From little things big things grow

How digital connectivity is helping Australian small businesses thrive
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Executive summary

Extending the benefits of digital connectivity to all of Australia’s 2.23 million small and medium enterprises (SMEs) should be a national priority. While high-speed Internet is now available to half the country via the National Broadband Network (NBN), and many SMEs use apps to streamline their operations, too many small businesses are still missing out. Thirty percent of businesses complete business activity statements (BAS) on paper according to the ATO. Business owners often work long nights and take few holidays because of the high number of manual, paper-based tasks they need to perform.

This report examines how changes in digital connectivity affect Australian SMEs. To understand the impact at the macro level, we examine the effect of faster high-speed broadband on SMEs. To understand it at the micro level, we analyse the take-up and impact of cloud-based apps on individual businesses.

**Improved digital connectivity is driving business growth**

The findings suggest that access to faster broadband and cloud-based apps support business growth and employment. Among businesses on Xero, those in mature NBN regions grew employment by one-third more (2.6 percentage points) than businesses in non-NBN regions in 2017. Businesses that subscribed to Xero in mature NBN regions grew revenue by almost two-thirds more (3.2 percentage points) than peers in non-NBN regions. Non-NBN regions refer to areas where the NBN had not rolled out in 2016, while mature NBN areas refer to regions where the NBN had been available for an extended time and/or was available to a high percentage of premises.

A major change in activity for SMEs has been the rise of cloud-based applications, or apps, which have enabled SMEs to improve their performance. Cloud-based apps store their software and customer data on secure, enterprise-grade remote servers instead of on a business’s premises. This gives businesses the freedom to access their information, updated in real time, regardless of whether they log on from home, work or via their phone. Perhaps most importantly, apps are providing large-enterprise technology such as machine learning to SMEs, and letting small businesses automate microprocesses.

The report also finds a correlation between integrated app use and better business outcomes for SMEs. Although there are many factors that affect revenue growth and increased employment, firms that connect apps to Xero have higher revenue growth than firms with no connected apps. Overall in the 2017-18 financial year, firms on Xero using apps grew revenue by 5.5 percent. That compares with revenue growth of just 3.6 percent for firms on Xero with no connected apps.

**Extending the benefits of digital to more SMEs**

Improvements in the productivity and performance of SMEs are essential to the economy. The 2.23m SMEs in Australia make up 99.8 percent of all businesses. SMEs employ 68 percent of Australians, or 10.9 million people.

Critically, many SMEs are not fully participating in the digital revolution. While the NBN is now available to half the country, two-thirds of SMEs were not yet connected to high-speed broadband, based on the last count by the Australian Bureau of Statistics in 2015-16. Approximately 30 percent of businesses still lodge their BAS statements in paper form, while 14 percent of small businesses use no IT in their accounting functions. Even among businesses that subscribe to Xero, many have yet to connect apps to Xero.

Helping these businesses reap the benefits of digital transition requires overcoming a set of barriers. These include lack of awareness, lack of time to investigate options, and fear of change. Businesses, governments, IT suppliers, and financial partners and advisers can help overcome these challenges and enable more SMEs to access the benefits of digital activity. We propose a plan to extend digital benefits more broadly in section 3 of this report.
Section 1: Digital connectivity at the macro level

Australian SMEs have benefited from better access to broadband in the last decade. This is driving better business outcomes as digital connectivity makes it easier for businesses to access applications and software that improve productivity.

Impact of the NBN on small and medium enterprises (SMEs)

Australia is halfway through the rollout of the NBN. It was established in 2009 and is currently rolling out high-speed broadband access, using a mix of technologies, to households and businesses. This is a shift in type of digital connectivity Australian SMEs can access: in 2009-10, prior to the rollout of the NBN, only 8.7 percent of small businesses and 10.6 percent of medium businesses had a high-speed broadband connection.

The rollout of the NBN is one way to robustly observe the effect of improved digital connectivity on businesses. We compared jobs and revenue growth in SMEs on Xero in mature NBN areas with SMEs on Xero in non-NBN areas.

We did this by linking anonymised Xero Small Business Insights (SBI) data with an NBN rollout index. NBN rollout data was provided by NBN Co. at the ABS mesh-block level. A rollout index was created for each postcode based on both rollout duration and rollout coverage. Postcodes were classified into high and low rollout. Each postcode region was then controlled for significant economic factors, including average population age, average income, and proportion of people employed in industries. Separately, a group of anonymous businesses on Xero was identified for the mature NBN and non-NBN areas. The middle 90 percentile was selected for a better representation of the sample when calculating averages.

We found there was a positive relationship between jobs and revenue growth for businesses on Xero in mature NBN areas compared with businesses on Xero in non-NBN regions. Those businesses in mature NBN regions grew employment by 2.6 percentage points more than businesses in non-NBN regions in 2017 (see figure 1).

Among businesses on Xero, those in mature NBN regions grew employment by one-third more than those in non-NBN regions in 2017

Method

- Significance of the NBN effect: Highly significant at p<0.01
- 95% confidence interval is [2.8, 3.6]
- n=602 unique regions
- Controls: Income, education, industry, business growth, migration

Figure 1.
Businesses on Xero in mature NBN areas also saw greater increases in revenue. They grew revenue by 3.2 percentage points more than Xero subscribers in non-NBN regions in 2017 (see figure 2).

The benefits of improved connectivity were affirmed in case study interviews with businesses in regional and industrial areas, which reported having dial-up access or unreliable connections prior to the NBN. This limited their business productivity, for example, by making it time-consuming or impractical to use simple applications to do things like send email, lodge tax or complete financial transactions online.

Business profile 1: Red Brick Road Cider, Launceston
Tradition and innovation go hand in hand at Red Brick Road Cider. A fast-growing premium cider maker in North Eastern Tasmania employing traditional cider production techniques, the business is rapidly expanding and embracing digital connectivity.

Since 2012, Red Brick Road has produced cider as well as operating a bar and cellar door in Launceston, and pop-up stalls at events. They’ll soon be opening a second site in Deloraine, where they’ll manufacture and sell cider. This site will house a distillery, and be the wholesale and logistics hub for Red Brick’s burgeoning online business.

