

THE IMPACT OF TECHNOLOGY ON THE DESIRED SKILLS OF EARLY CAREER ACCOUNTANTS

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EXECUTIVE SUMMARY

The accounting profession has experienced significant technological change which has impacted on how accountants acquire, analyse and interpret data to inform organisational decision-making. Key trends in technology have meant that tasks traditionally performed by early career accountants are often automated. Accountants are now expected to have the expertise and skills to leverage technology to complete tasks and make decisions far earlier in their careers than before. This development invites not only a deeper understanding of professional knowledge and standards, but also a growing recognition of how technology can interact with, and potentially change, existing accounting knowledge and standards. In other words, technology should be seen as a dynamic rather than static factor in contemporary accounting work. This commissioned report responds to industry calls to determine the impact of technology on the required skill sets for the accounting profession to remain relevant (Deloitte, 2017).

How technology impacts on the skills and ongoing professional development of early career accountants is the specific focus of this report. To do so, we also examine the extent to which organisations are looking for, and value, different skills among early career accountants, because of trends in technology. This requires us to explore the views of both early career accountants and organisations as we canvas such issues as the preparedness of early career accountants for technology, effective ways of building future-oriented capabilities relevant to technological trends, and which stakeholders (e.g., universities, organisations, and professional associations) are responsible for preparing early career accountants for technology.

The report is based on surveys of 315 early career accountants and 175 managers and/or recruiters of early career accountants conducted in early 2020 across a range of organisation types and sectors. Ten of the early career accountants and ten managers were also interviewed to further illuminate their experiences and perceptions on the impact of technology on the skills of emerging accountants. Descriptive statistical analysis and direct quotations from participants were used to present the key findings.

To help frame the report, the work of Jackson et al. (2020) was used to identify the broad capabilities of accounting graduates. The value of the ten categories of graduate capabilities identified by Jackson and her colleagues allows different stakeholders to best distinguish those capabilities most applicable to different areas of business, including accounting. Our major findings showed some of the following:

- Skills for contemporary accounting success included effective communication, data and technology, problem solving, accounting knowledge, and professionalism.
- Those skills with less emphasis for success by early career accountants and managers included working effectively with others, self-awareness, critical thinking, enterprise, self-management, and responsibility and accountability.

- The perceived impact of technology on success in the accounting profession was greater among early career accountants than managers; was greater among early career accountants and managers in large private sector organisations than other organisation sizes; and was lower among those working in the public sector compared to other sectors.
- Early career accountants and managers noted five main ways that technology changed the skills for success, providing pathways for empowering and upskilling new accountants for future success.
- Just over one-half of both groups believed early career accountants were largely prepared for technology. More managers considered that early career accountants were not as well prepared for technology as did early career accountants themselves.
- Preparedness for technology was more acutely perceived by early career accountants in the public sector and managers in smaller organisations. Factors influencing preparedness were exposure to latest technology, as well as a positive attitude to learning.
- Vital for developing skills in technology were personal agency and a lifelong approach to learning, enterprise skills, formal training, networks, and opportunities to practice.
- Early career accountants and managers perceived different value from universities, organisations and professional associations in terms of the development of skills for technology.
- Given the complexity of technology, there remains an important and complementary role for universities, organisations and professional associations to contribute to the development of skills for technology among early career accountants.

The implication of these major findings precipitates a number of calls to action. These include:

- Re-examining some of the less developed skills for early career accountant success in terms of (i) the impact of these remaining under-developed, and (ii) how these might shift over time with changes in technology.
- Seeking to better align areas where the different views of early career accountants and managers ('the what and how') pose real and ongoing challenges to the successful adoption of technology in accounting practice.
- Understanding the opportunities for university providers, internal/in-house training by organisations, and professional associations alike to play a pivotal role to better develop technology skills among accountants, and how best to achieve this.
- Exploring and then leveraging on ways that universities, organisations, and professional associations can each potentially adapt their training to better support early career accountants and managers. Further, to consider how the training quantity and/or quality reflects the specific needs of accountants in certain sectors and organisation types.
- Furthering the promotion of collaborative and co-creation practices across relevant stakeholders to enhance the technology skills of early career accountants. Universities, organisations and professional associations might jointly co-ordinate short courses, such as micro-credentials focused on areas such as new software, cybersecurity, and data analytics.

