



Cooperative
Research
Australia

**CRA's Submission to the Developing Advanced
Manufacturing in Australia Inquiry by the House of
Representatives Standing Committee on Industry,
Science and Resources**

March 2023

Cooperative Research Australia acknowledges the traditional custodians of the land on which we operate, the Ngunnawal people. We also acknowledge the traditional custodians of the various lands across Australia upon which our members operate.

We pay our respects to Elders past, present and emerging and celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to our lands and waters.

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Executive Summary

Cooperative Research Australia (CRA) welcomes the opportunity to make a submission to the House Standing Committee on Industry, Science and Resources for their inquiry on Developing Advanced Manufacturing in Australia.

CRA is the voice of industry-research collaboration and advocates for the translation of research into commercial, economic, social, and environmental outcomes that benefit all Australians. Our members are the lynchpin in the Australian innovation system and are focused on creating new products, services, industries, and value in our economy. CRA represents Cooperative Research Centres (CRCs) and their spinoff/successor entities, CRC – Projects grant participants, 30 universities and research institutions, as well as other industry-research collaboration entities, associated businesses, alumni and professionals.

Our contribution focuses on the importance of collaboration, a highly skilled and diverse workforce, and sustainable manufacturing practices to drive the development of advanced manufacturing in Australia.

The highlights of CRA recommendations are:

1. Increased funding and support for research and development, with a particular focus on industry-research collaboration, to address key challenges facing the manufacturing industry including the need to build a self-sustaining, globally competitive advanced manufacturing sector.
2. Fostering the collaboration between industry and research organizations through place-based clusters, innovation hubs, and industry-research networks.
3. Promotion of training and development initiatives to address skills gaps, as well as career pathways for highly skilled workers.
4. Incentivising the participation and retention of women and other historically underrepresented groups in the manufacturing industry to foster a diverse and inclusive workforce.
5. Encouraging the adoption of sustainable manufacturing practices and initiatives to support advanced manufacturing, including regional development.
6. Increased investment in research and development to support the development of new technologies, materials, and processes in the manufacturing industry.
7. Leverage and focus programs such as the CRC program, CSIRO Missions, Trailblazers, etc. to scale, build critical mass and create innovative ecosystems that self-generate continuous innovation.
8. Encourage the participation of SMEs in cooperative research projects to promote innovation and drive growth in the manufacturing industry.
9. Support innovation and entrepreneurship in the manufacturing industry through initiatives such as tax incentives and grants for research and development.

Cooperative Research Australia is committed to working collaboratively with the Australian Government to transform this country's industry and economy for a prosperous, sustainable and innovative future for all Australians. We are open to facilitating a platform for further consultation and/or clarification with our members on any of the recommendations.

Building a self-sustaining, globally competitive advanced manufacturing sector through a strong Innovation Sector

To further promote the growth of advanced manufacturing in Australia, it is imperative that there is an increased investment in research and development (R&D) and a better coordinated innovation sector to support the development of new technologies, materials, and processes in the manufacturing industry.

Cooperative Research Australia (CRA) strongly advocates for the increase of R&D expenditure as a percentage of GDP from 1.8 to 3 percent, in line with ALP's National Platform and -more recently- Minister for Industry and Science's speech at the UTS Vice-Chancellor's Innovation Showcase (3 November 2022). This would be a clear signal to the rest of the world that Australia is backing innovation in the context of an OECD average of 2.674 percent in 2020.

Alongside, we recommend a better-coordinated innovation system to take full advantage of this investment. By strategically aligning efforts across industry and government, we can establish a strong foundation for the future of the manufacturing industry. This would involve the development of industry-research networks that facilitate knowledge sharing and collaboration across different sectors and regions of Australia, as well as the use of programs such as the CRC program, CSIRO Missions, Trailblazers, etc. to scale and create innovative ecosystems that self-generate continuous innovation.

We believe that a focused, strategic, and long-term commitment from the government in the form of investment and engagement is crucial to build a strong foundation for the future of the manufacturing industry, increase productivity, create high-quality jobs, and ultimately contribute to the country's economic growth and development.

Collaboration as a vehicle to drive the development of advanced manufacturing in Australia

At CRA, we firmly believe that collaboration between industry and research organizations is essential for the development of advanced manufacturing in Australia. By leveraging each other's strengths, industry and research organizations can share knowledge, expertise, and resources to create new technologies, materials, and processes that will drive productivity and create new economic opportunities for the country.

To this end, CRA recommends increased funding and support for collaborative research that address key challenges facing the manufacturing industry. These challenges include the development of advanced materials, digital technologies, and advanced manufacturing and testing processes. By providing adequate funding and support for these projects, Australia can position itself as a global leader in advanced manufacturing, creating new economic opportunities and stimulating job growth in the country.

Furthermore, CRA recommends policies and initiatives that support the creation of place-based clusters, including funding for collaborative research projects, the establishment of industry-research networks, and the creation of innovation hubs.

In our submission to the National Reconstruction Fund (NRF), we made the case that this fund can help build ecosystems with the capacity to create scale at speed, offering opportunities for industry to grow locally by supporting the development of place-based clusters that bring together a variety of research institutions and collaborative entities, large and SME businesses, with access to downstream manufacturing capability. This would create real potential to transform existing industry, and generate new jobs and new career pathways. An ecosystem approach that draws together different institutions, schemes and participants to promote cross-fertilisation will ensure better return on investment.