Access to the NBN, which rolled out early in Tasmania, has let co-founder, Karina Dambergs, make better use of digital applications in the business. All of her business sites are now on the NBN. But before the NBN rollout, the main business site had dial-up access only. The slow speeds barely supported even basic online business functions, such as lodging tax online and keeping production records. This led her to revert to paper-based systems in some cases, despite ‘hating paper.’ Now, she can not only do transactions online, she can run an online store and a PoS system at her main site.

Switching to digital invoicing has been important to saving money and hassle in her business. “Before, we’d neglect to invoice, as we couldn’t keep track of where we were up to. It had a big impact on our cash flow.”

Other benefits included less paperwork, reducing the time to run payroll every fortnight by two hours, and saving between a half a day and a whole day a month on invoicing. Karina also has peace of mind now that payroll runs are accurate and compliant. The biggest benefit, though, is getting time back to spend on other parts of her business, including launching the distillery and ramping up online sales.
Section 2: Digital connectivity at the micro level

High-speed broadband is only part of the story of SMEs’ digital transformation in the last decade.

The impact of cloud-based apps
Australian SMEs that use cloud-based apps and software to streamline tasks appear to have better business outcomes. To assess the impact, we analysed public data; anonymised, aggregated data on Xero subscribers’ app use and business performance; and conducted case-study interviews.

In the last decade, Australian businesses increased their expenditure on information and communications technology (ICT) hardware and software by 67 percent (see figure 3), and shifted much of their spending from hardware to the cloud.4

Australian businesses have become far more digitally connected in the last decade as investment in software and hardware increased by 67%

Australian business investment in ICT, 2007-2017
(Index = 2007)

Figure 3.

*Source: ABS 5204
The digitisation of Australian SMEs has been driven by the automation of accounting, invoicing and human resources processes. Australian Bureau of Statistics (ABS) data shows that 85 percent of nano firms (that is, firms with 0 to 4 workers), 86 percent of small firms (5 to 19 workers) and 95 percent of medium firms (20 to 199 workers) report using IT in accounting processes (see figure 4). Despite many people associating digitisation with the rise of social media and websites, SMEs are far less likely to use digital for marketing than for financial processes.

A growing area of business digital connectivity is app adoption. Business apps are increasingly available to download from websites and via app marketplaces, such as the Apple App Store, Xero App Marketplace, Google’s G-Suite Marketplace and Salesforce AppExchange. Apps let SMEs automate a range of manual, often paper-based business processes.

App adoption improves SME productivity because apps allow businesses to adopt micro-improvements that automate time-consuming processes. As figure 5 shows, the typical business with staff needs to conduct 50 to 70 different activities to serve their customers and manage their affairs.
To better understand which parts of SMEs’ businesses are being transformed by apps, we looked at apps available in the Xero app marketplace. We mapped the apps supplied and subscribed to, to a well established framework describing business activities, known as the business value chain (see figure 5). Business value chain analysis was first developed and described by Michael Porter in 1985 in his book, *Competitive Advantage*.

Based on this analysis, we found that SMEs are using apps from the Xero marketplace to automate several key functions in their business. The functions that apps are supplied for and subscribed to are finance (38 percent of usage) marketing, sales and customer management (26 percent of usage), strategic management (21 percent) and HR (8 percent). Procurement, logistics and distribution (3 percent) and technology (5 percent) also used apps, particularly for functions such as inventory management or ordering and data management.

An employer typically has to do 50-70 different tasks just to run the business, creating a heavy burden for SMEs

### The typical business value chain

#### Supporting activities

<table>
<thead>
<tr>
<th>Finance, administration, legal and management</th>
<th>Accounting, clerical work, managing contracts and documents, managing finances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate, internal communications and relations</td>
<td>Internal communications, corporate communications, investor communications, government relations</td>
</tr>
<tr>
<td>Property and facilities management</td>
<td>Facilities maintenance, asset management, security, cleaning</td>
</tr>
<tr>
<td>Human resources management</td>
<td>Rostering, pay roll, compliance, recruitment, retention, dismissal</td>
</tr>
<tr>
<td>Technology and process development</td>
<td>Managing and processing data, supporting ICT, internet use, developing software</td>
</tr>
</tbody>
</table>

#### Core activities

<table>
<thead>
<tr>
<th>Procurement, logistics &amp; distribution</th>
<th>Operations</th>
<th>Product or service development</th>
<th>Marketing, sales &amp; customer accounts</th>
<th>Customer &amp; after sales services</th>
<th>Strategic management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples</td>
<td>Examples</td>
<td>Examples</td>
<td>Examples</td>
<td>Examples</td>
<td>Examples</td>
</tr>
<tr>
<td>Buying/ordering</td>
<td>Producing goods or providing services</td>
<td>Analysing market</td>
<td>Advertising and marketing</td>
<td>Call center services</td>
<td>Business intelligence and strategic analysis</td>
</tr>
<tr>
<td>Inventory management</td>
<td>Managing production or services</td>
<td>Designing and developing products and services</td>
<td>Managing accounts</td>
<td>Installing products</td>
<td>Identify investment and acquisition opportunities</td>
</tr>
<tr>
<td>Transporting</td>
<td>Ensuring quality assurance</td>
<td>Testing products or services</td>
<td>Billing, Invoicing</td>
<td>Maintaining or repairing products</td>
<td></td>
</tr>
<tr>
<td>Warehousing</td>
<td></td>
<td></td>
<td>Scheduling jobs/ appts</td>
<td>Providing technical support</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Michael Porter, BLS, AlphaBeta analysis
Critically, this analysis shows that the types of processes being automated by SMEs are not limited to the back office. Rather, apps are genuinely transforming the way SMEs work, with SMEs more likely to use apps in their core business than back office functions. Half of all app usage is for core functions (the bottom row of the business value chain) in figure 5, and half for supporting functions. Sixty-three percent of apps supplied are for core business functions.