TECHNOLOGICAL TRENDS IN ACCOUNTING

While there are many drivers of change for the accounting profession, technology is crucial and is noted as the greatest business challenge for accountants in public practice (CPA Australia, 2019). Trends in technology have previously generated concern for job losses in the accounting profession (CAANZ, 2017), yet are now widely recognised as critical for innovation (Sage, 2019). Rather than devaluing the profession and displacing accountants, technology is empowering it. Machines can undertake routine, repetitious tasks, leaving accountants to perform higher level duties (Goh et al., 2019), providing the profession with opportunities to be more cost effective and efficient (Forbes, 2017). Key technological trends impacting on the profession are described below.

INTELLIGENT AUTOMATION

These technologies combine into an Intelligent Automation strategy, enabling accountants to partner with technology to optimise workflow processes and problem-solving (KPMG, 2018).

Robotic Process Automation. The use of robots (bots), or digital workers, to carry out well-defined and routine tasks, such as payroll, accounts payable and receivable, and conducting audits. This has affected how accountants acquire and process data, and report information to others (Davern et al., 2019). There can be multiple bots undertaking different tasks, essentially forming a virtual workforce (Loh & Ashton, 2019). Automated data entry means consistent, reliable and fast data can be imported into reports, increasing efficiency and accuracy (Forbes, 2017).

Machine learning. This has been used to analyse and classify data through logical reasoning, algorithms and mimicking human cognitive processes. It allows computers to forecast, make predictions, conduct risk assessments, and estimate under varying conditions to inform decision-making (Goh et al., 2019). Data analytics provide rich insights for formulating client advice and strategy.

Vision, sound, text. Scanning visual objects, detecting words in spoken phrases, analysing text and using virtual agents (chatbots) for the purposes of digital chat support, helpdesks, social media and compliance (Goh et al., 2019). These services are reliable and can be provided 24/7, responding to peaks and troughs in the business cycle, with no disruptions such as employee sick leave or holidays.

BLOCKCHAIN

Blockchain uses peer-to-peer technology to produce shared, secure digital ledgers - such as contracts and asset registers - which can be continuously updated and tracked (CAANZ, 2017). It enables shared users, unknown to each other, to conduct safe, real-time transactions without an intermediary, such as a bank, to reduce time and costs (Deloitte, 2017). The shared data entries promote standardisation, verification and accountability, allowing for easy authentication of digital documents, and enhanced data privacy through encryption. Blockchain may be public, available to all those who can access the internet, or set up as private where access is restricted to those with permission (Deloitte, 2017).

Capital spend on blockchain is on the rise with the Big Four accounting firms leading the way in researching and trialling its use in the industry (Vetter, 2018). Blockchain has the potential to transform financial reporting and auditing processes, and other businesses, such as trading in the financial services industry, securing shared electronic medical records in healthcare, and asset registries in the public sector (Deloitte, 2017).

CLOUD-BASED SOFTWARE

Cloud computing allows resources and data to be shared across multiple computers and devices, allowing accountants to collaborate on data and information and share work with their clients. The rise in cloud-based accounting software has eased the load on smaller organisations for 'keeping their books' but means that accountants also need expertise on their use. The global market for accounting software is predicted to rise to \$11.8 billion by 2026 (Blackline, 2018) and more than 50 percent of small businesses in Australia and New Zealand use cloud accounting software (CPA Australia, 2019). Some intelligent automation technologies, such as machine learning, are predicted to move into the cloud (Forbes, 2019).

