



Building Australia's digital resilience

How technology strengthened Australian business during COVID and beyond



alphaBeta
Australia
part of Accenture

Executive summary

COVID caused Australian businesses to rapidly accelerate technology transformations. Australian businesses implemented as much change in some technologies over the past year as they had over the past 10 years. Newly adopted technology improved the resilience of many Australian firms, helping them to cushion the impact of COVID on their sales, employment and productivity. Looking forward, many Australian businesses expect to continue the use of new technologies beyond COVID, but those that have adapted by introducing complementary changes to workplace practices and systems are three times more likely to improve productivity.

1 ACCELERATED ADOPTION

Australian firms rapidly adopted technology during COVID, with as many Australian businesses increasing their adoption of key digital technologies in the past year as over the past 10 years.

- Australian firms rapidly accelerated their adoption of **front office technologies** such as their **web presence** (up 22%), ability to **take and place orders online** (up 10%), and **social media** activity (17%), as well as **back office technologies** such as their **HR** (up 8%), and **stock control** processes (up 10%).
- **Collaboration tools** were adopted strongly in COVID, particularly videoconferencing (up 54%), filesharing (up 28%), e-signatures (up 31%) and remote access (up 37%).

2 IMPROVED RESILIENCE

Technology supported business resilience during COVID for Australian businesses, enabling 3.2 million workers to continue work.

- Nearly **9 in 10 Australian firms adopted new technologies to improve their business continuity** during COVID; with 13% of businesses saying technology tools were essential to continued operations.
- More digitally advanced firms (i.e. those with higher adoption of front office and back office digital technologies) have more **resilient revenues**, are more likely to **maintain employment** and have more **resilient profitability**.
- **The adoption of technology tools supported 3.2 million workers** who would otherwise have been unable to perform their roles in compliance with social distancing rules. **1.6 million of these workers may have been completely unable to work without the technology tools.**

3 COMPLEMENTARY CHANGES

Many Australian businesses intend to **continue to use new digital tools** after COVID has passed, recognising the need to implement **new workplace practices to maximise technology's positive impact**.

- There is a recognition that these tools are not unambiguously positive and can have some negative effects on productivity and well-being if not managed well.
- Many Australian business introduced new workplaces practices such as **flexible working hours** (58%), new **initiatives to increase social connectivity** (50%), new **initiatives to support physical and mental health** (50%).
- **Firms that introduced these types of policies had 3 times stronger productivity outcomes**, with 37% of businesses suggesting that their productivity increased either slightly or significantly.

Method & Data sources

This paper is based on several sources of data. Further details and sources are listed in the appendix.

Data type	Data source	Data characteristics
Information technology use data	ABS 8167.0 Business Characteristics Survey <ul style="list-style-type: none"> Subset of the ABSBR for employing entities Estimates business use of IT, extent of innovation and other non-financial business characteristics 	<ul style="list-style-type: none"> 7,000 observations, stratified by industry and employment size Data observed distinctly between 2010 and 2018 Fields of use include front office e.g. web presence, placing/receiving orders; back office e.g. payroll, invoicing; business performance e.g. revenue, IT expenditure Values in the BCS were updated to the COVID period using original survey data
Remote work data	University of Chicago's Becker Friedman Institute <ul style="list-style-type: none"> Estimating share of occupations that can work from home (WFH) O*NET 25.0 database <ul style="list-style-type: none"> US occupation characteristics data 	<ul style="list-style-type: none"> Data on occupations that could work from home (WFH) was originally derived from O*NET workforce activities and workforce context O*NET provides detailed descriptions of abilities, interests, skills, knowledge, activities and context in all US occupations. It also scores occupations based on the extent to which they engage with, and the importance of, each category This was customised by combining ABS employment data and AlphaBeta business survey data to generate an Australian mapping of workers that could WFH
Employment outcomes data	ABS 6291.0 Detailed Quarterly Labour Force <ul style="list-style-type: none"> Monthly employment data derived from survey ABS 6160.0 Weekly Payroll Jobs and Wages <ul style="list-style-type: none"> Single Touch Payroll (STP) data from the ATO that reports on demographics and job characteristics 	<ul style="list-style-type: none"> Labour force data records whole-of-economy employment (full-time and part-time), unemployment and underemployment. This is stratified by industry subdivisions, business size (employees and turnover) STP data includes employment and wage data, and is stratified by gender, age, industry subdivision (excluding Defence)
COVID outcomes and workplace practices data	AlphaBeta digital performance database <ul style="list-style-type: none"> Business survey data ABS 8501.0 Retail trade data <ul style="list-style-type: none"> Monthly reporting on retail turnover, stratified by industry, location, business size and type of activity 	<ul style="list-style-type: none"> The digital performance data is an original survey conducted between Sep 10th – 17th, with over 1,200 observations. Fields include use of tech during COVID and post-COVID, importance of digital tools, and impacts on workers' productivity Retail trade data is observed for all retail businesses in supermarkets, household goods, clothing, cafes & restaurants, department stores



Agenda

Australian businesses accelerated technology adoption and transformation during the COVID period, to the equivalent of up to 10 years of historical rates 05

Accelerated adoption of technology improved the resilience of Australian firms through COVID and helped 3.2 million workers do their jobs despite social distancing rules 09

Many COVID changes will be permanent, but productivity could be up to 3 times higher if complementary workplace practices are also introduced along with new technology 15

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1

AUSTRALIAN BUSINESSES **ACCELERATED TECHNOLOGY ADOPTION AND TRANSFORMATION** DURING THE COVID PERIOD, TO THE EQUIVALENT OF UP TO 10 YEARS OF HISTORICAL RATES

SUMMARY: COVID caused Australian businesses to rapidly accelerate their technology adoption and transformation

As many Australian businesses increased their adoption of key digital technologies in the past year as over the past 10 years.

Australian businesses rapidly accelerated their adoption of **front office technologies** such as their **web presence**, ability to **take and place orders online** and **social media** activity.

- The **web presence** of Australian firms increased from 55% in 2018 to 77% in 2020. That implies that Australia achieved as much growth in web presence in one year as we had over the previous **10 years**.
- The **social media presence** of Australian firms increased from 48% in 2018 to 65% in 2020. That implies that Australia achieved as much growth in social media presence in one year as we had over the previous **3 years**.
- The ability of Australian firms to **take orders online** increased from 41% in 2018 to 51% in 2020. That implies that Australia achieved as much growth in one year as we had over the previous **4 years**.
- The ability of Australian firms to **place orders online** increased from 63% in 2018 to 72% in 2020. That implies that Australia achieved as much growth in one year as we had over the previous **3 years**.

Australian firms rapidly accelerated their adoption of **back office technologies** such as their **HR** and **stock control processes**.

- The use of digital tools in **payroll processes** of Australian firms increased from 65% in 2018 to 73% in 2020. That implies that Australia achieved more growth than we had seen over the previous 10 years.
- The use of digital tools in **stock control processes** of Australian firms increased from 31% in 2018 to 41% in 2020. That implies that Australia achieved more growth than we had seen over the previous 10 years.

Australian businesses adopted **collaboration tools** to support working from home including videoconferencing, filesharing, e-signatures and remote access.

