

Advanced Skills for Advanced Manufacturing:

*Rebuilding Vocational Training in a
Transforming Industry*

SUMMARY

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June 2018

SUSTAINING THE RECOVERY

Australia's manufacturing industry is currently at a crossroads. After years of decline, the sector has finally found a more stable economic footing, and many indicators point to an expansion in domestic manufacturing in the coming years. The sector has added nearly 50,000 jobs in the last year, grown its real output 4.5 percent, and optimism is growing. However, one key factor that could constrain this long-awaited recovery is the inability of Australia's present vocational education and training system, damaged by years of underfunding and failed policy experimentation, to meet the sector's needs for highly-skilled workers. The skills challenge facing manufacturing is all the more acute because of the transformation of the sector toward more specialised and disaggregated advanced manufacturing processes: based on specified stages of production (rather than start-to-finish vertically integrated assembly) in global supply chains, with corresponding demands for flexible, customisable production runs. The advanced manufacturing model naturally implies more intense demands for highly-trained workers, in all manufacturing occupations: production workers, licensed trades, technology specialists, and managers.

With employment rebounding, employers are already reporting difficulties finding workers with the right mix of technical skills and relevant experience. During the years of contraction, employers did not invest enough in an ongoing supply of skilled workers and apprentices. And Australia's VET system has been fragmented and undermined by years of spending cutbacks and failed experimentation with private delivery models. Hence the coming recovery in manufacturing could be cut short by inadequate availability of skilled labour. To sustain the emerging turnaround in manufacturing, therefore, the sector has an urgent need for a concerted and cooperative effort to strengthen the sector's vocational education and training system. To succeed, this effort will require participation by all stakeholders: government, industry, educational institutions, and unions. This report catalogues the emerging skills challenges facing manufacturing, reviews the failures of the existing approach to vocational education in this sector (and across Australia's economy as a whole), and proposing key principles for reform.

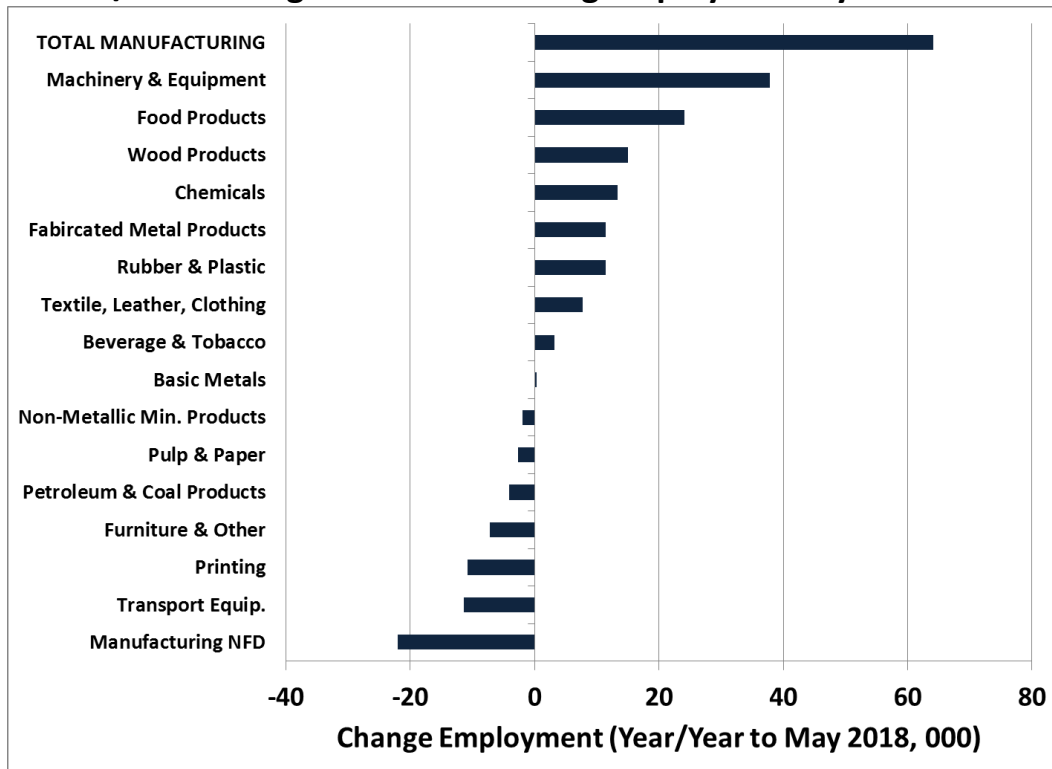
This report was prepared for the **Second Annual National Manufacturing Summit**, which will gather leading representatives from all major stakeholders in Australia's manufacturing sector – business, unions, universities, the financial sector, suppliers and government. It is thus a highly appropriate forum at which to begin a discussion about the necessary multi-partite approach to vocational education that will be required to address the looming skills challenges facing the sector.

EMERGING SKILLS SHORTAGES

Why are skills shortages becoming so pressing, even relatively early in the industry's recovery? Several factors explain the fragility of the sector's overall skills pipeline:

- **Sectoral diversity**: some sub-sectors of manufacturing are growing rapidly, while others are still shrinking. It's challenging to match displaced workers with new opportunities in growing areas.
- **Occupational diversity**: Manufacturing skills may not be transferable from one specific job to another.
- **Growing complexity**: With the shift to advanced manufacturing practices, new digital processes, and niche production, the composite skills required by manufacturers are becoming more complex.
- **Demographic transition**: Waves of skilled workers hired during previous periods of industrial expansion are now approaching retirement, and that will exacerbate skills shortages.

