

03

INDUSTRY INSIGHTS Future productivity

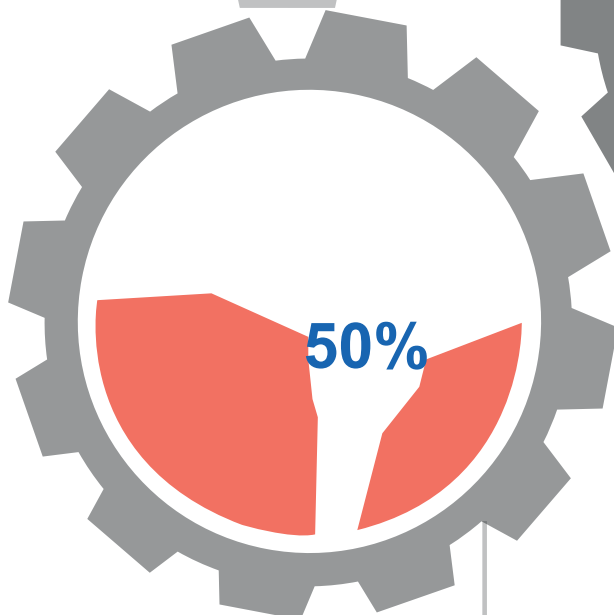


Management practices and productivity

Australian management practices trail international peers such as **United States, Germany, Canada, the United Kingdom** and **France**



Firms **lack information** on how their management practices compare with others.



Roughly **half** the gap between Australia's and the United States' **productivity** can be explained by **management practices**

In the early 1980s, the General Motors' Fremont, California, automotive assembly site was the most unproductive plant operated by the company. It was described by a manager as "one of the worst in the world", and following ongoing disputes, low rates of production and high rates of product defects, the plant closed in 1982. At the same time, Toyota's Takaoka assembly site in Japan was among the most productive in the world. The Takaoka plant had a highly structured production system with standardised work, just-in-time inventory, preventative maintenance and quality control processes.

In 1984, General Motors and Toyota embarked on a joint venture to repurpose the defunct Fremont plant and create the New United Motors Manufacturing, Inc. (NUMMI). General Motors was to incorporate aspects of Japanese manufacturing management techniques into its production, whilst Toyota was to side-step import restrictions by building cars in the United States (US). Around 450 General Motors' workers were sent to Takaoka for classroom and on the job training and around 35 Toyota managers and production coordinators were sent to Fremont to staff the venture. Approximately 85 per cent of staff hired by NUMMI were former employees of the Fremont plant.

In its early years, the NUMMI venture was a success. By 1986, the productivity and product quality of the NUMMI plant exceeded that of any other General Motors plant and approached levels observed in Toyota's Takaoka plant. The key ingredient in this successful transformation was the implementation of effective management practices.

Case studies illustrating the importance of management — such as NUMMI — are common, and management has long been considered crucial to firms' success. However, until recently, systematic evidence of the impact of management has been limited. Over the last decade, innovative approaches to producing large-scale datasets on management practices have emerged, shining light on management practices of firms around the world (Box 3.1). Interest in management practices has grown as new data has produced fresh insights, with growing evidence that management practices have a substantial impact on firms' productivity and profits.

These large-scale studies confirm that there is room for improvement in the management practices of Australian firms. As early as 1995, the Karpin report⁹⁹ identified a need for Australian managers to improve in several areas, including strategic management. More recently, in a 2017 paper, roughly 50 per cent of the gap between Australia's and the United States' total factor productivity (TFP) was found to be explained by differences in management practices.¹⁰⁰

This chapter presents evidence of the impact of management practices on firms' performance. It examines how Australian management practices compare with world standards, how they vary according to firm characteristics and behaviours, and considers implications for policy. The chapter provides an overview of the international literature on management practices and presents some evidence of an association between management and measures of firm performance in Australia. It suggests that this relationship may be driven, in part, by the higher likelihood of well-managed firms engaging in innovation, seeking out collaborative opportunities and responding to skill and supply chain issues.

99 Karpin, D (1995) *Enterprising Nation: Reviewing Australia's Managers to Meet the Challenges of the Asia-Pacific Century: Report of the Industry Task Force on Leadership and Management Skills*, Canberra: Commonwealth of Australia.

100 Bloom, N Sadun, R and Van Reenen, R (2016) "Management as a Technology?," NBER Working Papers 22327, National Bureau of Economic Research

Box 3.1: Measuring and evaluating management practices

Measurement

The term “management practices” encompasses a broad array of activities in a firm, ranging from human resource management to tracking of key performance indicators. Whilst management practices are difficult to measure, substantial steps have been taken in recent years toward gaining an understanding of how firms manage their business and how this differs across countries.

Two key data collections on management practices are the World Management Survey (WMS) and the US Census Bureau Management and Organizational Practices (MOP) Survey. The former is collected via an interview-based approach, whilst the latter uses questionnaires. The interview approach applied by the WMS involves a trained interviewer discussing management practices with firms, and scoring these practices according to pre-defined criteria. The questionnaire approach requires participants to respond to closed questions on their management practices. The Australian Management and Organisational Capability (MOC) Survey of Australian Businesses is another questionnaire-based survey of management practices.

Evaluation

Data on individual management practices are often aggregated to produce an overall score of a firms’ management. To calculate these scores, individual management practices are assigned weights, which are then aggregated. An alternative approach to characterising management practices used by the Office of the Chief Economist (OCE) involves creating *categories* of management. This involves categorising firms according to what combination of management practices they employ. Analysis based on the approach is presented in Section 3.3.

Firms that engage in more management practices are generally described as employing more active or structured management. Firms’ performance on these scores is also often considered a measure of management capability.

Source: Bloom N, et al. (2014).

Management practices affect firm performance

Management practices cover a broad array of firms’ activities. For example, firms’ development of strategy, use of data, measurement of performance and relations with staff are all separate aspects of management. Given this, there is clearly scope for it to influence firm performance in many ways. Broadly, management practices standardise processes, shape the flow of information throughout the firm, guide how this information is used, align incentives of members of the firm and encourage the adoption of a longer-term perspective.

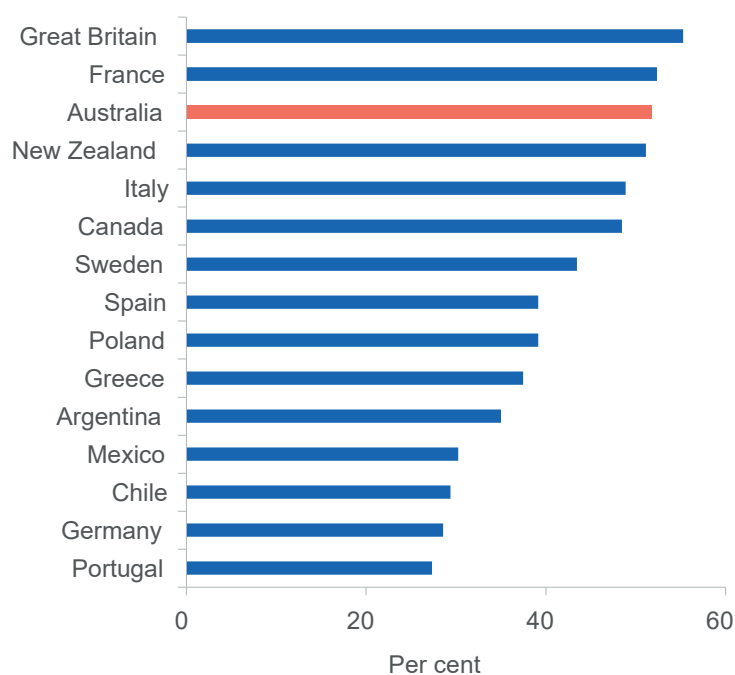
Evidence of the link between management and firm performance

Much of the evidence that structured management practices improve firm outcomes — including productivity — has emerged in the manufacturing sector. One seminal study in the mid-90s examined 26 steel plants and found that the adoption of coherent systems of new work practices — such as flexible job assignments, training, incentive pay, and employment security — produced substantially higher levels of productivity.¹⁰¹

These findings have been reinforced by a series of subsequent, larger-scale examinations of management practices in manufacturing. For example, Bloom et al¹⁰² found that a 1 point increase in management practices (on a scale of 1 to 4) had an equivalent impact on output to a 25 per cent increase in the labour force and a 65 per cent increase in invested capital. Additionally, whilst the measurement of management practices has tended to focus on manufacturing firms, there is evidence that management practices are crucial in other sectors such as health care and education.