Within these functions, 76 percent of app use relates to the automation of six business activities (see figure 6). The top six business activities apps are used within are:

- clerical work (e.g., processing expenses)
- undertaking business intelligence or strategic analysis
- job scheduling and invoicing
- selling via point-of-sale (PoS) or payments technologies
- managing customer accounts and relations
- staff rostering and time tracking

*Source: AlphaBeta analysis of Xero SBI data*
Section 3: Uptake of apps varies by industry

Although app subscriptions are concentrated amongst six activities in SMEs, the patterns of adopting these apps vary considerably by industry. Apps used for clerical work (eg, expenses) and business intelligence apps are used by industries across the board, often on the recommendation of an accountant or bookkeeper. However, the low cost of app development has allowed for new, niche software specialisations to emerge that target particular industries.

App specialisation targets pain points which are common to a set of businesses (see figure 8). For example, key pain points for trade and construction businesses are having a field-based workforce that needs remote coordination and supervision, having a high-volume of client jobs to schedule, perform and invoice, and for some trades such as electricians, needing to assure the quality, safety and compliance of work. Therefore, the top functions that trade and construction businesses automate are job scheduling, invoicing, quoting and compliance processing, using apps such as ServiceM8 and Tradify.

By contrast, retail and hospitality SMEs have large casual workforces and a high volume of customer transactions to process. They use apps to optimise staff rostering and tracking and to automate payroll runs, point-of-sale (PoS), and inventory management.
## Apps connected to Xero are helping industries address longstanding inefficiencies or pain points

<table>
<thead>
<tr>
<th>Business pain points / business needs</th>
<th>Trade &amp; construction</th>
<th>Hospitality</th>
<th>Retail</th>
<th>Accounting &amp; bookkeeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mobile workforce that needs remote coordination and supervision</td>
<td>• Large casual workforce with variable hours to roster and pay</td>
<td>• Large casual workforce with variable hours</td>
<td>• Need to win and maintain roster of stable clients</td>
<td></td>
</tr>
<tr>
<td>• High volume of client jobs to schedule, perform and invoice</td>
<td>• Rostering must comply with regulation eg, RSA, mandatory training</td>
<td>• High volume transactions</td>
<td>• Need to comply with laws and professional requirements</td>
<td></td>
</tr>
<tr>
<td>• Essential to assure quality, safety and compliance of work</td>
<td>• High volume of customer transactions to process</td>
<td>• Margins often low</td>
<td>• Business models evolving, eg, fixed fee rather than time billing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Optimising logistics (eg, inventory and shipping) crucial</td>
<td>• Manual, routine tasks being automated with more time devoted to strategic, interactive, analytical and creative tasks</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• May have multiple sites or sales channels</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Need visibility on daily performance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### What do they use apps to do

<table>
<thead>
<tr>
<th></th>
<th>Trade &amp; construction</th>
<th>Hospitality</th>
<th>Retail</th>
<th>Accounting &amp; bookkeeping</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Job scheduling, quoting, invoicing and compliance</td>
<td>2. Sales, PoS and payments</td>
<td>2. Staff rostering and time tracking</td>
<td>2. Business intelligence</td>
<td></td>
</tr>
</tbody>
</table>

### Example apps

<table>
<thead>
<tr>
<th></th>
<th>Trade &amp; construction</th>
<th>Hospitality</th>
<th>Retail</th>
<th>Accounting &amp; bookkeeping</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TRADIFY</td>
<td>DEPUTY</td>
<td>vend</td>
<td>spotlight reporting</td>
</tr>
<tr>
<td></td>
<td>serviceM8</td>
<td>Square</td>
<td>shopify</td>
<td>Fathom</td>
</tr>
<tr>
<td></td>
<td>ReceiptBank®</td>
<td>kounta</td>
<td>Square</td>
<td>FUTRLI</td>
</tr>
<tr>
<td></td>
<td>TANDA</td>
<td>DEPUTY</td>
<td>ReceiptBank®</td>
<td>ReceiptBank®</td>
</tr>
<tr>
<td></td>
<td>Hubdoc®</td>
<td>ReceiptBank®</td>
<td>ReceiptBank®</td>
<td>PRACTICE Ignition</td>
</tr>
<tr>
<td></td>
<td>WorkflowMAX</td>
<td>Hubdoc®</td>
<td>Hubdoc®</td>
<td></td>
</tr>
</tbody>
</table>
The intensity of app use varies by characteristics such as industry, business size and location. While Xero subscribers in all industries use apps, the industries whose app use was among the highest included wholesale trade, retail trade, and hospitality (see figure 9). These industries all had app adoption rates of around 40 percent. They were followed by manufacturing (38 percent), information, media and telecommunications (37 percent), professional, scientific and technical services (35 percent), and education and training (35 percent).

*Source: AlphaBeta analysis of Xero SBI data.*

**Figure 9.**

The wholesale trade, retail trade, manufacturing and hospitality industries are among the biggest users of apps

% of SMEs using connected apps vs not using apps, by industry

July 2018 (% total SMEs in industry)
The intensity of app usage also varies by business size. While only 20 percent of nano businesses (under $100,000 in revenue) subscribe to apps, 44 percent of large businesses (greater than $2 million in revenue) subscribe to them (see figure 10).

Previous waves of digital adoption have seen strong digital divides emerge between regional and metropolitan users. However, there is only a small gap between metropolitan and regional Xero subscribers as far as app use, with 34 percent of metropolitan businesses on Xero using apps, versus 31 percent of regional Xero businesses. The lack of a clear digital divide may be due to improved digital connectivity and bandwidth (both mobile and fixed) in the last decade in regional areas of Australia, and to the location-agnostic nature of cloud-based solutions accessed via mobile devices. It may also be helped by the presence of local accountants and bookkeepers in regional areas who can help their clients make the shift to cloud-based services.

Figure 10.

