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THEMATIC PAPER: APPRENTICESHIP

Skills development in Australian firms: The role of apprenticeships and traineeships

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ABSTRACT

This paper investigates the role of apprenticeships and traineeships in meeting the skills requirements of some employers and their broader interactions with the vocational education and training (VET) and higher education systems in the State of Victoria in Australia. It is based on a broader study of how Victorian employers determine their skills requirements and how they meet those needs. The research involved qualitative case studies of five Victorian employers. It concludes that there is considerable scope for the further development of apprenticeships and traineeships as part of employer responses to changing skills needs.

Key words: apprenticeships and traineeships, skills needs, organizational change

INTRODUCTION

Since the coronavirus disease 2019 (COVID-19) pandemic of 2020-2022, there has been a continual emphasis on the role of skills shortages in constricting the strong growth of the Australian economy as it exits the pandemic years. Governments, employer bodies and unions have highlighted the critical role that skills play in the economic expansion of the country as well as its ability to adapt to technological developments in the world of work (Australian Industry Group, 2022; Jobs and Skills Australia, 2023b). However, the existence of skills gaps and skills shortages is not new and is something of a perennial complaint amongst employers and governments. Cappelli (2014) showed that these reported skills gaps and shortages have been a feature of government and employer calls to action since the late 20th century and are often hard to prove. In the USA at least, Cappelli has shown that employers and governments often mistake skills shortages for the difficulties that some employers experience in recruiting what they view as the right staff and that their complaints about skills shortages and skills gaps have been frequently weaponized to demand significant changes in education policy—particularly in the vocational and higher education sectors.

In many cases, skills gaps and skills shortages are linked to the impact of fast-moving technological change. Many reports from governments and other agencies and from major consulting groups such as McKinsey have described the lack of skills in the workforce to deal with new technologies in the workplace or to prepare for the advent of the new jobs that are predicted to appear because of technological development with the concomitant demise of more traditional roles (Conference Board of Canada, 2022; Ellingrud *et al.*, 2020; Jobs and Skills Australia, 2023b; World Economic Forum, 2023). The two key technological trends driving these developments are usually quoted in such reports as the rise of artificial intelligence (AI) and the development of the green economy (green skills). In Australia both trends have been defined by Jobs and Skills Australia (the body charged with the identification of skills needs in the Australian economy) as "megatrends", shaping the skills needs of the future

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(Jobs and Skills Australia, 2023a,2023b). More critical analysis, however, has shown that the emphasis on the development and adoption of new technologies does not necessarily mean the creation of new jobs or major changes in skills requirements. Joyce *et al.* (2023) have shown how demands for sweeping changes to skills policies in the light of the development of AI and other technologies are an expression of technological determinism which does not account for the impact of human agency to absorb technological change and adapt. Warhurst and his colleagues have raised a similar point with the development of new skills for the green economy finding in a study of Scottish economic development that the green economy led not so much to the development of new green jobs but a requirement for the extension of some green skills in existing jobs (Warhurst *et al.*, 2025).

This concept of "skill stability" is a key finding from the research underpinning this paper. It raises the prospect of incremental change to existing training structures such as apprenticeships and traineeships and, perhaps, the extension of apprenticeship/traineeship as a stable model for company skills development rather than a requirement for wholesale reform of national skills systems to cope with the changing nature of work in the 21st century.

METHODS AND RESEARCH DESIGN

This paper is based on a broader study of employer skill development strategies and skill needs for the Victorian Skills Authority. The broader study was concerned with how Victorian employers identify their future skills needs, what these skills needs were, how they intended to meet these skills needs and to what extent they partnered with the vocational education and training (VET) and higher education sectors in the state. The research was carried out in 2024. The study focused on three areas of the Victorian economy: (1) advanced manufacturing; (2) digital and media; (3) the "care economy"—health and community.

The method involved two stages: (1) A series of three "roundtable" discussions with employers from each sector. This involved approximately 50 employers; (2) Five case studies of individual employers. Each case study involved five interviews with senior operations and human resources staff. The case study organizations are shown in Table 1 (names have been de-identified).

RESULTS

All the case study organizations have experienced significant employment growth in recent years. As an example, since its inception in 2019, ITSecurity has grown from 400 employees at start-up to 1400 at the time of the research. This growth was a major driver for skill demand in all the organizations. Technological change and increasing automation were also other factors driving the demand for skills in all the case study organizations. However, technology and automation were not such strong drivers for skills as for employment growth.

A strong message coming from all the case study organizations was that their skill base was relatively set and did not change quickly over time. This was true regardless of the perceived impact of technology and the pace of employment growth, even for those organizations such as ITSecurity that worked in a fast-moving and highly technological environment. All the organizations believed that the key skills required for their operations now and into the foreseeable future would remain fairly static. Where technology and other drivers demanded new skills, these were viewed as variations to the skills base of the organization rather than as a fundamental shift in their skill profiles.