Software as a service (SaaS) is where users draw on cloud-based, business application software from a centralised source, on fee-for-use basis. The central provider owns and hosts the software and rents aspects of it to network users. Almost one-half of CPA Australia's members believed SaaS is having a substantial positive impact on their business (CPA Australia, 2019). Single touch payroll (STP), also cloud-based, aids the streamlining and reporting of data for tax purposes and at relatively low cost. Registration for STP is now required for organisations with four employees or more for the reporting of wage and superannuation details to the Australian Taxation Office (ATO) (Corden, 2019). This is a significant shift for the ATO which next plans to facilitate standardised e-invoicing.

THE PROFESSION'S RESPONSE TO TECHNOLOGY

The accounting profession recognises the importance of technological advance. It is considered crucial to success, creating a more flexible working environment, and improving efficiency, quality and communication and engagement with clients (CPA Australia, 2019). It also poses significant risk for organisations that do not keep pace with trends and are unable to meet client demands. Key to this is having appropriately skilled staff who are agile and responsive to technological change. Many accounting organisations, however, are struggling to source the talent they need.

The pool of potential recruits has shrunk due to reduced higher education enrolments in accounting courses and the average number of applicants for an accounting vacancy has fallen by 40 percent (CPA Australia, 2019). Applicants that do present for advertised roles often lack the experience and skills needed to meet client demands. To build capacity, accounting organisations are increasingly looking outside their profession (Sage, 2019) and look to offer flexible work, and enhanced salary and leave packages as ways to attract talent (CAANZ, 2017).

CHANGING ROLE OF ACCOUNTANTS

Technological trends are predicted to cause a 40 percent net reduction in staffing levels in finance by 2025 (Accenture, 2019). Many of the tasks traditionally completed by entry-level accountants are now automated, creating flatter organisation structures with less staff undertaking lower-level activities (CPA Australia, 2019). Accountants are now working in cross-functional teams and are expected to be tech savvy to be effective in their roles. Auditors, for example, may administer and oversee functions in a private blockchain, and arbitrate any arising disputes between shared blockchain users. They may verify the trigger of smart contracts or assess the robustness of the blockchain platform.

Early career accountants need expert knowledge and must demonstrate business acumen and professional judgement far earlier in their careers than before (Davern et al., 2019). The focus is no longer on transaction, but data acquisition, interpretation and consultation with clients to advise on ways to grow and enhance

their businesses. Automation has meant more highly skilled roles, such as optimising capital, improving processes and controlling costs, which require analysis, problem-solving and decision-making.

Accounting firms have broadly experienced shifts in the demand for their services with increased value placed on specialist knowledge, such as environmental, social and governance issues, and business advisory services. The accountant now acts like a 'virtual CFO', using benchmarking data and business planning tools to oversee the organisation's competitive position (CPA Australia, 2019). Accounting firms must remain agile to market needs, expanding into new areas to attract, service and retain clients. Essentially, the accountant's role has transitioned from 'bean counter to strategic counsel' (Blackline, 2020), calling for an understanding of the entire business and provision of strategic advice based on analytics, forecasting and informed decision-making.

REQUIRED CAPABILITIES OF EARLY-CAREER ACCOUNTANTS

More than three-quarters of accountants believe the skills and qualifications required for public practice are changing (CPA, 2019). Accounting is not alone in evolving skill requirements, with more than one-third of occupations' desired skill sets predicted to be different by 2025 (World Economic Forum, 2018). There is concern in the accounting industry that graduate talent does not have the right mix of skills and is not adapting to evolving skill requirements (CPA Australia, 2019). This lack of talent is a key barrier across the globe to the adoption by firms of artificial intelligence (PWC, 2019).

