

# Simon Dawson is the Director – Industrial Transformation at the Innovative Manufacturing Cooperative Research Centre (IMCRC). He spoke to William Poole.

**AMT:** *Firstly, what is the Innovative Manufacturing Cooperative Research Centre (IMCRC), and what does it do?*

**Simon Dawson:** IMCRC sits at the intersection between manufacturing and the Australian research community, and works with government funding to energise that space. Australia has a state-of-the-art research sector building capability in cutting-edge technologies, and many manufacturing organisations ready to take advantage of that, so IMCRC's role is to help bring them together to do great work. At a basic level this is by offering financial support through project funding, but perhaps more importantly, we assist by making the right connections, establishing great research collaborations, and helping the businesses to think through their path forward.

We have now run over 50 projects, catalysing more than \$200m worth of research & development (R&D) investment in Australian manufacturing, helping businesses to take their ambitions, their projects and their relationships with their partner universities further. In addition to supporting these projects, I lead IMCRC's Industrial Transformation program. The program focuses on raising awareness and educating manufacturing SMEs about the potential of Industry 4.0 technologies, helping them build momentum as an innovative manufacturer.

**AMT:** *What are some of the activities that the IMCRC is currently engaged in?*

**SD:** There are two main ways we are supporting industry. One is through direct project support, where we help manufacturers with a specific project in mind. This could be through larger projects like the ones that we have progressed over the last three or four years, or the smaller, 12-month projects we are operating at the moment, called activate projects. What we do is take an organisation's idea and help them, with financial support and guidance from us, to turn it into a reality. Funding obviously makes it easier, but also the industry experience and support we can offer is important as we guide manufacturers and researchers and challenge them to 'think outside the box'. The objective is to maximise outcomes for all parties involved; the industry partner, the research teams and for the Commonwealth.

Beyond that, I am responsible for IMCRC's business diagnostic, called futuremap. I always describe futuremap as designed to help raise the level of awareness and enthusiasm for Industry 4.0 – to make the pie bigger. While the projects are for people who are thinking about Industry 4.0 and already have some momentum, futuremap and the related events are about saying to organisations that perhaps aren't there yet, "This is what is out there. This is what you could be doing." We all have the ambition to make Australia a more robust manufacturing environment, and in a world where innovation is accelerating, the more we can educate manufacturers, particular small and medium ones, on how digital technologies can contribute to their business and what the journey could be for them, the better. We are helping communicate that opportunity with futuremap.