Qualifications were critical to all the case study organizations. All employed significant numbers of professionals that required either VET or higher education qualifications to practice. The span of qualifications that the organizations recruited for covered the spectrum of the Australian Qualifications Framework (AQF) from trades and occupational qualifications important in Transport and Metro Health, through undergraduate qualifications important for social workers, nurses, early childhood workers at Care and Metro Health to high level post-graduate research qualifications required at Vax. The Human Resource Lead at Vax described the importance of qualifications at the company: "Certainly, at a high level, it's within the STEM areas primarily ... people who've got chemistry, pharmacology backgrounds, et cetera. [In] engineering, you're looking at electrical engineering, computer engineering, but then also construction engineers as well. Really right across the gamut of the engineering ... in the science area, it's certainly that sort of pharmaceutical backgrounds, chemistry, biology backgrounds that people have, microbiology, et cetera. Then if I jump across to what I call operators ... it's really more sort of blue-collar manufacturing type workers ... certainly, there's a high level of skill once trained up in those particular roles".

All of the case study organizations interacted with the Victorian VET system in a significant way and three regularly employed apprentices and/or trainees. The three organizations that employed apprentices and trainees, (Transport, Vax and Metro Health) used them to fill skilled trades positions. In these cases, apprenticeships and, to a lesser extent, traineeships, were crucial elements in the organizations' skill development systems.

Table 1: Participant organizations

Name	Sector	Employee number in Australia	Activities
Transport	Manufacturing	2500	Manufactures train and tram systems
Vax	Manufacturing	3100	Manufactures human and animal vaccines
ITSecurity	Digital and Media	1400	Cybersecurity company
Metro Health	Care economy	26,500	Large division of public health system
Care	Care economy	5400	Provides care and disability services

The two exceptions in the employment of apprentices and trainees were Care and ITSecurity. In the case of Care, the organization did not employ staff to carry out trade-related functions. Rather they looked to the higher education system to recruit staff with degree level qualifications in the professional areas they practise in—social work and community care.

The case of ITSecurity is interesting in that, as a new company in a rapidly evolving market, the organization found it increasingly difficult to recruit qualified staff—with either VET or higher education qualifications in cybersecurity or general information technology (IT). To solve this problem, ITSecurity developed its own, in-house traineeship system. In this arrangement, ITSecurity established its own Training Institute and employed staff who wished to work in the cybersecurity area but had no qualifications in IT. The new trainees were paid as employees but spent their first six months studying for an in-house cybersecurity qualification through the Training Institute whilst taking on increasing levels of responsibility in their work for the company. Thus, ITSecurity established an informal, in-house traineeship system to meet its skills requirements.

The case study organizations maintained varying degrees of collaboration and partnership with the education and training system in Victoria. For some, such as research-intensive Vax, the relationship was primarily with universities where collaboration extended through research and into teaching programs where the company actively recruited the best science graduates to staff its research and development functions. Others interacted with both universities and Technical and Further Education (TAFE) such as Metro Health and Transport. Here the partnerships with TAFE and universities involved not only research but also a significant element of teaching and student placement with both types of institutions. However, in general, it appeared that the organizations tended to have closer relationships with universities than with TAFE. It is not entirely clear why this should be so but a senior manager at Metro Health offered this comment on working with TAFE: "Often in the VET setting where we've consulted with regard to Allied Health Assistant qualifications, you've often got people who haven't actually worked in an allied health space who you're trying to educate on what that needs to be. Then they're needing to influence what the [paperwork] looks like to still align with RTO standards, which means there are a few disconnects there. Whereas it's a little bit easier with the universities often, because the consultation around an occupational therapy course might be with an occupational therapist".

Thus, the case study organizations had relationships with both Universities and TAFE Institutes. However, these relationships tended to be kept separate, often with different parts of the organization managing the different relationships. This does not mean they were competitive or collaborative, merely jointly present and covering different fields of collaboration.

CONCLUSION

One of the key findings from this study has been the slowly evolving nature of skills requirements among the case study organizations. Despite the rapid pace of technological change in the industries in which the organizations are located and their rapid employment growth, the skills base of the organizations was changing quite slowly. This tends to confirm the findings from recent research into technological change that human and organizational adaptation to new technology is a key intervening variable in the impact of technological change on skills requirements. Much technological change is absorbed into existing job roles and the changes required to apprenticeship or traineeship curricula are often incremental rather than revolutionary (Joyce *et al.*, 2023; Warhurst *et al.*, 2025).

This suggests that the apprenticeship and traineeship model works well, with its emphasis on the combination of employment and training and has the capacity to expand to encompass a wider variety of occupations, even in a fast-moving commercial environment such as cybersecurity. ITSecurity realized the benefits of the traineeship model to recruit staff and train them in the key skills through their in-house traineeship system and the Training Institute. Although not a nationally accredited scheme, the success of the ITSecurity model could be a model for other occupations and professions to adopt as they develop in a fast-moving technological

environment.

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Smith A: Writing—Original draft, Writing—Review and Editing. The author has read and approved the final version of the manuscript.

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Ethical approval
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Informed consent
The participants were informed that the interview data were only used for research purposes, and their information would be anonymized when presenting the research result. Moreover, they are also allowed to stop the recording at any moment during the interview, and they can refuse to respond to any question asked during the review.

Conflict of interest
The author has no conflicts of interest to declare.

Data availability statement
No additional data.

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