



Australian Academy
of Health and
Medical Sciences

AAHMS response to the House Standing Committee on Industry, Science and Resources inquiry into developing advanced manufacturing in Australia

March 2023

About the Academy

The Australian Academy of Health and Medical Sciences (AAHMS) is Australia's Learned Academy for health and medicine – the impartial, authoritative, cross-sector voice. We advance research and innovation in Australia to improve everyone's health.

We are an independent, interdisciplinary body of Fellows – elected by peers for outstanding achievements and exceptional contributions to health and medical science in Australia. Collectively, AAHMS Fellows are a representative and independent voice, through which we engage with the community, industry and governments.

We welcome the opportunity to contribute to this important inquiry. Given our remit and expertise, our response focuses on addressing the Terms of Reference in relation to advanced manufacturing in the medical sciences in Australia. Our response has been informed by input from Fellows of the Academy.

Opportunities and barriers for advanced manufacturing

As a high-income country, Australia currently has many of the prerequisites necessary for a thriving advanced manufacturing economy. For instance, we have a highly skilled workforce, excellent tertiary education, high quality research institutions, and government support for research and innovation. From an economic perspective, advanced manufacturing in the medical sciences produces a relatively low volume of high value products, making this type of production attractive to developed countries like Australia. Therefore, we are well placed to engage further in this space. However, in the medical sciences, we are yet to take full advantage of our position and use the foundations we already have in place to propel our advanced manufacturing capabilities forward.

Australia is a relatively geographically isolated country with a small population size compared to other key players in advanced manufacturing. In taking on an advanced manufacturing agenda, it will be important to consider these factors and develop an economically sustainable and commercially rational plan to facilitate our success. For instance, it is not economically viable to make an investment in medical biotechnology advanced manufacturing that produces critical medicines and vaccines for a population of 25 million. It requires significant investment to create large facilities, train and nurture the workforce and produce high value products. Therefore, Australia needs economically sustainable solutions to generate a sufficient return on investment.

One economically sustainable solution in the medical sciences would be to make high quality investments in advanced manufacturing plants and facilities that can produce medicines and vaccines at scale for export – tapping into a global market. These same plants and facilities would ideally have their headquarters in Australia and have a local skilled workforce so that if there is a global crisis, we have what we need on Australian soil to provide for the Australian population and potentially also to support those in our region. The COVID-19 pandemic provided a stark example of the tension between onshore advanced manufacturing and the risks and benefits of importing from other advanced manufacturing nations. For instance, products may come cheaper from overseas however, there may also be uncertainty around supply or supply-chain disruptions. Developing a strong commercial rationale for advanced manufacturing in medical sciences would help relieve some of this tension.

Investment in R&D

Australia's investment in R&D as a percentage of gross domestic expenditure (GERD) has fallen over the past decade. Nationally, our investment now stands at 1.79%, well below the OECD average of 2.67%.^{1,2} The AAHMS welcomes the Labor Party's commitment to raise Australia's gross expenditure on R&D to 3% and we urge the Government to begin moving towards this goal as a priority.^{2,3}

Advanced manufacturing in the medical sciences requires big and bold investments and increasing Australia's R&D spend could help this industry flourish. Advanced manufacturing does not exist within a silo, it is part of a broader research and innovation ecosystem that must also thrive to incentivise advanced manufacturers to stay in Australia. Optimal advanced manufacturing requires substantial collaboration with the research and innovation sector including universities, research institutes and others. Nurturing this ecosystem starts with adequate investment that could in turn motivate businesses to establish their headquarters in Australia and manufacture in this same environment. Investing in research and innovation also drives economic growth, boosts productivity and creates high value jobs – all of which provide an attractive landscape for advanced manufacturing.

Another area in which greater expenditure on research and innovation could make a difference is to reduce the barriers that exist for small biotechnology businesses. At present, it is challenging to move a good idea through the pipeline from a pilot manufacturing facility to the different phases of clinical trials to widescale manufacturing. Each of these steps requires investment, commitment and expertise. Access to stable finance for these smaller companies would develop more confidence and create an environment that enables companies to take the necessary risks, delivering an important and powerful step towards a thriving advanced manufacturing economy.

Potential financial and non-financial incentives to support the growth of advanced manufacturing

The potential socioeconomic benefits of advanced manufacturing in the medical sciences make it a desirable industry for high-income nations. Advanced manufacturing has the potential to create a vibrant economy, deliver high paying jobs and if done right, improve social wellbeing. Because of this, there is substantial international competition, particularly from other advanced economies such as the United Kingdom, United States, Germany and Switzerland. To enable successful advanced manufacturing in Australia, we will need to attract businesses to our shores and keep them here. There are several financial and non-financial incentives that could help generate such an environment.

Financial incentives being explored and used by other countries include:

- Tax incentives such as patent boxes.
- Bespoke land acquisition.
- Venture capital for small start-ups.

Corporate tax rates in Australia sit at around 30% for most companies and 25% for companies with a turnover of less than \$50 million annually.⁴ The EU average is 21.3% corporate tax rate, Ireland sits at 12.5% and the USA at 21%.⁵ If Australia wants to attract foreign companies, we should review these international tax rates.

Non-financial incentives being explored and used by other countries include:

- A strong research and innovation ecosystem that enables close connection and collaboration with universities, research institutes and others, including specific programs and initiatives that seek to improve industry-academia collaboration.
- Access to highly trained and skilled staff.
- A stable funding landscape, protected against short term policy change.

Australia's ability to develop and nurture advanced manufacturing capacity depends on our creating a globally competitive environment with the right kinds of financial and non-financial incentives. By embedding this optimal ecosystem, Australia can generate important returns including from high-value jobs, export revenues and capital advances.

Workforce

As noted throughout this submission, a highly skilled workforce is essential to advanced manufacturing in the medical sciences and beyond. It is not possible to run successful advanced manufacturing facilities without adequate staffing.

The current advanced manufacturing workforce in Australia is excellent. However, there are insufficient numbers to drive the industry forward. It will be critical to support our higher education institutions as a vital source of highly trained and skilled individuals for the future. The Department of Education is currently developing an Australian Universities Accord to drive lasting and transformative reform in Australia's higher education system. This is a good opportunity to strategically align the outcomes of this inquiry with the Accord process to ensure training to promote academia-industry connection is at the forefront of any progress in this space.

The Australian Government should consider ways to generate a local workforce while simultaneously attracting and retaining skilled migrants. A globally competitive skilled migration program running in parallel with excellent local training would drive a more efficient and effective approach to building an advanced manufacturing workforce. In addition, if the overarching research and innovation landscape is optimised, skilled migrants often feedback into the system by teaching at universities and running programs and initiatives. This has the power to create a positive multiplier effect, giving the sector an additional boost.

For questions about this submission, or to arrange a consultation with Fellows of the Academy, please contact Lanika Mylvaganam, Policy Manager (policy@aahms.org) at the Australian Academy of Health and Medical Sciences. www.aahms.org

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