Management practices appear to explain not only differences in performance across firms, but also across countries. Bloom, Sadun and Van Reenen¹⁰³ estimate that differences in management capability account for about 30 per cent of the differences in TFP between countries and roughly 50 per cent of the gap between Australia's TFP and that of the US (Figure 3.1).

Figure 3.1: Share of TFP gap with US explained by management



Source: Data were digitally extracted from Bloom, Sadun and Van Reenen (2017).

101 Ichniowski C, Shaw K and Prenzshik G (1995). The Effects of Human Resource Management Practices on Productivity

102 Bloom N, Drgan S., Downdy J and Van Reenen J, (2007) Management Practice and Productivity: Why They Matter, s.l.: McKinsey & Company Operations Extranet.

103 Bloom N, Sadun R and Van Reenen J, (2017). Management as a Technology?, s.l.: NBER Working Papers 22327, National Bureau of Economic Research

In addition to large-scale quantitative studies of manufacturing, a wealth of case-studies also highlight the importance of active management practices in a range of other industries. For example, the success of Amazon, the United State's largest online retailer, has been partly attributed its focus on performance indicators.

Box 3.2: Amazon's "culture of metrics"

Amazon was founded in 1994 and has since grown to become the largest internet retailer in the world. Among US online retailers, Amazon has led customer satisfaction since 2010. Underpinning this success has been continual innovation, as the company has shifted from reliance on books sales to hosting a vast online marketplace and production of ebook readers and tablets, and a strong focus on performance indicators. Amazon reportedly tracks its performance against approximately 500 metrics. This focus has led to critical insights — for example, that a 0.1 second delay in page rendering can result in a 1 per cent decline in customer activity. Data and use of metrics have also driven the personalised online shopping experience and speed of deliver that has continued to separate Amazon from its competitors.

Source: American Customer Satisfaction Index (2018) Benchmarks by industry; Anders (2012) Inside Amazon's Idea Machine: How Bezos Decodes Customers.

How do Australian management practices compare internationally?

International comparisons suggest that Australian firms have substantial scope for improvement in their management practices. In the World Management Survey, Australian firms have demonstrated less structured management — for example, in their use of key performance indicators (KPIs) and human resource management — than firms in comparable countries.

As early as 1995, the Karpin report¹⁰⁴ found that good managers were key to job creation and a more competitive economy and that Australian managers needed to improve performance. It noted that customers of Australian firms rated Australian managers behind those of Germany, Japan, Taiwan, the United Kingdom and the US with respect to entrepreneurial expertise and management. The report found that few Australian managers were matching the best internationally and that Australian management must change substantially over the next decade to meet world best practice.

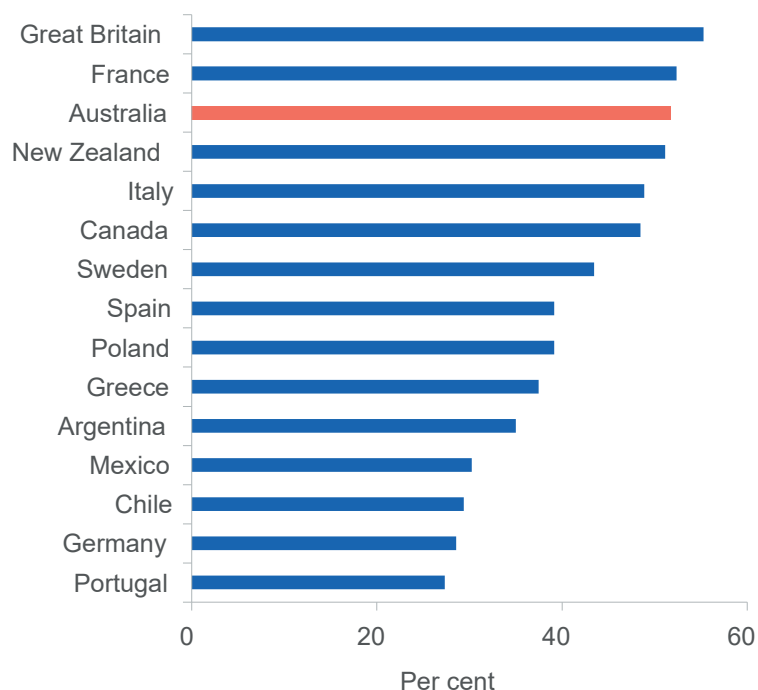
Despite the issue being highlighted, relatively poor management has persisted in Australia. Data from external administrators' reports lodged with the Australian Securities and Investments Commission have revealed that a substantial proportion of firms cite poor strategic management as a reason for failure (between 17 and 19 per cent of firms from 2009–10 to 2016–17).¹⁰⁵

Internationally, data from the WMS indicates that Australia continues to trail international peers — such as the US, Germany, Canada, the United Kingdom and France — in terms of management practices (Figure 3.2).

¹⁰⁴ Karpin D. (1995) *Enterprising Nation: Reviewing Australia's Managers to Meet the Challenges of the Asia-Pacific Century: Report of the Industry Task Force on Leadership and Management Skills*. Canberra: Commonwealth of Australia

¹⁰⁵ ASIC (2017) *Insolvency statistics: External administrators' reports*.

Figure 3.2: Management practices of domestic firms across countries



Notes: Management score represents the unweighted mean of management scores for domestic firms in each country.

Source: Data were digitally extracted from Bloom, Sadun and Van Reenen (2017).

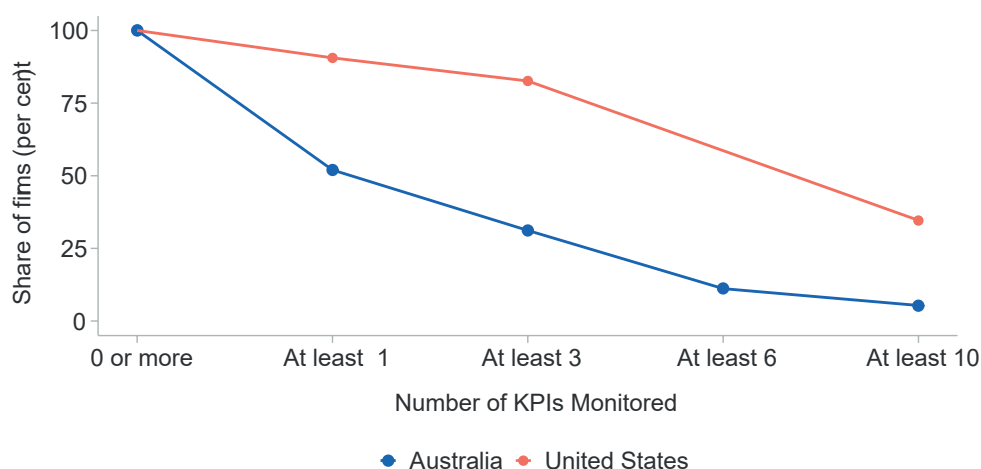
Manufacturing management in Australia and the United States

Whilst the WMS provides a useful basis for benchmarking Australia's management performance against a range of countries, recent survey data allows for a more up-to-date comparison of manufacturing management practices between Australia and the US.