Year/Year Change in Manufacturing Employment by Sub-Sector



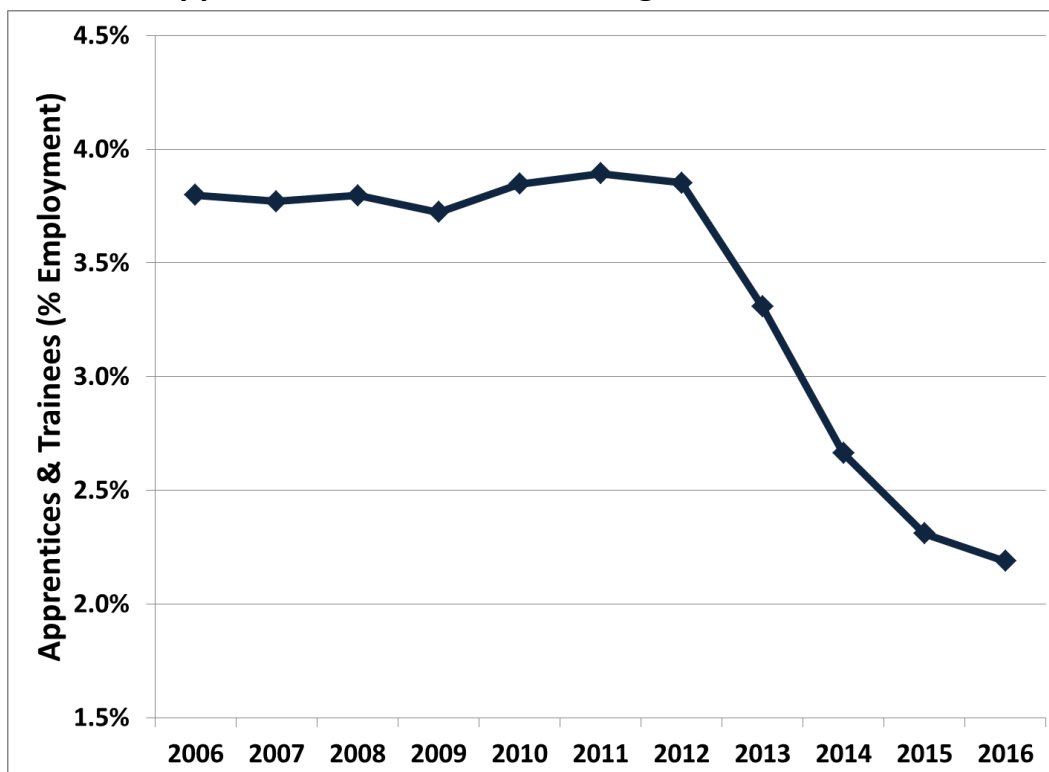
THE FAILURE OF AUSTRALIA'S VET MODEL

It is difficult to exaggerate the extent to which the supply of skilled workers to Australia's manufacturing sector has been hampered by a profound and multidimensional crisis in the national vocational education and training (VET) system. That system has been wracked by a devastating combination of policy errors and fiscal mismanagement, including:

- A long-term decline in fiscal support, from both state and Commonwealth levels of government, for vocational training, with government post-secondary education expenditures increasingly concentrated instead in the university sector.
- A devastating and failed policy experiment with the marketisation of vocational education, whereby course offerings, course delivery, and student recruitment was largely decentralised to a private for-profit "market." As Quiggin (2018) bluntly puts it, "Worthless qualifications have proliferated, driven by incentives and exploited by fraudulent for-profit enterprises."
- The private provision of VET services was enormously subsidised through a poorly-controlled subsidy (VET FEE-HELP) that wasted public resources and undermined confidence in VET.
- TAFEs should be the reliable, quality, publicly-accountable core provider of vocational education, but now they are in deep crisis. Forced to compete for students and funds against for-profit providers, TAFEs struggle to clarify their mandate and maintain a critical mass.

These factors have devastated the vocational training system in all parts of Australia's economy, but manufacturing has been one of the hardest-hit sectors – by virtue of its particular reliance on technicians and trades workers, and its rapidly-evolving requirements for skilled labour. Manufacturing is the second-largest single destination for apprentices (after construction) of any sector in the economy. Any problem besetting the general VET system, therefore, impacts manufacturing in a magnified manner.

Apprentice and Trainee Training Rate, 2006-2016



REBUILDING VET IN MANUFACTURING

On the basis of interviews with key informants from manufacturing stakeholders, published literature, and international experience, we make twelve recommendations for specific actions to resolve the skills crisis in manufacturing, and strengthen the overall VET system in Australia:

1. Reestablish adequately funded and stable TAFEs as the centerpiece of vocational education.
2. Develop the capacities of TAFE manufacturing teachers and invest in modern training equipment.
3. Encourage partnerships on customised joint training initiatives between TAFEs and workplaces.
4. Expand other forms of integrated training between VET providers and workplaces.
5. Work to develop and implement higher-level and multi-disciplinary qualifications reflecting emerging skills and composite capacities.
6. Shift emphasis in curricula and training programs toward comprehensive and complete qualifications, rather than micro-competencies.
7. Integrate basic literacy and numeracy training into VET offerings at all levels.
8. Support apprenticeships in manufacturing with fiscal measures, instruction resources, and mentoring.
9. Implement provisions ensuring access to training opportunities, and fair employment conditions for trainees and apprentices, within modern awards and enterprise agreements.
10. Develop ambitious and better-resourced systems to support retraining and redeployment of displaced workers in declining manufacturing sectors.
11. Develop new models for phased retirement to smooth the demographic transition facing skilled trade positions in manufacturing.
12. Establish a leadership-level Manufacturing VET Policy Board to coordinate VET initiatives in the sector, and represent the interests of manufacturing in broader VET processes and dialogues.

For the full report, *Advanced Skills for Advanced Manufacturing*, visit <https://www.futurework.org.au/>