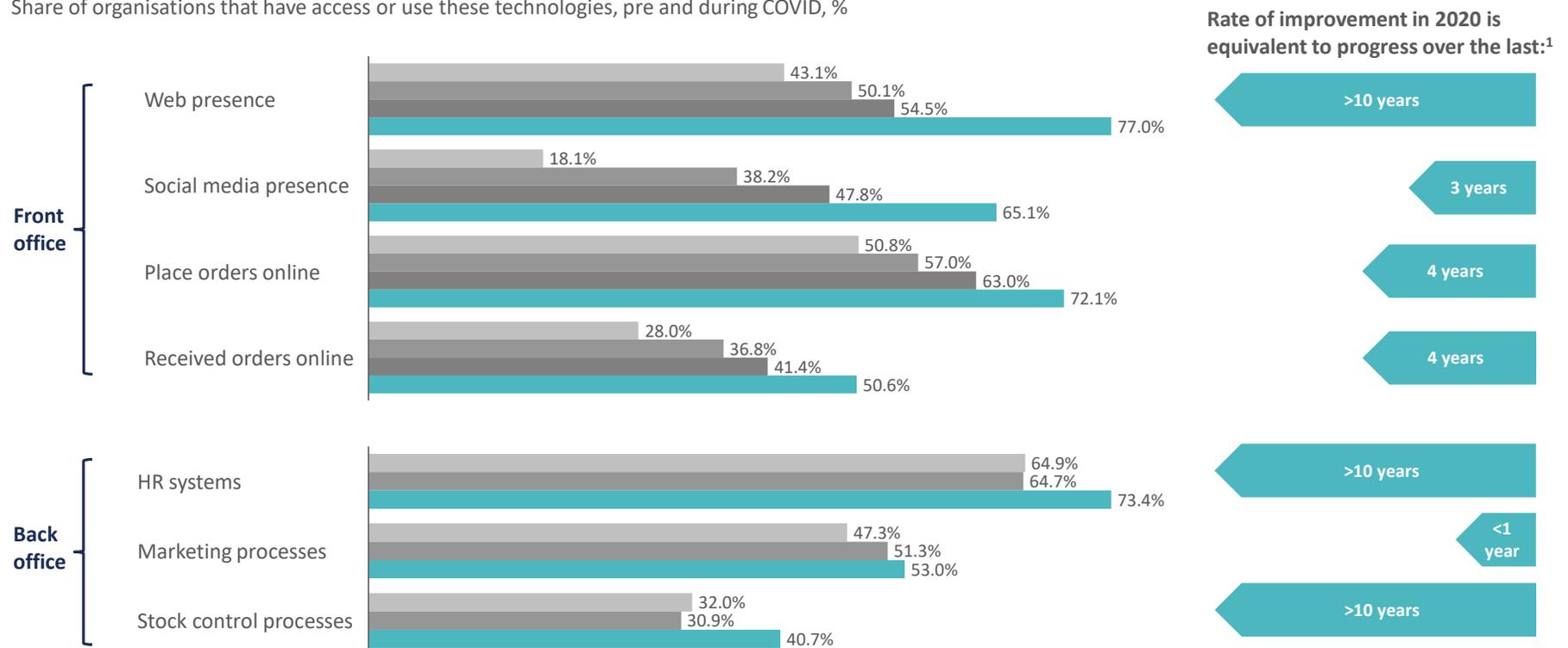
- **Videoconferencing** was used more by 60% of Australian firms.
- **Filesharing** was used more by 43% of Australian firms.
- **E-signatures** and other document management tools were used more by 27% of Australian firms.
- **VPN & remote access** were used more by 22% of Australian firms.

During COVID-19 Australian businesses introduced as much technology adoption as they did in the last 10 years in many areas such as online presence, human resource systems and stock control processes

Change in business use of IT pre-COVID and during COVID

2010 2015 2018 2020

Share of organisations that have access or use these technologies, pre and during COVID, %



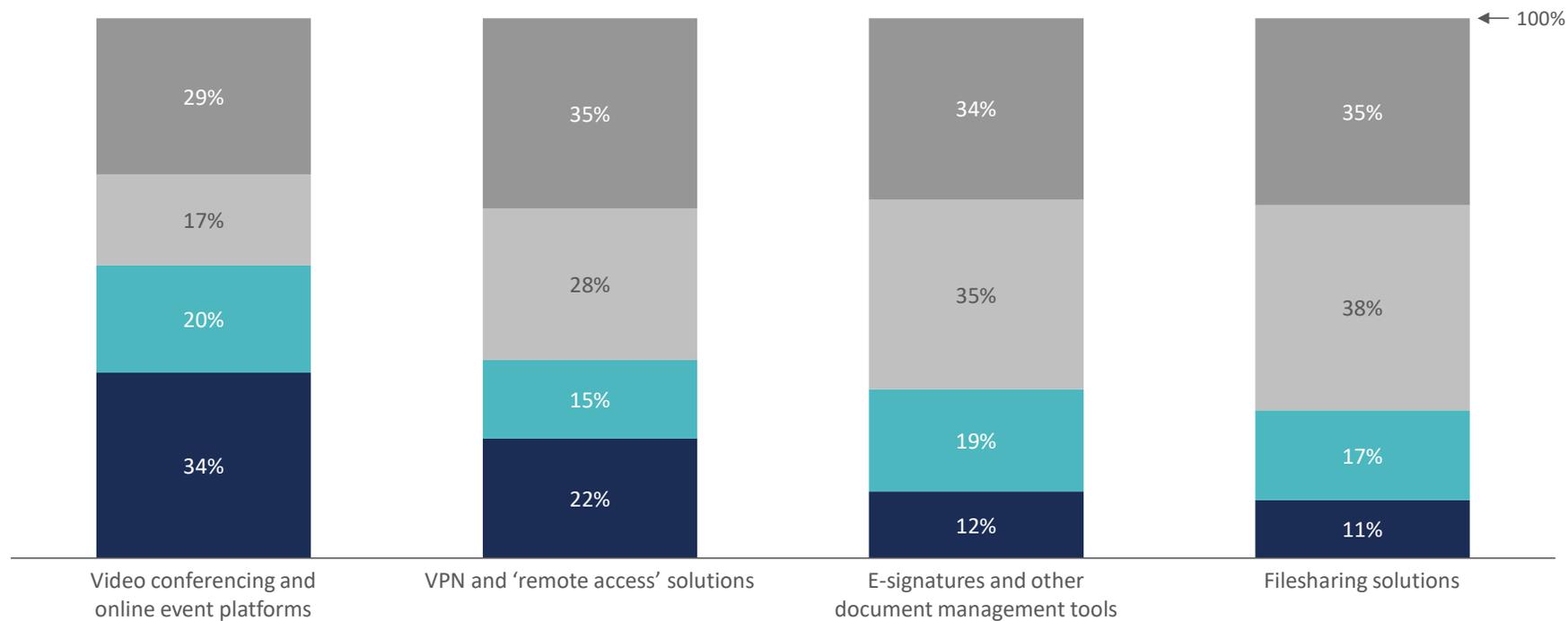
¹ Acceleration in uptake is estimated by determining the linear growth rate between 2010 and 2018, extrapolating this to an *expected* uptake in 2020, and observing the *actual* uptake in 2020 using the latest available data. The *actual* uptake over and above the *expected* uptake, divided by the linear growth rate generates the number of years of acceleration.
Source: ABS 8167.0 Business Characteristics Survey, 2010-11 to 2018-19; AlphaBeta digital performance database

Australian businesses have increased their adoption of digital collaboration tools to support their transition to remote working

Take-up of different digital collaboration tools during COVID

Share of firms by take-up of digital tools, %

■ Used a lot more during COVID ■ Used about the same during COVID
■ Used slightly more during COVID ■ Did not use during COVID



2

ADOPTION OF TECHNOLOGY **IMPROVED THE RESILIENCE** OF AUSTRALIAN FIRMS THROUGH COVID AND HELPED 3.2 MILLION WORKERS DO THEIR JOBS DESPITE SOCIAL DISTANCING RULES

SUMMARY: Adoption of technology improved the resilience of Australian firms through COVID

Technology supported business resilience and continuity during COVID. More digitally advanced firms showed more resilience during the COVID crisis including few negative impacts on revenue, employment and profitability. Technology tools supported 3.2 million workers who would otherwise have been unable to perform their roles in compliance with social distancing rules.