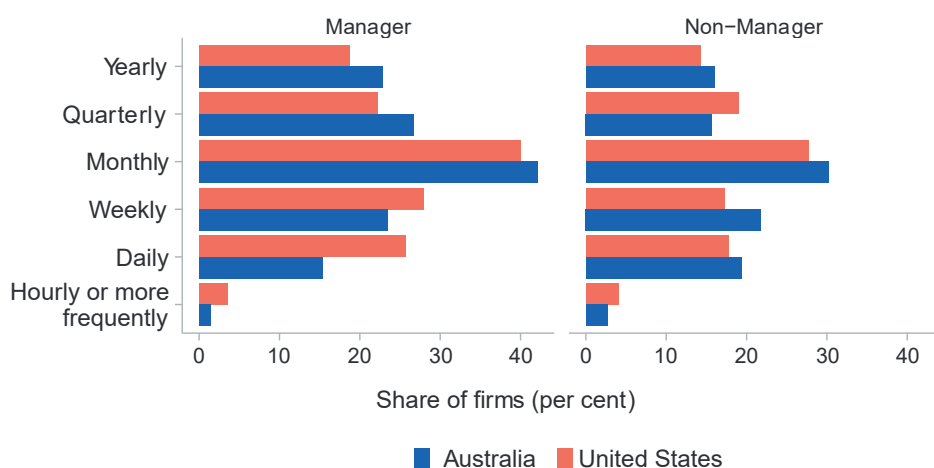
This data shows stark differences in the use of KPIs and promotion of staff. For example, 91 per cent of American manufacturing firms use KPIs compared with only around half of Australian firms (Figure 3.3). American manufacturing firms also more often report that promotion decisions for both managers and non-managers are based solely on performance and ability compared with Australian firms (Figure 3.3). These differences may be partly due to systematic differences in characteristics, such as size and industry subdivision, between firms in Australia and the US.

Figure 3.3: Manufacturing management in Australia and the United States, 2015–16

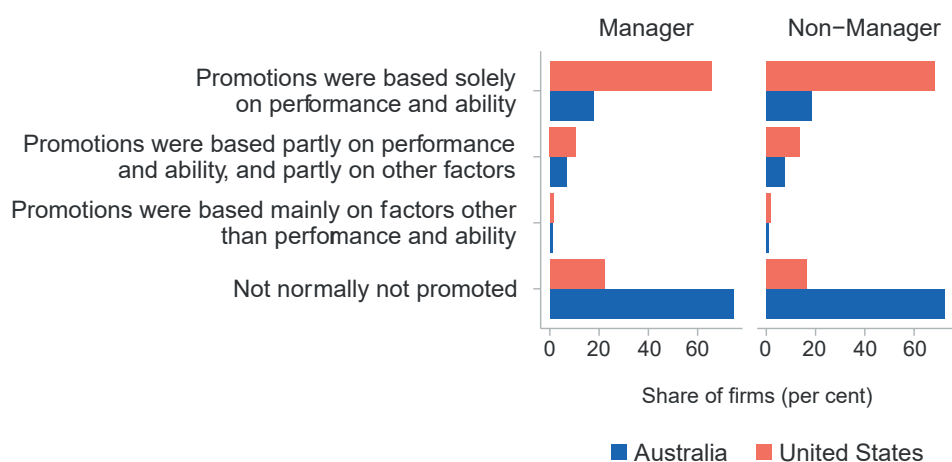
(a) Number of key performance indicators monitored



(b) Frequency of key performance monitoring



(c) Promotion of managers and non-managers



Notes: In panel (a), firms reporting “don’t know” have been removed from the Australian sample. In panel (b), firms responding “other review period(s)” have been removed from the sample. In panel (c), responses that “managers are normally not promoted” in the US MOP Survey is compared with the response “staff were not promoted” in the Australian MOC Survey of Australian Businesses.

Source: United States Bureau of Statistics (2017) MOP Survey; ABS MOC of Australian Business, 2015-16 Cat. No. 8172.0.55; Author’s calculations.

A closer look at management in Australia

Whilst the overall differences in management practices between Australian and US firms are stark, there is also substantial variation in management practices among Australian firms. Information on management practices across a range of sectors is collected by the ABS MOC Survey of Australian Businesses. This near-economy-wide survey is unique among management data collections because its broad scope enables comparison of management practices across most Australian industries.

The ABS MOC Survey of Australian Businesses reveals substantial variation in management practices across Australian industries. For example, financial and insurance services firms are more than six times as likely to have a written strategic plan than firms in the construction industry (Figure 3.4a), and almost twice as likely to monitor at least one KPI (Figure 3.4c). Yet it is difficult to compare management practices across the broad range of individual measures available. Combining measures to construct a single classification of management capability enables a more holistic comparison of management capability across Australian firms.

To summarise differences in general approaches to management, the OCE has constructed four categories of management which range from more to less structured (Box 3.2). They highlight significant variation in management practices. In particular, firm size has a strong positive relationship with management practices, which may be driven by necessity, highlighting the importance of comparing management practices of similarly sized firms.

Box 3.3: Categorising management of Australian firms

The OCE has identified four different approaches to strategic management, based on firms strategic planning, the number of KPIs monitored and the number of topics covered by these KPIs. The four categories include:

- **Strategic management** — the firm has active management practices, reporting structured planning and performance monitoring across a range of indicators;
- **Narrow-focus management** — the firm may demonstrate active management in one area but lack either formal strategic planning or comprehensive monitoring;
- **Ad hoc management** — the firm has a reactive approach to management with limited strategic planning and managerial practices occurring on an ad hoc basis; and
- **Low engagement management** — the firm does not undertake strategic planning and does not monitor performance.

The four facets of management contributing to these categories broadly correspond to the Business Scorecard (BSC) framework, which focusses on aligning firms operations with overall strategy. The framework was developed by Kaplan and Norton and — in addition to focussing on the development of strategic plans and corresponding KPIs — emphasises the importance of monitoring a variety of indicators to counter overreliance on financial measures. This prompts firms to not only consider indicators of previous performance (financial measures) but also drivers of future performance.

The BSC framework is widely used by management consultants. Bain and Company (2015) list the BSC approach as one of 25 popular tools included in its survey of Management Tools and Trends. The most recent international survey of around 14,000 executives found that approximately 30 per cent of firms were using this tool. In addition, several studies have found this tool to be associated with improved firm outcomes. For example, a survey of 76 business units found BSC to have a positive impact on firm performance through increased translation of strategy into operations.¹⁰⁶ A quasi-experimental study found superior financial performance among bank branches implementing the BSC approach compared with other branches within the same organisation.¹⁰⁷

