

ADVANCED MANUFACTURING
TEN WAYS TO SUCCEED IN AUSTRALIAN MANUFACTURING
INSIGHTS FROM PEERS, THE PUBLIC AND AMGC

2020



Recognise Australian manufacturing's strength

- ✓ Manufacturing is valued
- ✓ Product quality is valued



Extend your market reach

- ✓ Think outside the box
- ✓ Incorporate market reach into your strategic plan
- ✓ Use your digital presence
- ✓ Maximise opportunities at events



Build your workforce and culture

- ✓ Prioritise company culture
- ✓ Encourage internal job shadowing
- ✓ Create an innovative environment



Hire the right people

- ✓ Hire for skills and culture
- ✓ Recruit effectively
- ✓ Be an advocate for manufacturing



Access capital

- ✓ Update your business plan
- ✓ Assess your credit worthiness
- ✓ Learn more about grants

The ten ways to succeed

Focus on leadership

- ✓ Keep learning
- ✓ Be inclusive
- ✓ Lead by example
- ✓ Stay relevant



Plan for change

- ✓ Be proactive
- ✓ Prioritise working on the business
- ✓ Share leadership responsibilities



Network and collaborate

- ✓ Reach out to other manufacturers
- ✓ Join supportive industry networks
- ✓ Integrate into supply chains



Work with research institutions

- ✓ Develop networks and relationships
- ✓ Come with a plan
- ✓ Share the risks involved in advancement



Adopt technology

- ✓ Learn what technology exists
- ✓ Keep things simple
- ✓ Build relationships with global integrators and universities
- ✓ Share with other manufacturers



in Australian manufacturing

FOREWORD FROM THE CHAIRMAN

One goal of the Advanced Manufacturing Growth Centre (AMGC) is to conduct research to support the transformation of Australia's manufacturing. With this in mind, I am pleased to present this report, which provides a host of new insights for the benefit of both the industry and government. I would especially like to acknowledge the support of the Department of Industry, Science, Energy and Resources which made it possible for us to complete this work.

There is no doubt that manufacturing is evolving rapidly in Australia and around the world. While some businesses continue to create entire finished products within their own factory walls, it is now more common for companies to specialise in manufacturing specific components to feed into national or global supply chains. Many Australian firms specialise in providing intermediate goods that are used by leading manufacturers around the globe.

Manufacturing facilities are becoming more high-tech, automated and interconnected at a rapid pace. Leading players are collecting and analysing data to improve efficiency and cut downtime. They are investing in industrial robots, installing sensors and increasing communication between machines and other systems to radically transform their operations. One significant outcome is the ability to personalise products for customers at scale.

These changes often enjoy national support via programmes such as America's Advanced Manufacturing Partnership, Germany's Industry 4.0 push, China's Made in China 2025 approach, India's Make in India Initiative and South Korea's Industry Innovation Movement. The British Government has estimated that faster innovation and the adoption of Industry 4.0 could boost the growth of its manufacturing industry by 1.5% and 3% a year – or £455 billion over the next decade in that country alone.

At the same time, the competitiveness of many manufacturers is now being determined by their capabilities in areas that come before and after the production process including research, design, logistics, distribution, sales, and service. These areas are all becoming just as important as the actual act of making a product.

In response to these trends, Australia needs to accelerate the modernisation of its manufacturing industry to keep pace with the rest of the world. This covers everything from how we define manufacturing to our manufacturing processes and leadership skills.

Fortunately, the changes that are occurring in manufacturing can play to Australia's advantage. Our companies are proving adept at becoming intelligent and reliable players in global supply chains. We have a highly innovative, digitally savvy workforce that is well placed to offer world-class products and services. If we make the right moves now, we can further overcome our traditional obstacles of having a small domestic market located a long way from the world's largest economies.



Paul Cooper
Chairman

Advanced Manufacturing Growth Centre Ltd

FOREWORD FROM THE MANAGING DIRECTOR

It has been almost five years since AMGC was established to support Australian manufacturers to advance and succeed on the global stage. Over that time, we have met with thousands of business owners and employees around the country and engaged with many other stakeholders who are shaping the future of the industry.