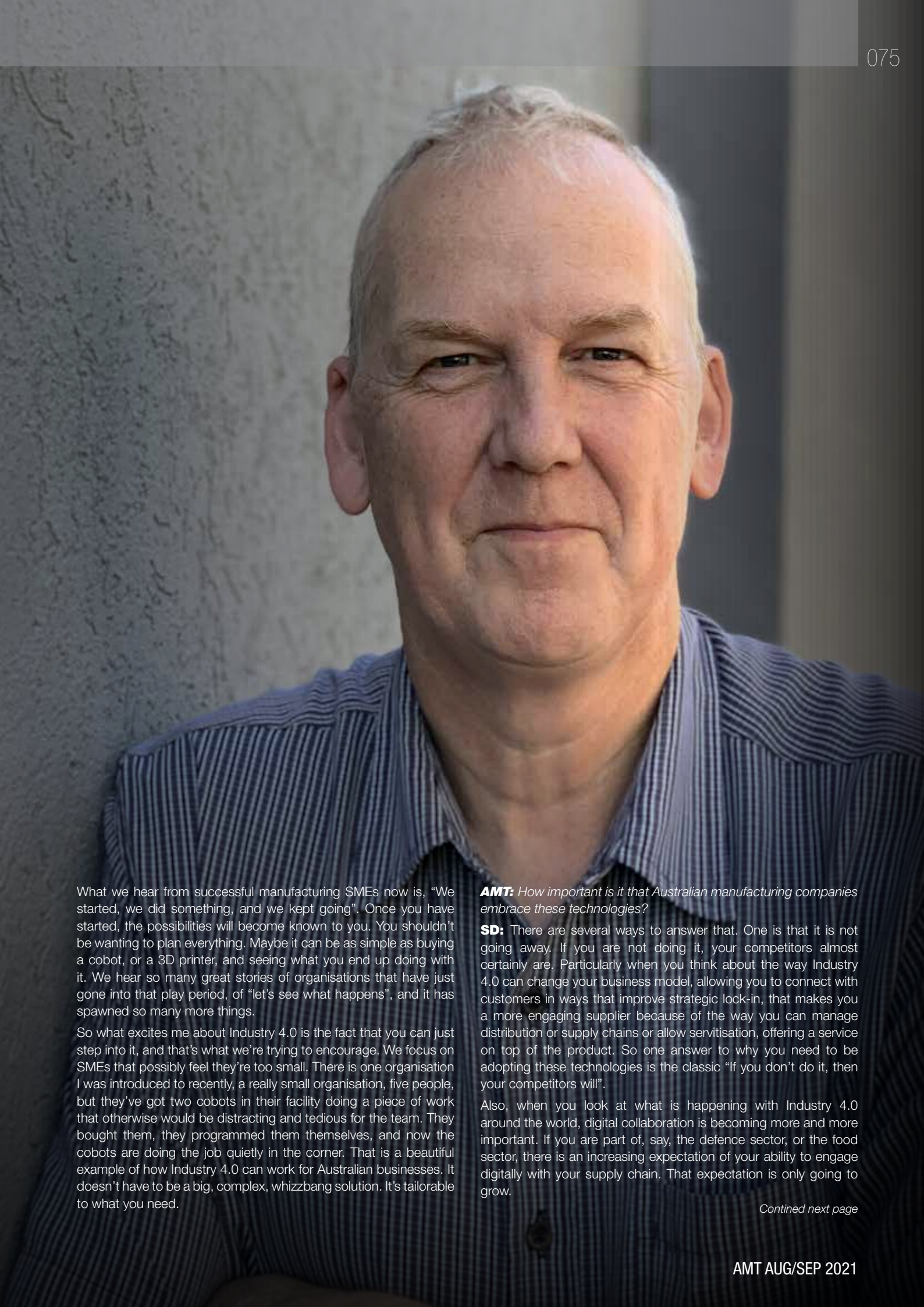
We always talk in terms of the 'What, Why, How' – What's available? Why might you adopt these technologies? How would you get started? When it comes to technology advances, there is still a fair bit of inertia in Australian manufacturing, people thinking "I'm not sure what it is yet, or, I haven't worked out how it works for me." We seek to break this inertia down and move people into a position where they can see the potential and start to build their own momentum.

We also partner with Flinders University, Swinburne University of Technology, University Technology Sydney and the Advanced Robotics for Manufacturing (ARM) Hub in Queensland. I help them connect with small and medium enterprises (SMEs) using futuremap. Universities in general are becoming more engaged with SMEs, supporting Australian manufacturing. We help build their industry relationships, gain manufacturing insights and get the conversation started. Our futuremap events aim to excite people, and, in collaboration with the universities and IMCRC's project funding, we seek to help them do something with that excitement – make their project happen.

**AMT:** *How would you define Industry 4.0 for someone unfamiliar with the concept?*

**SD:** I think you have to define it as a suite of opportunity. Industry 4.0 is a combination of accelerated computing power and accelerated technology across a range of themes, such as augmented reality, additive manufacturing, cobotics, advanced materials, and so on. It is almost like a buffet of techniques that are each accelerating and becoming more powerful, whilst at the same time every one of them is also becoming increasingly accessible.