There has been significant attention to the skills required of early career accountants, including new graduates in recent years but less on how

these have been impacted by technology. This capabilities framework encompasses the skills, attributes and attitudes considered crucial for future work and is broadly oriented to graduating business students (Jackson et al., 2020). It can be debated whether certain capabilities can be taught at university, or later by professional association or internal training, or if they are personality-related or simply acquired with work and life experience (O'Connell et al., 2015). Certainly, it is unrealistic for the accounting profession to expect universities to develop all such capabilities in every student (O'Connell et al., 2015). For each of the ten capabilities, there are nuances in skill demands and provision for the accounting profession.

WORKING EFFECTIVELY WITH OTHERS

Task collaboration	Contribute constructively to group tasks through collaborative communication, problem solving, discussion and planning, on and off line and within agreed timelines.
Team working	Operate within, and contribute to, a respectful, supportive and cooperative group climate.
Social intelligence	Acknowledge the complex emotions and viewpoints of others and respond sensitively and appropriately.
Cultural and diversity awareness	Work proactively and appropriately with people from diverse groups.
Negotiation	Actively listen and demonstrate empathy when putting forward one's perspective to achieve a common goal.
Conflict resolution	Address contentious issues and matters of conflict with key stakeholders in a constructive and appropriate manner.

Working effectively with others is one of the top four most important skills for the accounting profession (CAANZ, 2017). Accountants need to collaborate, work as a team and motivate others to achieve common goals (EY, 2018). They must work with management and cross-function co-workers on interpreting data and communicating what it means for the organisation (Pan et al., 2019). They are expected to have the confidence and capability to influence and persuade (ACCA, 2016), even when entering the profession (Chaplin, 2017). Crucial to meeting client needs is listening objectively and asking questions (Hood, 2020), as is a culturally aware workforce which will foster creativity and innovation. Overall, this skill set is underdeveloped in accountants (CPA Australia, 2019) and the profession has not yet leveraged the benefits of a diverse workplace (Sage, 2019).

COMMUNICATING EFFECTIVELY

Verbal communication	Communicate orally in a clear and professional manner which is appropriately varied according to different audiences and seniority levels.
Giving and receiving feedback	Seek, give and receive feedback appropriately and constructively.
Public speaking	Speak publicly with confidence and in a style appropriate to the audience.
Meeting participation	Participate constructively in meetings.
Non-verbal communication	Recognise and respond appropriately to non-verbal cues.
Written communication	Communicate in a clear, structured and professional manner using written formats most appropriate for the target audience.

Significant volumes of data generate information which then needs to be clearly articulated both orally and in writing to cross-functional teams, management, and clients. Communicating across multiple channels, including effective online dialogue, is important in the accounting profession (Hood, 2020). Although the communication skill set is considered one of the most important for accounting organisations (CAANZ, 2017) it is one that is inadequately developed (CPA Australia, 2019).

SELF-AWARENESS

Self-reflection	Reflect on and evaluate personal practices, values, strengths and weaknesses in the workplace.
Self-development	Actively seek, monitor and evaluate sustainable opportunities for personal and professional learning.
Career self-management	Develop meaningful and realistic career goals and pathways for achieving them in changing labour market conditions and disruptions to industry.
Personal brand	Develop and promote own personal brand which reflects personal values and clearly articulates strengths, capabilities and achievements.

Self-awareness, particularly through reflection, is considered foundational for working effectively and communicating well with others, both critical for accountants when delivering on clients' needs (Psaila, 2018). Given the impact of technology on their profession, accountants must embrace lifelong learning and anticipate future-oriented capabilities, continually renewing their skills to remain abreast of cutting-edge practice. This is critical for their organisation's success but also to retain positional advantage in the labour market.

THINKING CRITICALLY

Conceptualisation	Recognise and interpret patterns and concepts in documents and scenarios to understand the 'bigger' picture.
Evaluation	Objectively analyse and make judgements on key points in a range of documents and scenarios.

Accounting requires scenario analysis and contingency planning to inform professional judgement. More than three-quarters of top 100 Accounting firms cited critical thinking as a leading skill set for the accounting profession (CAANZ, 2019).