Technology supported business resilience during COVID for **nearly 9 in 10 Australian firms** during COVID; with 13% of businesses saying technology tools were essential to continued operations.

- Several industries described digital technologies as either essential to business continuity or very important to business continuity. These included **financial services, education, public administration, and media and telecommunications**.
- In other industries, digital technologies were somewhat less important for business continuity during COVID. These included **agriculture and construction**.

More digitally advanced firms were more likely to be resilient during the COVID crisis. Firms with higher adoption of front office and back office digital technologies have stronger revenues, employment and profitability.

- More digitally advanced firms had more **resilient revenues** and were 16 percentage points more likely to have an increase in revenue and 6 percentage points less likely to experience a fall in revenue.
- More digitally advanced firms were more likely to **maintain employment** and were 15 percentage points more likely to have an increase in employment and 2 percentage points less

likely to experience a fall in employment.

- More digitally advanced firms had more **resilient profitability** and were 12 percentage points more likely to have an increase in profit and 2 percentage points less likely to experience a fall in profit.

There was a strong positive relationship between firms that saw technology as essential or very important for business continuity and firms that required workers to work remotely during COVID.

- Education, professional services, financial services and public administration were all industries that had high rates of remote work and in which technology played a very important business continuity role.

Technology tools supported 3.2 million workers who would otherwise have been unable to perform their roles in compliance with social distancing rules.

- Up to 4.7 million workers are in jobs which require working in close physical proximity or through frequent contact with the public (e.g. hospitality, arts, and many office and factory workers).
- Whilst 1.5 million of these workers lost their jobs during peak lockdown, the remaining **3.2 million workers were able to continue working by relying on technology tools**, which facilitated online commerce and virtual collaboration. **1.6 million of these workers may have been completely unable to work without the technology tools.**

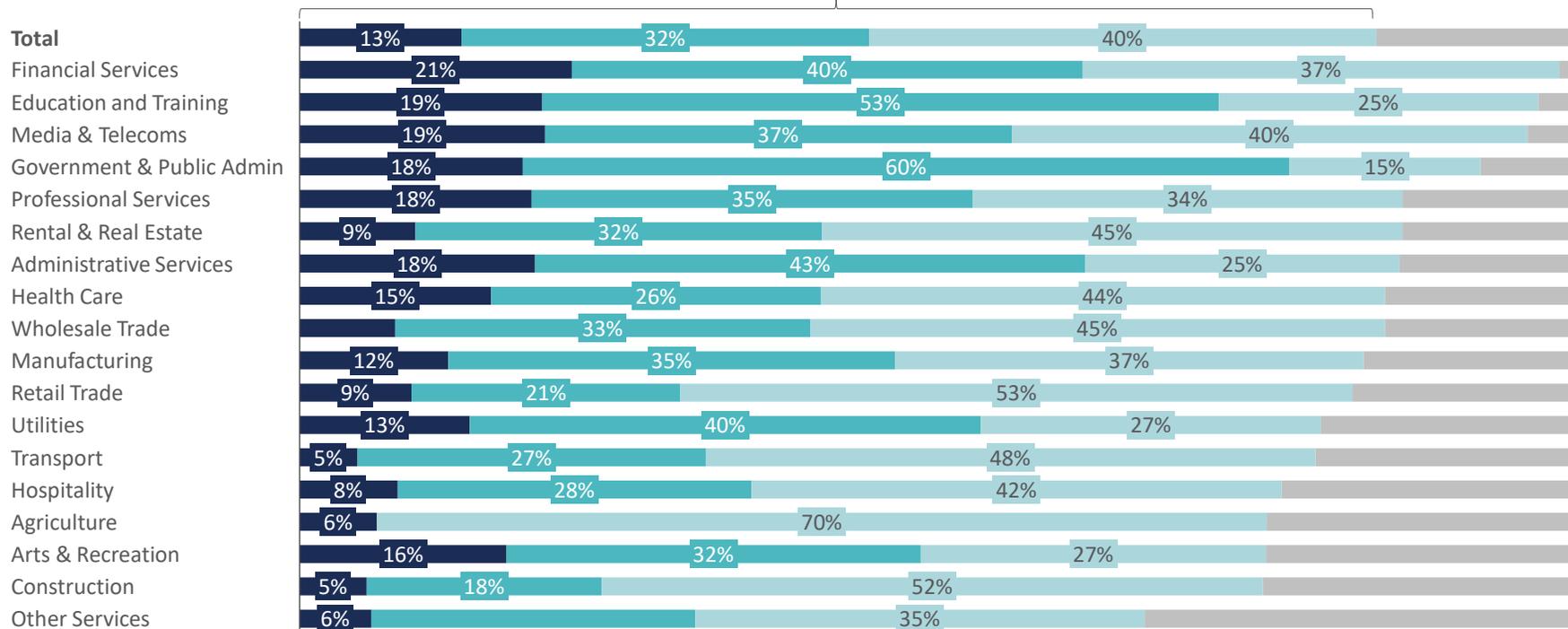
Technology tools played an important role in business continuity for nearly 9 in 10 Australian firms during COVID; with 13% of businesses saying technology tools were essential to continued operations

Extent to which technology tools supported business continuity through COVID

Essential Very important Important Not important

Share of firms by take-up of digital tools and industry, %

Nearly 9 in 10 firms found technology tools to be important



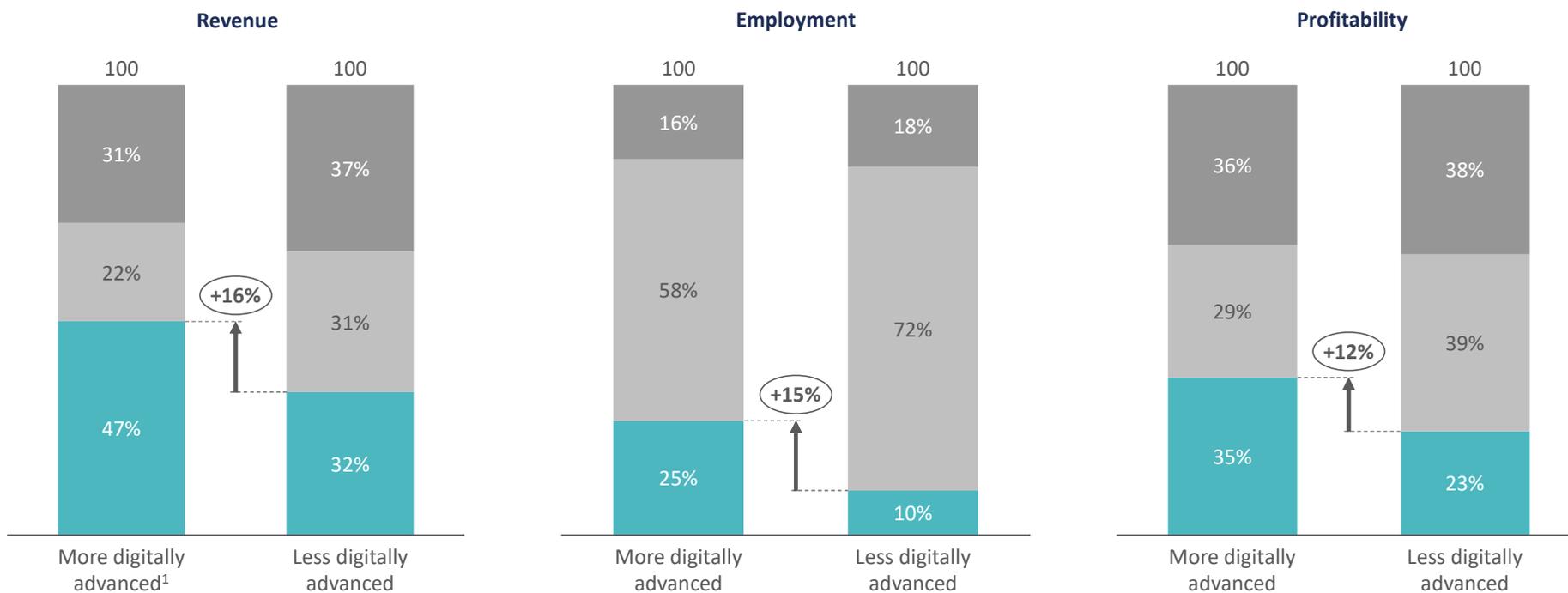
NOTE: Mining services firms reported a high reliance on technology, however, have been excluded from results due to small sample size.
Source: AlphaBeta digital performance database

