



Advanced Manufacturing



[Australia's Economic Accelerator](#) (AEA) is a \$1.6 billion Australian Government investment aimed at transforming Australia's research translation and commercialisation landscape. AEA grants support the Australian Government identified priority areas for the economy (outlined in the [National Reconstruction Fund Corporation \(Priority Areas\) Declaration 2023](#)). Within these priorities, the first round of grants will prioritise projects that align with one or more of 6 focus areas, including advanced manufacturing, artificial intelligence, digital agriculture, quantum, sustainable fuels, and critical and strategic minerals processing.

Advanced manufacturing refers to technologies that expand Australia's capability to manufacture complex products. It includes novel materials such as advanced composites as well as equipment and processes, novel additive manufacturing processes, capabilities to produce critical goods like semiconductors and integrated circuits, and materials that use critical and strategic minerals.



Enabling
capabilities

> National priority

Technology area that enables development of more complex domestic manufacturing industries and strengthening of Australia's sovereign capability. Advanced manufacturing aligns with national priority areas by supporting commercialisation of transformative advanced technologies that drive cross-sectoral productivity and support national interests.

Advantage

Australia has access to a diverse set of input materials and minerals, a highly skilled workforce, and hosts world-leading research with unrealised industrial potential.

Opportunity

To add value to our existing material inputs and develop sovereign capability to produce complex goods that feed into Australia's industries and command greater value in global supply chains.

> Research strength

Australia's rank in the OECD calculated using 2018-2022 bibliometric data from Elsevier's SciVal. Advanced manufacturing was defined using custom search terms.

8th

Output: number of scholarly papers



1st

Impact: field-weighted citation impact



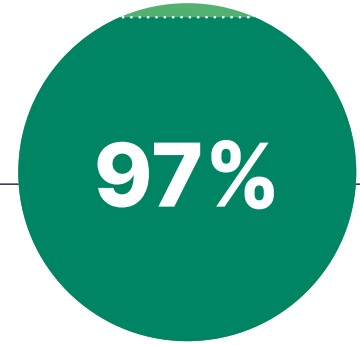
1st

Quality: share of publications in the top 10% of most-cited journals

> IP potential

Australia's share of publications cited in patent applications compared to the OECD average expressed as a percentage.

Refers to 2018–2022 patent and publication data in the Lens database.



> Market opportunity assessment

- Australian additive manufacturing market size of **AU\$0.11 billion** in 2022¹
- Projected compound annual market growth of **23.3%** from 2023–2030²
- Global market size of **AU\$19.6 billion** in 2022³
- Projected global compound annual market growth of **20.4%** from 2022–2030⁴

> Example industry problems

AEA aims to provide developmental support for promising research commercialisation projects at the proof-of-concept or proof-of-scale level (TRL stages 3–7). Successful projects will scale up to meet emerging industry needs.

Industry problem	Opportunity	Impact
High complexity input goods like semiconductors and integrated circuits face supply risks.	Build Australian capability to produce highly specialised semiconductors or gain more value from our raw materials used in their production.	Reduce the impact of trade shocks and gain a stake in the growing market for highly complex electronic components.
Industries with large depleting capital stock or vehicle fleets face high maintenance and capital upgrading costs over time.	Develop more advanced techniques and equipment for in-situ or low-cost manufacturing of complex parts, including additive manufacturing and feedstock materials like powders.	Reduce costs for the maintenance of assets in Australia's core industries and reduce reliance on external sources.
Complex and personalised therapeutics require higher speed and output production methods to scale up and become affordable.	Develop innovations that support high-throughput methods to produce higher volumes of diverse pharmaceutical products.	Expand availability of novel therapeutics and medicines across Australia and support the development of domestic pharmaceuticals manufacturing.
Metal powders for additive manufacturing, (3D printing, thermal and cold spray coating) are all imported and expensive. Prices can be over \$100 per kilogram and up to \$3,000 per kilogram.	Create locally deployable processes to produce additive manufacturing inputs and/or improvements to existing processes (e.g. particle size and geometry optimisation for the CSIRO titanium powder from ore (TIRO) process).	Enable more cost-effective additive manufacturing with consistent quality through local supply chains.
Coatings for improving wear and corrosion resistance.	Develop technologies to employ newly developed materials with superior properties such as high-entropy alloys in additive manufacturing processes.	Improved lifetimes and reduced maintenance for infrastructure and equipment in demanding environments.
Space infrastructure components face high risk of component failure due to factors such as thermal intolerance.	Leveraging Australia's additive manufacturing capability to build more efficient and reliable components for space infrastructure and systems.	Rapid and precise manufacture of reliable and tolerant components for the space industry while also helping to expand Australia's intelligence, surveillance, reconnaissance, and climate observation capabilities.

> Other public investment options

- [ARENA and the Future Made in Australia Innovation Fund](#)
- [The National Reconstruction Fund](#)
- [Industry Growth Program](#)

1 [NMSC 2022, Australia: Additive Manufacturing Market](#). Broader estimates for advanced manufacturing were not available.

2 [NMSC 2022, Australia: Additive Manufacturing Market](#).

3 [Frost & Sullivan 2022, Global Additive Manufacturing Growth Opportunities](#)

4 [Frost & Sullivan 2022, Global Additive Manufacturing Growth Opportunities](#)