My first experience with many of these technologies was when I was working in the automotive sector in the 1980s. The plant I worked at was bringing in increasingly advanced NC machines and connecting them through smart conveyance systems and robots, but of course at the time this was expensive, complicated and required significant planning. Industry 4.0 is a lot of the same technology. But now it is accessible, and that is fundamental to the way we need to think about it. As a manufacturer, I now have access to tools that allow me to connect with customers in ways I couldn't before; I can automate key production processes with limited expense; I can use augmented reality to support my customers as they install my products in remote environments. There's lots of capability. At the same time as this capability has developed, the first steps have become so much more realistic even for the smallest manufacturers. It is an opportunity that manufacturers just need to find a way to grab. The message I'm very passionate about is: you've got to open the door. I recently learned a German phrase that I think captures this well: "Eating builds your appetite." That idea is really powerful, that in order to see the possibility you have to take that first step. This is a huge contrast to the example I mentioned earlier from the 1980s. Before anybody drilled a hole they knew what was going where as the equipment was not expected to move for many years ahead. That is so far from where we are now.



What we hear from successful manufacturing SMEs now is, “We started, we did something, and we kept going”. Once you have started, the possibilities will become known to you. You shouldn’t be wanting to plan everything. Maybe it can be as simple as buying a cobot, or a 3D printer, and seeing what you end up doing with it. We hear so many great stories of organisations that have just gone into that play period, of “let’s see what happens”, and it has spawned so many more things.

So what excites me about Industry 4.0 is the fact that you can just step into it, and that’s what we’re trying to encourage. We focus on SMEs that possibly feel they’re too small. There is one organisation I was introduced to recently, a really small organisation, five people, but they’ve got two cobots in their facility doing a piece of work that otherwise would be distracting and tedious for the team. They bought them, they programmed them themselves, and now the cobots are doing the job quietly in the corner. That is a beautiful example of how Industry 4.0 can work for Australian businesses. It doesn’t have to be a big, complex, whizzbang solution. It’s tailorable to what you need.

**AMT:** How important is it that Australian manufacturing companies embrace these technologies?

**SD:** There are several ways to answer that. One is that it is not going away. If you are not doing it, your competitors almost certainly are. Particularly when you think about the way Industry 4.0 can change your business model, allowing you to connect with customers in ways that improve strategic lock-in, that makes you a more engaging supplier because of the way you can manage distribution or supply chains or allow servitisation, offering a service on top of the product. So one answer to why you need to be adopting these technologies is the classic “If you don’t do it, then your competitors will”.

Also, when you look at what is happening with Industry 4.0 around the world, digital collaboration is becoming more and more important. If you are part of, say, the defence sector, or the food sector, there is an increasing expectation of your ability to engage digitally with your supply chain. That expectation is only going to grow.

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It is also worth considering your employees. The reality is that the world will keep accelerating digitally, and it will not be long before the people you are employing will be asking “Where is all the digital technology? Why are we doing it like this?” If manufacturing is going to attract investment and new talent, there will be a point at which high level of digital adoption will be what is expected.

We spoke with one organisation that had bought a 3D printer, and the leadership team announced it as a major investment and the next big thing. Instead of the expected reticence, three people in the business said: “Oh I’ve got one of those at home.” That shows us how fast the world is moving. It is going to become the case that, if I want to be in manufacturing, I want to be programming cobots and working with them. I want to be engaging with augmented reality and virtual reality. I want to be thinking about my digital data. I want a product where I can engage with what happens to it after it leaves the business. The expectation of that role is just going to change.

So for me there is a combination of Industry 4.0 making so much available to organisations to strengthen their business models, and at the same time, employees and customers starting to expect it as a given.

**AMT:** *Moving into this new technological landscape, what strengths can Australian manufacturing draw upon?*

**SD:** Compared to many other parts of the world, Australia’s economy thrives due to SMEs. Thus, the smaller you are, the more innovative you need to be to stand out and retain your market position. We see many manufacturers who have done a great job of establishing who they are, why they exist, and how this translates to a strategic advantage. We work with great organisations that have identified innovative solutions or innovative business models and through this have established a sales network across the globe.

I also find it interesting when I reflect on the challenges presented by the COVID-19 pandemic and how Australian manufacturers responded. With a need to make swift changes to operating models, processes, factory layouts and more, many organisations had to change at a pace they had never considered possible. When you talk to these businesses, you hear great stories of what they changed. Some of the decision-making around safety, for example: changing shift patterns, moving car parks around, having people come in one door and out via another so that shifts never overlap. Lots of change, often implemented in a day. If COVID-19 taught us anything, it is how creative and adaptive we can be when we need to.