Businesses that were more digitally advanced through COVID were also more likely to be resilient; with stronger revenue, employment and profitability

Change in business performance metrics

Share of firms by performance metric by digital capability, %

■ Increased since last year ■ Decreased since last year
■ Stayed the same since last year

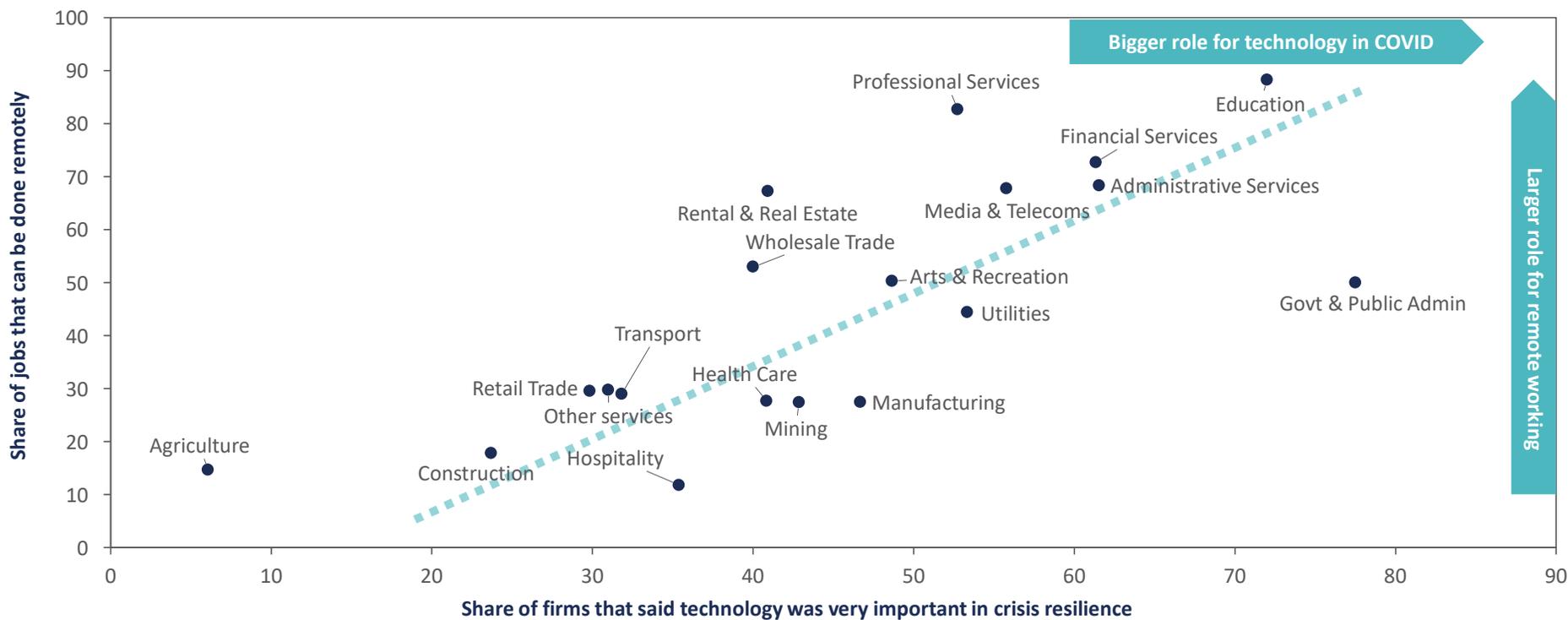


¹ More 'digitally advanced' firms are firms with higher adoption of front office and back office digital technologies
 Source: ABS 8167.0 Business Characteristics Survey, 2018-19

Technology tools were particularly important during COVID for industries with a high share of jobs that could be done remotely

Ability to work remotely and reliance on technology tools

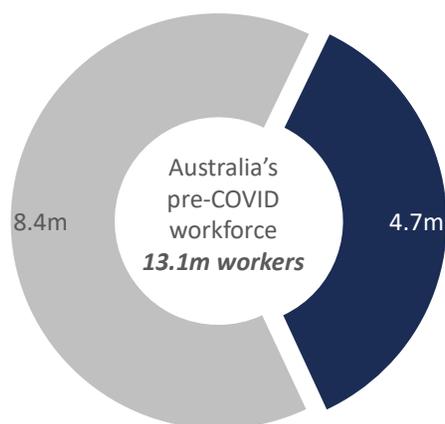
Share of businesses in industry (X-axis) that place a high importance on technology, Share of jobs in industry (Y-axis) that can be done remotely, %



3.2 million workers relied on new technology tools to continue their work, of which 1.6 million may not have been able to continue working during COVID in the absence of technology tools

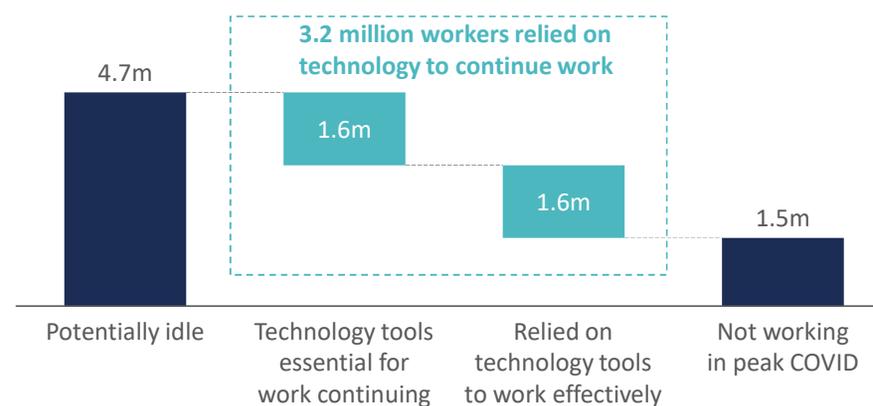
Impact of social distancing rules and technology on work

Number of workers, millions



A detailed occupation-level analysis was undertaken to understand which jobs can be done while maintaining social distancing practices:¹

- **Cannot work in compliance with social distancing:** Jobs which require working in close physical proximity or with constant public contact. Examples include: retail and hospitality workers, collaborative office workers, artists, some types of factory workers etc.
- **Other workers:** Jobs which can be done with less physical contact with others. Examples include: agricultural and mining workers, construction workers, some types of mining workers etc.²



- **Potentially idle:** Complying with social distancing requirements could have meant that up to 4.7m workers would have been unable to do their jobs.
- **Relied on technology to continue work:** However, the adoption of technology tools – including collaboration and e-commerce tools to maintain productivity and sales – enabled 3.2m of these workers to continue working through the COVID period. This includes 1.6m workers who may have otherwise been able to work at all.
- **Actually idle:** National data shows that at the peak of lockdown, 1.5m workers in vulnerable occupations were in fact unable to work. This is approximately one-third of the potentially displaced workforce².