**Bigger businesses are more likely to use apps than small businesses**

### Proportion of businesses using apps

% of businesses using apps, broken down by businesses’ revenue, July 2018

<table>
<thead>
<tr>
<th>Annual business revenue</th>
<th>Proportion of businesses using apps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nano &lt;$100k</td>
<td>20%</td>
</tr>
<tr>
<td>Small $100k - $499k</td>
<td>25%</td>
</tr>
<tr>
<td>Medium $500k - $1.99m</td>
<td>35%</td>
</tr>
<tr>
<td>Large $2m+</td>
<td>44%</td>
</tr>
</tbody>
</table>

*Source: AlphaBeta analysis of Xero SBI data

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9 Xero Small Business Insights data analysed by AlphaBeta
Benefits of connectivity
The digital activity of SMEs has grown rapidly in Australia in the last decade. Increased access to infrastructure, lower prices, greater choice, and innovation and specialisation in the application market are helping SMEs access technologies and functionality previously beyond their reach.

Analysis undertaken for this report shows there is a strong relationship between connected app use and better business performance. Our analysis of Xero Small Business Insights data found that it is faster-growing businesses that are more likely to use apps. When we compared firms across four revenue size categories, we found in each category that businesses with higher revenue were more likely to use apps (see figure 11). The gap in revenue growth between app using and non-app-using firms was more pronounced in smaller firms than larger ones.
There is also a correlation between revenue and connected app use: businesses with higher revenue were likelier to use more apps (see figure 12). However, this does not necessarily imply a causal relationship. Firms with higher revenue may be better managed or have more highly skilled workers, and therefore be more likely to adopt apps. They are also more likely to make other forms of business improvement that may be driving their revenue growth, and their higher revenue may give them more capacity to subscribe to apps.

Businesses that hire more people are more likely to later adopt apps. While there are many factors that affect business growth and increased employment, businesses in the sample that used at least one app in 2017-18, on average, increased employment in the previous year by 2.2 percentage points (or at least 40 percent) more than similar businesses that didn’t use apps (see figure 13).

Case interviews with businesses, accountants and app developers backed up this phenomenon, citing business expansion and cash-flow pressures as the main prompts for app adoption. Growth is a driver for adoption of apps because as a business expands, it takes on more functions and processes in its value chain, and optimising those functions become more complex. This growth can also place pressure on cash flow, as the business needs to manage more invoices and pay more staff.
Firms that used at least one connected app in the 2017-18 financial year increased employment at a faster rate than firms that used no apps

Full-time employment growth by app usage and by business size, 2017-18

% full-time employment growth from 2017 to 2018 (financial year)

Adopting apps during a growth period helps businesses manage the associated extra activity and complexity. For example, rostering and scheduling apps such as Deputy and Tanda help retail and hospitality businesses with a growing casual workforce optimise rostering, shift swapping and payroll processing. Apps such as ServiceM8 help construction businesses optimise scheduling for a growing field-based workforce and better manage their expanding customer base by keeping accurate customer records, automating billing, and always sending reminders of appointments.

A second driver for app adoption is a crisis in the business. This can include cash-flow issues, the inability to serve customers in a professional manner as a business grows (eg, because appointments are missed) or increased complexity owing to hiring more staff or responding to new regulatory requirements.

While growth or a business crisis were consistently the most common reasons for businesses to adopt apps, interviewees also pointed to other factors. These included the attitude of the business owners, for example, whether they applied a ‘growth mindset’ to business; a change of key personnel, for example, if there was a new hire or a new owner, or if a key staff member took leave and their role needed to be replaced; and a desire for better work-life balance, such as the freedom to take holidays and spend time with family.
App and industry-specific benefits

To better understand the impact of adopting apps, we analysed the benefits of common types of apps/business process pairings in relevant industries. We found that while the type of apps adopted varied by industry, businesses across the board reported that apps saved them money and helped grow their revenue.

Two categories of apps are pertinent to almost all businesses: business intelligence and clerical work. We estimate the use of a business intelligence app, such as Spotlight Reporting, Futrli and Fathom, saves a Xero subscriber an average of about one hour per week. We estimate that a clerical app such as Receipt Bank saves a small business on Xero between 30 minutes and 90 minutes per week.

In addition to apps that fulfill general functions common to all businesses, there is growing specialisation in apps that address pain points in specific industries. The case studies below illustrate how these apps generate value for different industries. The methodology section explains the calculations in more detail.

Case study 1: Job-scheduling and invoicing apps in construction

One of the most popular types of app used by construction companies are apps for job scheduling and invoicing, such as ServiceM8 and Tradify. These apps allow tradespeople to automate a range of microprocesses in their business, including scheduling jobs with staff and customers, communicating with employees and clients about jobs, recording compliance information, preparing quotes and invoicing customers.

Our analysis found these apps benefit businesses in four main ways:

- Time saved on invoicing and reporting by field staff and managers
- Increased revenue from better customer service and optimisation of employee time, for example, using time saved on compliance work to enable an extra job to be completed, and improving customer conversion and retention by automating quotations, appointment setting and reminders
- Increasing revenue by reducing unpaid bills through digital invoicing, which results in a higher proportion of customers paying promptly online
- Increasing revenue by reducing invoicing errors such as forgetting to invoice clients
**Business profile 2: Ruby Electrical, Queensland**

Clint Ruby of Ruby Electrical from Currumbin in Queensland didn’t have an easy journey at the outset when he established his now successful business. Tired of contracting for other people, he launched his own business as a sole trader, installing solar panels for a couple of major suppliers. However, when this market dried up suddenly in 2014, he had to make a quick transition into general electrical work in construction to stay afloat.

“It was a long, hard road,” Clint says. The switch to construction changed his business model to one with a high volume of jobs and clients. He had to employ three or four staff to do the work. The exponential increase in the number of people, clients and jobs became “unmanageable” as he tried to coordinate staff and clients with a diary and whiteboard. He was working until 10.30pm most nights to catch up on quoting and invoicing. Outside of two weeks at Christmas, Clint and his family didn’t take a holiday in six years because being a paper-based business meant having to shut the business down if he went away.