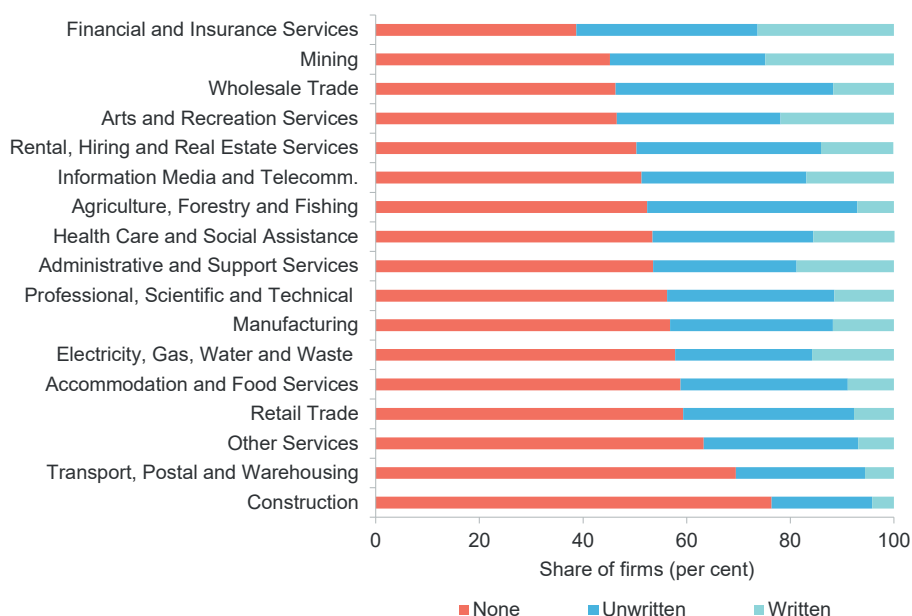
Source: Moran, Balaguer, Majeed, Agarwal, Bajada and Brown (2018) Strategic management in Australian firms. Department of Industry, Innovation and Science's Office of the Chief Economist working paper

106 De Geuser, F., Mooraj, S. & Oyon, D. (2009) Does the Balanced Scorecard Add Value? Empirical Evidence on its Effect on Performance. *European Accounting Review*, 18(1), pp. 93–122

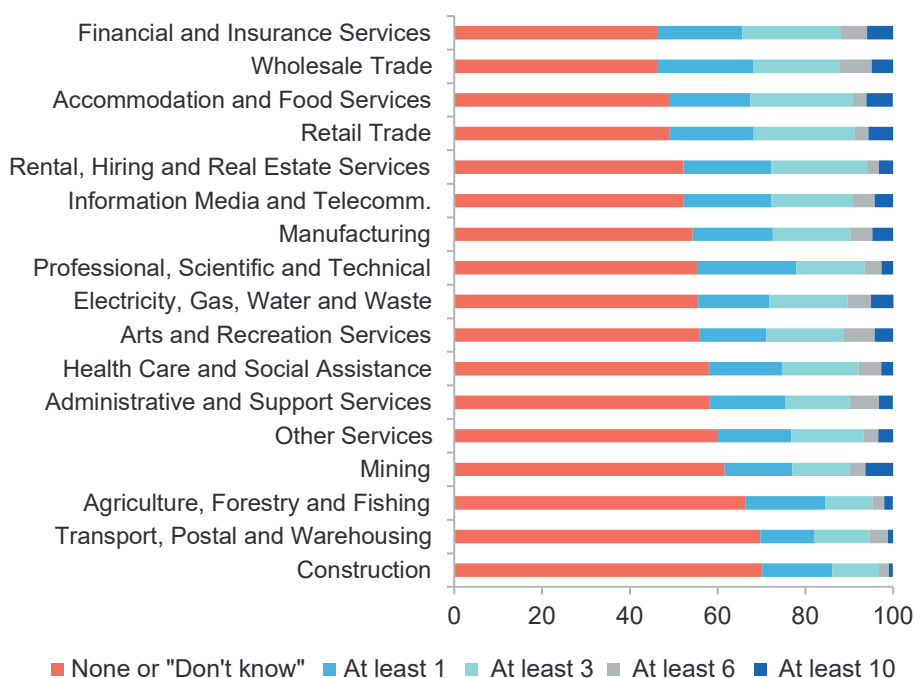
107 Davis, S. & Albright, T. (2004) An investigation of the effect of balanced scorecard implementation on financial performance. *Management accounting research*, 15(2), pp. 135–153.

3.4: Management practices of Australian firms by industry, 2015–16

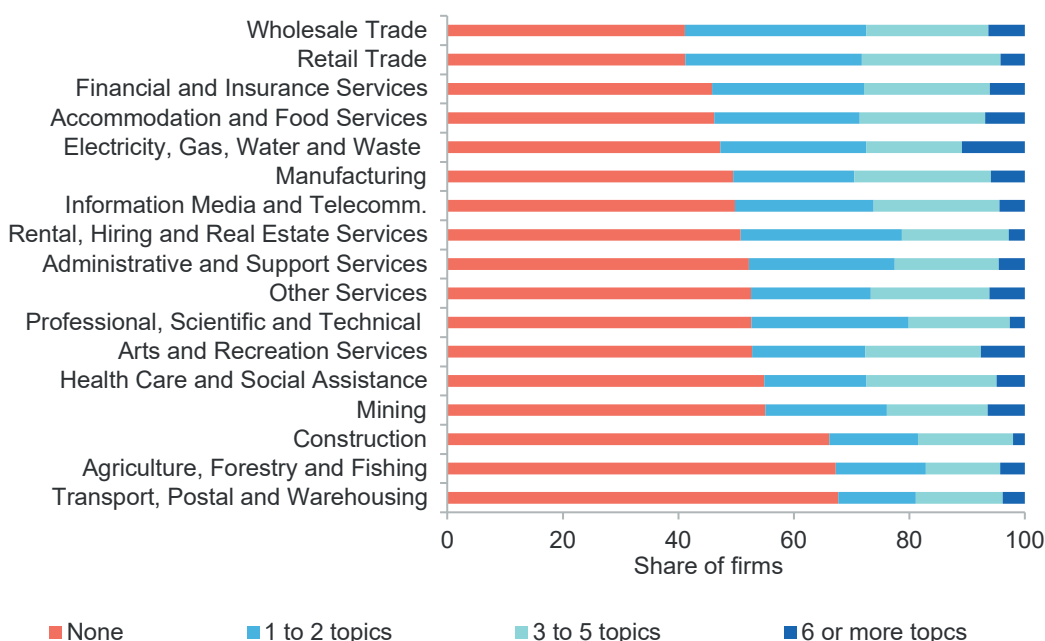
(a) Strategic Planning



(b) Monitoring of KPIs



(c) Number of KPI topics

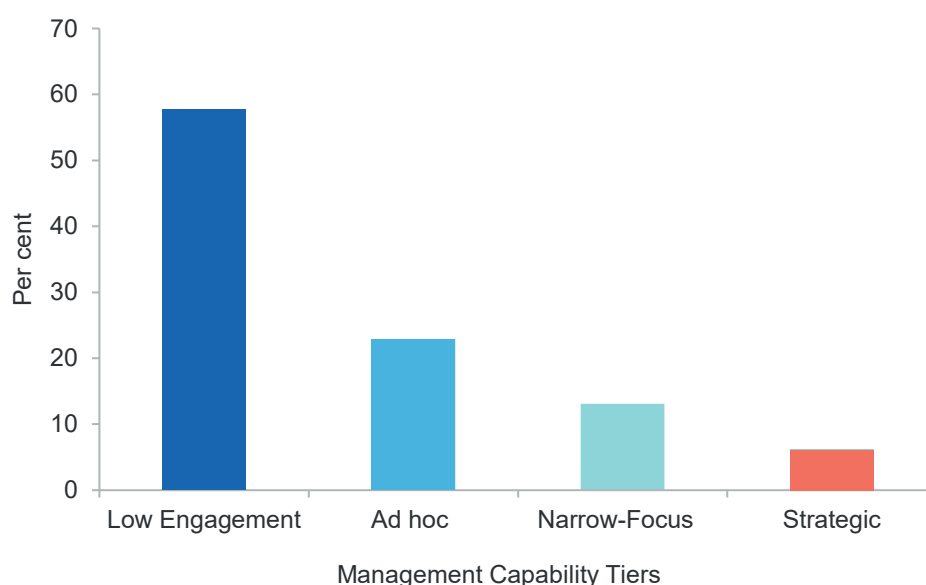


Source: ABS MOC of Australian Business, 2015-16 Cat. No. 8172.0.55; Author's calculations.

