STRATEGIES FOR MANAGING BARRIERS TO TECHNOLOGY ADOPTION

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ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

This study revealed that there are three major challenges to the adoption of new technology and implementation: technology-related, organisation-related, and regulatory/economic barriers.

While numerous new technologies were used in Australian and Southeast Asian organisations, organisations in Hong Kong and Singapore were more likely than those in Australia to use all new technology types.

Robotic process automation, blockchain and artificial intelligence are not as frequently used in Australia compared with Singapore and Hong Kong. Public sector organisations in both Australia and Southeast Asia were more likely to use robotic process automation and blockchain than organisations in other sectors.

Technology-related barriers, especially those pertaining to data security and data privacy, were major concerns for organisations. Uncertainty about how to best manage these issues exists for many organisations.

Organisation-related barriers were also significant, and these related to, for example, top management and staff support, compatibility, information technology systems support and orientation to technology. Importantly, cost was not considered a major barrier to technology adoption among those surveyed.

Regulatory and economic barriers to technology adoption and implementation were not considered as important as technology and organisational barriers. However, firms in Southeast Asia were more likely than those in Australia to cite competitive pressures as a barrier.

Small firms were more likely to identify technological, organisational, and regulatory/economic barriers to technology adoption and implementation. Addressing this is critical, given the very large number of small businesses in the Australian economy.

Organisations with a technology or digital transformation strategy will be better placed to address any barriers and challenges while also enabling appropriate actions to help successfully drive the implementation of technology.

Several organisational strategies and actions were identified, and had helped to increase the successful adoption and implementation of technology. These included:

- education and training
- staying informed of the latest developments
- engaging staff
- project management
- regular and consistent communication
- timelines for adoption
- addressing compatibility and usability concerns
- trials and vendor demonstrations
- management support.

This report outlines greater detail about the factors influencing adoption of technology – including resistance by accounting professionals towards the switch, and concerns about the perceived impact upon jobs.

Rather than adopt only a few strategies and actions, a holistic perspective is required – multiple actions can collectively address the technological, organisational and economic/regulatory barriers of technology adoption. Such actions should align with an organisation's technology strategy.

The implications of these key findings prompted several calls to action and recommendations. These include – amongst others – the development of a technology strategy as an important prerequisite for organisational change and sufficient training of employees or staff. Key findings and recommendations are highlighted in the Conclusions and Recommendations section.

INTRODUCTION

Technological change is revolutionising the way we work. Using relevant new technologies in accounting- or finance-related functions can help organisations add value for their clients, and enhance productivity, efficiencies and overall competitiveness (CPA Australia, 2021).

The Australian Government has predicted that harnessing technological advances can bring improvements worth A$315 billion to the Australian economy in the next 10 years (Department of Industry, Science, Energy and Resources, 2018). Recognising this, the Digital Economy Strategy (Australian Government, 2021) outlines support and policy that will foster skills, infrastructure, security and regulation to keep pace with emerging technologies and grow national prosperity.

While new technologies are expected to revolutionise organisational practice and be potential game-changers for the accounting profession (CPA Australia, 2019; Davern et al., 2019, p. 3), there have been discussions about the barriers and challenges faced by organisations in adopting a range of these technologies in the digital age (Chouki et al., 2020; CPA Australia, 2021; Raguseo, 2018).

Because these barriers and challenges are likely to hinder the organic growth and sustainability of many organisations, this commissioned report seeks to provide strategic solutions to help organisations successfully adopt new technology.

ABOUT THIS REPORT

This project explored the extent to which new technologies are employed by businesses and accounting firms of all sizes in Australia and Southeast Asia. More specifically, it sought to identify the barriers and challenges to technology adoption and explore strategies for implementing new technologies.

The study adopted a 'solution-focused' approach to technology adoption, providing a toolkit of best practices for CFOs, accounting managers and others responsible for financial oversight in diverse organisation types.

The project's research questions were:

1. What new technologies are employed by businesses, not-for-profits (NFPs) and accounting firms of all sizes?

2. What barriers do businesses, NFPs and accounting firms of all sizes experience in implementing new technologies, and how do these vary by organisational factors, e.g. size, age, and location?

3. Which strategies (i) have been the most effective for overcoming barriers to adopting new technologies, and (ii) have been the most effective in enabling the successful adoption of new technologies, and why?

To address these questions, the project adopted a mixed-methods approach and collected the following data from over 600 respondents:

- a national survey of accountants in businesses, NFPs and accounting firms of all sizes (n = 405)

- an international survey of accountants in businesses, NFPs and accounting firms of all sizes in Southeast Asia/China (n = 180)

- interviews (telephone or online) with accountants – proprietors, directors and executive or senior managers – in businesses, NFPs and accounting firms of all sizes in Australia, to showcase strategies in different organisational contexts (n = 20).

LATEST TRENDS IN TECHNOLOGY

'Technology' is a widely used term, yet there are various ways to categorise different types of technology. From an organisational perspective, technologies can be understood in terms of the functions they provide. Using technology does not necessarily mean that users have technical knowledge about the different types of technology employed in a suite or system.

For example, customer relationship management (CRM) solutions and enterprise resource planning (ERP) solutions enable organisations to manage business processes effectively. These solutions may incorporate robotic process automation (RPA) and/or artificial intelligence (AI), which can also be offered standalone.

In recent years, blockchain technology has also gained considerable traction as a disruptive technology that could reshape the way organisations operate (Frizzo-Barker et al., 2020; Kokina et al., 2017). The following discusses each of these technologies and clarifies the meaning of cloud computing.

Customer relationship management (CRM)

CRM systems are software that help to manage business processes at various organisational levels. As the name suggests, CRM systems are designed to manage and create value in customer relationships by better understanding customer needs and preferences (Cruz-Jesus et al., 2019).

They engage in various customer-related business processes, which can be characterised as follows:

- operational – automation and efficient processing of sales, marketing and customer service and support

- analytical – better understanding of customer behaviour and needs through business intelligence applications such as data mining

- collaborative – effective communications through integrated customer interaction touchpoints, the institutional website, and social media

- strategic – improved business management by creating long-term and valuable customer relationships (Cruz-Jesus et al., 2019).

Whether or not an organisation pursues a profit, managing customer or client relationships is integral to organisational success (Cruz-Jesus et al., 2019). Cruz-Jesus and colleagues note that CRM systems help to minimise operational costs by improving productivity, and they also contribute to setting sustainable business strategies.

Enterprise resource planning (ERP)

Like CRM systems, ERP systems manage business processes at various organisational levels. However, ERP systems focus on the flow of activities for efficient and harmonious operations in an organisation. Common business functions in ERP systems include supply chain management, accounting, procurement management and project management. The CRM function may also be incorporated within ERP systems.

The benefits of employing ERP systems are widely acknowledged. They allow near real-time information flow for efficient business processes and enhanced productivity and collaboration between different business functions within an organisation (see Lee et al., 2020). ERP systems are generally deployed with a similar 'look and feel' across their supported applications using a shared database, either locally on-premises or on the cloud.

Robotic process automation (RPA)

The US-based consensus-building organisation for nurturing, developing and advancing global technologies defines RPA as:

> A preconfigured software instance that uses business rules and predefined activity choreography to complete autonomous execution of a combination of processes, activities, transactions, and tasks in one or more unrelated software systems to deliver a result or service within human exception management. (IEEE Corporate Advisory Group, 2017, p. 11)

RPA executes repetitive tasks (which are traditionally performed by humans) across independent programs such as spreadsheets, emails, legacy programs, CRM and ERP (van der Aalst et al., 2018). It is often referred to as 'swivel chair' because its processes can be imagined as a computer replacing a person sitting on a swivel chair, taking inputs from one system and processing them in another (Willcocks et al., 2015).

To automate robotic processes, computer programs or 'software bots' are set up to execute commands upon event triggers. Potential areas in which RPA can be adopted are broad and far-reaching. For example, data-related software bots can transfer data between independent applications, insert security features and convert file formats; integration-related software bots can access applications, cloud-based services, and other input devices to add, delete or modify information; and process-related software bots triggered by specific events can perform any task as instructed (Hofmann et al., 2020).

The main benefit of RPA is that it can be adopted without disturbing underlying computer systems while minimising staffing costs and human errors (Boulton, 2018). Simple RPA functions are relatively easy to implement and require no custom software or deep system integration (Hofmann et al., 2020). However, implementing thousands of software bots can be costly and complex (Boulton, 2018).

Blockchain technology

Conventionally, information is stored in separate databases, and the integration of information occurs at the user interface level. Blockchain technology is an innovative solution to connect databases (or 'blocks') to share information between trusted parties without the need to disclose their identities (Lansiti & Lakhani, 2017). Connected blocks provide real-time, transparent information and, once appended to a blockchain, can be extremely difficult to delete or alter (Mohammed et al., 2020; Seebacher & Schüritz, 2017). Thus, records are permanent and often timestamped, showing shared transaction histories (Prewett et al., 2020; Zhu & Wang, 2019).

A blockchain may be set up 'permissionless' – meaning that it is an open and decentralised blockchain, which is often used for cryptocurrency transactions – or 'permissioned', with a central authority managing the network (Wüst & Gervais, 2018).

In recent years, smart contracts using blockchain-based networks have attracted considerable attention. 'Smart contracts' refer to contracts executed by computer code on a shared database network, in contrast to traditional, paper-based contracts (Levi & Lipton, 2018). Smart contracts can be used in supply management, where events and activities can be monitored and traced without having suppliers having to contact each other, saving on time delays and human errors (Deloitte, 2019).

In addition to having improved traceability, smart contracts can also be used to execute contracts without involving an intermediary or the verification of its parties once the identity of blockchain users have been verified as trusted.

Artificial intelligence (AI)

AI technology has been described as 'a field, which combines computer science and robust datasets, to enable problem-solving' (IBM, 2020). It essentially describes anything with:

> The ability of a computer or machine to mimic the capabilities of the human mind-learning from examples and experience, recognising objects, understanding and responding to language, making decisions, solving problems – and combining these and other capabilities to perform functions a human might perform. (IBM, 2020)

AI is entrenched in various applications:

- speech recognition – for example, voice-driven phone-answering menus, computer dictation software

- natural language processing – for example, chatbots

- image recognition – for example, fingerprint ID systems, self-driving cars)

- virus/spam prevention

- automated stock trading

- rideshare services and household robots – for example, vacuum cleaners (IBM, 2020).