Thinking there must be a better way, Clint began searching online for a digital solution and came across ServiceM8. He describes adopting the app as life-changing, although making the switch to an app wasn’t a simple task. Both Clint and his wife, Jolie, who manages the company’s finances are self-taught in accounting and IT. Clint was “quite computer illiterate” when he started. To help them make the transition, they engaged a bookkeeper for a couple of hours a day each day for three months to teach Jolie the foundations of accounting and bookkeeping, and now use the bookkeeper to provide quality assurance and advice. Clint taught himself to use ServiceM8, supported by the supplier’s online training videos and chat rooms.

Now, ServiceM8 is a core part of business operations. Clint estimates he and his staff save four hours a day on the paperwork required by their compliance-heavy roles. This has freed his staff up to do more jobs, as well as cutting down on the costs of expensive duplicate record books. The professionalism of his business has also increased, which has been key to growing to serve over 1500 clients, and in particular, serving insurance companies who demand a high standard of care and compliance. The shift to ServiceM8 has also has non-financial benefits: Clint and his family now take a two or three-week holiday every year.
Case study 2: Staff-rostering and time-tracking apps in hospitality, retail and healthcare

Businesses with a high volume of casual staff in retail, hospitality and healthcare are increasingly subscribing to staff-rostering and time-tracking apps, such as Deputy and Tanda. These apps save time and improve accuracy by automating the rostering process. They automatically capture time sheet data. They let businesses manage changes in staff or shifts easily by automatically communicating rostering, and last-minute shifts, to the pool of staff. They also help businesses ensure that rosters are compliant with awards and accreditation requirements (e.g., for roles that require a licence or mandatory training). In addition, by integrating with accounting and payroll systems, they make doing payroll runs simpler and more accurate.

Our analysis suggests businesses receive value in four main ways:

- **Time saved in creating and managing rosters.** Using a rostering app can save managers up to two hours per week, our research suggests. Without an app, managers typically draw up rosters on paper, a whiteboard or in Excel. In addition to saving time in preparing rosters, apps save time by letting employees easily swap shifts and letting managers notify employees to fill shifts when a worker becomes unavailable, rather than having to call staff individually.

- **Employee time saved from inefficient rostering practices.** Examples are inadvertent scheduling of two staff for the same shift, scheduling excess staffing during quiet or overtime periods, or mistakenly staffing a person without the relevant training qualifications.

- **Costs saved from reduced errors.** Examples are more accurate recording of actual shifts and time worked by staff, and reduced risk of payroll being calculated from a previous week’s roster.

- **Time saved from doing payroll.** As rostering and time-tracking apps integrate with payroll functionality within accounting and payroll software, they can port hours worked and salary and wage data automatically, cutting down on data entry.
Business profile 3: Holistic Security, Newcastle

Making sure staff turn up at their shifts is a top business priority for Ben Dewson. Dewson runs a security company in Newcastle with over 100 staff, working throughout the city at pubs and venues. Security staff are mainly rostered to venues in teams. If one guard misses a shift, it’s not only bad business, it can place the second guard in danger.

Previously, the business scheduled shifts via Excel and loaded them to a website for staff to check. But it was an error-prone system, with employees often finding it hard to navigate, and not noticing if their day or hours had varied. “On average, one person a week would not turn up for a shift. Then we’d spend easily an hour replacing them and managing the client,” Ben says.

The move to a rostering app was done in tandem with policy change, cultural change and training initiatives to ensure its effectiveness. The company instituted a policy, cleared with Fair Work Australia, to mandate that a failure to turn up to a shift without any form of notice would result in instant dismissal because of the safety risk it posed to co-workers. They reinforced this in their training and communications. To ensure a smooth introduction to using a rostering app, Deputy, they ran training sessions for all staff, which included demonstrating Deputy on a large screen, getting employees to trial it live in the session, and answering questions.

Switching to Deputy has made rostering, communicating rosters to staff, and replacing people on shifts far less time-consuming and error prone. As Ben’s business already used online accounting, payroll data could also be linked and imported, although this still requires some manual work.
Case study 3: Point-of-sale apps in retail

A popular category of process automation in retail is point of sale and payment functions. Point-of-sale apps handle the final processes associated with a sales transaction with a customer. This includes calling up the item to be sold in the system, applying discounts, recording the sale and its details, finding and recording customer information, and producing receipts. Point-of-sale apps often have secondary functions such as reporting, and inventory ordering and management. They also integrate with other retail applications such as customer loyalty apps and online shopping portals like Shopify, creating an ecosystem of automated retail functions.

The main benefits of using PoS apps are:

- **Revenue increases from better marketing, stock selection and inventory management**, as the PoS apps provide rich, granular data on sales, stock and customer trends, which enables better decision-making (eg, which items to stock at particular stores) and marketing

- **Higher revenue from repeat customer sales**, as data from the PoS app, particularly when integrated with customer loyalty or marketing apps, enables better marketing to existing customers

- **Higher transaction value per sale**, for example, because better inventory management ensures availability of stock across sales channels

- **Time saved on manual clerical work**, eg, stock reconciliation, as these processes are largely automated by the app

- **Reduced shrinkage**, as better inventory management reduces loss, wastage and over-ordering of stock
Business profile 4: Alpha60, Melbourne

Alpha60 is a chic fashion boutique chain, based out of Melbourne. It has an online shop and 13 physical stores spread across Australia and New Zealand, which between them employ around 65 people.

Alpha60’s fast-growth and popularity stems from the original clothing designs created by co-owner Georgie Cleary. Georgie’s talent is complemented by the digital savvy of her brother and business partner, Alex. To help manage their growth across a bespoke, multi-channel and rapidly expanding operation, Alex has employed a number of apps, including Vend’s point-of-sale and inventory app for physical stores; Shopify for the online sales channel; Deputy for rostering; and Collect, a customer loyalty app.

The main benefit of using a PoS system is better data that leads to better decision-making. Data from the PoS system informs Alpha60’s design and merchandising, as they know what items are most popular in different locations. It has let them scale from two to ten production runs a year, and has improved inventory management, which is key, as they have a lot of stock in small quantities, and ensuring stock availability improves sales. It helps them target their marketing, encourage customers to return to their stores, and get up-to-date sales results across all their stores.