What we have consistently found is a disturbing mismatch between the positive and inspiring reality of the industry and the often negative perception of manufacturing in a rather uninformed public debate. This report is designed to highlight how wide that gap still is and to provide a more accurate picture of the industry for its leaders and policy-makers. This includes the finding that manufacturing is seen as a critical capability to Australia's economy, innovative, evolving, and of interest to students.

These findings should give manufacturers courage, yet there are certainly challenges to overcome. We draw on extensive discussions with manufacturing leaders, and survey results of the general public and students, to identify key issues and potential solutions. These are captured as Ten Ways to Succeed.

As our chair notes to the left, if Australia is to remain a relevant manufacturing nation, then we need to build competitive, resilient companies that are well equipped to weather changing conditions. We must expand our view of what manufacturing is beyond the assembly line and embrace all parts of the manufacturing value chain. And we must lead to make it happen.

A thriving Australian manufacturing industry requires us to create complex and value-adding products which are globally competitive. The transition for us to advance as manufacturers requires action, and every Australian manufacturer, regardless of sub-industry or size, can 'walk' that way.

This report is intended to help you to make that journey a little easier.



A handwritten signature in black ink that reads "Jens Goennemann".

Dr Jens Goennemann

Managing Director

Advanced Manufacturing Growth Centre Ltd



ACKNOWLEDGEMENTS

Thank you to the numerous individuals, manufacturing businesses, industry associations, government bodies, research institutions, and universities that provided valuable input to the Ten Ways to Succeed in Australian Manufacturing Report.

AMGC acknowledges input and support from the Australian Government Department of Industry, Science, Energy and Resources for this report. In addition, the research and analyses from the The Behavioural Insights Team and YouthInsight organisation.

This report is the result of the work of Katie O'Connell, Director Research, AMGC. Her leadership and passion to see Australian manufacturing succeed globally is carried on every page.

1 RECOGNISE AUSTRALIAN MANUFACTURING'S STRENGTH

AT A GLANCE...

- › Manufacturers are typically proud of their businesses yet feel that the general public and students do not value manufacturing as highly as they should.
- › Our research shows Australians do recognise the economic importance of manufacturing and are optimistic about its future.
- › All those in the manufacturing community must raise their voices to change the misperceptions of the Australian manufacturing industry.

AMGC's face-to-face discussions with manufacturers and industry groups around Australia highlighted that the owners of manufacturing businesses and others who work within them are proud of what their companies and the industry as a whole have achieved. Most owners consulted by AMGC were passionate and dedicated leaders whose sense of identity was strongly tied to their businesses. They felt it keenly – and bore a significant emotional burden – if their company went through difficult times. This was particularly true among the leaders of family-owned businesses.

In turn, manufacturing leaders cared deeply about how the industry was being perceived (or misperceived) by potential employees, students and the general public. Some of AMGC's business participants reported feeling that the industry was not valued by their customers, the government, students or the general public. This belief was shaping their decisions about how much to invest in initiatives for the future, such as upgrading processes and products. Where leaders felt their business or products were not valued, they were less likely to invest.

“We need people to care about the state of manufacturing. Otherwise, despite how innovative we are or how much we want to collaborate, we will not be given prioritisation.”

~ New South Wales manufacturer

2 FOCUS ON LEADERSHIP

AT A GLANCE...

- › Good leadership is needed to ensure changes stick and it underpins all the ways towards advanced manufacturing outlined in this report.
- › Leadership is needed whether you are the business owner, CEO, or a manager within a larger organisation.
- › Leadership is a skill that can be learned, and you can take practical steps to become a more effective leader.

It is difficult to thrive as an advanced manufacturer without strong leadership. Unfortunately, the Australian manufacturing industry appears to lag that of other nations when it comes to management capabilities. For example, a study of global data shows Australian manufacturing executives underperformed compared to their US peers when it came to managing staff. As shown in Exhibit 5,

Australia has an index score of 3.00 points, compared with 3.28 for their US peers, according to the London School of Economics, World Management Survey 2015. When compared with companies with similar GDP, Australian manufacturers ranked below the US, Japan, Germany, Sweden, Canada, Great Britain, and France.³

3 Centre for Economic Performance London School of Economics (2014). *Management Matters: Manufacturing Report 2014* (p. 14). Retrieved from <https://worldmanagementsurvey.org/policy-business-reports/business-reports/>

3 PLAN FOR CHANGE

AT A GLANCE...