While many organisations already use AI technology to optimise their business functions, the technology appears to be continually evolving (Goh et al., 2019). Although such technology can affect data acquisition, processing, and analysis, perhaps the most disruptive use of AI technology by organisations is to replace human interpretation and decision-making functions (Davern et al., 2019, p. 26).

With sufficient information, AI technology is expected to predict human behaviour and apply learnt logic so that decisions, which currently made by humans, can be made with increased consistency and fewer errors (IBM, 2020).

Cloud computing

Cloud computing refers to computing services delivered on the internet, including servers, networks, storage, databases, software, and any other computing technology. Such services can be described as either infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS) or software-as-a-service (SaaS) (Gangwar et al., 2015; Low et al., 2011).

IaaS-based services replace on-premises information technology (IT) infrastructure, such as storage and networking, which otherwise requires large initial outlays. PaaS-based services offer online access to the resources required to build applications. Finally, SaaS-based services refer to software delivered online.

The benefits of cloud-based technologies range from cost-effectiveness to flexibility and scalability, as well as easy access to collaborative services by multiple users regardless of their location. They also enable access to real-time information while reducing errors when working with multiple versions of files. Finally, cloud technologies can reduce data storage and backup needs (see CPA Australia, 2019, p. 17; Fawcett, 2015, p. 36).

FACTORS INFLUENCING ADOPTION OF TECHNOLOGY

The investment in and adoption of technology by accounting organisations and finance-related firms has been increasing. However, its success is by no means assured. The first dimension that can affect the take-up of technology is organisational drivers such as improving operational efficiencies, making cost savings, enhancing the client experience, and developing a culture of innovation (CPA Australia, 2021, p. 20).

In addition to having sufficient financial resources to invest in technology, organisational drivers might also generate questions about the interplay of technology with existing organisational structures and methods, integration features, project management and the use of cross-functional teams, thereby creating uncertainty about best-practice solutions (Walsh et al., 2021).

In certain cases, resistance by accounting professionals towards new technologies has also been attributed to not clearly seeing the benefits of switching to the latest practices (Schmidt et al., 2020). In this sense, the 'digital disruption' (Fawcett, 2015) can quite literally be disruptive for employees. Additionally, rapid developments in technology, such as automation and AI, have introduced related concerns for people around the number of jobs in the services industry that are vulnerable or at risk of disappearing (Roos, 2015).

Therefore, people-related issues, such as perceived knowledge, skills, experience, motivations, and mindset, are a major sub-area within the organisational dimension that can affect the adoption of new technologies. This can include the attitudes towards and levels of support for technology among senior executives, CFOs, and accounting professionals.

The second dimension that can affect technology adoption relates to features of the technology itself. These include, for example, prototyping problems; uncertainty concerning efficiency, usability, and reliability; and implementation issues (Walsh et al., 2021). In this context, security has also emerged as an issue, and there have been genuine organisational and governmental concerns about how to best protect economic interest and national security. This involves, for instance, developing suitable infrastructure and cyber incident response capabilities (Fawcett, 2015).

Estimates have suggested that cybercrime costs more than one per cent of Australia's gross domestic product – approximately $17 billion – to the economy annually (Boal, 2018). New technologies come with some risks, but addressing these (e.g. updating data privacy policies, increasing compliance measures, employee education and training) can help differentiate organisations in terms of client service and digital capability. Further, as some industry experts have noted, organisations that promote robust and reliable security protections can also benefit from a competitive advantage (Boal, 2018).

The issue of security also helps point to the third dimension affecting technology adoption – regulatory drivers (Walsh et al., 2021). These might emerge in the form of various government incentives that support innovation in organisations or, for security and other concerns associated with new technology, such as individual rights and privacy, effective governance and regulatory structures through robust legislative frameworks that provide sufficient protection for different stakeholders (Frizzo-Barker et al., 2020).

As business technologies continue to develop and their intended and unintended consequences are better understood, it is important that regulatory supports remain relevant and fit for purpose to provide organisations with the necessary confidence to adapt to rapidly changing circumstances (Prewett et al., 2020).

Also important are economic factors. In certain situations, rather than acting as a driver for new technology adoption, the intensity of industry competition or the market structure in which a firm operates might instead work against investing in technology.

Several reasons might account for this, including uneven adoption costs of technology in different industries (Walsh et al., 2021), or temporal considerations such that short-term competitive pressures undermine an organisation's goal of taking a long-term strategic view of the benefits of technology. Therefore, suitable economic and regulatory support for technology is likely to positively affect organisational support, particularly through decreasing the resistance of senior management and staff towards change.

In concluding, while the recent global COVID-19 pandemic would not account for the take-up of the latest technologies as described above, it may serve to accelerate its use in the future as organisations adapt to more virtual ways of operating in remote work settings (Mills, 2020).

Familiarity with collaborative tools like Zoom and Microsoft Teams has exposed more people to the importance of reliable and accessible technologies. It 'has changed the way we work, where we work and how we collaborate' (CPA Australia, 2021, p. 8). What this 'new normal' might also mean for the increased use of other relevant technologies is too early to say.

STRATEGIES FOR SUCCESSFULLY ADOPTING TECHNOLOGY

The previous section highlighted that the technology adoption process is affected by three dimensions: technology and its characteristics, organisational factors (including top management support, technology skills and capabilities, and available financial resources) and the regulatory and economic context (e.g. government incentives and regulation, competition, and customer demand; Krieger et al., 2021). This section will expand on these four areas by emphasising different strategies and approaches that appear essential to successfully deploy new technologies in organisations.

It is evident that the strategic use of digital and other technologies is critical to help ensure innovative practices that can lead to efficient and productive organisations (Fawcett, 2015). In other words, technology can help organisations provide better services and products.

A recent survey of 725 accounting and finance professionals in Australia and Southeast Asia found those in high-growth businesses used data analytics, ERP, CRM, AI, and RPA more in their operations than organisations that had reportedly remained unchanged or had contracted (CPA Australia, 2021; Hewett, 2021).

Experts who understand drivers of national and regional competitiveness appreciate that shifts in technology will only accelerate in many societies. Consequently, technology-driven productivity improvements will be seen as an opportunity by skilled and proficient managements (see Roos, 2015).

While the adoption of technologies can be affected by organisation size, with larger organisations more likely to adopt machine learning and visual analytics software than smaller entities (Raguseo, 2018), organisations of all sizes can nevertheless embrace technologies appropriate for their needs.

Engage staff

A key factor for doing so is ensuring that staff across different organisational levels view technology as beneficial for strategic and/or operational reasons. This could mean using internal champions to help drive future developments, establishing dedicated budgets to strengthen technology-enabled changes and demystifying different (and often perceived as complex) technologies for non-experts. Implementing a technology or digital transformation strategy is regarded as helping organisations to understand how the new technology meets their objectives and should be aligned with their clients, culture, and employees (CPA Australia, 2021, p. 25).

Keep abreast of latest developments

Keeping informed about technological developments is important for both organisations and accounting professionals alike. This does not mean that accountants need to become technologists. Rather, 'they need to engage with technology and technologists while focusing on solving business and accounting problems' (Davern et al., 2019, p. 25).

Such comments highlight the transformative benefit of technology through the expansion of an organisation's capabilities. In practice, this can mean developing new skills in-house through training or by acquiring skills through recruiting new people familiar with technology (Raguseo, 2018). The development of current staff and the employment of new staff from the external labour market and higher education providers can secure requisite expertise and experience that helps drive successful technology adoption.

Build organisational supports

Establishing cooperative arrangements with research facilities and engaging specialised businesses/vendors can also assist organisations to overcome any technology capability challenges. While such collaborations may be more necessary in practice for small and mid-sized as opposed to large organisations (Krieger et al., 2021), it is important that specialised technology vendors work closely with and support organisations through the implementation of technology solutions (Hewett, 2021).

The advantages associated with building organisational (including people) supports for technology are not mutually exclusive of overcoming other concerns such as technology risks. With respect to security, Fawcett (2015) noted that 'higher education has a role in providing the required skills and systems to ensure community preparedness' (p. 36).

Governance

Establishing effective communication between governing bodies and organisations, which reinforces a 'high level of support externally from regulatory bodies and internally within an organization, could potentially be a factor to drive down user resistance' (Walsh et al., 2021, p. 363).

In sum, implementing multiple actions across different dimensions (i.e., the technology itself, organisational factors, and the environment) will collectively help to drive the successful adoption of new technology by organisations. These must be complementary actions relevant to each organisation's strategic needs and contexts. The benefits of this can be significant: organisations that unequivocally see the value of and subsequently use appropriate technologies are more likely to improve their performance and efficiency (CPA Australia, 2021).

RESEARCH METHODOLOGY

Online survey data were collected during 2021 from managers, senior managers/executives, or proprietors from either Australian organisation's (with all states and territories represented; n = 405) or those based in one of two Southeast Asian countries (Hong Kong or Singapore; n = 180).

Participants either worked in an organisation operating in the accounting industry or in an accounting work area or department in an organisation not based in the accounting industry. The characteristics of participants from each group are summarised in Tables 1, 2 and 3, and Figures 1 and 2.