As Alex says, the apps they use mean they now can get their hands on big business solutions for a small business. “We use all the data we get to improve our marketing, inventory and sales. I’m sure that five years ago we couldn’t have afforded these innovations.”
Is greater automation by SMEs creating negative employment impacts?

Automating processes has productivity benefits for SMEs. However, automation can also have a negative impact on employment, which may counter some of the productivity benefits associated with app adoption.

We therefore sought to test if the automation of processes in SMEs may be resulting in the loss of jobs. We did this by analysing employment trends in two sets of occupations correlated with the functions which had experienced the highest degree of SME automation. Based on both ABS data and Xero app data, these are accounting and invoicing, and administrative and clerical work. Therefore, we analysed the change in tasks undertaken by accountants from 2006 to 2016, and compared this to the growth rate in the accounting occupation over the same period, using non-Xero data sources. We also compared employment trends across large, medium and small businesses from 2006 to 2016, again using non-Xero data, for three occupation categories within businesses involved in functions associated with automation: personal assistants and secretaries; inquiry clerks and receptionists; and general clerical workers.

Accounting has experienced the greatest level of process automation from SMEs. Our analysis of the change in the timeshare of tasks from 2006 to 2016 found a 30 percent change in tasks performed by accountants. That is a high rate of change, compared to the economy-wide average of 18 percent of task change for all occupations. However, in the same period, the number of accountancy jobs in Australia rose by 19 percent, suggesting accountants are replacing tasks lost to automation with new activity.10

Similarly, within SMEs, automation activity has concentrated in administrative and clerical functions such as invoicing, payroll processing, job scheduling and staff rostering. Preliminary analysis undertaken by AlpaBeta for this report did not find evidence of a negative impact on these jobs within small businesses. An analysis of the Melbourne Institute’s HILDA data shows there has been a net loss of some key administrative and clerical jobs in Australia in the last decade, with personal assistant and secretary roles declining by 16 percent overall from 2006 to 2016, and general clerical roles declining by 27 percent. Office managers did experience growth in jobs of 23 percent. Within small businesses, however, there has been jobs growth in each of these categories. Office manager roles grew by 56 percent, secretaries and personal assistants grew by 26 percent and general clerical workers grew by 1 percent. By contrast, in large firms, office manager roles increased by just 1 percent, secretaries experienced a 45 percent drop in employment and general clerical workers saw a 19 percent decrease in workers.

The lack of impact on employment may be because SMEs simply employ fewer staff in back-end and administrative roles. Case interviews suggested that in small businesses these functions are often performed via unpaid labour by business owners or their family members on top of their day jobs. Alternatively, they may be supported by advisers such as accountants or bookkeepers, who replace the time spent on manual data entry tasks with more strategic advice and support for SMEs.

Automating these functions in SMEs may therefore improve productivity without having a significant employment effect. It is more likely to free up SME owners and staff to spend more time on high-value activities, or to strike a better work-life balance, rather than resulting in job losses.

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10 Task change was measured by taking the absolute value of the percent change in time spent on over 2000 activities across occupations (so as to capture both positive and negative task change) and then halving the value to arrive at a proxy for average task change. Source: O*NET and AlphaBeta analysis.
Section 4: Increasing digital uptake can boost Australia's productivity

The last decade has seen an important shift in the ease with which SMEs can become digitally connected and active. The rollout of the NBN will make high-speed broadband access universal, in the same way that broadband access became universal in previous decades. The rise of cloud-based applications has transformed the ability of SMEs to improve their business performance.

However, many SMEs are not as digitally connected or active as they could be, and are therefore not benefiting to the same extent from this transformation as their peers. This section considers how the transition to digital can be made more inclusive, so that the benefits are extended to a wider range of businesses.

Apps have already overcome many traditional barriers to SME technology and software adoption, such as the upfront cost to acquire products, and the time and skill required to implement them. Apps are putting large-enterprise technology functionality into the hands of SMEs, and letting SMEs automate microprocesses throughout their core and back-room processes.
However many SMEs are not fully participating in the digital revolution. At the ABS’s last count in 2015/16, two thirds of SMEs were not connected to high-speed broadband.\(^\text{11}\) Approximately 30 percent of businesses still lodge their BAS statements in paper form, while 14 percent of small businesses don’t use IT in their accounting functions. As Karina Dambergs, the owner of Red Brick Cider and a business mentor in Launceston noted in a case interview, “While in Launceston we have the NBN, and startups and some companies are working with drones and sensors, the reality is that a big chunk of clients struggle to set up a Facebook page and can’t make an Excel spreadsheet to capture receipts.”\(^\text{12}\)

Even amongst Xero-subscribing businesses, which tend to be higher performing, many have yet to subscribe to apps. There are varied reasons why SMEs may not adopt apps or other digital applications. Case study interviews with accountants and bookkeepers, small business owners and app suppliers point to a range of challenges SMEs face in app adoption. (see right)

### Challenges faced in adopting apps

- **Awareness:** Lack of time and staff make it hard for SMEs to keep abreast of all the changes relevant to improving the management of their business.

- **Time:** SMEs are time-poor, with many small business owners in particular working long hours. This leaves them little time to research digital solutions, with many finding it easier to act on the recommendation of a friend or adviser.

- **Cost:** SMEs are highly sensitive to cash flow and need to see clear value from investing in a digital solution, otherwise they regard it as an unnecessary expense.

- **Trust:** SMEs may be concerned that they will invest in the wrong solution, or that the advice they’re receiving reflects a vested interest.

- **Knowledge / skill:** SMEs may lack the knowledge and skills within their business to implement new technology, including apps.

- **Attitude:** Many interviewees noted that fear of change within a business, or fear that clients would not react well to change if it involved using an app, was a barrier to adoption for SMEs.

As this report shows, improving digital connectivity and digital activity offer real benefits to SMEs and the broader economy. Overcoming these barriers is critical to help extend the benefits of digital connectivity and activity to more small businesses.