- › Proactive planning can help manufacturing businesses grow and take advantage of opportunities, rather than be reactive.
- › It can be hard to know where to start, and how to find the time to work 'on' the business, not 'in' the business.
- › Small, practical steps can make a big difference. AMGC lists a range of resources and programmes that are available to help manufacturers.

Strategic planning enables leaders and companies to create a roadmap to guide them as they pursue growth. A roadmap should form the foundation for all other business decisions – from high-level to day-to-day decisions. Nearly every manufacturer AMGC engaged acknowledged it was crucial to have a clearly defined purpose and practical plan for making the changes required to realise their vision. They reported it was important that planning be iterative, to act quickly when needed to get ahead of market trends and competitors.

However, this research found that Australian manufacturers differed widely in how effectively they planned for and implemented change. Some companies understood how to plan and were reaping the competitive advantages it brings. Others struggled to know where to start or to find time and 'headspace' to devote to planning over pressing day-to-day operational needs. Those companies which did not engage in proactive and strategic planning were seen to be missing out on opportunities to grow and improve their business.

“You get all of these competing ideas, but you need to know where growth will come from... It is overwhelming.”

~ New South Wales manufacturer

“There is a fear of stepping out of the business operations to work on a business plan or strategy.”

~ Victorian manufacturer

4 NETWORK AND COLLABORATE

AT A GLANCE...

- › Collaboration can make firms more profitable and innovative by sharing ideas, discovering opportunities, and spreading risk.
- › Companies can reap these benefits by mining their personal networks, seeking out established networking programs and putting aside zero-sum thinking.
- › Industry associations and forums, and governments, offer a range of networking opportunities. Firms should also promote their willingness to collaborate.

Australian manufacturers want to connect and collaborate with other manufacturers. Every manufacturer AMGC consulted wanted to talk to and collaborate more with others in the industry. **Yet only 12% of Australian manufacturers currently collaborate with other firms.¹³ The evidence shows a need for more manufacturers to proactively seek out new connections and opportunities.**

“The sense of isolation in Australia makes it difficult. You get really focused internally on what your own business is doing. You don’t get to see what others are doing.”

~ New South Wales manufacturer

¹³ Advanced Manufacturing Growth Centre (2017), *Advanced Manufacturing: A new definition for a new era*.

5 WORK WITH RESEARCH INSTITUTIONS

AT A GLANCE...

- › Collaboration with researchers is a hallmark of Australia's most advanced manufacturing companies.
- › The process of identifying and working with the right researcher can be slow and time-consuming.
- › New tools, new awareness of the benefits, and new recognition of the need to remove institutional barriers are making it easier for future collaborations.

Innovation is vital to success in manufacturing. One of the best ways to develop new products and processes is to partner with a research institution. According to AMGC's research, the most successful Australian manufacturers invest on average 1.13 times more in collaborating with other organisations to complete R&D than less successful companies.²⁰ Additionally, AMGC research found that deeply competitive firms can outperform during industry downturns by working with research institutions to build in resilience.²¹

There is substantial scope to increase research collaboration among businesses or between businesses and specialised research groups, such as universities and CSIRO.²² According to the Organisation for Economic Co-operation and Development (OECD), only 18.6% of Australian manufacturing firms with 5–19 employees collaborate with other firms and research institutions for the purpose of innovation, rising slightly to 24.6% for firms with 20–199 employees, and 34.2% of firms with 200+ employees.²³

20 Advanced Manufacturing Growth Centre, (2017), *Advanced Manufacturing: A new definition for a new era*, p. 17.

21 Advanced Manufacturing Growth Centre, (2018), *Advanced Manufacturing: Building resilience in Australian manufacturing*, p. 33.