DATA AND TECHNOLOGY

Numeracy	Read and analyse numerical data and apply it to a given context.
Digital literacy	Select, use and leverage appropriate technology to address diverse tasks and problems.
Using data	Be able to interpret data and use it in an informed way.
Information management	Retrieve, interpret, evaluate and appropriately use information in a range of digital and analogue formats.

Recent trends mean employers are seeking accountants with IT skills, including high levels of competence in Excel, customer relationship management tools, portfolio management software, business intelligence software, and cloud-based technology (Heath, 2018). They need to be able to both apply and oversee technology that automates administrative tasks.

For example, understanding machine learning is a basic requirement but could extend to developing and testing models, and auditing algorithms (Pan et al., 2019). Being competent in programming, data modelling and database management, such as using SQL, R and Python, is highly valued (Singh & Ng, 2019). Collecting, analysing and managing high volumes of internal and external data, and transforming it into useful and accurate information is central to numerous accounting roles. The key is not just being able to use the data but also being flexible and agile to embedding new tools and technologies into workflows (Blackline, 2020). Technological literacy is now the most highly desired skill set for accountants joining the industry (Sage, 2019) yet tops the list of key skill gaps in the profession (ACCA, 2016). There is also a concern for the lack of financial maths to enable the application of complex financial reporting standards (ACCA, 2016).

PROBLEM-SOLVING

Reasoning	Use rational and logical reasoning to deduce appropriate and well-reasoned conclusions.
Analysing and diagnosing	Analyse facts and circumstances and ask the right questions to diagnose problems.
Creativity	Develop a range of solutions using lateral and creative thinking.
Decision making	Make appropriate and timely decisions, in light of available information, in sensitive and complex situations.

Being creative means accountants can draw on data and technology to generate solutions to complex business problems and add value to their clients' businesses (Blackline, 2020). One of their most important skills is to fill in the gaps and make financially sound decisions (CAANZ, 2017). More experienced accountants will demonstrate strategic aptitude, expert counsel and data-informed insights to guide leadership (Blackline, 2020).

ENTERPRISE

Innovation	Initiate and support change and add value by embracing new ideas and showing ingenuity and creativity in addressing challenges and problems.
Initiative	Take action unprompted to achieve agreed goals.
Adaptability	Adaptable to change and demonstrates flexibility in approach to all aspects of work.

A positive mindset that is open to technological change is needed to enact growth and innovation (KPMG, 2018). Flexibility is pivotal, as is curiosity and accountants who are always looking for new ways of doing things (Accenture, 2018; O'Connell et al., 2015). While agility and adaptability may come with experience, organisations can encourage flexible thinking about how people work (CAANZ, 2017) and this can be encouraged by universities in accounting students. Thinking for themselves and demonstrating initiative so entry-level accountants can 'hit the ground running' is an expectation of the profession yet may be hindered by the university assessment system which is heavily prescribed (O'Connell et al., 2015).

SELF-MANAGEMENT

Self-efficacy	Be self-confident in dealing with the challenges that employment and life present.
Resilience	Persevere and retain effectiveness under pressure or when things go wrong.
Work / life balance	Ability to maintain well-being and a productive balance of work and life.
Emotional intelligence	Recognise own emotions and regulate and adapt to the environment or common goals.

Emotional intelligence is fundamental for self-management, demonstrating empathy in challenging situations and working effectively with others (Chapman, 2018). Resilience and confidence are also important factors (Accenture, 2018), particularly for withstanding career shocks in uncertain labour markets and perpetual change amidst rapid and frequent technological change.

RESPONSIBILITY AND ACCOUNTABILITY

Social responsibility	Behave in a manner which is sustainable and consistent with company policy and/or broader community values.
Personal accountability	Accept responsibility for own decisions, actions and work outcomes.
Ethical behaviour	Behave in accordance with relevant professional standards, values and codes of conduct.
Commercial awareness	Recognise different organisational structures, industries and sectors and the importance of adapting behaviour and attitudes to varying missions, operations, culture, policies and systems.