Removing these barriers now is important because, by its nature, the digital transformation of SMEs is likely to be a slower, incremental process than some other recent digital transitions, such as consumer adoption of social media platforms. This is firstly because the SME market is large but fragmented. Secondly, SMEs are often already time-poor and therefore can only absorb a certain degree of change at one time. That means they are likely to need to adopt new digital innovations in a staged fashion. In case-study interviews, accountants, business owners and app developers agreed that the most usual and successful adoption trajectory for SMEs was to adopt one innovation at a time, bedding down each before they added new functionality. However, integrating functionality generally increases benefits, for example, connecting a PoS app with a customer loyalty app or with a rostering app can help optimise marketing and staffing choices.

A final reason why diffusion of technology might be slower is that SMEs are highly heterogeneous in the processes they perform in their business. As we saw in the benefits analysis, while there are some fairly universal improvements, such as using clerical apps, in many cases the true innovations come from apps that improve specialised business processes in discrete industries, in particular business processes in discrete industries, in a way that hasn’t been economic in the past.

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\(^{11}\) ABS 8129

\(^{12}\) Case study interview
It is likely that the time required to develop and adopt these incremental, specialised improvements will be longer than for an improvement which had broader application (such as the introduction of email, PCs or mobile phones) and which applied to larger businesses as well.

Broader, centralised changes, such as the introduction of single touch payroll, or the final rollout of the NBN, can play an important part in moving SMEs forward in the digital adoption curve. Thinking now about how they are managed in a way that reduces adoption barriers is important to maximise the benefits of change to SMEs and the broader economy.

An action plan to extend digital benefits more broadly
Businesses, governments and IT suppliers and financial partners and advisers can all help extend the benefits of digital to Australian SMEs.

What governments can do
- Governments can recognise the impact of major tax and government service digital transitions, such as single touch payroll, and plan to support SMEs with the transitions. This includes providing support before and after the change, and using their engagement with SMES concerning any transition to help businesses understand and adopt other beneficial digital practices.

- Governments can also design services and regulatory interactions with SMEs to be more efficient, including better interaction with apps. For example, for businesses with compliance reporting obligations, compliance data can be captured live by apps as jobs are done. However, businesses often need to manually re-enter this into an online form to meet their regulatory obligations. Instead, governments could use APIs to allow businesses to port this information into forms.

What businesses can do
- Learning from their most successful peers, SMEs can invest in and use apps to address their most pressing business pain points, invest in training their staff to use them, and adapt their business practices to accommodate them.

- Larger businesses with a business-to-business function can use marketplaces such as Xero’s app marketplace, Google’s G-Suite Marketplace, Apple’s App Store, and Salesforce’s AppExchange to make it easier for SME customers to engage with their services, for example, by creating apps that automate ordering and linking them to other financial systems such as accounting or expenses.

What accountants and bookkeepers can do
- Accountants and bookkeepers can help their clients by training their staff in the top emerging digital applications that benefit major industry groups represented in their client base. Advisers can also support SMEs to integrate apps into their business, either by providing that service directly, or by partnering with specialist integration companies.

What IT suppliers can do
- Software providers can make it easier for SMEs and their advisors to navigate the many options available from app marketplaces and to identify the right apps for their business or their client’s business from the hundreds on offer. This includes developing recommendation tools and short guides.

- They can also consider the use of third-party reviews or verification of apps to give advisors and SMEs confidence that they are investing in an appropriate, credible solution.

- Learning from the practices of the most popular app developers, app suppliers can put in place strong training and support mechanisms for SMEs, ranging from online training sessions, 24-hour support, and individualised, post-sale customer success support.

As the accountant and bookkeeping sector evolves, practitioners can make sure they grow their business even in the face of changing business models by utilising apps to improve their client offerings, customer service experience, and business efficiency.
Appendix: Methodology

Sample of Xero applications
The Xero applications we used in our analysis included Xero applications that:

- were available to the Australian Xero app marketplace at https://www.xero.com/au/marketplace/
- had at least three unique businesses using the application within the three month period up to 24 July 2018

Concordance of applications to business functions
To create a comprehensive list of business functions, we took the business function schema created by the US Bureau of Labor Statistics. We sorted this list into:

1 Type of business function (2 categories)
   - Core
   - Supporting

2 Main business function groups (10 categories)
   - Corporate and internal communications and relations
   - Customer and after-sales service
   - Financial, administrative, legal and management services
   - Human resources management
   - Marketing, sales and customer accounts
   - Operations
   - Procurement, logistics and distribution
   - Property, building and facilities services
   - Strategic management
   - Technology and process development

3 Specific business functions (35 categories)
   - Accessing financing, eg, borrowing and grants
   - Accounting
   - Business intelligence and strategic advice
   - Buying and ordering / inventory management / stock management
   - Collecting payments
   - Compliance and legal regulatory support
   - Corporate communications
   - Identifying new investments, acquisitions and divestments
   - Internal communications
   - Job scheduling / billing / invoicing / quoting and proposals / workflow
   - Managing accounts / CRM / scheduling appointments
   - Managing data
   - Managing documents
   - Managing finances, including debt collection and credit risk assessment
   - Managing fraud
   - Managing human resources
   - Managing payroll, compensation and compliance
   - Managing production
   - Managing services
   - Marketing
   - Merchandising
   - Planning and performance reporting
   - Processing orders
   - Providing administrative support, including travel, utility and office supplies purchasing
   - Providing clerical support, including processing expenses and invoices, and reporting
   - Providing customer service or support
   - Providing facility or maintenance services and asset management
   - Providing general management
   - Providing services
   - Providing software and information technology services
   - Recruiting
   - Selling / PoS / payments
   - Shipping
   - Staff rostering / timesheets / time tracking
   - Transporting

We mapped each application to only one of the specific business functions. Each specific business function was grouped within one main business function. And each main business function was grouped within one type of business function.

If an application fell within two or more specific business functions, the predominant specific business function performed by the app was selected. Information on each application was gathered from the vendor’s website or from the application description on the Xero application marketplace.
Sample of Xero subscribing businesses

The sample of Xero-subscribing businesses used in the analysis was constructed by selecting businesses on the Xero database who had both:

- a paid subscription to use Xero, ie, those who were not on a trial
- an accountant linked to their Xero account

These selections were to ensure that only businesses who had credible data were considered in our analysis. More data checks were conducted on this sample, including removing businesses with negative employment and revenue numbers, and businesses that had incorrectly reported revenue or employment numbers.

