

Fixing the national skills shortage

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Australia has a pervasive and endemic problem – an underskilled workforce. The problem has existed for some time but little of substance has been done to address the problem. Australia's workforce skills shortage is the result of poor policy, inadequate management planning, bad work practices, greed and often individual laziness. These factors have combined with predictable demographic changes and the impact of globalisation over a period of three decades.

Problems of this breadth and depth require deep and fundamental changes in national policy and private/public sector organisational management. Such changes in turn require a national commitment, which is never an easy undertaking.

The problems are not unique but Australia has been one of the hardest hit, as its technology industries were amongst the weakest in terms of fractional national gross domestic product of any of the OECD nations.

ASSESSING THE SKILLS SHORTAGE

With the exception of some professions like medicine, law, accounting, some branches of engineering, and some trade areas – where formal certification protocols are mandatory and professional bodies maintain records and enforce competency standards – minimal proof of competency is required of employees. If an employee has the required qualification on paper, they are deemed qualified, despite a lack of credible practical experience, depth in theoretical skills, let alone talent in that occupational specialty.

These problems are most prominent in the technical disciplines, required to run and sustain manufacturing industries and industries supporting technically complex equipment. The defence industry and defence organisation fall into this category. The skills in question start with tradesmen, production workers, technicians, technical assistants and technical officers, through graduate support engineers, scientists, computer programmers and professional officers, to design engineers and research scientists.

The cost to the nation is staggering and difficult to accurately measure. The most prominent examples are in unsuccessful defence acquisitions, where costs are readily measured in billions. Harder to identify are costs arising from wastage, mistakes in the workplace, and failures to win contracts due to poor performance in the marketplace. Often, organisations opt for expensive outsourcing solutions as they neither know how to solve problems more cheaply in house, nor often do not care to.

Structural changes across Australian industry and taxpayer funded organisations over the past three decades have seen deep changes in how skills

are acquired, developed and sustained, with the result more than often that unqualified or partially qualified personnel are used, or the skills are procured via outsourcing, often from overseas.

How AUSTRALIA LOST ITS SKILLS BASE

Three decades ago Australia had a skills base typical in much of the developed world, albeit weaker demographically compared to the US or EU, as Australia derived a bigger proportion of its national earnings from agriculture and mining compared to its more heavily industrialised peers. A typical Australian who ended up in a technically oriented job followed a model in use for much of the industrial age.

Primary school taught basic literacy and numeracy skills, further developed in high schools where science was taught almost universally. Academic performance in high school determined an individual's future path.

Those who did not perform well academically usually ended up in an apprenticeship to learn a trade occupation. Apprenticeships were provided by most organisations, seen as a necessary means of replenishing the workforce.

Those who were more technically inclined but not strong enough to do a university degree in engineering, science or IT, typically undertook para-professional training to become technicians or technical officers. They would perform technically complex tasks under supervision, but not be required to be creative. The defence forces were renowned for producing high quality personnel in this essential skills category.

Those who excelled academically typically pursued university degrees in engineering or science, with most entering junior industry or public service positions after graduating. The best academic performers in university would stay on to complete masters degrees or doctorates, and upon graduating would become junior university academics or researchers in private sector or taxpayer funded research organisations.

Once in the workforce, personnel would strive to build up experience and skills portfolios to qualify for promotions, as in most technically oriented disciplines management jobs were reserved for high achievers who also demonstrated good

leadership abilities.

Most larger organisations provided structured career paths, to expose personnel to jobs of increasing difficulty and diversity. This process allowed streaming into long term career paths with either technical or management orientations.

The last generation to experience this highly structured career model in its entirety are the 'boomers', the oldest of whom are now retiring. Australia, like most developed nations, saw this model progressively unravel from the late 1960s. The first problems were in the primary and high school educational system. Previous tough literacy and numeracy standards were allowed to progressively decline. Teaching of basic science followed this pattern soon after, and in Australia young people can now complete their secondary education with almost no literacy in physics, chemistry and mathematics, if they choose.