22 For example, through CSIRO's funding schemes.

23 Advanced Manufacturing Growth Centre, (2016), *Sector Competitiveness Plan*, p. 38.

6 ADOPT TECHNOLOGY

AT A GLANCE...

- › New technologies can deliver significant productivity gains and make companies more responsive to customers and competitive changes.
- › Many manufacturers are being held back by lack of information and a sense they need to make 'all-or-nothing' changes.
- › Getting expert advice, making a plan, learning from others, and starting small can all help firms to implement the right technology for their needs.

Implementing new technology – from new production machinery to the latest digital communications systems – can be critical to improving productivity and providing higher value products and services. Businesses that have implemented digital technologies in particular enjoy better real-time data about consumer behaviours and demand than non-digital manufacturers.²⁴

Yet, Australia's manufacturing industry lags behind other industries in its use of digital technology and its perceived future importance (see Table 1 and Exhibit 8). This is a concerning trend, as businesses that do not see the importance of digital technologies are unlikely to invest in them.²⁵

“Leadership needs to drive technology adoption, otherwise it won't happen. However tempting it may be to do things the way they've always been done, you don't try and holdback the tide, you learn to surf.”

~ Anonymous

²⁴ Office of the Chief Economist, (2018). *Industry Insights: Future Productivity*, Department of Industry, Innovation and Science, p. 47. Retrieved from: https://publications.industry.gov.au/publications/industryinsightsjune2018/documents/IndustryInsights_3_2018_ONLINE.pdf

²⁵ Ibid.

7 ACCESS CAPITAL

AT A GLANCE...

- › Access to capital is a perennial problem for smaller businesses, and particularly for manufacturers looking to invest in advanced technology.
- › Preparing loan applications, financial modelling and navigating grant processes require different skills than those used for the day-to-day running of a manufacturing business.
- › Companies can take practical steps to increase their chances of securing funding and gain an advantage by learning to navigate complex government grants.

Closely related to the challenge of deploying new technology is the challenge of accessing funds for that technology and other business improvement initiatives. Many manufacturers AMGC interviewed cited this as a significant obstacle. In one ABS survey, 17.6% of manufacturers said lack of access to additional funds was a barrier to general business activities or performance (See: Exhibit 11).³⁸

38 Australian Bureau of Statistics, (2018). *8167.0 – Selected Characteristics of Australian Businesses, 2016–17*, Barriers to General Business Activities or Performance – Table 1. Retrieved from: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8167.02016-17?OpenDocument>

8 HIRE THE RIGHT PEOPLE

AT A GLANCE...

- › Hiring the right people can be difficult, but it is crucial for long-term success.
- › Australia has a talent pool, as well as international hires, who could be a good fit for roles across the value chain.
- › Reaching talented people can require thought about how and where a company should advertise.

Many of the manufacturers AMGC consulted reported difficulties recruiting and retaining skilled staff. Some of those interviewed said they had experienced issues with recent graduates who lacked practical experience and were unwilling to start from the bottom or 'muck in' on lower skilled tasks such as manual labour. For example, one Queensland manufacturer commented, "they think that they know everything when they come in as an engineer".

As a result, manufacturers often rely on internal basic training or recruit migrant workers to meet their requirements. This is backed up by an ABS finding that 17.2% of manufacturers said that a lack of skilled people in the labour market was a barrier to general business activities or performance, and 14% said it was a barrier to innovation.⁴⁵ As Exhibit 12 shows, this was among the highest rates in any industry in Australia.

Recent changes to migration rules, such as the 457 visa regime, have also negatively impacted some businesses that rely on foreign skilled personnel – especially in regional areas. For example, a regional New South Wales manufacturer stated, "Without the 482 and 489 visa allowance, which has allowed us to hire seven overseas experts, I would need to take my business offshore."

⁴⁵ Australian Bureau of Statistics (2018). *8167.0 – Selected Characteristics of Australian Businesses, 2016–17. Barriers to General Business Activities or Performance, Table 1 and 2*. Retrieved from: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8167.02016-17?OpenDocument>

9 BUILD YOUR WORKFORCE AND CULTURE

AT A GLANCE...