So for me, some of the key strengths of Australian manufacturing we can draw upon are the ability to innovate and the openness and willingness to change. Also, we have a very strong and capable university network. I am passionate about helping forward thinking organisations that maybe innovated using traditional techniques in the past to now innovate with new technologies, collaborating with universities to help them accelerate that.

**AMT:** *And what do you see as the biggest challenges for the industry?*

**SD:** I think, for any industry, particularly at the moment, global supply chain has become a problem. Confidence of supply has taken a real hit this year and become a significant problem for many organisations. I think this is pushing people into a place where they are saying “Okay, so where am I now, how do I re-establish resilience in what I need for my business?” And the positive is that that is encouraging people and government to look at how we put some of the basics back in place on shore in Australia.

Moving forward, the challenge is going to be around keeping up with the rate of acceleration. The exponential curve of technological change will continue. Something new will keep coming up. So we just encourage people to get started. As a manufacturer you

do not want technology to accelerate away from you. You need to be in a position where you are on the journey. What we also need is improved collaboration. We are seeing government and industry bodies looking to bring people closer together to create more collaborative environments, and a combination of things will support that. One is that a digital world supports collaboration in itself. But equally, Australian manufacturers are aware of the need to support each other more robustly. We see that with things like the Tonsley Manufacturing Innovation Hub in Adelaide, where people are using that environment to make better connections, and the university sector is looking to connect with SMEs. Collaboration needs to be a big part of what will happen, either because you are in a supply chain that demands it, such as defence or food, or simply because that is how you can build supply chain resilience or take advantage of the new technologies.

**AMT:** *What was your professional background prior to arriving here?*

**SD:** I did my apprenticeship in the UK in the mid-1980s with GKN, a large industrial conglomerate, which included a four-year manufacturing degree. I stayed with GKN for ten years, and got a real grounding in manufacturing there, before I was tempted away to help set up a greenfield site delivering interior components just-in-time to BMW. I worked almost exactly 15 years in the UK automotive sector.

After completing my MBA I moved into consulting: in the UK with PA Consulting Group and PwC; then over here with Ernst & Young – I relocated to Australia in 2009. I stayed very much in the manufacturing end of consulting and worked with businesses across dairy, defence, automotive and medical products. I always like to apply the manufacturing ways of working. For example, I worked at Heathrow Airport and brought lean thinking to the design of the airport terminals and processes.

Before joining IMCRC, I spent two years with HSV – Walkinshaw Automotive Group as it is now – helping set up their new facility in Clayton, where I was Head of Manufacturing, running the teams that were converting the Camaro, the Silverado and the Dodge Ram to right-hand drive. That was a great experience and remains a fantastic business.

But then the opportunity to work for IMCRC came up. I could see that manufacturing is going through an uplift in terms of technology and being able to get on board with that has been really rewarding. It is nice being in a role where I can think about the available technologies and how they might work for an Australian SME. I always think of myself as pragmatic, so I like that conversation with businesses around “I get what it is, but how do I use it for me?”

**AMT:** *Finally, what’s the most satisfying part of the job?*

**SD:** The most satisfying part is when, in the futuremap events we run, you see an SME who has been open and willing to listen, to learn, and wants to hear more. When you see the spark in their eye grow, the twinkle getting a bit bigger. That moment when they think “I could do that. There is something here for me.”

I enjoy feeding people’s imagination, so in futuremap events we use a lot of great Australian manufacturing case studies to outline the possibilities and help them understand that the barriers are coming down in terms of accessibility. And we have had people who came out of futuremap events and said, for example, “I need to recruit somebody to focus on digital for me. We need to talk more about our digital strategy.” Or “We’re going to do that next week. I’m just going to go and buy something.”

That moment when you see an organisation switching from “I have not quite understood what this is”, to “Actually, I can get started and I will...” That is what I enjoy, just getting people moving forward to strengthen Australian manufacturing. **AMT** [www.imcrc.org](http://www.imcrc.org)