To understand the skill development needs of industry and business in 2020, we need to unpack the trends and predictions for Australian industry over the next ten years.

There are key growth opportunities for Australia in:

- Food and agriculture
- Biotechnology and pharmaceuticals
- Oil and gas
- Mining equipment, technology and services (METS)
- Advanced manufacturing.

However these industry sectors and the businesses within them will not exist as we know them now. An overlap and emergence of sectors, firms and countries will mean that businesses are characterised by border-hopping technology, connections across land borders and oceans, exchanges of goods and services, foreign direct investment and the use of migrants and some short term workers.

A recent report focused on improving Australia’s global competitiveness identified two sectors with the right skills mix to win globally: Advantaged Performers and Latent Potentials.

Advantaged Performers includes mining, agriculture, education and tourism. Latent Potentials includes food manufacturing, some advanced manufacturing and niches in global supply chains.

McKinsey also identified three types of jobs by which we can view competitiveness:

- Interaction jobs
- Production jobs
- Transaction jobs.

Australia’s competitiveness relies on the so-called interaction jobs. They equal half the jobs in our economy but are the source of all of our employment growth. Global competition for jobs is shifting, and Australian workers need to gear up for the interaction jobs.

Businesses in the Transitional sector, such as manufacturing, need to accelerate business model evolution now to be around in the future. The focus is on advanced manufacturing and knowledge.

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3 Compete to Prosper: Improving Australia’s global competitiveness, McKinsey Australia, July 2014
intensive services (servitisation). Successful businesses have to re-focus on particular parts of the value chain and this will necessarily create new types of jobs and changes to the training required.

CEEMET in Europe, for example, has outlined what is required to meet the key challenges facing the economy. It has identified that a key competitiveness factor is the relationship between a company and its workforce. The EU has set an ambitious goal of raising manufacturing industry’s contribution to GDP from 15% to 20% by 2020.4

Australian businesses are ever more exposed to international competition. They must make the most of global markets and global supply chains. Export sectors yield 5% more output than the rest of the economy and are the only areas where jobs for technicians, trade workers, machinery operators and labourers have significantly grown over the last five years.5

Successful firms now specialise in value-adding tasks over and above their final product, along multi-country value chains. We need internationally competitive, high end manufacturing. New techniques and technologies such as additive manufacturing will increasingly change the nature of work (and skill needs). Currently 45% of the manufacturing workforce does not have post-school qualifications and yet already 87% of jobs require these. Tasks will continue to be reconfigured and shared by computers and machines. Where and how these tasks are done will all change.

Innovation and collaboration are increasingly the constants for success which again has implications for the education and training sector – industry needs much closer links with vocational training, higher education and other research organisations.

What does this mean for the education and skills needed for work?

The one constant is that workforces need to change and adapt. Australia needs a flexible, adaptable and increasingly higher-skilled workforce. This requires basic skills as well as highly transferable skills. Relevant engineering and technical skills will dominate future skill needs, with demand for higher skilled jobs, especially in STEM. There will continue to be a pressure on the workforce to have satisfactory LLN skills and motivation to continue to learn throughout life.6

The B20 Australia 2014 has produced a number of key messages, including around future workforce needs. In the area of human capital the statement notes:

“No continued investment in working people, countries will be unable to fully realise the potential of trade and infrastructure investments or increase the quantity and quality of the labour force and employment opportunities, which in turn drive continued productivity and sustainable economic growth.”7

B20 Australia 2014 has recommended an increased alignment and responsiveness between learning and workforce needs. This would include building basic skills for the digital ages, a flexible system of

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4 Industrial Competitiveness for a Social Europe, Council of European Employers of the Metal, Engineering and Technology-based industries, Brussels, 2014.
5 Ibid.
6 Innovation and its Links with Productivity and Skill Development, National Centre for Vocational Education Research, 2011.
7 Driving growth and jobs to increase global living standards, B20 Australia 2014, www.b20australia.info
lifelong learning and reskilling of displaced workers from failing industries. Rapidly changing technology will continue to have a significant impact on the workforce. This is particularly the case in STEM occupations. In Europe, for example, these are expected to grow by 14 percent by 2020 compared to only 3 percent for other occupations. This will occur while the supply of workers with STEM qualifications is projected to fall.

There will be a need to move from basic literacy and numeracy skills to technology literacy, creativity, problem solving, critical thinking and resilience. This is not restricted to university education as apprenticeships and vocational education are required for technical and qualified trade skills. There are several international examples of what can be done, such as the Global Apprenticeships Network (GAN) agreed at the 2013 B20 Summit which consists of a coalition of committed companies, employer federations and associations to promote work-readiness, job opportunities for youth and ensuring skills for business.8

Finally, effective leadership and managerial competence are needed to foster a culture and work organisation that enables innovation and learning. At a recent MSA symposium, Goran Roos, addressed the future skills required for manufacturing.9 He concluded that firms should develop high performers and then maintain them in the firm with continuous capability development. Low performers should be speedily released where their skills could not be developed. The speed is important because of decreasing production life cycles.

**Implications and opportunities for the TAFE provider**

The trends I have identified will mean there are opportunities for flexible TAFE providers to prepare workers through:

**STEM Skills**

- expand provision of technical and management STEM skills in tertiary education

**Apprenticeships**

- orient apprenticeships to new types of skills needed by the growth opportunities

**Literacy & Numeracy**

- develop LLN and digital literacy skills

**School Pathways**

- strengthen links with schools to encourage work ready individuals

**Leadership and Management**

- ensure leadership and management programs integrate connections with company culture and work organisation to enable innovation and learning

**Continuing workforce development**

8 www.b20australia.info/Pages/Skills.aspx
9 *Manufacturing in 2030 – the new horizon*; Symposium Stimulus, Manufacturing Skills Australia, 2014.
develop capability in companies by providing relevant higher level qualifications to upskill existing workers

Work Integrated Learning

expand implementation to promote graduate work readiness