Modes of management and firm characteristics, behaviours and outcomes

Classifying firms according to the four levels of management outlined in Box 3.2 reveals a surprising number of firms with limited structure in their management practices. Across all employing firms, only 6 per cent meet the criteria for Strategic Management (Figure 3.5). At the other end of the spectrum, a surprisingly large share of Australian firms or 58 per cent are classed as having Low Engagement, and the Narrow-Focus and Ad hoc categories include 23 and 12 per cent of firms, respectively.

Figure 3.5: Distributions of the management modes, 2015–16



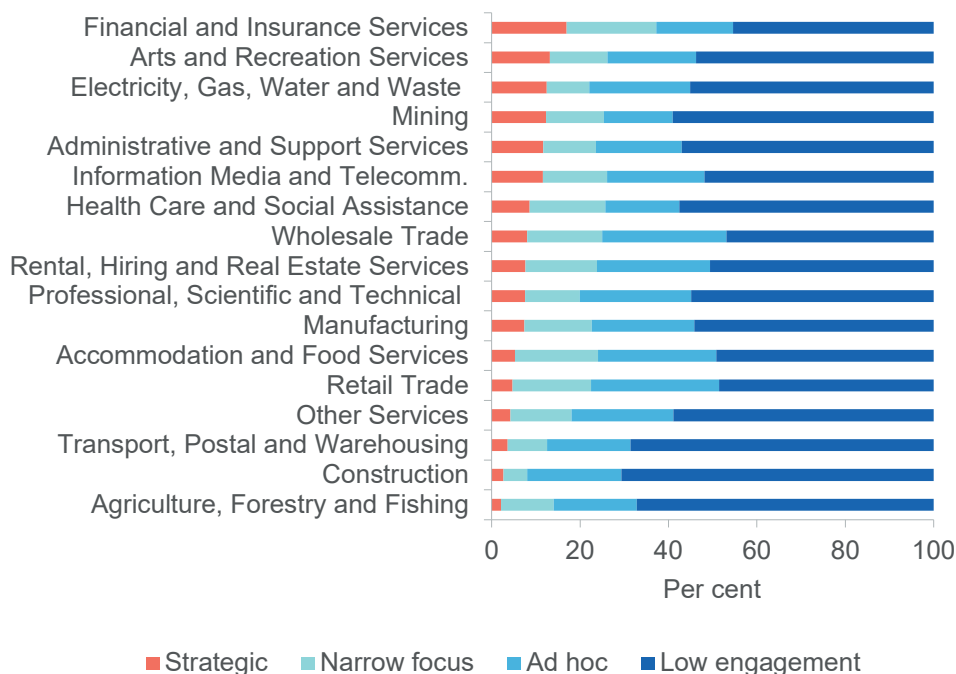
Notes: Weights have been applied to provide nationally representative estimates.

Source: ABS MOC of Australian Business Microdata, 2015-16 Cat. No. 8172.0.55.001

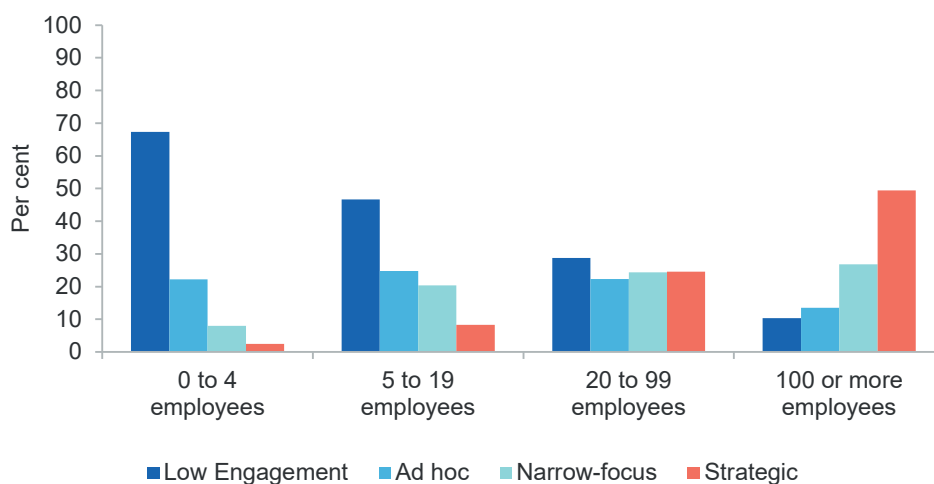
Firm characteristics, including size and industry, vary substantially with respect to management capability. In Australia, firms employing more than 100 employees are over six times more likely to engage in Strategic Management than firms with 5 to 19 employees (Figure 3.6b). This may reflect the need for larger firms to more proactively manage information (for example, through the use of KPIs) or that the costs associated with formal planning, which have a fixed component, become more manageable at scale. With respect to industry, no clear pattern emerges. The output of some industries, for example, finance and mining lend themselves to the identification and tracking of KPIs, and these industries are more engaged in management practices generally (see Figure 3.6a). However, the drivers of higher rates of structured management in other industries, such as Arts and Recreation Services, are less clear.

Figure 3.6: Management practices, industry and firm size, 2015–16

(a) Industry



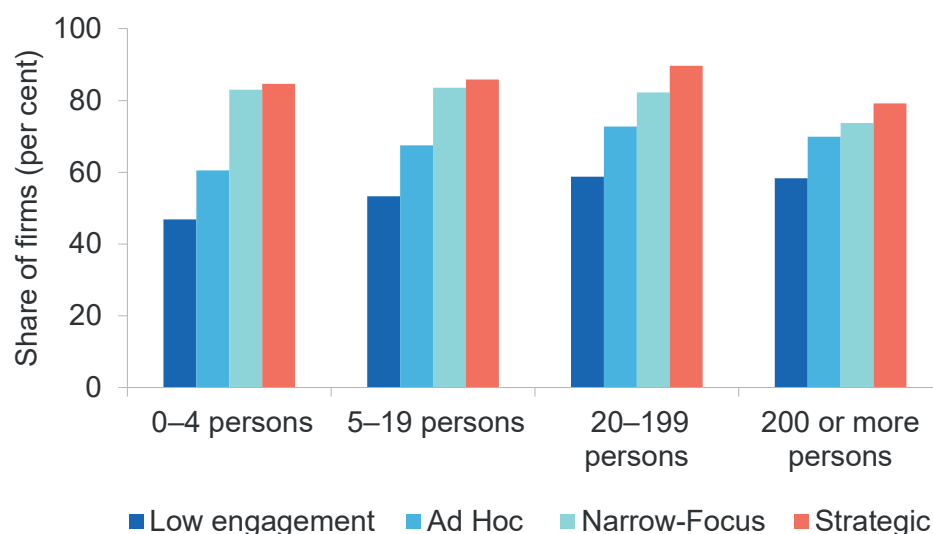
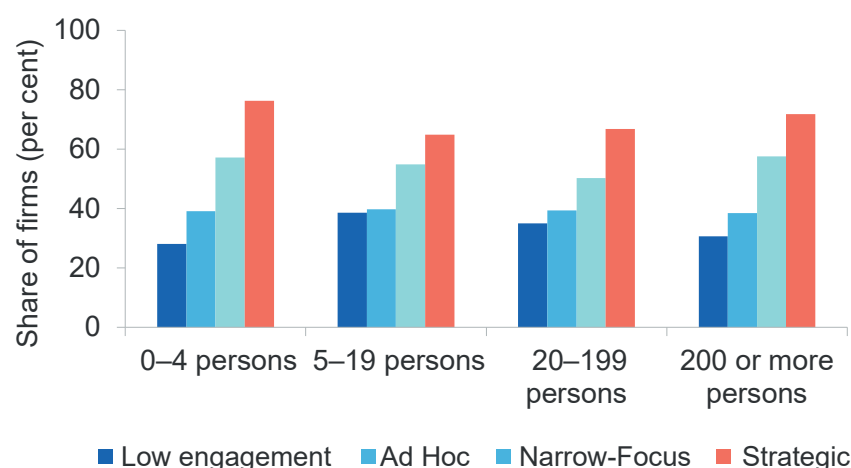
(b) Size and strategic management capability



Management practices also vary with respect to firm behaviours. For example, firms with higher levels of strategic capability report higher rates of innovation and consider themselves more active in seeking out collaborative opportunities (Figure 3.7). This relationship holds across all levels of firm size, suggesting that this relationship is not driven by the confounding influence of scale. In addition, the OCE has also found that firms with more structured management are more likely to be responsive to skill and supply chain issues (Moran et al.¹⁰⁸).