TABLE 1: PARTICIPANT CHARACTERISTICS BY GEOGRAPHICAL REGION

CHARACTERISTIC	SUB-GROUPS	AUSTRALIA (N=405)		SOUTHEAST ASIA (N=180)	
		N	%	N	%
Position	Proprietor or Director	109	26.9	36	20.0
	Executive or Senior Manager	95	23.5	75	41.7
	Manager	201	49.6	69	38.3
Gender	Male	203	50.1	97	53.9
	Female	202	49.9	83	46.1

TABLE 2: PARTICIPANT DEMOGRAPHIC CHARACTERISTICS

CHARACTERISTIC	SUB-GROUPS	AUSTRALIA (N=405)		SOUTHEAST ASIA (N=180)	
		N	%	N	%
State	New South Wales	180	44.5		
	Victoria	82	20.2		
	Queensland	56	13.8		
	South Australia	33	8.1		
	Western Australia	31	7.7		
	Tasmania	8	2.0		
	Australian Capital Territory	10	2.5		
	Northern Territory	5	1.2		
Area type	Metropolitan	349	86.2		
	Regional	56	13.8		
Country	Hong Kong			26	14.4
	Singapore			154	85.6

TABLE 3: PARTICIPANT CHARACTERISTICS BY INDUSTRY

CHARACTERISTIC	SUB-GROUPS	AUSTRALIA (N=405)		SOUTHEAST ASIA (N=180)	
		N	%	N	%
Industry	Accommodation, Cafes and Restaurants	18	4.4	6	3.3
	Primary and Utilities	15	3.7	8	4.4
	Construction	32	7.9	6	3.3
	Education, Cultural and Recreational Services	23	5.7	10	5.6
	Finance and Insurance	45	11.1	17	9.4
	Health and Community Services	32	7.9	7	3.9
	Information Technology and Communications	38	9.4	32	17.9
	Manufacturing and Mining	38	9.3	26	14.4
	Personal Services and Other Services	27	6.7	6	3.3
	Property and Business Services	46	11.4	7	3.9
	Retail Trade	38	9.4	10	5.6
	Transport / Storage / Logistics	17	4.2	13	7.2
	Wholesale Trade	25	6.2	18	10.0
	Multiple industries from above	11	2.7	14	7.8

FIGURE 1: SURVEY PARTICIPANTS BY ORGANISATION SIZE
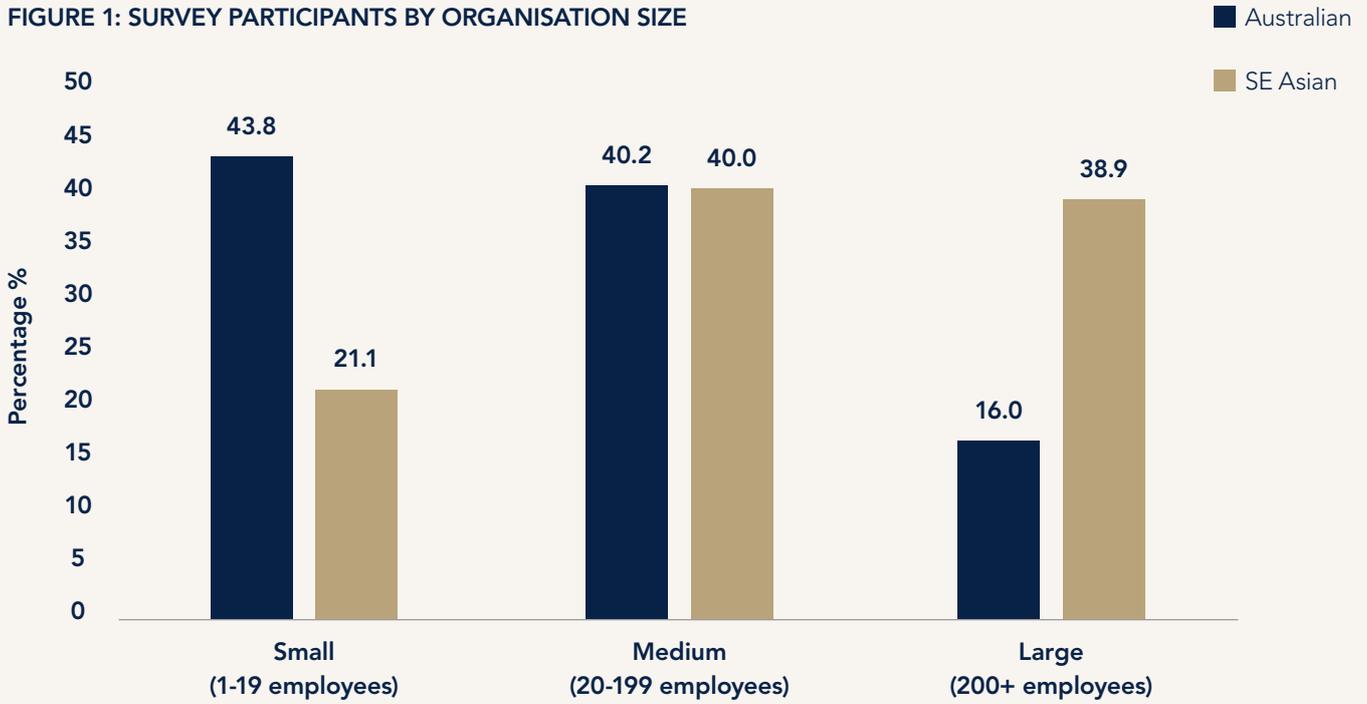
FIGURE 2: SURVEY PARTICIPANTS BY ORGANISATION SECTOR
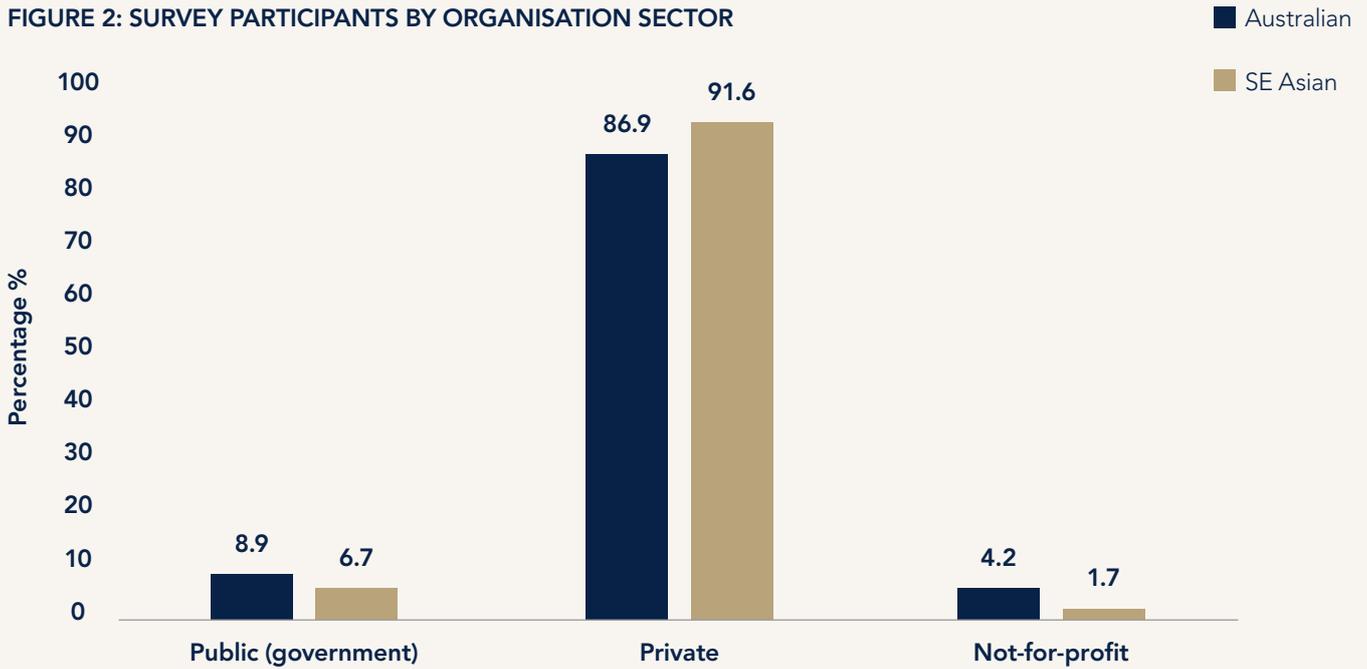
The tables figures show an approximately even distribution by gender in both the Australian and Southeast Asian samples. The spread by organisation size was slightly different in the two groups: most Australian survey participants (84%) were from small or medium-sized businesses, but a greater proportion of Southeast Asian participants were from larger organisations (39%).

The vast majority of both groups was based in the private sector, and there was also reasonable representation from different industries. Notably, greater proportions of the Southeast Asian sample were from IT and communications, manufacturing and mining, and wholesale trade, while more Australian respondents were from property and business services, and retail trade.

INTERVIEW PARTICIPANTS

Virtual or telephone interviews were conducted with 20 managers, senior managers/executives, or proprietors/directors in Australian organisations between July and September 2021. Only three of the interviewees also completed the survey.

Interviewees were from organisations in the accounting industry or were based in an accounting work area or department. Five interviewees were women, 15 were men, and all were based in metropolitan areas in Australia's eastern or western states.

Three of the interviewees were from small organisations, six from medium-sized organisations, and 11 from large organisations. All were based in the private sector except one from a not-for-profit (NFP) and another from a public sector agency.

RESEARCH INSTRUMENTS

Using a range of closed questions, survey participants were asked to consider and respond to the following issues:

1. use of new technology in their accounting area, department, or organisation:

   - different types of technology used

   - importance of these different technologies for growth

   - success in using the specified technologies

   - reasons for adopting new technology

2. important factors for adopting new technology in their accounting area, department, or organisation:

   - perceived ease of use of new technology

   - perceived usefulness of new technology

   - importance of different factors in adopting new technology

     o technology-related

     o organisation-related

     o regulatory and economic

   - the extent to which different factors were barriers in adopting new technology in their accounting area, department, or organisation

     o technology-related

     o organisation-related

     o regulatory and economic

3. success in using new technologies

4. strategies to drive the adoption of new technologies (closed and open-ended questions).

Interviews were semi-structured, and participants were asked to (i) identify key barriers or challenges they faced when adopting new technologies and (ii) describe and evaluate the strategies they used to manage them. Regarding their strategies, interviewees were asked to consider:

- how strategies were derived, implemented, and resourced

- external factors that supported the implementation of strategies

- factors that inhibited the success of strategies

- performance measures and evaluating the success of strategies.

KEY FINDINGS

USE OF NEW TECHNOLOGY

Survey respondents were provided with the definitions of different types of technology, as shown in Table 4, with a note that cloud-based technology was incorporated across the five types.