Part of the responsibility of accounting education is to socialise students so they understand not only the technical standards but the norms, values and ethical behaviours of the profession (O'Connell et al., 2015). Ethical behaviour is also integral to their role (Chapman, 2018) and the importance of incorporating social issues in accounting education – such as sustainability and environmental management – is highly relevant (O'Connell et al., 2015). Accountants are expected to understand the business environment, where new opportunities lie and how they can be leveraged. They must demonstrate business acumen and have a holistic understanding of clients' businesses and the environment in which they operate. Commercial awareness and wider sector knowledge, however, are generally deficient in the profession (ACCA, 2016).

PROFESSIONALISM

Efficiency	Achieve prescribed goals and outcomes in a timely and resourceful manner.
Autonomy	Complete tasks in a self-directed manner in the absence of supervision.
Time management	Manage one's own time effectively to accomplish goals.
Relationship building	Able to initiate and engage in appropriate conversation, build networks and differentiate between personal friendships and collegial relationships.
Drive	Go beyond the call of duty by pitching in, including undertaking menial tasks, as required by the business.
Goal and task management	Set, maintain and consistently act upon achievable goals, prioritised tasks, plans and schedules.

Accounting professionals need to be outward facing with relationship building an essential aspect of their role. The ability to establish relationships quickly is highly desired among accountants (Sage, 2019). Empathy and the ability to engage effectively with clients, as well as working autonomously and motivating team members, is also now integral to the accounting role (Blackline, 2020).

Importantly, required capabilities may vary by sector and organisation size. Communication, task management and relationship building, for example, are most critical for small organisations while using the latest technology was less important (CAANZ, 2017).

PROFESSIONAL DEVELOPMENT OF EARLY-CAREER ACCOUNTANTS

The benefits of harnessing different forms of technology are widely recognised as pivotal to future organisational success. It is therefore important that we find ways to develop talent for contemporary, and ever changing, accounting roles.

THE ROLE OF UNIVERSITIES

Developing accounting students' skills in machine learning, analytics and programming will better prepare them for the workplace (Pan et al., 2019). Universities recognise the benefit of learning and teaching approaches that are student-centred and encourage students to 'learn how to learn' for future personal development. Learning in accounting, however, is often uniform and prescribed due to standardised assessments and accreditation requirements. This is very different to workplace learning which varies by culture and other nuances in organisational practice (O'Connell et al., 2015).

Many universities worldwide, including in China, Singapore, Canada and the UK, are designing innovative courses oriented to meeting labour market demands. Key foci include business analytics, blockchain and aspects of IT such as data mining and machine learning (Zhang et al., 2018). A major challenge is staffing where faculty members can sometimes lack the expertise and experience, yet international business school accreditation processes largely prevent accounting professionals from designing and delivering content. Further, overcrowded accounting curriculum can create difficulties for integrating content for professional capability development (Howcroft, 2017). Universities also need to find better ways of evaluating and tracking the development of future-oriented capabilities (CAANZ, 2017).

IN-HOUSE PROFESSIONAL DEVELOPMENT

Educating accountants on the benefits of technology and fostering a 'culture of innovation' (KPMG, 2018) will enable organisations to keep pace with technological change. Achieving digital fitness requires a commitment to ongoing professional development and upskilling throughout the organisation, including the top (Unsworth, 2019). Any strategies for upskilling staff to leverage technological trends need to be situated within a broader strategy to embrace technology effectively at the individual (e.g. managing automation anxiety), organisational (agility and change mindset) and strategic levels (future-focused work culture) (Loh & Ashton, 2019). Entry-level accountants cannot be expected to arrive in the workplace, be given data and simply get on with it. They need to be carefully inducted and trained on arrival (O'Connell et al., 2015) and should be prepared to re-skill if needed. They need to learn the lower level tasks which are now automated, as well as be trained to work with blockchain and cloud-based software.