- › Many skills gaps can be filled by developing the abilities of existing employees.
- › Company culture has a big effect on employee retention and many successful manufacturers make it a priority.
- › A collaborative culture that prioritises communication and invites employees to speak up can make businesses more productive and innovative.

DEVELOPING SKILLS INTERNALLY

AMGC's focus group discussions revealed that many manufacturers reported frustrations around a lack of internal skills. This sentiment is supported by findings in the ABS's Business Characteristics Survey showing that approximately 15% of manufacturers report that a lack of skilled people in their business was a barrier to general business activities and innovation (See: Exhibit 19).⁴⁶

46 Australian Bureau of Statistics (2018). *8167.0 – Selected Characteristics of Australian Businesses, 2016–17. Barriers to General Business Activities or Performance, Table 1 and 2*. Retrieved from: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8167.02016-17?OpenDocument>

10 EXTEND YOUR MARKET REACH

AT A GLANCE...

- › Companies that export can transform their growth trajectory and profitability.
- › Export opportunities are often ‘out of sight, out of mind’, and easily missed.
- › Manufacturers can increase the likelihood of finding the right overseas partner.

Evidence shows that productivity, profitability, and wage benefits accrue to firms that export.⁵⁷ By tapping into a pool of billions of potential customers worldwide – in contrast to Australia’s small domestic market – direct and indirect exports offer increased customer demand and market diversity, leading to greater sales volumes. In turn, this reduces production costs per unit, increases leverage with suppliers, improves forecasting and planning, and provides greater potential for automation.

Healthy export volumes are a hallmark of many of Australia’s most advanced manufacturers. If a business is not already selling overseas, then now is the time to focus on strategic expansion and exporting. However, it is difficult to systematically plan to engage in these activities. For example, where export does happen, it is often the result of personal connections and happy accidents, rather than planning.

The majority of Australians (80%) recognise that the trade and export of Australian goods benefit the economy. However, a smaller proportion believe that the majority of Australian manufacturers compete on a global scale (See: Exhibit 20). According to previous AMGC research, Australia’s most successful manufacturers engage in global trade, but they are few in number: just 5% account for 99% of the industry’s total export value.⁵⁸ If many of the remaining 95% are to advance, they must focus on high-potential export markets, including for intermediate goods – products that are used as components of larger total products and solutions.

Many manufacturers that AMGC met who were not currently expanding but were interested in doing so reported not knowing how to forecast or find the best market for their product. Many wanted to develop forecasting skills and to make better use of online and consumer analytics and digital platforms. This relates back to Way 2 – Focus on Leadership and Way 3 – Plan for Change.

57 OECD and World Bank Group, (2015), *Inclusive Global Value Chains: Policy options in trade and complementary areas for GVC Integration by small and medium enterprises and low-income developing countries*, p 14. <http://www.oecd.org/tad/tradedev/OECD-WBG-g20-gvc-report-2015.pdf>

58 Advanced Manufacturing Growth Centre, (2018), *Advanced Manufacturing: A new definition for a new era*, p. 28.

Way 1. Recognise Australian manufacturing's strength

- ✓ Manufacturing is valued
- ✓ Product quality is valued

Way 2. Focus on leadership

- ✓ Keep learning
- ✓ Be inclusive
- ✓ Lead by example
- ✓ Stay relevant

Way 3. Plan for change

- ✓ Be proactive
- ✓ Prioritise working on the business
- ✓ Share leadership responsibilities

Way 4. Network and collaborate

- ✓ Reach out to other manufacturers
- ✓ Join supportive industry networks
- ✓ Integrate into supply chains

Way 5. Work with research institutions

- ✓ Develop networks and relationships
- ✓ Come with a plan
- ✓ Share the risks involved in advancement

Way 6. Adopt technology

- Learn what technology exists
- Keep things simple
- Build relationships with global integrators and universities
- Share with other manufacturers

Way 7. Access capital

- Update your business plan
- Assess your credit worthiness
- Learn more about grants

Way 8. Hire the right people

- Hire for skills and culture
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Way 9. Build your workforce and culture

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Way 10. Extend your market reach

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Learn more

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