TABLE 4: DEFINITIONS OF DIFFERENT TYPES OF TECHNOLOGY

TECHNOLOGY TYPE	DEFINITION
Customer relationship management (CRM)	A system to record, manage and analyse customer interactions and processes
Enterprise resource planning (ERP)	A system to perform business processes, such as accounts payable and receivable, procurement and payroll
Robotic process automation (RPA)	A preconfigured program that carries out repetitive functions across different software
Blockchain technology	A distributed ledger technology, generally used for continuous audit, smart contracts etc.
Artificial intelligence (AI)	Machine learning or data analysis, such as: • vision-, sound- and text-related technologies (e.g. chatbots, scanning text, detecting words in spoken phrases) • software for forecasting or assessing risk to inform decision-making

Survey participants were then asked to rate the frequency of use for each type of technology in their accounting area, department or organisation using a five-point scale; their responses are summarised in Table 5.

The table presents the proportions for each frequency scale descriptor for all survey respondents (i.e., from both Australia and Southeast Asia) and the means (M) and standard deviations (SD) for Australia, Southeast Asia and the combined group.

TABLE 5: FREQUENCY OF USE OF DIFFERENT TECHNOLOGIES

TECHNOLOGY	BOTH GROUPS							AUSTRALIA		SE ASIA	
	Never	Rarely	S'times	Often	Always						
	%	%	%	%	%	M	SD	M	SD	M	SD
CRM	11.4	7.1	24.7	27.3	29.4	3.56	1.290	3.49	1.322	3.72	1.205
ERP	8.5	5.4	16.6	28.7	40.8	3.88	1.243	3.80	1.271	4.04	1.167
RPA	30.9	11.5	22.7	23.8	11.0	2.72	1.399	2.61	1.386	2.97	1.402
Blockchain	35.5	14.0	18.6	19.7	12.2	2.59	1.443	2.53	1.422	2.73	1.483
AI	33.6	15.2	19.6	18.8	12.7	2.62	1.433	2.54	1.404	2.80	1.482

Table 5 shows some differences in the use of technologies for the combined group and each region. There was by far a greater use of ERP systems, particularly in Southeast Asia, followed by CRM systems. RPA, blockchain technology and AI were used less frequently overall, although they were more likely to be adopted in Southeast Asia than in Australia.

On average, all five technology types were used more in Southeast Asia. Further analysis showed that the average usage of all five technology groups was substantially lower in small organisations than in medium or large organisations. Differences by industry sector were not as definitive; there were no sizeable differences reported for CRM, ERP or AI usage.

For RPA, greater usage was reported by respondents from the public (government) sector than from private organisations. Finally, those from the public sector reported greater usage of blockchain technologies compared to participants from either private organisations or NFPs. This somewhat surprising result was evidenced in responding public sector samples from both Australia and Southeast Asia (33 and 12 respectively).

A small proportion of Australian respondents provided an example of how their area, department or organisation used the different technologies. The examples are listed below:

- CRM: record client/customer transactions, manage client/customer/vendor accounts and networks

- ERP: payroll/ payments, resource engagement, supply chain management and business planning

- RPA: online bookings and warehouse management.

- Blockchain: storing and recording information, making payments, integrating specific blockchain solutions (such as Hyperledger[1]) into a dedicated cloud account for real time access of data

- AI: scanning, data analysis, forecasting, online support and generating solutions to stakeholder challenges.

Survey respondents considered different types of cloud computing used in their accounting area, department, or organisation. Their responses are summarised in Table 6.

[1] See Hyperledger Foundation, available at: **https://www.hyperledger.org/** (accessed on 14/01/2022)

TABLE 6: TYPES OF CLOUD COMPUTING USED AT WORK

TYPE	ALL		AUSTRALIA		SOUTHEAST ASIA	
	n	%	n	%	n	%
IaaS	62	10.6	42	10.4	20	11.1
PaaS	86	14.7	59	14.6	27	15.0
SaaS	241	41.2	152	37.5	89	49.4
Not sure	78	13.3	60	14.8	18	10.0
None of the above	118	20.2	92	22.7	26	14.4

Table 6 shows that SaaS was by far the most used form of cloud computing among surveyed participants. Nearly one-half of the Southeast Asian participants used SaaS, compared with just over one-third of Australian respondents. The use of PaaS or SaaS was fairly limited across both regions.

IMPORTANCE OF NEW TECHNOLOGY

Survey participants rated the importance of the different technologies for growing (in terms of increasing revenue) their accounting area, department or organisation using a five-point scale (1 = not important, 2 = slightly important, 3 = moderately important, 4 = important, 5 = very important). Their responses are presented in Table 7, showing proportions of different levels of importance for the overall group and the means and standard deviations for the individual and combined samples.

TABLE 7: IMPORTANCE OF DIFFERENT TECHNOLOGIES FOR GROWTH

	ALL							AUSTRALIA		SE ASIA	
	Not	Slight	Mod	Imp	Very						
	%	%	%	%	%	M	SD	M	SD	M	SD
CRM	4.6	5.5	13.2	34.2	42.4	4.04	1.093	3.99	1.156	4.16	0.929
ERP	5.3	5.4	15.3	38.9	35.1	3.93	1.092	3.86	1.146	4.08	0.951
RPA	19.0	11.2	20.8	29.2	19.8	3.19	1.386	3.02	1.414	3.57	1.245
Blockchain	23.4	12.6	18.7	27.1	18.1	3.04	1.436	2.88	1.432	3.38	1.391
AI	21.0	13.7	16.8	27.2	21.2	3.14	1.443	2.97	1.464	3.51	1.328
Cloud	5.6	6.0	13.9	30.5	44.0	4.01	1.152	3.98	1.182	4.09	1.083

Table 7 shows that CRM, cloud computing and ERP were considered the most important forms of technology in both regions. RPA, AI and blockchain were considered less important, in that order, aligning with the reported usage rates. As with frequency of use, higher importance ratings were reported by Southeast Asian respondents, across all technologies, than by Australian respondents.

The size of the organisation in which participants were based made a difference to perceptions of the importance of technology for growth by revenue growth. For all technologies, small organisations assigned much less importance than did medium and large organisations. For RPA only, medium organisations also assigned less importance than did larger firms.

There were some differences in mean ratings by sector: ERP was considered more important by respondents in the public sector than by those based in the NFP sector. Further, compared to those based in private organisations and NFPs, public sector respondents stated that AI and blockchain technologies were considerably more important. No marked differences were observed for CRM, RPA, or cloud computing.

ADOPTING NEW TECHNOLOGY

Survey participants were asked to consider the reasons for adopting new technology in their accounting area, department, or organisation. They were provided with a list of reasons and asked to rate their applicability on a five-point scale of importance (1= not important, 2 = slightly important, 3 = moderately important, 4 = important, 5 = very important). The mean ratings and standard deviations are shown for the individual and combined samples in Table 8.

TABLE 8: REASONS FOR ADOPTING NEW TECHNOLOGY

REASON	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	**SD**	**M**	**SD**	**M**	**SD**
Technology will improve efficiency and productivity	4.06	0.909	4.00	0.939	4.20	0.821
Technology will result in cost savings	3.94	0.948	3.90	0.973	4.02	0.884
Attracting new clients or new business	3.82	1.109	3.79	1.149	3.89	1.011
Maintaining technology commensurate with competitors	3.79	0.992	3.74	1.018	3.90	0.922
Technology is instrumental to business growth and expansion plans	3.74	0.991	3.68	1.018	3.87	0.918
Clients' expectations to have and use new technologies	3.68	1.088	3.63	1.126	3.79	0.992

Table 8 shows that the most important reason for adopting technology was to improve efficiency and productivity, followed by achieving cost savings. Attracting new clients or business was also important, as was sustaining alignment with competitors.

New technology was, to a lesser extent, considered important for achieving growth and meeting client expectations. The relative importance of different reasons for adopting new technologies was relatively consistent across both regions, although the mean scores for all reasons were higher for respondents from Southeast Asia than from Australia.

Further analysis found that reasons varied considerably between participants of different organisation sizes. Broadly, the larger the organisation, the higher the rating of importance. Business growth and maintaining technology in line with competitors were two particularly important reasons among large organisations, which had much higher average ratings than those from both small and medium organisations.

Differences by sector were less prominent and were only acute for the reasons related to business growth, alignment with competitors and meeting client expectations. In this respect, participants from NFPs assigned lower scores than those from the private and public sectors.

Perceptions about the ease of using new technologies in survey participants' accounting areas, departments or organisations were also investigated. Respondents rated reasons on a likelihood scale (1 = very unlikely to 5 = very likely). The mean ratings and standard deviations are presented in Table 9.

TABLE 9: PERCEIVED EASE OF USE WHEN ADOPTING NEW TECHNOLOGY

REASON	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	**SD**	**M**	**SD**	**M**	**SD**
Learning to operate new technology would be easy for staff	3.64	0.895	3.64	0.894	3.62	0.898
Staff would find it easy to get new technology to do what they want it to do	3.70	0.939	3.69	0.948	3.72	0.923
Staff interaction with new technology would be clear and understandable	3.79	0.887	3.78	0.886	3.81	0.891
Staff would find new technology to be flexible to interact with	3.78	0.910	3.79	0.910	3.76	0.913
It would be easy for staff to become skilful at using new technology	3.76	0.910	3.78	0.908	3.73	0.914
Staff would find new technology easy to use	3.80	0.888	3.81	0.883	3.76	0.901

Ratings were similar across the six statements, and responses varied little between the two regions. Average ratings leaned towards likely (4) for both Australian and Southeast Asian respondents, indicating that respondents considered staff to be reasonably proficient at interacting with, operating, becoming skilled in using and leveraging the functionality of new technologies. Perceptions of ease of use did not appear to vary by organisation size or sector.

The survey also explored participants' perceptions of the usefulness of new technology in their accounting area, department or organisation using the same likelihood scale (1 = very unlikely to 5 = very likely). The mean ratings and standard deviations are presented in Table 10.

TABLE 10: PERCEIVED USEFULNESS OF ADOPTING NEW TECHNOLOGY

PERCEPTION	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	**SD**	**M**	**SD**	**M**	**SD**
Using new technology would enable staff to accomplish tasks more quickly	4.03	0.799	4.00	0.834	4.10	0.710
Using new technology would improve job performance	4.06	0.804	4.03	0.836	4.14	0.723
Using new technology would increase productivity	4.05	0.826	4.01	0.841	4.13	0.787
Using new technology would enhance effectiveness on the job	4.02	0.802	3.99	0.835	4.10	0.718
Using use technology would make it easier for staff to do their job	4.05	0.813	4.04	0.837	4.05	0.757
Staff would find new technology useful in their job	4.10	0.748	4.09	0.788	4.14	0.650

Table 10 shows that survey participants from both regions believed there was value to be gained from adopting new technologies, with positive results exceeding the likely (4) descriptor for all statements in the combined sample. Average ratings for all statements were broadly similar within either region and were only marginally higher for the Southeast Asian sample. Perceptions of the usefulness of new technologies did not vary by either organisation size or sector.