While this is often attributed to poor funding, the problem has as much to do with educational philosophy centred in the avoidance of competition and the shielding of young people from the distressing experience of failing tests or exams.

The apprenticeship system soon followed a similar path, as apprentices are expensive to train and retain. For the private sector this cut into profit margins, and for other organisations this cut into savings.

By the 1980s, the developed world was experiencing major changes in how industries and organisations were managed and structured. Two new philosophies emerged, which produced unintended consequences. The first was the idea of replacing technical or subject matter expert managers with generalist managers, typically with MBA, business or management qualifications. The second was the idea of outsourcing 'non core business'. The confluence of these two ideas has produced disastrous effects.

The generalist manager model was intended for mature commodity industries, to overcome the shortage of suitably talented technical management candidates. While this model worked well in such industries, it was also indiscriminately applied to high technology industries where it produced poor results, as generalists usually lack the technical judgment to accurately assess risk, resulting in bad decisions.

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Endemic conflicts with senior technical experts resulted in organisations being dumbed down, as generalist managers purged non compliant and argumentative 'non team players'. This has resulted in the defacto disempowerment of professionals, disconnecting them from internal decision-making.

Outsourcing also produced mixed results. Where non-core business activities were properly identified, valuable savings were made but when outsourcing was indiscriminately applied it produced calamitous results, as organisations divested themselves of the skills sets they needed to be effective. Efficiency was 'improved' on the balance sheet but effectiveness was destroyed in the process, yielding organisations that were unable to perform their core business at all.

A particularly destructive confluence is when generalist managers lacking core business experience and technical expertise misidentified the core business and outsourced critical components. An expert technical manager would never outsource critical skills, knowing the consequences.

Outsourcing has seen the ADF lose most of its technical and engineering skills base, as its extensive maintenance and depot system was outsourced. In the process, the valuable and inherent technical skills training capabilities of the depots, from apprentice level up to senior engineering manager level, was lost. The result can be seen now in the defence organisation lacking most of the technical skills it needs for defining, specifying, procuring, modifying and maintaining modern high technology military equipment.

In the 1990s the national system of technical colleges and universities was restructured, the aim being to increase the number of university graduates with bachelor's degrees – amalgamating technical colleges with universities, then 'rebadging' what used to be technical diplomas as bachelor's degrees. The extensive laboratory and practical component of the technical college education system largely vanished, as it was expensive to run, and graduates of new look 'lightweight' tertiary degrees gained a better sounding title but usually lost the valuable practical and vocational skills such training traditionally provided. Blurring of boundaries between the traditional diploma versus degree qualifications resulted in a watering down of theoretical content and rigour in engineering and science undergraduate degrees. This produced graduates lacking practical skills and the theoretical depth and problem solving ability.

Historically, taxpayers fund much of the cost of university education, treating it as a necessary infrastructure outlay to support industry and the public service. In the new 'market oriented' system the students became the clientele of the university system, with the economic success of a university determined not by the quality of its education but by its popularity with the student population. This has been deeply damaging to Australia's universities and materially rewarded institutions which set the lowest performance expectations for their students; in turn, driving the whole university system into a 'prisoner's dilemma' game in declining performance expectations.

Globalisation, privatisation and the explosive growth of computer and networking technology also impacted Australia, and not all of this impact has been good for the nation's skills base. Globalisation has encouraged increasing proportions of Australia's manufacturing industry to migrate overseas, mostly to Asia. The byproduct of this has been instability in careers for technical personnel, with many simply opting out and changing careers, shifting into other industries, or changing from technical career tracks to management, marketing, sales or education.

A particular problem in Australia has been the large scale sell-off of Australian-owned defence industries to overseas, primarily US and EU defence contractors. While this model is viable when the parent company is doing well, it does not perform well when the overseas parent is under pressure to survive. A more insidious problem is that foreign owned defence industries often see their principal agenda in marketing and supporting foreign designed products in Australia, more than often killing off both innovation and initiative in their Australian branch offices.