¹ O*NET data lists US occupations and provides a score on the 'importance' and 'extent' of an activity or condition, such as physical proximity and constant public contact, to that occupation

² This includes workers that were classified as 'employed' but worked 0 hours in their main job, and were therefore supported by JobKeeper. Approx. 10% of these workers fall into 'other' and 90% fall into 'not working in peak COVID'

Source: O*NET 25.0 database; ABS 6291.0 Detailed Labour Force, Feb 2020; ABS 8501.0 Retail Trade data; AlphaBeta digital performance database

3

MANY COVID CHANGES WILL BE PERMANENT, BUT PRODUCTIVITY COULD BE UP TO 3 TIMES HIGHER IF **COMPLEMENTARY WORKPLACE PRACTICES** ARE ALSO INTRODUCED ALONG WITH NEW TECHNOLOGY

SUMMARY: Many COVID changes will be permanent, but productivity could be up to 3 times higher if complementary workplace practices are also introduced along with new technology

Many Australian businesses intend to continue to use new digital tools and practices after COVID has passed. However there is a recognition that these tools are not unambiguously positive and can have positive as well as negative effects on productivity and well-being. Many Australian businesses introduced new workplaces practices to ensure the greater use of digital tools has a positive impact on business and workers such as new initiatives to increase social connectivity, new management practices, training and workplace policies. Firms that introduced these types of policies had stronger productivity outcomes.

Many Australian businesses intend to continue to use the digital tools and practices they developed during COVID. **Videoconferencing** is expected to continue to be used more by 45 per cent of firms; **Filesharing** is expected to continue to be used more by 27% of Australian firms. **E-signatures** and other document management tools are expected to continue to be used more by 31% of Australian firms; **VPN & remote access** is expected to continue to be used more by 32% of Australian firms.

However many firms saw changes in productivity during COVID and not all were positive.

- Across all firms 25% of firms saw their productivity decrease (either slightly or significantly) and 25% saw their productivity increase (either slightly or significantly).
- Among more **digitally advanced firms, the productivity performance was better**: 25% of firms saw their productivity decrease (either slightly or significantly) and 37% saw their productivity increase (either slightly or significantly).

- Among firms where part of the workforce worked from home in COVID, the productivity performance was better, with 23% of firms seeing their productivity decrease (either slightly or significantly) and 41% saw their productivity increase (either slightly or significantly).

Many Australian business introduced **new workplaces practices** to ensure the greater use of digital tools has a **positive impact** on business and workers.

- 58% of Australian businesses introduced **policies for working hours**, 50% introduced **new initiatives to increase social connectivity**, 50% introduced **new initiatives to support physical or mental health**, 46% introduced additional **training support** for staff, 47% introduced **increased IT support** for staff, 43% introduced **additional IT investment**, 42% introduced **new management and reporting structures**, 36% introduced **additional staff pastoral care**.

The productivity performance of firms was stronger among those that introduced new systems and workplace practices to make the most of new working arrangements.

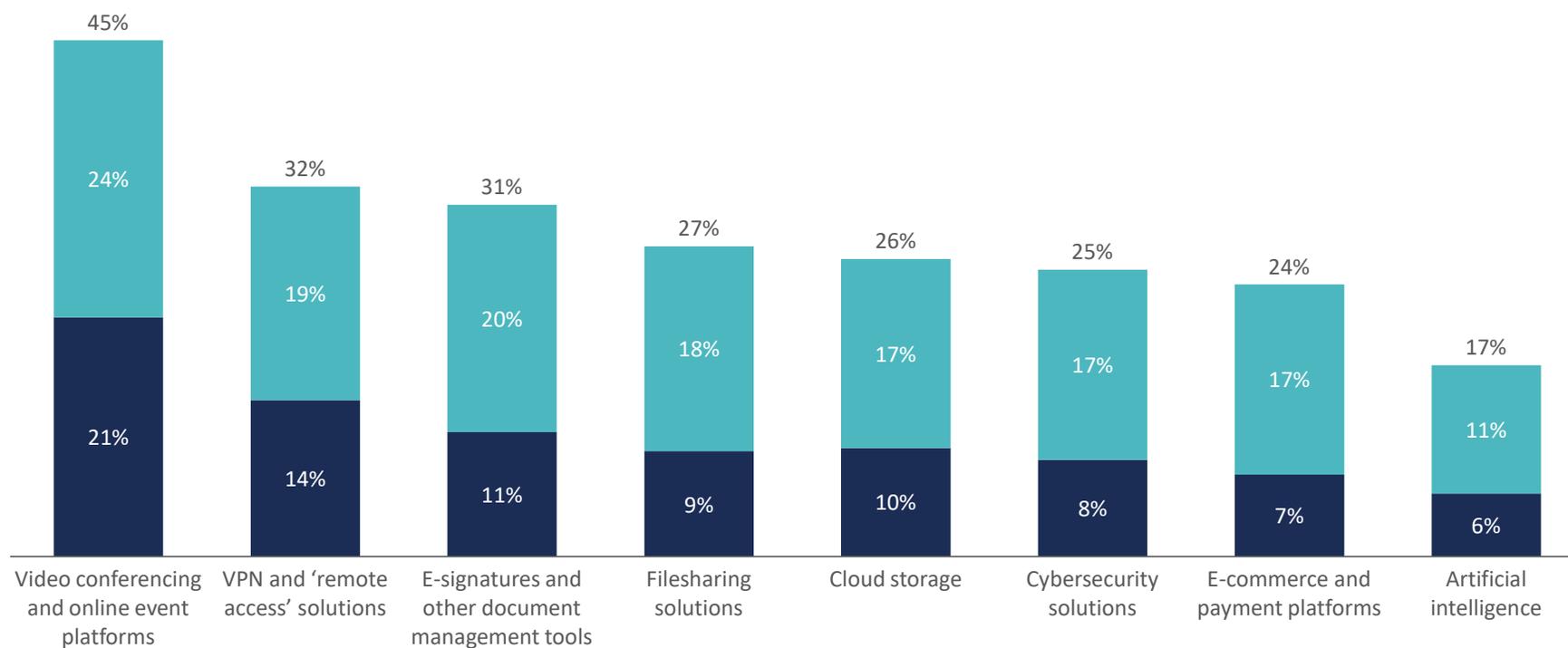
- Among firms that introduced new workplace practices, 37% saw their productivity increase (either slightly or significantly), with 26% of firms seeing their productivity decrease (either slightly or significantly).
- Among firms that did not introduce new workplace practices, only 13% saw their productivity increase (either slightly or significantly), with 25% of firms seeing their productivity decrease (either slightly or significantly).