ENABLERS FOR ADOPTING NEW TECHNOLOGY

Survey respondents were asked to consider the extent to which various technology-related, organisation-related, and regulatory/economic factors were important for adopting new technology within their organisation. An agreement scale (1 = strongly disagree to 5 = strongly agree) was used. Results are presented in Tables 11 to 13.

TABLE 11: IMPORTANCE OF TECHNOLOGY-RELATED FACTORS

FACTOR	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	SD	M	SD	M	SD
Security concerns	3.97	0.892	3.90	0.934	4.13	0.768
Degree of organisation's concern with data security for new technology	3.99	0.854	3.92	0.885	4.14	0.761
Degree of concern for customers with data security for new technology	3.94	0.898	3.86	0.941	4.14	0.761
Degree of concern about privacy for new technology	3.98	0.923	3.93	0.975	4.11	0.783
Cost savings	3.63	0.963	3.61	0.964	3.67	0.957
The benefits of new technology are greater than the costs of adoption	3.84	0.915	3.80	0.930	3.93	0.875
With new technology there is a reduction of energy costs and environmental costs	3.62	0.916	3.59	0.915	3.69	0.916
Maintenance costs of new technology are very low	3.42	1.057	3.43	1.048	3.39	1.081
Relative advantage	3.91	0.803	3.90	0.819	3.95	0.767
New technology allows business operations to be managed in an efficient way	3.91	0.811	3.90	0.828	3.94	0.771
The use of new technology improves the quality of operations	3.90	0.805	3.92	0.813	3.87	0.787
Using new technology allows specific tasks to be performed more quickly	3.88	0.779	3.87	0.789	3.91	0.757
The use of new technology offers new opportunities	3.92	0.820	3.88	0.838	3.99	0.777
Using new technology allows business productivity to be increased	3.96	0.801	3.93	0.825	4.02	0.744
Compatibility	3.73	0.871	3.69	0.881	3.80	0.843
The use of new technology fits the work style of the organisation	3.71	0.843	3.68	0.867	3.77	0.783
The use of new technology is compatible with current business operations	3.75	0.857	3.72	0.864	3.81	0.838
Using new technology is compatible with your organisation's corporate culture and value system	3.74	0.876	3.69	0.880	3.86	0.860
The use of new technology will be compatible with existing hardware and software in the organisation	3.70	0.906	3.66	0.912	3.77	0.890

FACTOR	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	SD	M	SD	M	SD
Technology competence	3.68	0.966	3.70	0.957	3.64	0.983
Our organisation has individual(s) with 'expert' knowledge of information technology	3.59	0.981	3.60	0.974	3.57	0.998
We have sufficient financial resources to implement new technology	3.58	0.999	3.57	0.974	3.59	1.055
Our organisation has individual(s) who could plan and carry out various parts of the evaluation procedure	3.65	0.932	3.67	0.887	3.60	1.028
Most of our staff have unrestricted access to computers and the internet	3.68	1.029	3.69	1.037	3.64	1.012
Most of our staff are computer literate	3.90	0.890	3.95	0.915	3.79	0.824

Regarding technology-related factors, issues relating to security and privacy clearly played an important role in organisations' decision-making on whether to adopt new technologies – in both regions, though particularly in Southeast Asia.

Stronger perceptions of the relative advantages of adopting new technology also appeared to be a key enabler of technology adoption. Participants from both regions reported that gains in efficiency, productivity, quality, and growth opportunities were important for their organisation when adopting new technology.

Less important were anticipated cost savings; levels of compatibility with current operations, systems, and culture; and organisations' technological competence in terms of infrastructure and human and financial resourcing. Anticipated cost savings were not rated particularly highly; perceptions of these three cost savings enablers did not differ greatly by region.

While there were no observed differences of considerable magnitude in the ratings for technology-related enablers by sector, several differences were observed for organisation size.

For each of the five clusters of enablers (i.e., security concerns, cost savings, relative advantage, compatibility, and technological competence), there was a positive association between organisation size and the level of assigned importance. That is, respondents from larger organisations gave considerably higher average ratings for all technology-related enablers compared to small organisations.

TABLE 12: IMPORTANCE OF ORGANISATION-RELATED FACTORS

FACTOR	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	SD	M	SD	M	SD
Top management support	3.75	0.927	3.73	0.957	3.80	0.854
The organisation's management supports the implementation of new technology	3.89	0.865	3.87	0.901	3.93	0.777
The organisation's top management provides strong leadership and engages in information systems process	3.77	0.909	3.75	0.941	3.81	0.833
The organisation's management is willing to take risks involved in the adoption of new technology	3.59	1.006	3.56	1.029	3.66	0.953
Staff support	3.78	0.912	3.79	0.900	3.75	0.940
Staff enthusiastically support the adoption of new technology	3.69	0.962	3.69	0.947	3.69	0.998
Staff have adequate know-how on how to adopt new technology	3.74	0.911	3.76	0.890	3.70	0.957
Staff believe that new technology has potential strategic value for the business	3.81	0.861	3.82	0.844	3.78	0.900
Adequate training and education are given to staff to adopt new technology	3.86	0.913	3.88	0.918	3.81	0.904
Organisational support	3.82	0.875	3.82	0.904	3.81	0.806
The organisation provides staff guidance on how to change to the new way of working with new technology	3.79	0.865	3.80	0.879	3.77	0.833
The organisation provides staff the necessary help and resources	3.84	0.887	3.82	0.916	3.87	0.819
The organisation gives the necessary support and assistance	3.83	0.874	3.85	0.918	3.78	0.766
Technology orientation	3.49	1.024	3.47	1.020	3.55	1.033
The policy of the organisation has been to always consider the most up-to-date available technologies	3.57	0.991	3.55	0.983	3.62	1.009
We have a long tradition of attempting to try out new systems, applications, methods, and equipment	3.49	1.015	3.45	0.998	3.59	1.050
We devote extra resources (i.e., time, money) to technological forecasting	3.41	1.066	3.40	1.078	3.43	1.041

Although less important than certain technology-related factors (namely, security concerns and relative advantage gains), organisation-related factors were considered largely important for enabling the adoption of new technology (see Table 12). Top management, staff and organisational support had similar average ratings and across both Australian and Southeast Asian cohorts.

Of less importance was the organisation's technological orientation, referring to their historical openness to and embracement of technological change. Fewer differences were observed, among participant perceptions, with respect to the importance of organisation-related enablers of technology.

Participants from NFPs and smaller businesses attributed relatively less importance to technological orientation. However, one further difference was observed for top management support, with considerably higher ratings recorded for larger organisations than for small organisations.

TABLE 13: IMPORTANCE OF REGULATORY AND ECONOMIC FACTORS

FACTOR	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	SD	M	SD	M	SD
Competitive pressure	3.68	0.935	3.63	0.973	3.78	0.835
My organisation thinks that new technology has an influence on competition in their industry	3.73	0.876	3.67	0.909	3.88	0.779
My organisation is under pressure from competitors to adopt new technology	3.50	1.055	3.45	1.104	3.61	0.930
My organisation understands the competitive advantages offered by new technology in our industry	3.80	0.874	3.77	0.905	3.86	0.796
Regulatory support	3.55	0.929	3.52	0.928	3.63	0.808
There is legal protection in the use of certain new technologies	3.65	0.926	3.62	0.922	3.72	0.934
The laws and regulations that exist nowadays are sufficient to protect the use of new technologies	3.53	0.921	3.50	0.908	3.59	0.950
Information about laws and regulations related to new technologies is sufficient	3.48	0.940	3.44	0.954	3.58	0.902

Competitive pressures played some role in encouraging organisations to adopt new technology, particularly in Southeast Asia (see Table 13). This was more important than regulatory support, which, along with technological competence, technological orientation, and cost savings, were considered a less important enabler among participants, particularly those from Australian organisations.

When examining organisation size and sector, small organisations and NFPs tended to assign lower ratings to regulatory and economic factors as enablers of new technology.

BARRIERS TO ADOPTING NEW TECHNOLOGY

Survey respondents were asked to consider the extent to which a range of technology-related, organisation-related, and regulatory and economic factors (or absence of) were considered barriers to adopting new technology in their organisation. An agreement scale (1 = strongly disagree to 5 = strongly agree) was used. Results are presented in Tables 14 to 16.

TABLE 14: TECHNOLOGY-RELATED BARRIERS TO ADOPTING TECHNOLOGY

BARRIER	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	SD	M	SD	M	SD
Security concerns	3.70	0.962	3.61	0.994	3.92	0.850
Degree of organisation's concern with data security for new technology	3.70	0.941	3.60	0.969	3.92	0.838
Degree of concern for customers with data security for new technology	3.69	0.973	3.59	1.013	3.92	0.835
Degree of concern about privacy for new technology	3.72	0.973	3.63	1.001	3.92	0.877
Cost savings	3.47	0.993	3.46	0.977	3.49	1.028
The benefits of new technology are greater than the costs of adoption	3.61	0.973	3.58	0.994	3.68	0.924
With new technology, there is a reduction of energy costs and environmental costs	3.47	0.954	3.46	0.924	3.50	1.022
Maintenance costs of new technology are very low	3.32	1.052	3.33	1.014	3.29	1.137
Relative advantage	3.64	0.985	3.63	0.981	3.66	1.002
New technology allows business operations to be managed in an efficient way	3.60	0.955	3.59	0.947	3.62	0.975
The use of new technology improves the quality of operations	3.64	0.984	3.62	0.969	3.67	1.018
Using new technology allows specific tasks to be performed more quickly	3.67	1.009	3.64	0.996	3.72	1.036
The use of new technology offers new opportunities	3.65	0.996	3.65	0.997	3.64	0.995
Using new technology allow business productivity to be increased	3.65	0.979	3.64	0.997	3.66	0.987

BARRIER	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	SD	M	SD	M	SD
Compatibility	3.56	0.961	3.56	0.961	3.57	0.961
The use of new technology fits the work style of the organisation	3.54	0.959	3.55	0.965	3.53	0.948
The use of new technology is compatible with current business operations	3.57	0.994	3.57	0.994	3.57	0.997
Using new technology is compatible with your organisation's corporate culture and value system	3.57	0.936	3.58	0.927	3.56	0.958
The use of new technology will be compatible with existing hardware and software in the organisation	3.56	0.953	3.53	0.958	3.61	0.942
Technology competence	3.57	1.048	3.59	1.035	3.53	1.075
Our organisation has individual(s) with 'expert' knowledge of information technology	3.58	1.024	3.57	1.004	3.60	1.071
We have sufficient financial resources to implement new technology	3.55	1.025	3.56	1.029	3.52	1.016
Our organisation has individual(s) who could plan and carry out various parts of the evaluation procedure	3.58	0.999	3.60	0.992	3.53	1.016
Most of our staff have unrestricted access to computers and the internet	3.51	1.098	3.50	1.089	3.53	1.121
Most of our staff are computer literate	3.65	1.094	3.73	1.061	3.49	1.151

Security concerns were a considerable barrier to adopting new technology, particularly for Southeast Asian respondents. Concerns were directed at security from both the customer and organisational perspective, as were privacy issues. Cost was the least important technology-related barrier in both regions, particularly with respect to maintenance costs.