The sample started at the beginning of 2014 and data was provided for each month the business was using Xero. Yearly figures for revenue, app usage and employment were used to limit seasonal variations within a business.

To calculate yearly revenue and employment figures from monthly data, we followed these steps:

1. We took the distribution of revenue and employment in each financial year in which the business was active.
2. If there was less than four months of data for a business in a given financial year, the business was deemed too new to consider in that financial year.
3. To remove businesses that closed, if a business had revenue in 2016 but no revenue in 2017 they were dropped from the sample. For a business that had revenue in 2016 and closed down mid 2017, ie, was operating in 2017 for more than four months, we took the monthly average and calculated a yearly figure.
4. For businesses that had more than four months of data within a given financial year, we took all the data points that fall within three standard deviations of a normal distribution calculated from the 20th to 80th percentile of the distribution. The method was chosen to preserve business fluctuations, such as business closure for one month due to the owner taking a holiday, while filtering out outliers and likely data-entry errors.

Example

For a business that had $90,000 revenue per month for 11 months of the year and >$10,000,000 for 1 month of the year, the month where the business recorded a $10,000,000 monthly revenue was filtered out.

1. The monthly mean revenue and employment for each business was calculated using all datapoints that survived the filtering in step 3.
2. The yearly revenue for each business was calculated by multiplying the monthly mean revenue by the number of months in the year, ie, by 12 months.

The number of apps used was calculated by counting the unique number of Xero apps each organisation connected to between 1 July 2017 and the end of June 2018.

The final Xero business sample was filtered for unique organisations:

- with annual revenue figures in 2017-18
- with annual employment numbers in 2017-18
- who used at least one app between 2017-18

No analysis was performed on samples with fewer than 50,000 unique organisations.

Firms who had revenue, employment and app usage figures were relatively high-performing compared to the rest of the sample: their revenue and employment growth numbers were much higher than firms who only had one piece of information.

To reduce this sample bias, each descriptive statistic was calculated used the maximum number of organisations possible. For example, when calculating revenue growth, we used all organisations with annual revenue figures for the 2016-17 and 2017-18 financial years.

The choice of apps in the marketplace may also have been subject to bias. For example, each app was assessed against a range of quality criteria before inclusion. As Xero is an accounting platform, there may have been a bias towards apps related to finance functions. Apps are also categorised into functional and industry sections in the marketplace, which may influence the choice businesses make.
NBN regression
For the NBN regression, we assigned Xero organisations to high and low NBN rollout regions using rollout data obtained from NBN Co.

The NBN rollout data was obtained at the ABS meshblock level. The rollout data was aggregated to the postcode level and a rollout index was created for each postcode region based on the length and coverage of the rollout. A high, medium or low rollout index indicator was then created for each postcode. In total, 419 postcodes were classified as low rollout and 183 postcodes as high rollout. The sample size of the regression was n=602 unique postcodes.

Each postcode region was controlled for significant economic factors that affected employment and revenue growth. By using control variables, we could calculate the effects of the NBN on employment and revenue growth without capturing effects of the variables that are controlled. The control variables we used were gathered from the ABS census data. They were:

- Population growth
- Growth in the number of businesses
- Migration in the past five years
- Average income
- Average education level
- Regional indicator
- Percentage of population employed in manufacturing
- Percentage of population employed in mining
- Percentage of population employed in agriculture
- Percentage of population employed in other sectors

To calculate the relationship between NBN rollout and employment/revenue growth, we used a weighted linear regression using the control variables and the NBN rollout indicator as predictors. Each postcode was weighted using the population of people living in the postcode so regions with smaller populations are not over-represented in the sample.

Employment growth and app usage regression
For the employment and app usage regression, we calculated the relationship between the number of applications used in the 90-day period before July 2018 and the employment growth by comparing the figures for the 2016-17 and 2017-18 financial years. These periods were chosen to represent a causal effect of employment growth on app usage; however, the results should not be interpreted as showing causality, as robust causality testing was not conducted in our analysis.

No analysis was performed on samples with fewer than 18,000 unique organisations.

The control variables used in this regression were:

- Industry
- NBN rollout region
- Metro region indicator
- State indicator
- Age of businesses in days

To calculate the relationship between app usage and employment growth, we used a linear regression using the control variables and app usage as predictors.

HILDA analysis
To calculate the number of occupations in small and large businesses, we used the Household, Income and Labour Dynamics in Australia (HILDA) Survey. A link to the survey can be found at https://melbourneinstitute.unimelb.edu.au/hilda.

The HILDA sample has between 12,000 and 18,000 respondents depending on the year of the survey. We filtered the sample to consider three 2-digit ANZSCO occupations that corresponded to the business processes that had experienced the most intensive automation within SMEs in the last decade. These occupations were:

- Office managers and program managers
- Personal assistants and secretaries
- General clerical workers

Once we applied this filter, the sample size was 512 respondents.

To calculate the number of occupations in small businesses, we took the population-weighted number of people filtered by occupation (two-digit ANZSCO) and business size. We aggregated the HILDA figures by business size and checked for differences between HILDA, the census and the quarterly ABS Labour Force Survey to test the reliability of the data. The average error relative to the census figures for the groups reported was 11% in 2016, 5.8% in 2011, and 3% in 2006.
**App benefits calculation**
To derive a time-savings estimate for the most popular category of apps, we first identified whether the app category was used universally by businesses, or if it was skewed to particular industries. Two app categories (clerical work and business intelligence) were relevant to all businesses, while PoS apps, rostering apps, and job scheduling apps matched specific industry or industries which had high usage of them.

Next, for each category we used Xero data to identify a sample of nano, small, medium and large businesses in the relevant industries, and identified the proportion using and not using the app. We also determined industry metrics such as median revenue by business size.

**Case study interviews**
To supplement the analysis, fourteen 30-minute case study interviews were conducted by phone and in person with a sample of accountants and bookkeepers (three interviews), small businesses (four), and app developers (seven).

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