Much of the increase in digital adoption across technologies is likely to be permanent – with firms expressing a desire for continued use above pre-COVID levels

Intention to increase use of digital tools post-COVID

■ 'A lot more' than pre-COVID ■ 'Slightly more' than pre-COVID

Share of firms by intent to increase use and by digital tools, %

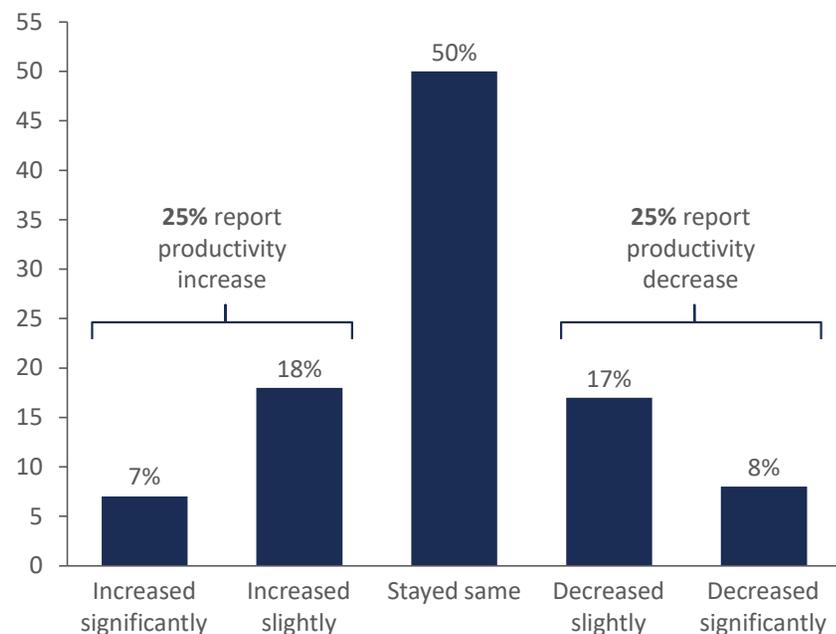


Productivity outcomes varied considerably with 25% of firms reporting productivity increases and 25% reporting productivity falls

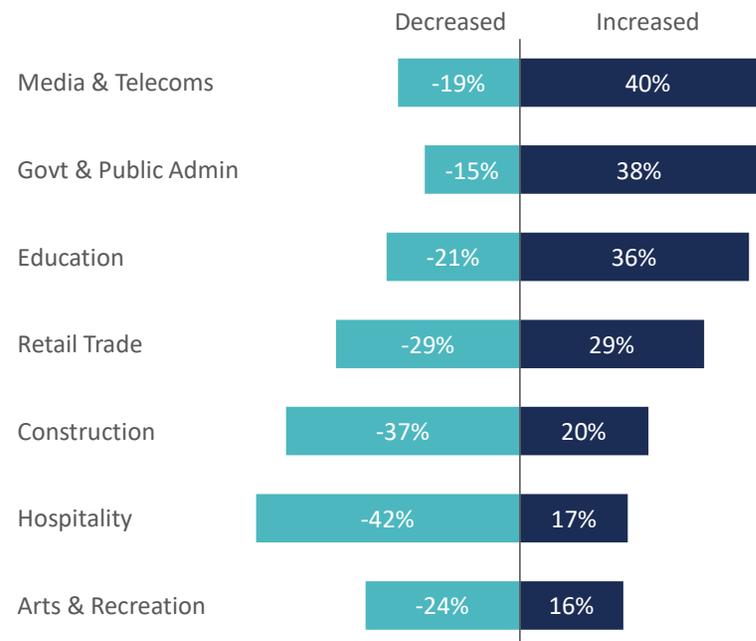
Change in worker productivity during COVID by industry

Share of workers that experienced productivity change (left chart: all industries, right chart: selected industries), %

Productivity change of all industries during COVID



Productivity change of selected industries during COVID¹

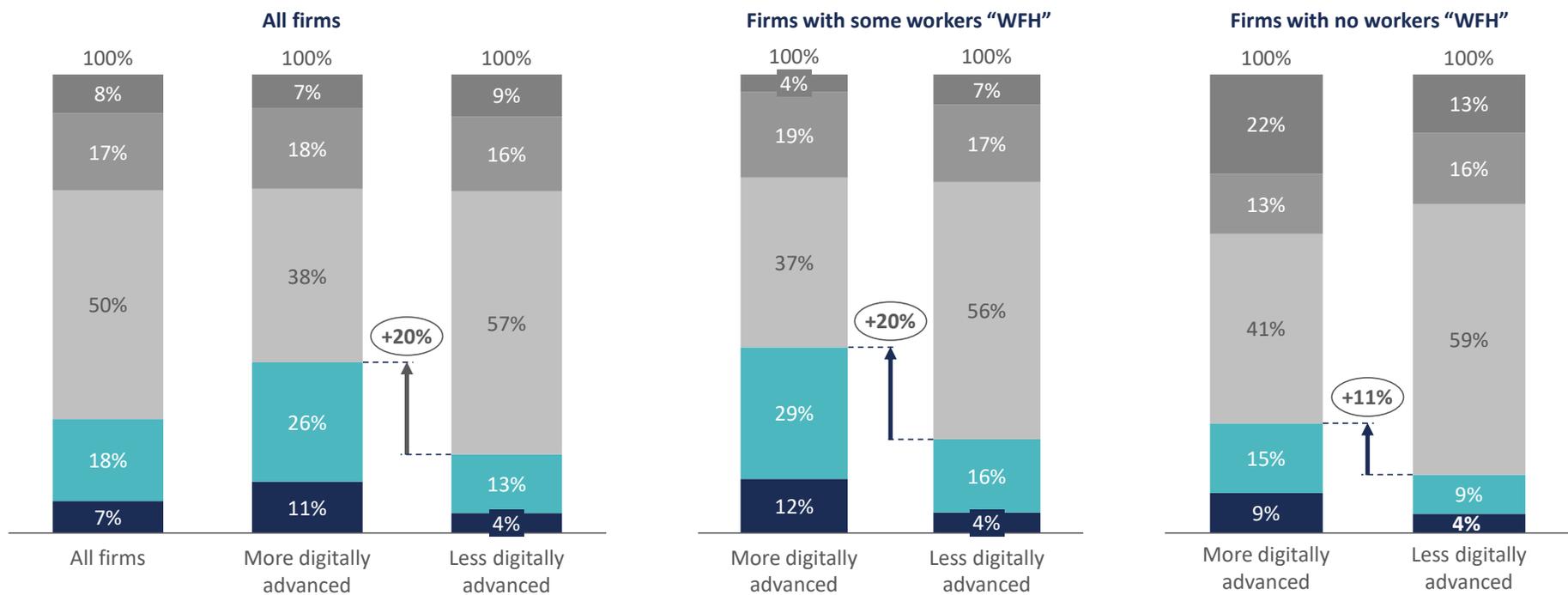


¹ In the industry-segmented panel, the shares of increases and decreases are the sum of the “slightly” and “significantly” categories
Source: AlphaBeta digital performance database

Productivity outcomes during COVID were better for more digitally advanced firms, especially those that had workers working from home

Change in worker productivity during COVID by digital and remote work habits

Share of firms by remote work status ("WFH" = Work From Home) and by digital capability¹, %