Today, few of the most talented and brightest school leavers seek to become engineers or scientists. Degrees in business, marketing, law, accountancy and medicine are often more favoured as they are considered to pay better, offer better social status, and provide stable and predictable career paths. A career as an engineer or scientist is seen often to be risky and at the mercy of unpredictable global market trends. This problem flows down the scale of all technological occupations, down to the humblest yet no less essential technician or tradesman.

Many talented Australian engineers and scientists have migrated to the US or EU to pursue their careers, since the instability and poor earnings in the Australian job market, as well as declining sophistication of work in dumbed



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down organisations, make it very difficult to sustain a materially and professionally rewarding career in Australia.

Eminent Australian scientist, the late Professor C.S. Wallace, once observed that, "the result of our training of world class science PhD graduates in Australia is a net reduction in the nation's average IQ, as most of them migrate overseas."

Privatisation of taxpayer owned enterprises and utilities has also contributed to problems in the skills base, as training of personnel is mostly not seen as a 'core' function. Short term profit imperatives have often brought about neglect in training personnel at all levels. If new technology is to be introduced, or other skills intensive circumstances arise, the less qualified personnel become unable to cope.

Digitisation and networking of workplaces has many benefits but it has also inflicted costs. It has facilitated the bureaucratisation of organisations and produced an expectation that all personnel should produce documentation, rather than delegate this critical specialist skill to experts. A more insidious problem arising from overuse of information technology is a propensity to rely on software 'productivity tools' rather than critical and technical thinking skills, a factor that often exacerbates existing problems in personnel underskilling.

REPAIRING AUSTRALIA'S SKILLS PROBLEM

There are several basic measures which can be applied very quickly, and which would yield results in a matter of a few years.

1. Outsourcing of core business in taxpayer funded organisations should cease immediately, and all

such organisations should be required to hire, develop and maintain organic technical expertise to support their core business. For Defence and defence contractors specifically this means returning to the well proven model of organic engineering and technical support, and depots operated by uniformed personnel.

2. Abandoning the generalist manager model in taxpayer funded organisations, with formal technical qualifications and real world technical experience being mandatory for all senior and middle management positions. To qualify for a promotion in Defence, or the public service, a staffer would be required to earn a technically challenging postgraduate science or engineering degree from a Go8 university.

3. Change the tax law to reward organisations that maintain organic expertise, and not reward organisations that outsource core business.

4. Change the funding model for the university system so that educational organisations are rewarded materially for the quality of their graduate output, rather than the quantity, thus putting the end users of the product, i.e. industry, back in control rather than the trainees. Change funding models to favour science and engineering disciplines over others.

5. Repair the primary and secondary educational systems, with a focus on literacy, numeracy, basic science and problem solving skills. Restore the culture of competition in the educational systems. The principal obstacle to repairing the damage to the national skills base will be in the vested interests of those who have individually or collectively benefited from the decline in the national skills

base, especially portions of the industry and bureaucratic management cadres, who would have never been employed in such positions under the traditional model for career advancement. There are still many highly skilled personnel scattered throughout Australia's industries and taxpayer funded organisations, and these personnel are the principal cadre from which the replacement management cadre will need to be drawn. Many overseas resident Australian professionals should be enticed to return home, to help rebuild the nation's pool of management talent.

At the most fundamental level, all of these measures amount to simply reversing the five most damaging policy choices and management strategies, which have progressively accumulated over time. These are at the root of Australia's skills base problems, and until they are eradicated by national policy and law Australia will not be able to extricate itself from its current predicament.

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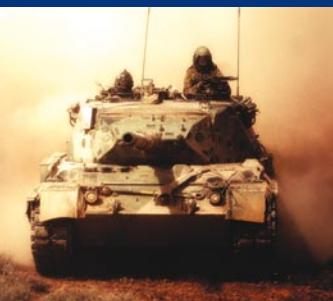
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