



Comment

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Why short-term, high impact manufacturing R&D is important for fuelling Australia’s innovation ecosystem

BY now we are all acutely aware of the impact that COVID-19 has had on our manufacturing industry, including our innovation pipeline.

As we adapt to our “new normal”, kickstarting the industry’s recovery and innovation ecosystem is more important than ever before.

Small and medium enterprises (SMEs) will be critical to these efforts. As the backbone of the Australian economy, they make up more than 99 per cent of Australian businesses, employ 68 per cent of our population and contribute to more than half of the country’s GDP.

The SME founders of today will be our future business leaders, and transformative innovation is needed for them to survive and thrive.

At the Innovative Manufacturing Cooperative Research Centre (IMCRC), we work with SMEs who are transforming their businesses through collaborative research partnerships with Australian universities and the CSIRO. Through the uptake of advanced technologies and new business models, these SMEs are ensuring the sustainability and competitiveness of their businesses, as well as their ability to adapt to future uncertainty and change.

There is a major opportunity for Australian science and technology research to produce high value, innovation-led growth solutions. So, how can we help SMEs begin this journey?

We know from speaking with business leaders that SMEs are well aware of the benefits of innovation. Yet not many SMEs are in the position to embark on large scale, high budget, long-term research and development (R&D) projects.

Back in 2020, when businesses started to emerge from the effects of COVID-19, we identified a need to offer a more accessible and cost-

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effective way of accelerating their recovery through shorter-term, high impact research collaborations.

Through the unique design of IMCRC’s activate program, we launched a new initiative that offers manufacturing SMEs matched cash funding of between \$50,000 and \$100,000 to participate in a collaborative research project with an IMCRC partner university or the CSIRO. As with all IMCRC projects, this investment is safeguarded through IMCRC’s proven project governance framework, which sees industry and research participants actively involved in agreeing, up front, project research milestones and corresponding intellectual property ownership and commercialisation strategies.

Projects are up to 12 months in length, with IMCRC’s stage-gated design ensuring that participants are aligned at each step of the project before proceeding onto the next. This shorter time commitment is not only more approachable in terms of resourcing and planning, but also lends itself to solving time critical problems such as those presented by COVID-19.

Through the IMCRC activate program, we have seen shorter-term projects lead to a pipeline of future partnerships that produce commercial outcomes. To date, we have already approved and

invested more than \$2 million in 20 innovative manufacturing and Industry 4.0 related activate projects spanning multiple industry sectors, including medical products, building and construction, clean energy and minerals.

As an example, one of the first IMCRC activate projects was led by Alcolizer, in partnership with the University of Technology Sydney (UTS). The project focused on developing a testing device to support the health response to COVID-19. In under four weeks, Alcolizer moved from applying for the program to starting the project. Based on the success of the research collaboration, Alcolizer will create multiple high value jobs, including several UTS researchers who have relocated to Perth to join the growing business. Yet more importantly, the project is delivering a game changing solution to rapid, accurate COVID-19 testing.

Another IMCRC activate project with great commercial potential is the collaboration between FormFlow and Deakin University. This project will establish an Industry 4.0 enabled manufacturing cell. The cell will be equipped with smart vision technologies that will trace, evaluate, and continuously monitor forming loads and the profile shape of corrugated steel strips before and after bending in FormFlow’s unique process. By applying smart technologies, the project is expected to allow FormFlow to upscale their manufacturing capabilities and expand their business model globally.

A third example of what can be achieved in a shorter timeframe is the partnership between BiomeBank and RMIT University. In 12 months, the project team will develop a new bioreactor technology that would allow the manufacture of artificial super

stool, forming the base for a new generation of microbial therapies that can replace donor-derived faecal microbiota transplantation (FMT). The researchers hope to establish and optimise a bioreactor that mimics the human gut. Seeded with stool from a healthy donor and fed prebiotic fibres, the bioreactor will produce an engineered stool with the gut microbial composition comparable to that of healthy “super donor”. The 12-month project builds on the team’s previous success in developing technology to produce multiple strains of probiotic bacteria in a single bioreactor. The new technology will help expand the diversity of microbial strains that can be cultivated simultaneously and cost-effectively, offering new pathways for new medical treatments.

Ultimately, these IMCRC activate projects, each falling under an area of strategic importance in line with the Government’s National Manufacturing Priorities, are demonstrating that there is a place for shorter-term, high impact innovation initiatives in the manufacturing industry, and that effective collaboration delivers results and return on investment.

At IMCRC, we strongly believe in providing more accessible R&D opportunities to Australia’s SMEs. The pandemic has created a platform for the manufacturing industry to demonstrate its agility and creativity, and SMEs should be at the forefront of our recovery.

IMCRC activate is currently welcoming new applications with matched cash funding of between \$50,000 and \$100,000 available per project. For more information visit <https://www.imcrc.org/activate/>.

Dr Jason Coonan is IMCRC Chief Operating Officer and has been integral to setting up and fostering the IMCRC activate program.