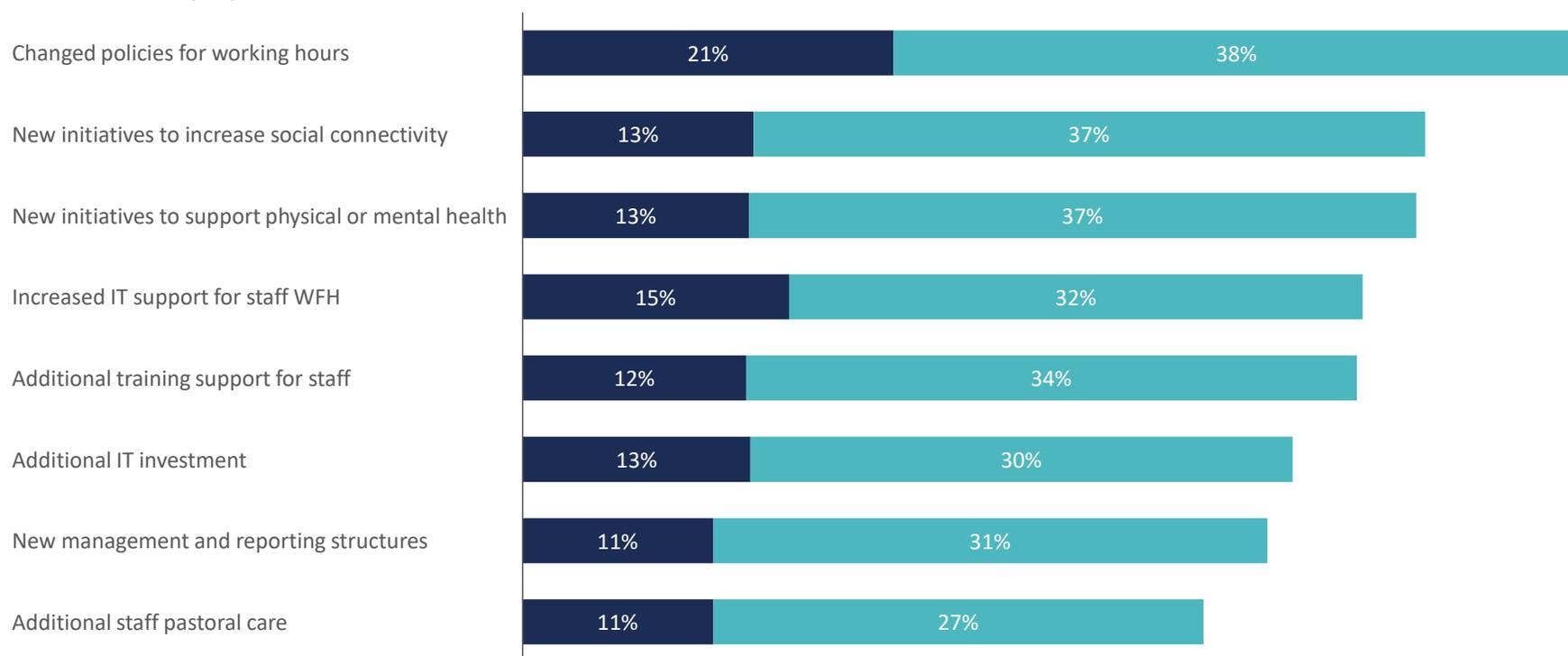
¹ "More digitally advanced" firms are firms with higher adoption of technology tools for front office and back office processes. See page 6 for list of relevant processes. Source: AlphaBeta digital performance database

Many Australian business made changes to ensure the greater use of digital tools has a positive impact on business and workers

Implementation of new workplace practice measures in response to COVID-19

■ Introduced significant changes during COVID ■ Introduced small changes during COVID

Share of all firms by implemented measure, %

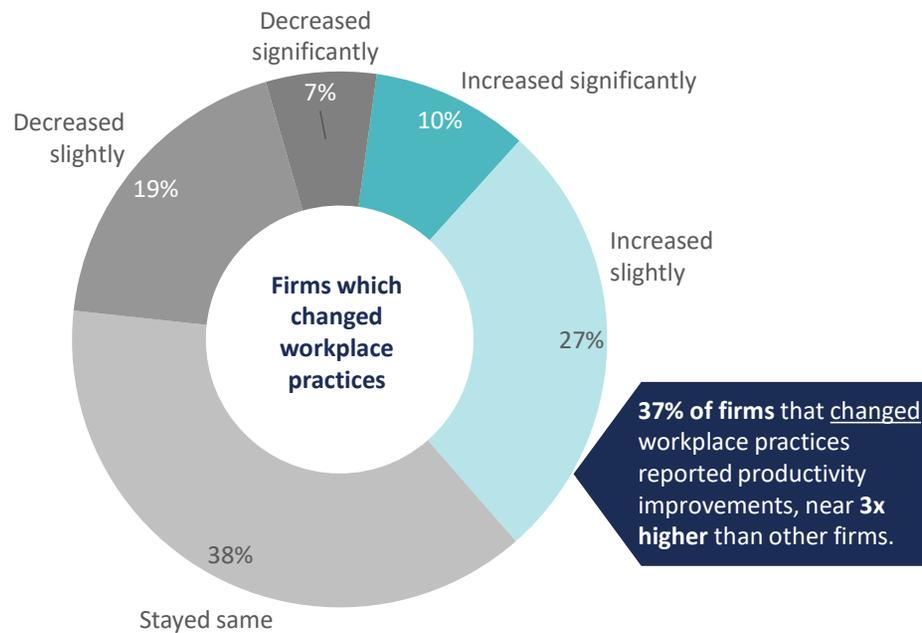


Productivity outcomes were almost three times as strong in businesses that changed their workplace practices

Change in productivity during COVID by adoption of new workplace practices

Share of firms that experienced a change in productivity, %

Productivity of firms that changed workplace practices¹



Productivity of firms that did not change workplace practices



¹ Businesses that changed workplace practices are those that introduced more small changes or significant changes
 Source: AlphaBeta digital performance database

4

APPENDIX

Data Sources (I)

Source	Description	Key facts
ABS 8167.0 Business Characteristics Survey, 2010-11 to 2018-19	The ABS' 'Business Characteristics Survey' is a longstanding survey of Australian firms' digital and innovation habits.	<ul style="list-style-type: none"> 7,000 observations (excluding Public Administration and Safety and Education), stratified by industry division and business size, on the use of information technology by businesses Fields include front-office (web presence, social media presence, placing/receiving orders), back-office (accounting, payroll, invoicing, marketing, stock control, production), and business performance (revenue, profitability, employment, productivity, IT expenditure)
ABS 6291.0 Detailed Labour Force, Quarterly, May 2020	The ABS' quarterly labour force data is the most credible estimate of employment patterns by industry and region.	<ul style="list-style-type: none"> Observations of the entire labour force as reported by businesses It provides estimates of employment, unemployment, underemployment and labour force participation. This is stratified by demographics, industry divisions and subdivision, occupations and sub-occupations, as well as geographies and hours worked. However, it excludes Defence and overseas residents in Australia
ABS 8501.0 Retail Trade, July 2020	The ABS' Retail trade dataset provides monthly updates to the performance of the retail sector, including online sales.	<ul style="list-style-type: none"> Over 3,000 observations with approximately 500 from larger businesses Presents estimates of the value of turnover of "retail trade" for Australian businesses classified by industry, and by state and territory Large businesses contribute approximately 70% to the total estimate Turnover includes retail and wholesale sales within the 'retail trade' industry; takings from repairs, meals and hiring of goods; commissions from agency activities etc.

Data Sources (II)