108 Moran, I., Balaguer, B., Majeed, O., Agarwal, R., Bajada, C. and Brown, P. (forthcoming) Strategic management in Australian firms. Department of Industry, Innovation and Science's Office of the Chief Economist working paper.

Figure 3.7: Management capability and firm behaviour, 2015–16

(a) Rate of Innovation**(b) Search for collaborative opportunities**

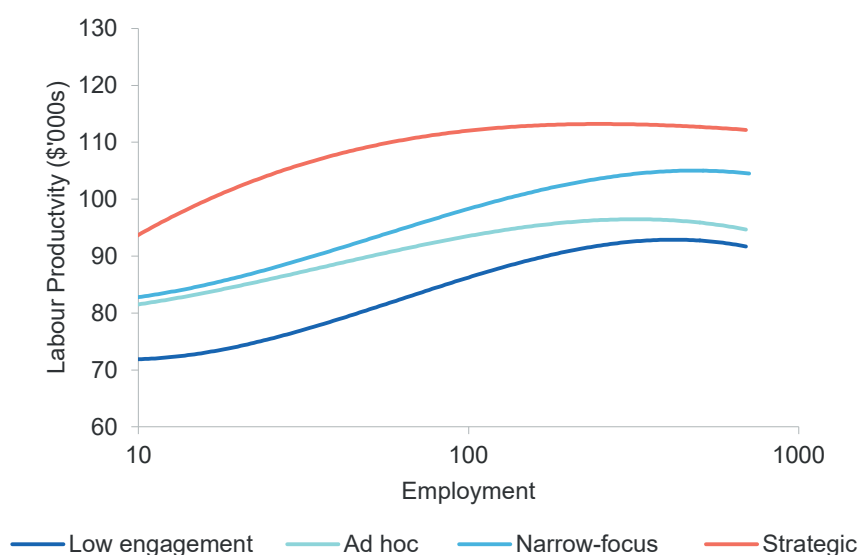
Notes: “Rate of Innovation” indicates the share of firms that report any innovation. Firms recorded as “searching for collaborative opportunities” either agree or strongly agree with the statement “this business continually seeks out new partners to collaborate with”.

Source: Authors’ estimates based on Business Longitudinal Analysis Data Environment (2018).

Consistent with the substantial number of studies outlined in Section 3.1, higher levels of management structure correspond with higher levels of labour productivity, a relationship that holds across firm sizes from 10 to 1000 employees (Figure 3.8). For large firms, the difference in estimates of average productivity between the lowest and highest level of productivity is just under 20 per cent, whilst the difference between the second highest and highest level of management capability is just under 8 per cent.

The mechanisms behind the relationship between management and productivity have not been examined in depth. The findings above suggest collaboration, innovation and responsiveness may contribute, however alignment of incentives and increased use of digital technology are examples of other potential mechanisms. Further research into what accounts for the relationship between management and productivity is required.

Figure 3.8: Labour productivity and management capability by firm size, 2015–16



Notes: The lines of best fit are produced by a regression of labour productivity on total employment, with labour productivity modelled as third degree polynomial in total employment. Firms with negative labour productivity or productivity in the top five per cent of firms have been removed. The model has been applied to all levels of employment, however predicted values are only presented for employment levels that have sufficient underlying observations for all levels of strategic management. Labour productivity is calculated as turnover less non-capital purchases, divided by number of employees (both values refer to the same years).

Source: OCE estimates based on Business Longitudinal Analysis Data Environment (2018).

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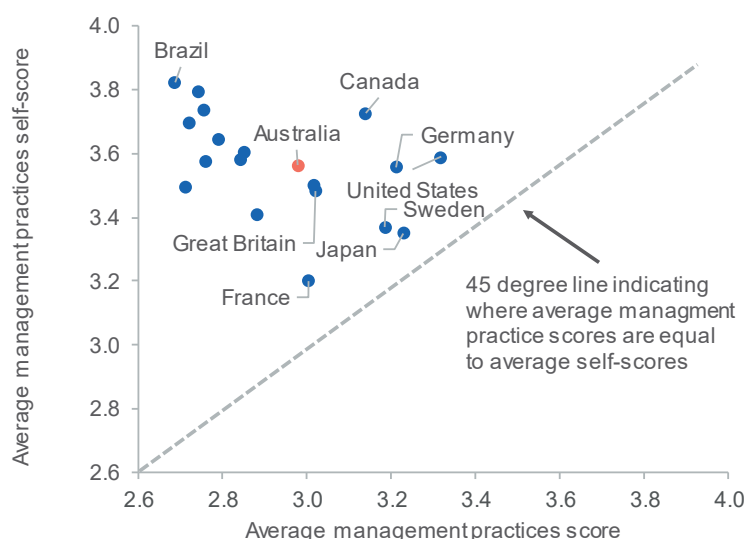
The mechanisms behind the relationship between management and productivity have not been examined in depth. The findings above suggest collaboration, innovation and responsiveness may contribute, however alignment of incentives and increased use of digital technology are examples of other potential mechanisms. Further research into what accounts for the relationship between management and productivity is required.

What role can policy play?

How firms determine which management practices to implement is an important consideration for public policy makers. The most appropriate set of management practices will vary according to each firm's unique operating environment and characteristics and in many cases, firms will have the best information to determine which management practices are most appropriate to their needs. Indeed, firms may opt for less structured management to promote performance.

However, it is also possible that firms lack information on management practices and forgo implementing more structured management practices despite net benefits. Indeed, there is evidence that firms systematically overestimate how structured their management practices are with respect to others. Between countries, self-assessment of management capability is negatively related to external assessments (Figure 3.9). Moreover, firms' self-assessed management scores have been found to poorly correlate with externally assessed management scores and firm performance in several countries.¹⁰⁹

Figure 3.9: External and internal assessed management practices scores



Notes: Scores represent unweighted means of management scores by companies belonging to foreign multinationals vs. domestic firms

Source: Data were digitally extracted from Maloney (2017, p.5).

These informational issues and the potential positive spillovers associated with good management suggests a role for government in encouraging firms to introduce more active management practices, invest in management training or access managerial advice.

Measures to improve management practices

Evidence that intervention can improve management practices and produce benefits is emerging. For example, randomised management interventions in US schools have demonstrated gains in teaching practices and student outcomes. Similarly, a randomised control trial demonstrated that improved management practices in Indian textiles firms increased TFP by 17 per cent and profits per plant by around \$325,000 per year. In a follow up study 7 years later these performance benefits were found to persist.¹¹⁰

A government initiative that offers tailored advice to firms on management practices and strategy is the Department of Industry, Innovation and Science's Entrepreneurs' Programme Business Management stream which pairs firms with experienced business advisers and facilitators (Box 3.3). The Industry Growth Centres Initiative also supports firms in selected sectors and can assist with the development of management and practical skills, and identifying skills gaps. As data becomes available on program outcomes, new insights on the effectiveness of government assistance with management practices will emerge.