The average ratings for technology competence, compatibility and relative advantage were relatively similar across both regions, with the notable exception of a far higher score among Australian respondents for staff computer literacy levels. Other than for relative advantage, small organisations assigned less importance to technology-related barriers. There were no differences in participant responses based on sector.

TABLE 15: ORGANISATION-RELATED BARRIERS TO ADOPTING TECHNOLOGY

BARRIER	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	SD	M	SD	M	SD
Top management support	3.56	1.037	3.53	1.046	3.61	1.015
The organisation's management supports the implementation of new technology	3.60	1.011	3.54	1.020	3.73	0.979
The organisation's top management provides strong leadership and engages in information systems process	3.58	1.038	3.55	1.063	3.63	0.980
The organisation's management is willing to take risks involved in the adoption of new technology	3.49	1.063	3.50	1.055	3.48	1.086
Staff support	3.56	0.995	3.56	1.003	3.56	0.980
Staff enthusiastically support the adoption of new technology	3.52	0.998	3.53	0.996	3.48	1.005
Staff have adequate know-how on how to adopt new technology	3.55	0.983	3.55	0.990	3.56	0.970
Staff believe that new technology has potential strategic value for the business	3.57	0.985	3.56	0.993	3.61	0.971
Adequate training and education are given to staff to adopt new technology	3.59	1.014	3.60	1.034	3.59	0.973
Organisational support	3.56	1.001	3.52	1.005	3.63	0.992
The organisation provides staff guidance on how to change to the new way of working with new technology	3.57	1.010	3.52	1.014	3.67	0.997
The organisation provides staff the necessary help and resources	3.55	1.004	3.51	1.009	3.62	0.992
The organisation gives the necessary support and assistance	3.56	0.990	3.53	0.991	3.61	0.988
Technology orientation	3.47	1.029	3.45	1.026	3.51	1.027
The policy of the organisation has been to always consider the most up-to-date available technologies	3.52	1.020	3.51	1.001	3.56	1.042
We have a long tradition of attempting to try out new systems, applications, methods, and equipment	3.48	1.024	3.44	1.015	3.54	1.043
We devote extra resources (i.e. time, money) to technological forecasting	3.42	1.042	3.41	1.063	3.42	0.997

Table 15 shows that the mean ratings for top management, staff and organisational support, and technology orientation were reasonably uniform across both regions. In essence, they were all considered reasonably important as barriers to respondents' organisations adopting new technology and were of a similar level of importance to technology-related barriers, except for security concerns, which were marginally more important.

There were no or few observed differences among participant responses by sector or organisation size; however, small organisations reported much lower average ratings than did large organisations for organisational support and technology orientation.

Regarding differences for staff support, medium-sized organisations gave considerably higher ratings than did small organisations. There were no differences by organisation size for top management support.

TABLE 16: REGULATORY AND ECONOMIC BARRIERS TO ADOPTING TECHNOLOGY

BARRIER	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	SD	M	SD	M	SD
Competitive pressure	3.51	0.996	3.47	1.002	3.59	0.978
My organisation thinks that new technology has an influence on competition in their industry	3.53	0.959	3.52	0.958	3.57	0.963
My organisation is under pressure from competitors to adopt new technology	3.40	1.067	3.35	1.093	3.52	1.000
My organisation understands the competitive advantages offered by new technology in our industry	3.59	0.961	3.55	0.955	3.69	0.970
Regulatory support	3.47	0.965	3.46	0.948	3.49	1.003
There is legal protection in the use of certain new technologies	3.50	0.942	3.49	0.905	3.54	1.021
The laws and regulations that exist nowadays are sufficient to protect the use of new technologies	3.47	0.968	3.47	0.958	3.48	0.994
Information about laws and regulations related to new technologies is sufficient	3.43	0.984	3.42	0.981	3.46	0.993

Table 16 reveals that competitive pressures and regulatory support achieved similar mean scores, with the former perceived as a more important barrier among Southeast Asian participants. Both types of barriers were rated comparably with technology- and organisation-related barriers, apart from relative advantage and security concerns, which were considered more important. Differences by organisation size were evident for competitive pressure but not for regulatory support, with lower ratings recorded for small businesses. No sector-based differences were identified.

SUCCESS IN USING NEW TECHNOLOGY

Survey respondents were asked to rate how successful they perceived their accounting area, department or organisation was in using the technologies presented in Table 17. Means do not include those who stated their area/department/organisation had never used that particular technology (see Table 5).

TABLE 17: SUCCESS IN USING NEW TECHNOLOGY

TECHNOLOGY	AUSTRALIAN AND SE ASIAN GROUPS							AUSTRALIA		SE ASIA	
	Poor	Below Average	Average	Above Average	Very Good						
	%	%	%	%	%	M	SD	M	SD	M	SD
CRM	0.2	2.2	26.4	29.0	42.3	4.11	.884	4.13	.873	4.06	.906
ERP	1.6	2.6	25.6	39.7	30.6	3.95	.898	3.91	.900	4.04	.890
RPA	2.4	11.4	27.8	31.5	27.0	3.69	1.061	3.78	1.094	3.65	1.043
Blockchain	2.3	10.9	27.7	30.3	28.9	3.73	1.065	3.70	1.066	3.79	1.064
AI	3.0	11.3	22.0	32.2	31.4	3.78	1.101	3.75	1.069	3.83	1.164

Perceptions of the success in using technology were reasonably positive, although they varied across technologies. RPA, blockchain and AI were assigned slightly lower ratings, although they scored above the average (3) marker across both samples. Ratings were similar across both Australian and Southeast Asian respondents. There were no considerable variations reported by sector or organisation for the combined sample.

STRATEGIES TO DRIVE TECHNOLOGY ADOPTION

Survey respondents were asked to rate the importance of a range of strategies for successfully adopting new technology in their accounting area, department or organisation. These strategies were identified from earlier readings and reports. Results are presented in Table 18.

TABLE 18: STRATEGIES TO DRIVE NEW TECHNOLOGY ADOPTION

STRATEGY	ALL		AUSTRALIA		SOUTHEAST ASIA	
	M	SD	M	SD	M	SD
Developing staff capability for the adoption of new technology	4.11	0.846	4.10	0.909	4.13	0.686
Dedicating finances/budgets to support the adoption of new technology	4.08	0.863	4.03	0.929	4.20	0.680
Securing executive or senior management (including CFO) support for the adoption of new technology	3.98	0.893	3.90	0.957	4.18	0.694
Securing staff support for the adoption of new technology	3.97	0.937	3.96	0.964	4.01	0.875
Securing the support of in-house information technology experts for the adoption of new technology	3.89	0.937	3.83	0.977	4.02	0.829
Implementing organisational processes that support the adoption of new technology	3.71	1.023	3.62	1.094	3.92	0.808

Developing staff capability was considered a key strategy for successfully adopting new technology in organisations in both Australia and Southeast Asia. Having financial resources and securing senior support were also considered important, particularly among Southeast Asian respondents.

Participants from both regions recognised the value of securing staff support and in-house IT experts to drive technology adoption; the latter strategy scored more highly for Southeast Asian respondents. Implementing organisational processes that support technology adoption was relatively less important, particularly in Australia.

No notable differences were identified across sectors, but variations existed between different organisation sizes; other than the strategy relating to staff capability, far lower average ratings were given by respondents from small organisations.

MANAGING BARRIERS TO ADOPTING TECHNOLOGY

Survey respondents were asked to share any innovative strategies that their organisation used to overcome barriers and challenges to adopting technology. As noted earlier, 20 interviews with Australian managers and directors/proprietors were also conducted to identify successful strategies for overcoming prohibitive factors to technology adoption.

Thematic analysis of the open survey responses and interview transcripts identified eight overarching strategies. Table 19 summarises these strategies, five with constituent sub-themes. Quotations from interviewees are denoted by 'I'; Australian survey respondents, by 'A', and Southeast Asian respondents by 'SEA'.