The passage of the NRF legislation represents a critical milestone in advancing Australia's manufacturing industry, strengthening its labour market and creating a more complex economy. However, the success of the NRF will depend on how quickly it can be established to start making strategic investments. As noted by industry experts, the NRF's success will hinge on its ability to provide the patient capital needed to commercialise early-stage technology and create the advanced manufacturing capability necessary for long-term economic growth. This underscores the need for a sustained government commitment to innovation and industry policy, with investments under the NRF providing critical support for Australia's transition towards a more advanced and diversified economy.

It is clear that the development of advanced manufacturing in Australia will require a sustained and strategic approach, and collaboration between industry and research organizations will be critical in achieving this goal.

Unlocking the Potential of Advanced Manufacturing through a Highly Skilled and Diverse Workforce

Advanced manufacturing is a key driver of the Australian economy, with the potential to create high-skilled, high-paying jobs for Australians and drive economic growth across the country. As such, Cooperative Research Australia (CRA) stresses the importance of unlocking its full potential through a highly skilled and diverse workforce.

To achieve this, CRA advocates for skills training and development initiatives to address skills gaps and promote the creation of career pathways for the highly skilled workforce, as outlined in our previous submission to the Employment White Paper. We also recommend investing in commercialisation training to improve the framework for translating and commercialising research and upskilling professionals, creating a highly skilled workforce and a new platform of jobs that support Australian innovation as per Recommendation 8 of our 24 Pre-Budget Submission.

In addition, CRA strongly supports increasing the participation and retention of women and other historically underrepresented groups in the manufacturing industry. A diverse and inclusive workforce is critical to fostering an innovative economy, tapping into a wider pool of talent and creativity that ultimately drives innovation and economic growth.

A highly skilled and diverse workforce is critical to unlocking the potential of advanced manufacturing in Australia. Through initiatives such as skills training and development, commercialisation training, and promoting diversity and inclusion, we can create a new platform of jobs that support Australian innovation and drive economic growth.

Building a sustainable advanced manufacturing sector

Sustainable manufacturing practices are vital for minimizing the environmental impact of manufacturing activities and contributing to Australia's transition to a low-carbon economy. CRA recognizes the importance of manufacturing in driving economic growth but also acknowledges that traditional manufacturing practices can have a significant impact on the environment.

As such, we would like to advocate for policies and incentives to encourage the adoption of sustainable manufacturing practices, including the use of renewable energy and the reduction of waste and emissions. This could include measures such as government-funded research into green manufacturing technologies, subsidies for renewable energy use in manufacturing, and tax incentives for companies that adopt sustainable practices.

In its role of facilitator for the Decarbonisation Group, CRA recommends enhancing the efforts of collaborative research entities in decarbonisation and identifying opportunities for cross-entity and cross-sector collaboration to maximize the benefits of sustainable manufacturing practices.

Additionally, CRA proposes a consideration of initiatives to support the development of advanced manufacturing in regional areas, such as investment in infrastructure, skills training, and research and development, as well as incentives for companies to establish operations in these areas.

We believe that the adoption of sustainable manufacturing practices and initiatives to support regional development will be essential in unlocking this potential and driving economic growth across Australia.

These measures will not only drive economic growth but also help Australia transition to a low-carbon economy and minimize the environmental impact of manufacturing activities.

Maximizing Economic, Social and Environmental Returns through Commonwealth Investment Opportunities

CRA believes that Australia has world leading potential or existing capacity in several sectors, including renewables and low emission technology, medical science, transport, value adding in agriculture, forestry, and fisheries, value adding in resources, defence, and enabling capabilities. There is an opportunity for an initiative such as the NRF to act as a catalyst to level-up innovation in these sectors.

Furthermore, in order to promote the growth of advanced manufacturing in Australia, while overcoming barriers that prevent the adoption of advanced manufacturing technologies and processes, CRA proposes the following endorsements:

Firstly, there is a need for increased investment in research and development to support the development of new technologies, materials, and processes in the manufacturing industry. CRA believes that this investment will not only support innovation in the industry but also create opportunities for Australian businesses to remain competitive and expand their operations.

Secondly, the NRF can leverage programs such as the CRC program, CSIRO Missions, Trailblazers, etc. to scale, build critical mass and create innovative ecosystems that self-generate continuous innovation.

Thirdly, CRA recommends encouraging the participation of SMEs in cooperative research projects to promote innovation and drive growth in the manufacturing industry. Additionally, the development of industry-research networks can facilitate knowledge sharing and collaboration across different sectors and regions of Australia.

Lastly, initiatives that support innovation and entrepreneurship in the manufacturing industry, including tax incentives and grants for research and development, can encourage businesses to adopt advanced manufacturing technologies and processes and create a culture of innovation that supports the growth of the industry. These proposed endorsements will not only benefit the manufacturing industry but also contribute to Australia's economic growth and development.

There is immense potential in Australia's leading sectors and opportunities to promote innovation and overcome barriers in advanced manufacturing. Our proposed endorsements, including increased investment in research and development, collaboration among SMEs, and support for innovation and entrepreneurship, will not only benefit the manufacturing industry but also contribute to Australia's economic growth and development.