109 Bloom N, Drgan S, Downdy J and Van Reenen J (2007). Management Practice and Productivity: Why They Matter; A McKinsey Report

110 Bloom N, Mahajan A, McKenzie D, Roberts J (2018). "Do management interventions last? evidence from India," Policy Research Working Paper Series 8339, The World Bank

An OCE study that assessed the impact of participation in the Enterprise Connect (EC) program (a forerunner of the the Entrepreneurs' Programme) on firm performance found that EC participant firms had higher performance than non-participants firms, in terms of growth in turnover, employment, capital expenditure and survival rates.

Box 3.4: The Entrepreneurs' Programme

The Department of Industry, Innovation and Science's Entrepreneurs' Programme Business Management stream pairs firms with experienced business advisers and facilitators. The advisers and facilitators provide:

- **Business evaluation**, which involves developing a business evaluation action plan with recommended strategies for business improvement or growth. The evaluation includes up to 12 months of mentoring to help implement the strategies.
- **Growth services**, which develops their unique growth plan. Advisers/facilitators mentor the business through the implementation of their plan, facilitating access to knowledge and expertise, research, funding and other assistance.
- **Supply chain facilitation**, which works with firms to strengthen their supply chain and improve their ability to access new markets.
- **Tourism partnerships**, which provides groups of tourism businesses in northern Australia with access to an experienced business facilitator for over 12 months to create a tourism partnerships action plan and opportunities and strategies for common business interests.

Business growth grants are also available under the program. These grants provide matched funding of up to \$20,000 to hire an expert to help implement advice and strategies recommended in the one of the above services.

Source: Department of Industry, Innovation and Science (2018).

In addition to bespoke advice and facilitated management interventions, information provision can also benefit firms. Diagnostics tools are currently used to guide business evaluation in the Entrepreneurs' Programme and there is potential to explore additional benchmarking tools to provide further information for Australian firms looking to build management capability. The WMS currently offers a benchmarking tool that allows manufacturing firms to compare their management practices with those of other firms. For other industries, data from the Australia MOC Survey could provide additional information and raise awareness of the opportunities associated with better management.

Overall, management is an important driver of economic outcomes and an important consideration for policymakers. As understanding of what interventions best improve management capability develops, there is potential for substantial economy-wide gains.

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The future of work — the next 25 years

*Annette Cairnduff, Director Research and Policy,
Foundation for Young Australians*

The future of work is changing. It's a reality governments, industry and communities are all grappling with. The Reserve Bank of Australia has raised concerns regarding fewer taxpayers as the baby boomers retire. We will need an innovative and entrepreneurial generation of young people to maintain our standard of living and quality of life in Australia.

The Foundation for Young Australians (FYA), have sought to understand through our *New Work Order* report series the dimensions of this change, the implications for young people — and thereby, the future of this country — and what we need to do to prepare young people to thrive in this future.

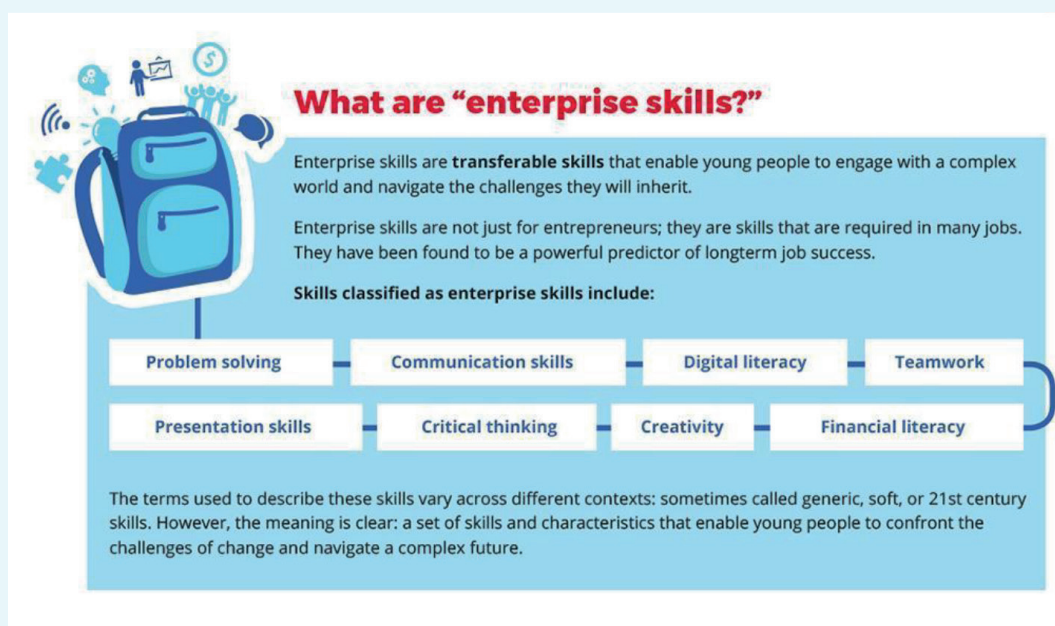
Our first report, launched in August 2015, explored the three economic forces — automation, globalisation and collaboration — shaping the future of work. It revealed that young Australians entering the workforce today might have as many as 17 jobs in five different industries over their working lives.¹¹¹

Our six subsequent reports have examined how young Australians are faring in this new reality and what needs to change. In the *New Work Order*, the types of skills that young people will need to thrive are changing, and formal qualifications and technical skills are only part of the requirements for modern employees. Enterprise skills and personal attributes are already seen as equally important to success, with 10 of the 16 'crucial proficiencies in the 21st century' identified by the World Economic Forum being non-technical skills or capabilities.¹¹²

Enterprise skills include communication, teamwork and problem solving, as well as emotional judgement, professional ethics and global citizenship, perceived as generally transferable between industries and occupations - will enable young people to prosper in a

111 FYA (2014) How Young People are Faring in the Transition to Work, accessed via: <https://www.fya.org.au/report/how-are-young-people-faring-report-card-2015/>

112 World Economic Forum (2015), New Vision for Education, accessed via: http://www3.weforum.org/docs/WEFUSA_NewVisionforEducation_Report2015.pdf



Source: FYA (2016), The New Basics. Accessed via: https://www.fya.org.au/wp-content/uploads/2016/04/The-New-Basics_Update_Web.pdf

radically altered economy. Yet our research shows that young people are not being prepared or equipped for the significant changes ahead. Recent results from the Programme for International Student Assessment (PISA) showed that of Australian 15-year-olds, 30 per cent are not financially literate and 35 per cent aren't proficient in problem solving. Other Australian data shows that 35 per cent of 15-year-olds aren't proficient in digital literacy.