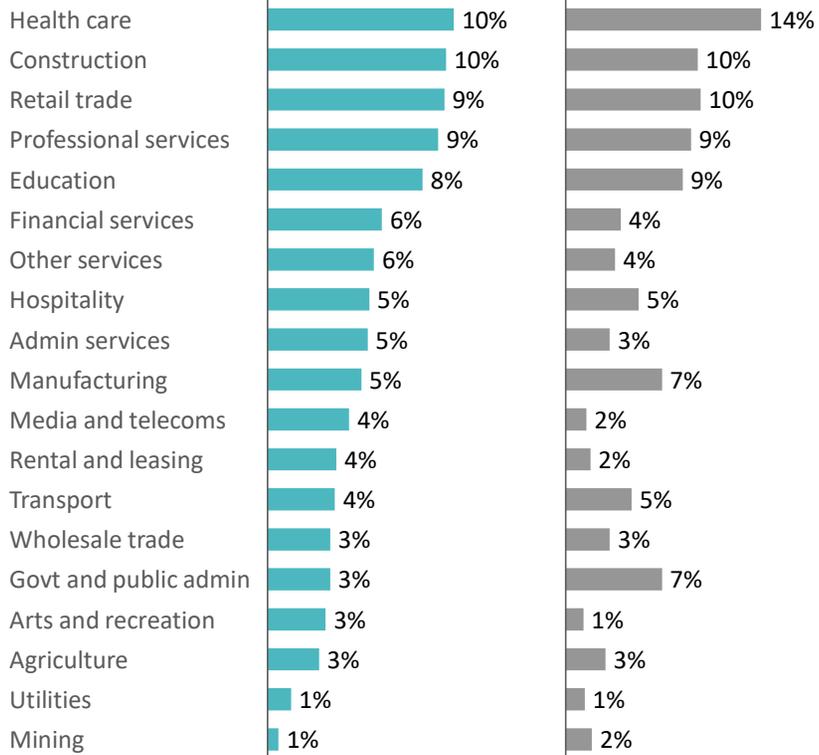
Source	Description	Key facts
O*NET 25.0 Database – Work Activities and Work Context	The O*NET database provides the most detailed description of US occupational data, and is frequently updated as roles and skills within these roles change.	<ul style="list-style-type: none"> Database includes information on skills, abilities, knowledge, work activities, and interests. Almost 1,000 occupations are captured in this database Occupations are also rated against these descriptors by key metrics: importance, the level (degree to which descriptor is required), relevance, and frequency (how often is the descriptor used), extent (degree to which item affects nature of occupation)
University of Chicago, Becker Friedman Institute – “How many jobs can be done from home?”	The University of Chicago released a frequently cited paper that robustly estimates the share of US occupations that would be unable to work from home.	<ul style="list-style-type: none"> Customises the O*NET US occupations data to classify the feasibility of working from home It uses the work context survey (the physical and social factors that influence the nature of work), and the generalised work activities (job behaviours e.g. physical activity) questionnaires to generate a list of conditions to be met. If these conditions are not met, the occupation is classified as ‘unable to be done remotely’
AlphaBeta digital performance database	The AlphaBeta digital performance database is comprised of a recent survey of Australian businesses on their use of technology, and the impacts this has had on workplace practices and employees.	<ul style="list-style-type: none"> Observations of over 1,200 businesses. The sample is representative of national industry and employment size proportions. It is stratified by industry, employment size, geography, and whether the business is digitally advanced Survey was conducted over a week between September 10th and September 17th, 2020. It provides information on the uptake of digital technologies through COVID (videoconferencing, e-signatures and document sharing, filesharing, remote access), the expected use of these post-COVID, and the effect this has had on key performance metrics listed in the ABS Business Characteristics Survey e.g. revenue, employment and productivity

The AlphaBeta firm performance database includes 1,206 firms across the economy

Industry distribution

■ Sample ■ Population

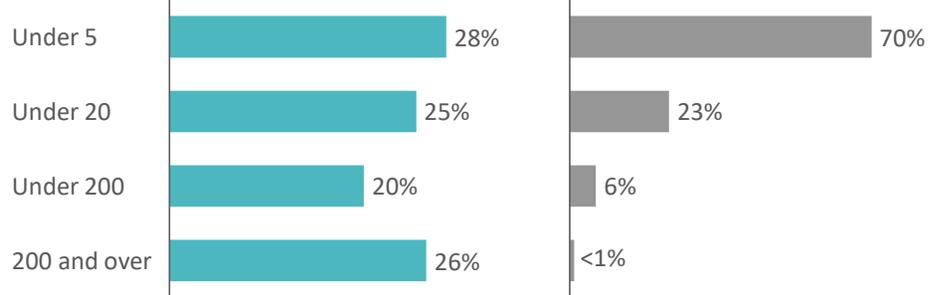
Proportion of respondents by industry, %



Employment size

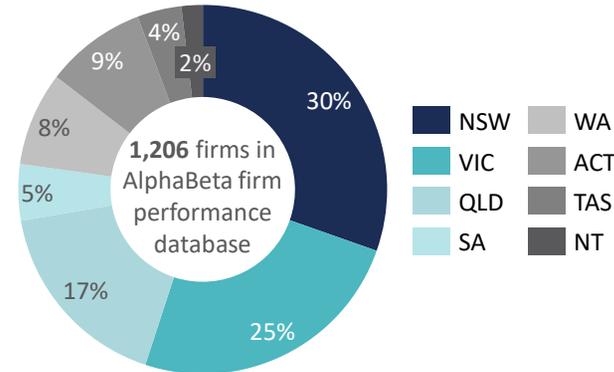
■ Sample ■ Population

Proportion of respondents by employment size, %



Geography

Proportion of respondents by State and Territory, %



Methodology

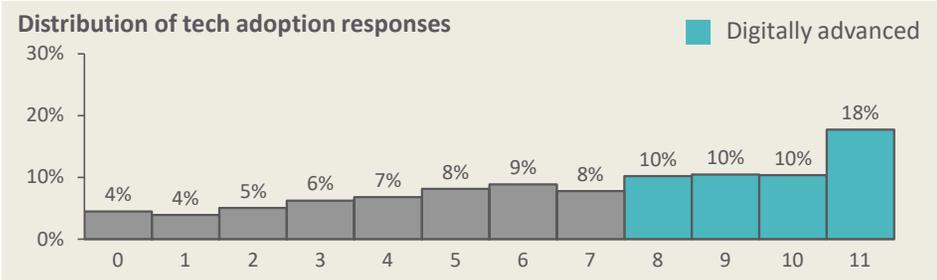
Calculating the years of acceleration in the uptake of digital tools

Section 1 estimates the rate of acceleration in the adoption of digital tools based on historical data from the Business Characteristics Survey (“BCS”) and updated data from the AlphaBeta firm performance database. The BCS provides a detailed picture of how Australian firms have been implementing technology over the past 10 years. The firm performance database provided updated insights from data collected in September 2020 from a nationally representative sample of 1,206 businesses.

The rate of growth of adoption of digital tools was observed from 2010 to the latest available data in 2018. This was extrapolated to 2020 and compared to the latest firm adoption results to estimate the ‘overperformance’ of Australian firms during COVID. This level of overperformance was then expressed in terms of the number of years of ‘normal’ growth that it equates to.

Determining which businesses were ‘digitally advanced’

Section 2 observes differences in performance based on whether firms were “digitally advanced”. Firms which had a high number of discrete, newly adopted front and back-office technologies were classified as “digitally advanced”. The below chart shows the distribution of businesses by the count of observed processes (e.g. sales, payroll etc.) for which they had newly implemented digital tools.



1 This accounts for businesses that were officially deemed essential by the Australian government.

Determining how many workers relied on technology tools during COVID-19

Section 2 also estimates the number of workers who relied on technology tools during COVID-19 to continue working. This was estimated as the difference between the number of workers who potentially would have been unable to work in compliance with social distancing rules during peak lockdown, and the actual number of idle workers observed in national data.

Step 1: How many workers cannot comply with social distancing rules?

This was calculated using a detailed database describing occupations across the economy. Occupations were scored against two descriptors: firstly, does the occupation involve working directly with the public; secondly, does the occupation usually occur in workplaces which require close physical proximity to others.

If occupations scored highly against either of these descriptors, then they were flagged as vulnerable to social distancing rules. Occupations which were deemed by the Australian government to be ‘essential’ and therefore exempt to social distancing rules were also excluded from the calculation.

Step 2: How many workers were able to avoid being idle during COVID lockdowns?

The number of workers that were able to continue working with the aid of technology was estimated based on surveys and national economic data. Survey data from the AlphaBeta firm performance database informed the estimate that 1.6 million workers may have been furloughed but for technology tools, based on the share of firms which identified technology as “essential” to their continued operation. Analysis of national economic data revealed that a further 1.6 million workers who were vulnerable to lockdowns were able to avoid being idle (either unemployed or technically employed but on 0 hours). These remaining workers who retained their jobs, which depend on working directly with the public or in close proximity to others despite being in lockdown, were estimated to be reliant on digital collaboration and other technology tools.

αlphaβeta
strategy x economics