TABLE 19: STRATEGIES FOR SUCCESSFULLY ADOPTING NEW TECHNOLOGY

STRATEGY	COUNT			REPRESENTATIVE QUOTATION
	AU	SEA	Int	
Training and development				
Formal training	57	21	11	'Providing training and clearly communicating the benefits to staff to ensure staff engagement and uptake.' (A244)
Champions and IT experts	8	7	10	'Having good, engaged team leaders is the most important element of success.' (I6)
Engaging staff				
Building awareness	33	16	11	'Creating a reason and a vision and being clear about the objectives and the value of the technology is important.' (I20)
Usage and experience	9	5	5	'Start, rather than end, with the user experience. If you look at the software development lifecycle, it's all about technology, technology, technology, and then, after, it comes to user experience. Reverse and first let people use it; then you can use the analytics and see what's more popular, what works and what does not work.' (I8)
Fostering innovative mindset	4	2	0	'Foster innovation capabilities through transformation and community practice.' (SEA578)
Incentives	4	13	0	'Incentivise staff for constructive feedback and ideas to improve efficiency and productivity through technology adoption.' (SEA512)
Project management				
Using consultants	8	3	0	'Bringing in a team and brainstorming on what our hurdles are and talking through solutions.' (A282)
Change management	3	1	3	'Ensuring adequate change management experts are involved in the planning and delivery.' (A206)
Internal collaboration and feedback	4	1	1	'We seek feedback after a relevant period of time, refining things to address feedback and then moving forward so we are continually improving.' (I15)

STRATEGY	COUNT			REPRESENTATIVE QUOTATION
	AU	SEA	Int	
Effective implementation	25	5	6	'Project management, which means you need some honest, timely checkpoints along the way and having people in the project team who have enough knowledge and common sense and judgement to call out when something doesn't look right.' (I13)
Systems and infrastructure	27	29	3	'At the same time, our computers were getting old and slow, and, when we are going to implement, the firm said, "it is not going to work well with the hardware that you've got". We upgraded and, yes, it was a lot of money, but it has been well worth it.' (I1)
Staying informed	24	6	2	'Subscribing to appropriate news sources to track new technology developments and the success or otherwise of those products.' (A245)
Trials and demos	19	2	9	'Trial different innovative software through free sign up.' (A372)
Support				
Internal support	10	1	1	'Adequate technical support for end users.' (A395)
External support	3	0	1	'We utilise a partnership model, where we use support delivery services to support in-house functionality and application of new technologies.' (A211)
Management and strategy				
Management buy-in	3	2	2	'Any change management starts by educating and getting the leaders on board. If the partners are not on board, then it doesn't trickle down right to the grads or analysts who would be implementing the tool.' (I7)
Strategy	4	8	7	'Maximise government grants and subsidy to increase adoption of technology' (SEA529)

Note: AU=Australian survey participants; SEA = Southeast Asian survey participants; Int = interview

Training and development

Formally training staff prior to adopting technology, accompanied by building staff confidence and the necessary skills to use technology with ease, was considered beneficial.

Delivery modes of formal training included staff meetings with touchpoints on new technology, webinars, roadshows, online training, instructional modules and videos, and individual training. Survey respondents and interviewees emphasised:

- staff need ongoing and continued support when adopting new technology, not just prior to implementation.

- the need to make technology-related training engaging, interactive and creative.

- making training bite-size and practical (such as using instructional videos, followed by time for staff to practise working with the technology) was the optimal approach. This was preferred to multiple-day workshops without sufficient time for authentic practice.

- the value of bringing in external experts, often software vendors, to support initial training. Sourcing experts was, however, noted to be challenging, and several interviewees commented that, once internal team leaders and/or IT champions and experts were sufficiently trained, they could take over the training of staff. This was cheaper and more effective because they could tailor their training according to known staff capabilities and needs.

- although there was value in bespoke training solutions, this was expensive, and many opted for standardised modules and templates for training staff and upskilling champions/leaders, with some check-ins from the software vendor.

With respect to champions and IT experts, the use of peer support and buddy systems were noted as effective, with several interviewees discussed the characteristics of champions for technology adoption to be successful.

One described creating a champions group comprising individuals who represented their different work areas and were actively involved in different stages of the adoption process, becoming 'the flagbearer of the product in the early stages to the rest of the users' (I8).

This interviewee felt that technical staff were an obvious choice but highlighted that the human resources department could help identify champions with a growth mindset and who were open-minded and interested in technology.

Another interviewee commented how champions would need to be intensively trained in new technology, enabling them to understand how the technology could be integrated seamlessly into organisational systems, troubleshoot any emerging issues, and provide feedback to facilitate continuous improvements.

Whether champions were nominated by senior management or if they volunteered, they must be passionate about technology adoption and the transformation that follows.

Engaging staff

Building staff awareness of the purpose and benefits of new technology was deemed critical. In particular, understanding and communicating the benefits was expected to encourage staff to engage in adopting technology. Key benefits included a reduced workload, enhanced efficiency, greater security and a reduction in costs.

Certain technologies were expected to make organisations more agile and responsive and increase flexibility among staff, such as enabling remote or home working. Helping staff to understand the personal benefits of adopting technology was also important. Personal benefits included greater enjoyment in their role, the value added for strengthening their skill base and experience in technology-related systems for their future career.

Interviewees highlighted the problem with relying on emails to effectively communicate the value and importance of new technology and give detail on how it would be introduced into the organisation. Instead, some advocated for face-to-face events to give clear and concise explanations of new technology, introducing staff gradually to rollout intentions and making them feel part of the decision-making process.

One interviewee noted, 'awareness often comes with a kick-off event because people can get their head around something happening on a particular date' (I20). Others asserted the value of short, digestible videos with links to training elements, rather than synchronous events, to allow people to engage at their chosen time.

Other interviewees highlighted that the technology vendor was best suited to create excitement and encourage mental and psychological buy-in among staff, given some can resist change. Another emphasised the need for clear reasons for technology adoption other than cost savings, which were not particularly appealing or inspiring for organisational staff. Several felt that, once the technology was 'out there', and word-of-mouth among staff that had used the technology was highly effective.

Giving staff early access to new technology and encouraging them to use it and provide feedback was considered valuable. One manager stated:

I think the key part around adoption is putting it in the hands of the user. If the user gets to touch and feel and experience the ease of use, sees the immediate benefits, then you know that you get that immediate buy-in. (I14)

More generally, survey participants recognised the benefits of fostering open-mindedness, a growth mindset and innovation capabilities in helping with technology adoption. Incentivising staff to engage with new technology was most prevalent among the Southeast Asian survey responses.

Project management

There were differing views on implementation approaches to adopting new technology. Smaller organisations suggested a fast and full rollout, while medium and larger organisations emphasised either progressive and staged deployment or the use of pilot sites followed by full deployment.

Phased approaches meant 'you are not putting the whole firm in jeopardy with a big bang, and you are learning from each particular rollout' (I20). It was noted that roll-out stages were now quite condensed because technology is largely cloud- or SaaS-based so that little local physical infrastructure is required. This meant that you have the same core team rolling it out globally in a standardised manner.

Although considered beneficial by some, relatively few used external consultants in the project management process. Some key enablers associated with project management were:

- considering technology adoption as a form of change management and ensuring relevant internal stakeholders for advocating and implementing change were involved. For the project team, an effective project lead/manager was considered important, as was diverse skill sets across the team. For example, the manager for where initial tests and pilots are taking place, the CFO, IT manager and an accountant were considered an appropriate mix by one interviewee because it ensured sufficient knowledge of systems and finances. Others advocated having team members who were interested in and had strengths aligned to the nature of the project.

- sufficient planning prior to implementation and engagement with leaders across the business to ensure that different needs were met.

- a realistic timeline with regular checkpoints on achieving milestones.

- internal collaboration and feedback on the project to ensure continuous improvement.

Systems and infrastructure

Many survey respondents recognised the need for quality systems and infrastructure that would enable seamless integration of new technology, covering areas such as wi-fi services, computer hardware, cloud-based software, and data storage.

Staying informed

To a lesser extent than the previous theme, survey participants also emphasised 'scanning the environment' for new technological developments, with some having a dedicated team for this function, often using online research. Staying current enabled organisations (or accounting areas and other departments) to plan new technology projects months ahead of time and into the new financial year. This enhanced the technology budgeting and expenditure process.

Trials

Several survey respondents and interviewees recognised the value of trialling technology, using dummy versions that could be used for practice purposes and for better understanding how they might be implemented in their own work processes. One stated, 'I literally got to the point where I said I need to see something. I need to be able to have my team play with it' (I14). This increased both familiarity with the technology and the extent to which its value might be more clearly appreciated.

Support

Internal support referred to various in-house strategies, such as running new systems in parallel with existing ones until the adoption process was deemed ready for full implementation. External support came from technology vendors and other external experts who were contracted to support adoption, such as by resolving compatibility and legacy issues, particularly in smaller organisations.

Management and strategy

This theme spanned securing management buy-in, which was considered critical for engaging staff and successful adoption at the grassroots level. Responses also emphasised the importance of having innovative technology-related strategies for the wider business environment, competitors, and the organisation's business cycle. Several participants recognised the need to leverage government (and other) funding for technology solutions.

CHALLENGES WITH STRATEGIES

Interviewees were then asked to identify any factors that challenged or jeopardised the successful implementation of their identified strategies. The following summarises a diverse range of challenges, suggesting nuances exist across different work settings:

- Time – Staff responsible for technology adoption were time-poor and/or the timeline for adoption created significant challenges.

- Compatibility – Streamlining new technology into existing systems was recognised as problematic.

- Poor communication – Lack of timely and effective communication to relevant stakeholders could compromise successful adoption.

- Resources – Sufficient internal resources for hardware, software and rollout costs were prohibitive for some organisations. This included lacking suitably skilled staff who were able to use and leverage the new technology efficiently.

- Stakeholder engagement – There was insufficient buy-in from managers, and staff resistance to technology adoption, sometimes due to a lack of confidence and fear of redundancy.

- Lack of support – Unavailability of suitable internal and external expertise to support technology adoption created challenges.

- Usability and functionality – A user experience that was complex or did not engage staff, or technology that did not function as intended, negatively affected successful technology adoption.

- External factors – Labour or industrial laws were deemed by some to affect how technology could be implemented. Recent government-ordered lockdowns in some Australian states because of COVID-19 affected the pace or speed of new technology implementation, with large numbers of organisational staff working remotely from home.

EVALUATING STRATEGIES

Finally, interviewees shared several ways of evaluating the success of strategies for adopting technologies. The first was by measuring improvements in levels of efficiency, accuracy or productivity in processes affected by the new technology. Examples included the completion of tasks with fewer errors, in less time or with increased outputs (such as generated invoices). Compliance with the new processes and statistics relating to client and staff adoption were additional measures of success.

Gathering feedback from staff through surveys and simple on-screen evaluations on the ease of use and perceived usefulness of the new technology were also considered important activities for understanding what was working well and what was not. Some organisations set clear milestones, as with any project, to evaluate the progress of new technology adoption. Only one interviewee indicated that their organisation did not use any formal evaluation process.