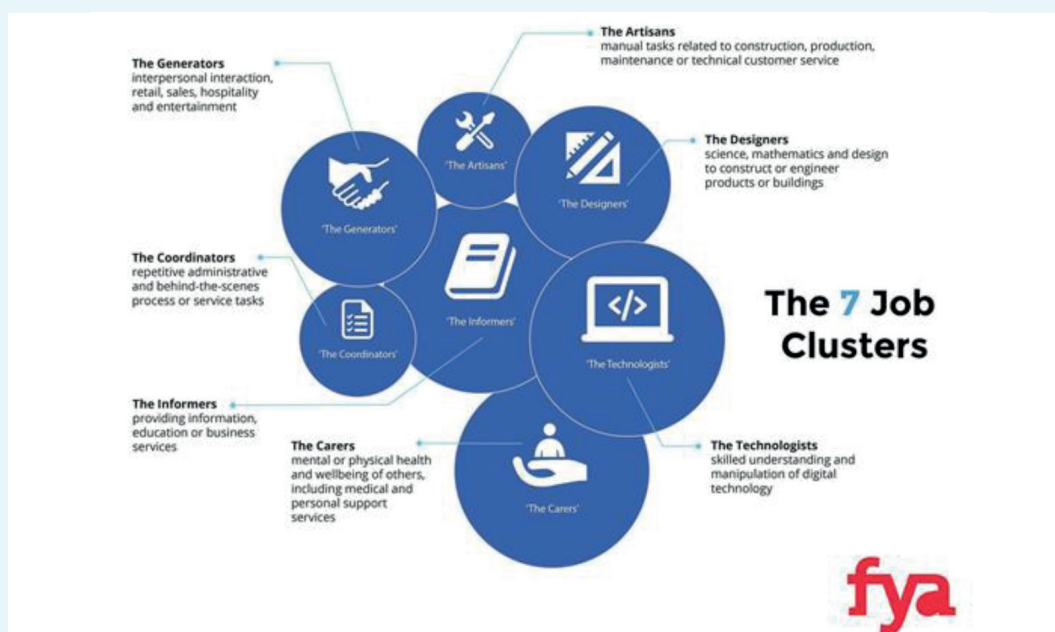
Our report, The New Basics, showed that these capabilities are being actively sought by employers. Demand for an enterprising skill set is increasing across the economy. Since 2013 demand for employees with digital literacy has increased by 212 per cent, critical thinking skills by 158 per cent and creativity by 65 per cent.¹¹³ What were once thought of as 'soft skills' are now being prioritised by policymakers and education systems and sought after by employers as necessary skills for the 21st century. We also know employers will pay more for people with these skills, with employees with capabilities in critical thinking and problem solving likely to receive up to \$8,000 more per year.

Research in The New Work Mindset report, found that jobs are more related than we think.¹¹⁴ Not all jobs require the acquisition of an entirely new qualification to become proficient, the skill sets of many jobs are in fact 'portable' to other jobs. This is because, for many jobs, employers demand very similar skills.¹¹⁵ By understanding this, there is an opportunity for young people to be more strategic in planning for, and navigating, working lives that are likely to be dynamic and changing. Rather than seeing learning as a one-off process before our first job or as a necessary for repurposing careers, young people can build a portfolio of skills within a job cluster and target the acquisition of capabilities in key learning areas related to job and career opportunities throughout their life.

¹¹³ FYA (2016), The New Basics. Accessed via: https://www.fya.org.au/wp-content/uploads/2016/04/The-New-Basics_Update_Web.pdf

¹¹⁴ FYA (2016), The New Work Mindset. Accessed via: <https://www.fya.org.au/wp-content/uploads/2016/11/The-New-Work-Mindset.pdf>

¹¹⁵ On average, when a person trains or works in 1 job, they acquire skills for 13 other jobs. See FYA (2016) New work order, Foundation for Young Australians.



Source: Foundation for Young Australians (2016), The New Work Mindset. Accessed via: <https://www.fya.org.au/wp-content/uploads/2016/11/The-New-Work-Mindset.pdf>

The *New Work Smarts* report, the fifth in our series investigates what we do at work and how this is going to undergo profound changes in every job over the next decade.¹¹⁶

For example, on average, workers will spend 30 per cent more time per week learning skills on the job; 100 per cent more time at work solving problems, over 40 per cent more time on critical thinking and judgment, and over 70 per cent more time using STEM (science, technology, engineering and mathematics) skills.

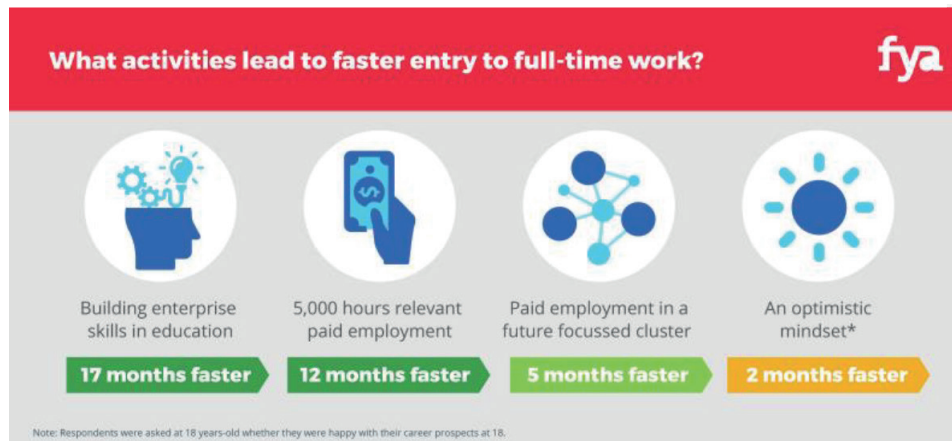
Workers will use written and verbal communication and interpersonal skills for 29 hours each week (up 14 per cent); and activate an entrepreneurial mindset due to having less management (down 26 per cent), less organisational coordination (down 16 per cent) and less teaching (down 10 per cent).

By 2030, young people will need to be able to deploy foundational and technical capabilities in increasingly enterprising and creative ways, as well as requiring a thirst for ongoing learning.

Our sixth and most recent report, The New Work Reality confirms that now and into the future young people will increasingly need support to develop their cognitive and emotional skills to a much higher level.

By following the journeys of 14,000 young people over a decade from 15-25 years old, we were able to identify a number of key factors that help young people make a smoother transition from full time education to full-time work.

116 FYA (2017), The New Work Smarts. Accessed via: https://www.fya.org.au/wp-content/uploads/2017/07/FYA_TheNewWorkSmarts_July2017.pdf



Source: Author provided

The four most significant factors supporting young people to secure full-time work faster are:

- Courses teaching enterprise skills like problem solving, teamwork and communication. This can increase the speed of entry to working full-time hours by 17 months.
- Relevant paid work experience. This can speed up the transition to full-time work by up to 12 months.
- Employment within an area of work which has strong growth future prospects can speed up the transition by 5 months.
- An optimistic mindset and strong well-being by age 18. This can accelerate the transition by up to two months faster than a young person who is unhappy or not confident with their career prospects before leaving school.

More than ever before young people need access to a relevant, high quality education and learning systems that reflect and respond to their changing and diverse needs, and those of the economy.

If the education system is to meet the challenge of equipping young people with the skills to navigate the future of work and a rapidly changing world, a substantial shift in current approaches is needed. This understanding is growing in import and driving curriculum reform and redesign across the world. How do we design a life of learning that builds flexibility and resilience in the face of rapid change? How do we build skills that enable people to anticipate and respond to changing environments? We need to develop adaptability in young people, as well as enterprise skills that can be applied across a wide range of contexts. Learning needs to be distributed across an entire lifetime. But this concept demands a focus and society-wide commitment that is not yet in place.

While the demand from employers is clear, more needs to be done, with students, parents, educators, industry and government working together to ensure our children and young people will be equipped with the skills they need in work and life.

So how can we help young people achieve stronger results to ensure they're prepared for the challenges of the future?

We must urgently invest in:

- redesigning the learning system from preschool through higher education (and beyond)
- immersive enterprise education and careers management strategies where the ‘new work smart’ skills are core to teaching, learning and assessment across all school and higher education systems
- a real jobs commitment to young Australians
- a promise and plan for the equitable intergenerational transfer of knowledge, resources and power in the new economy.
- We must collectively build a national vision in which every child and young person is equipped for a lifetime of learning, diverse ways of working, and the hearts and minds to help build the future.¹¹⁷

117 Source: Foundation for Young Australians (2016), The New Work Mindset. Accessed via: <https://www.fya.org.au/wp-content/uploads/2016/11The-New-Work-Mindset.pdf>

