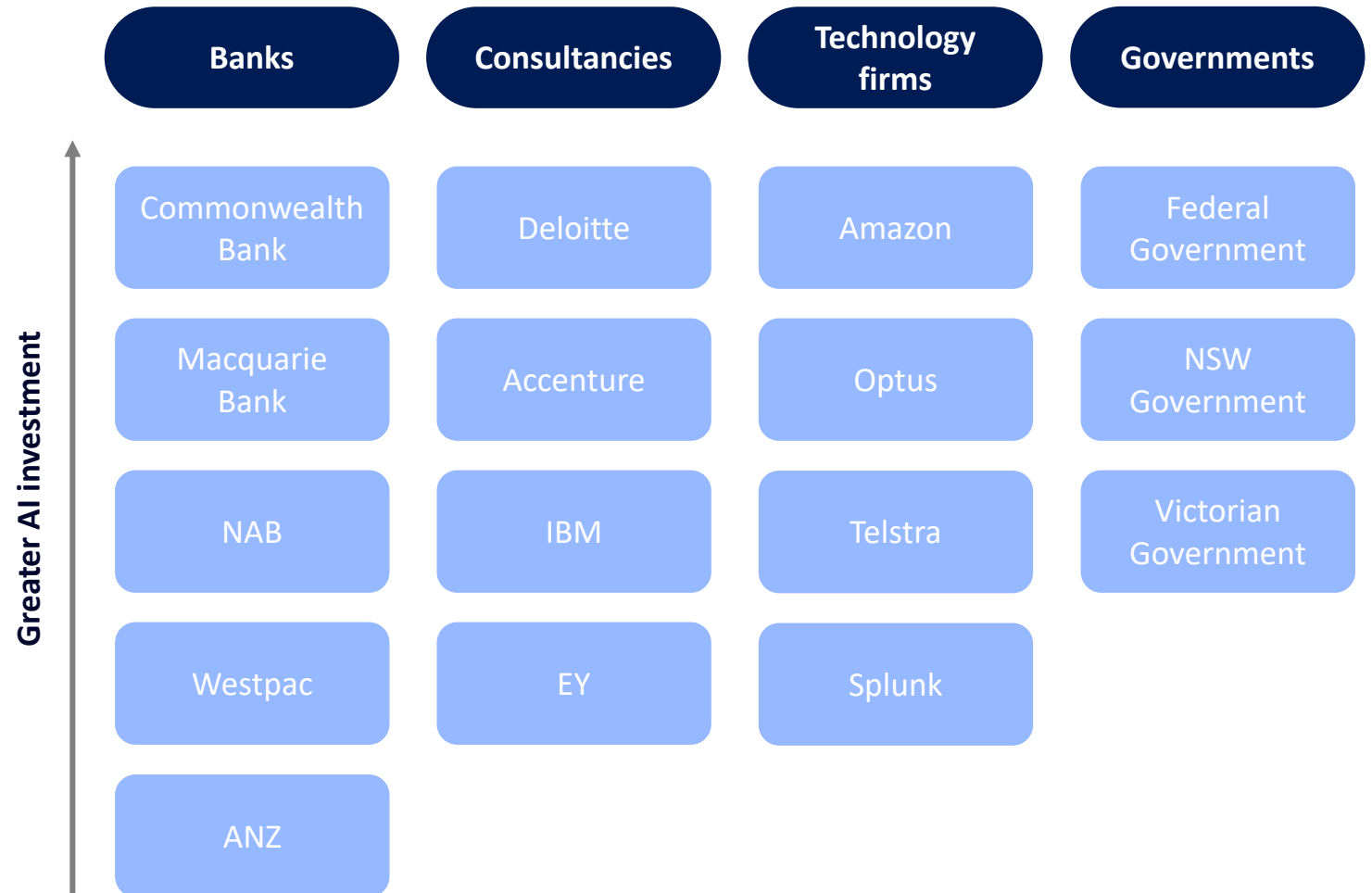
Large firms across sectors are competing for AI talent, with the Federal Govt., Deloitte and CBA leading

Mandala used a similar methodology to identify the firms with the largest AI investment in banking, consulting, technology and government.

In banking, Commonwealth Bank, Australia's largest commercial bank, had the highest investment with Macquarie Bank in second. In consulting, the largest audit and advisory firms like Deloitte and EY were the largest, along with technology advisory firms Accenture and IBM.

In technology, the largest investors were the large telecommunications firms, alongside firms with substantial AI capability, Amazon through AWS and Splunk, a firm that provides software to analyse enterprise data.

Firms with the greatest investment in in human capital for artificial intelligence over time



Sources: Lightcast; Mandala analysis