DISCUSSION

This section of the report discusses the findings using the main themes that were investigated. These themes include the use of technology, the importance of technology for organisations, technology drivers, ease of technology use, enablers of and barriers to technology adoption, and the strategies that helped organisations successfully adopt technologies.

TECHNOLOGY USE AND IMPORTANCE

Advanced technologies such as RPA, blockchain and AI were far less prevalent in Australian organisations than in Southeast Asian organisations. While Australian organisations noted their dependence on CRM and ERP systems, it was apparent that all the technologies examined were more frequently used in Hong Kong and Singapore.

In part, this suggests that there are important national and cultural differences in technology use that may, in turn, affect levels of firm competitiveness (Roos, 2015). It also clearly indicates that technology use is affected by organisation size since resources, such as financial resources, in-house experts, and staff capabilities, are more limited in small organisations.

A higher proportion of the Australian respondents worked in small organisations (1 – 19 employees; 44%) compared to Southeast Asian respondents (21%). Sector differences were less definitive, although RPA and blockchain technologies were used more frequently in the public (government) sector than in (mainly) private organisations.

This might be related to organisation size, the capacity to resource new technology and the desire by governments to manage data efficiently at significant scale. This suggests that some leadership and staff experience in using these technologies exists in public sector organisations and could be valuable for organisations in other sectors.

There was a close relationship between the perceived importance of technology for firm growth and technology use by organisations. Consistent with the reported use of technology, CRM, ERP and cloud computing were regarded as important technologies for all organisations in both Australia and Southeast Asia.

Further, for all technologies examined, greater importance was reported by Southeast Asian participants. Due to their lower use of such technologies, small organisations unsurprisingly assigned less importance to technology for their firm's growth than did those from medium and large firms.

Compared to those from private organisations and NFPs, those in the public sector believed that AI and blockchain were considerably more important. This suggests that, if more firms see technology as critical in meeting important organisational objectives, then technology use will increase. While this proposition is anticipated, the key is first to convince organisations of the contribution and value of new technologies.

TECHNOLOGY MOTIVES AND ENABLERS

We identified numerous reasons for adopting technology, with the most important reason being to improve efficiency and productivity, followed by cost savings. These two reasons relate to internal operations (or the production side of organisational strategy).

Attracting new clients or business was also important, as was sustaining alignment with competitors. These latter two reasons relate more to an external orientation (or the supply side of organisational strategy). Therefore, internal rather than external factors have largely driven technology adoption. However, there was a discernible difference between Australia and Southeast Asia, with the latter region paying more attention to their market competitiveness, reflecting the dynamic growth-based economies of Hong Kong and Singapore.

Notably, large organisations – compared with small and medium-sized organisations – are complex and remain sensitive to an external orientation that regards technology as important for business growth and providing technology offered by competitors. In this regard, large organisations appear to balance internal and external factors in driving technology adoption.

There were few differences in the perceived ease of use and usefulness of technology for organisations in both Australia and Southeast Asia. This finding helps to exclude explanations associated with the technology itself as reasons that work against technology adoption. It helps provide further confidence in the view that the region (including cultural factors and strategic orientation) and organisation size are key factors that account for technology adoption and the types of technology used.

This report identified three enablers of technology, and the most important for survey respondents related to security and privacy issues (a technology-related enabler). While efficiency gains, productivity, quality, and growth opportunities were still important to all organisations – especially large firms – addressing the consequences of new technology (data security and data privacy) remains a future priority. These issues highlight a potentially important role that can be played by a range of internal and external stakeholders.

To improve organisation-related enablement, top management, staff, and organisational support were important across both regions. Widespread support across organisations was critical, suggesting that impediments to technology adoption and implementation can increase when one or more levels of support are absent.

Environment-related enablers, such as competitive pressures and regulatory support, played some role but were less important in general, particularly among Australian participants. This reinforces our findings that important regional and organisation size differences exist in technology orientation, technology usage and strategic mindsets.

TECHNOLOGY BARRIERS, EXPERIENCE AND STRATEGIES

Compared to other barriers to technology adoption, such as data security concerns (a technology barrier), cost was not prominent in organisational decision-making on the take-up of new technology. This is an important finding because it shows that resources are not a major impediment to firms embracing relevant technologies.

While small organisations reported much lower average ratings than large firms for organisational support, this barrier is different from accessing the requisite resources to finance technologies. The data showed that top management, staff and organisational support could be important barriers to technology adoption, and this was consistent across both Australian and Southeast Asian organisations. This also aligns with the findings on the enablers of technology.

Survey respondents from both regions were generally positive in their assessment of their success in using technology. However, more sophisticated, and arguably less well-understood technologies such as RPA, blockchain and AI were assigned relatively lower ratings (see also Walsh et al., 2021).

In contrast, ERP and CRM were rated higher on average in their perceived success, suggesting an important educative and training role still exists regarding some technologies. Noting that cost is not necessarily a prohibitive barrier (see above), such education and insight sharing will assist more organisations to better understand the advantages, including efficiencies and productivity benefits, of using new technology.

Finally, the study highlighted different strategies for successful technology adoption. Staff capability and top management support were important, more so according to Southeast Asian respondents. This may reflect the different competitive dynamics, with both internal and external factors relevant to this context. For all respondents, however, having IT experts to drive technology implementation was helpful.

Smaller firms were also identified as having more challenges in successfully adopting and implementing technology. Given the large number of small businesses in the Australian economy, this confirms the need to treat firms differently in terms of the requisite supports, with the need to direct additional resources and activities to small organisations. Valuable supports here might include training and development, project management skills, assistance with systems and infrastructure, and vendors providing trials and demonstrations (as well as ongoing support).

CONCLUSIONS AND RECOMMENDATIONS

A broad range of technologies are in use in Australian and Southeast Asian organisations, with more complex and arguably less well-understood technologies, e.g. RPA, blockchain and AI, less common in the Australian context. This is consistent with the findings of other recent reports (e.g. CPA Australia, 2021). Where RPA and blockchain are more likely to be adopted is in (large) public sector organisations that deal with large-scale data sets.

Organisations based in Hong Kong and Singapore are more likely to use all technology types (as measured in this report) more frequently than those in Australia. This suggests that a different orientation towards the benefits of technology exists among important trading partners to Australia. We suggest that there are opportunities to address this gap in Australia.

There are three major barriers to technology adoption and implementation: technology-related, organisation-related, and regulatory/economic barriers. As an example of the first of these barriers, security and privacy remains a primary concern.

The pace at which new technology is emerging introduces important data security and privacy challenges for organisations. To help ensure technology is used when relevant to organisational requirements, internal and external stakeholders, such as CFO/CIO, IT champions, staff, technology vendors and the government, can all play a role in strengthening security and privacy.

Importantly, cost was not considered to be a major barrier to technology adoption among those surveyed. Organisations that have a technology strategy and provide relevant and proactive support for technology implementation will benefit. Such supports are particularly important for small organisations that lack the size and scale to leverage the advantages of technology for their businesses.

Further, effective communication, realistic timelines for adoption and addressing compatibility and usability concerns (e.g. through trials and vendor demonstrations) are also important practical measures that can help overcome organisation-related barriers. The study also highlighted that education and training, project management, engaging staff across all levels of the organisation, and staying informed were valuable approaches to aid the implementation of new technologies.

We contend that multiple actions that collectively address the technological, organisational, and regulatory and economic barriers of technology adoption are required. Such actions must be consistent and align with an organisation's technology or digital transformation strategy.

We also suggest that organisations that consciously adopt such strategies will know how to best evaluate the success of new technology for their business and further embrace the 'normalisation' of technology in the mindset of their senior managers and staff.

Key recommendations

1. There are numerous barriers to technology adoption. Organisations need to consider how and to what extent various technology-related, organisation-related, and regulatory/economic barriers limit the take-up of new technology. We strongly suggest that the development of a technology strategy is an important prerequisite for organisational change. This recommendation echoes earlier work (see CPA Australia, 2021).

2. Organisations that see the importance of technology are more likely to use technology. The subsequent use of technology is then more likely to provide important productivity and efficiency advantages for such organisations.

   To assist organisations – especially those in Australia – we advocate relevant education and training opportunities (including those relating to security and privacy issues) that will help convince more organisations and their senior managements to embrace suitable (and advanced) digital technologies.

   This is an important opportunity for professional associations and other stakeholders to address. Professional associations that provide regular thought leadership, webinars, communications, and other practical supports will help organisations see the value of technology for their operations. This will benefit all firms, especially small organisations.

3. As the previous recommendation noted, technology adoption and implementation are enhanced by the sufficient training of employees or staff. This can be done in-house, with the support of technology vendors or by the recruitment of new staff from the external labour market. This could include private sector firms recruiting those from the public sector familiar with RPA and blockchain technologies or the recruitment of highly trained graduates.

   The former scenario provides additional career opportunities for those in the public sector; in the latter, universities and other higher education providers need to ensure their curriculums and students' practical experiences with new technology are current and fit for purpose. Staff with the requisite skills for technology can help overcome cultural and technical barriers, act as technology champions, and help drive positive change throughout organisations.

4. While regulatory/economic factors are considered less critical by many organisations, our study nonetheless revealed that an important role can be played by governments in providing the necessary legislative and regulatory environment for new technology adoption. Such an environment will help mitigate concerns about security and privacy issues. Further, we also urge governments to consider how technology use can be more extensively incentivised and leveraged to advantage the many small organisations in Australia. Doing so will enhance their efficiency and productivity and ensure that Australian organisations remain leading edge in terms of their technology deployment compared with regional competitors like Hong Kong and Singapore.

5. While we noted that different barriers to technology adoption and implementation exist, we also found there were many strategies that organisations can employ to embrace new technology successfully. These strategies should be considered holistically rather than piecemeal, and we urge organisations to collectively consider a range of technical, operational, and environmental solutions to increase the likelihood of success.

6. Building on the previous recommendation, organisations will need to 'own' and drive the important strategies and actions needed for technology success. However, we advocate an important role can be played by professional associations, technology vendors, universities and higher education providers, and the government. They can work to actively encourage, educate, support and enable organisations to maximise the benefits associated with new technologies. Different stakeholders can contribute to helping organisations implement technology successfully while enhancing a growing orientation or business mindset towards new technologies.

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