Most accountants believe that organisations cannot rely on formal education systems and professional training programs to deliver the capabilities they need for effective practice (Accenture, 2019; Sage, 2019). Providing employees with internal professional development opportunities will also attract future talent who recognise the need for lifelong learning and refreshing skills in line with cutting-edge practice. It is also important for accountants themselves to recognise the lifelong cycle for development and learning, and the need to periodically upskill and be agile to changing needs. While many organisations are offering their own internal training – such as coaching, mentoring and on-the-job training, to develop the skills they need (CAANZ, 2017) – this may still not be enough to fully deliver on future skills.

CO-CREATION AND COLLABORATION

Engaging industry in the design and delivery of accounting curricula is essential to developing student understanding of contemporary practice. Engagement could be light touch, such as guest lecturing and ad hoc professional visits to share experiences in practice. Work-integrated learning (WIL) is the formal engagement of industry into student learning and assessment, widely recognised to upskill accounting students and provide them with rich insights into real-life practice. It requires considered collaboration between educators and industry partners, sometimes leading to co-creation of the curriculum. WIL could be project-focused where an accounting organisation provides a client brief for students to analyse, exercise judgement and subsequently provide strategic advice.

An accounting professional will mentor and guide student teams, and provide feedback on their work. Alternatively, students may undertake an internship where they are immersed in the workplace. Other forms include simulations and on-campus facilitation of real-life accounting activities, such as The Tax Clinic where students provide tax advice to eligible members of the community under practitioner guidance. The benefits of WIL are immense. It provides students with rich insights into professional practice and culture through shadowing and networking, as well as practice in applying accounting knowledge and developing future-oriented capabilities expected upon graduation. Enabling and sustaining educator-industry collaborations for WIL can be resource intensive for both parties, particularly the internship where student demand outstrips available workplace opportunities (Universities Australia, 2019).

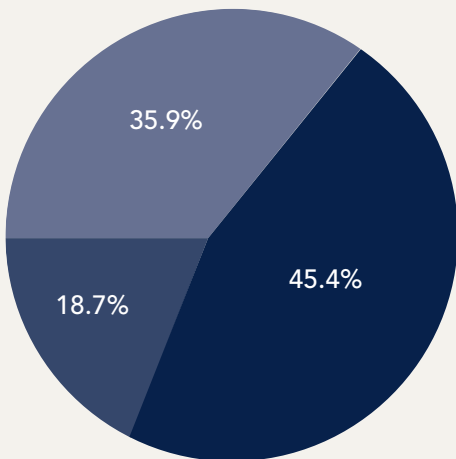
RESEARCH METHODOLOGY

Our research adopted a mixed-method and multi-stakeholder approach. It gathered data from 315 early career accountants in early 2020, those with a degree of any kind and working in an accounting role for between one and five years. Participants completed an online survey and 10 undertook a virtual interview via video

conferencing. One hundred and seventy-five managers (175) and/or recruiters of early career accountants were also surveyed in early 2020, and 10 also participated in virtual interviews. Participants were from across Australia with all states represented.

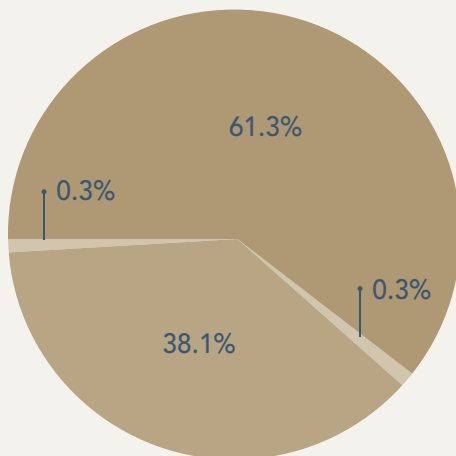
EARLY CAREER ACCOUNTANTS

RESPONDENTS BY AGE



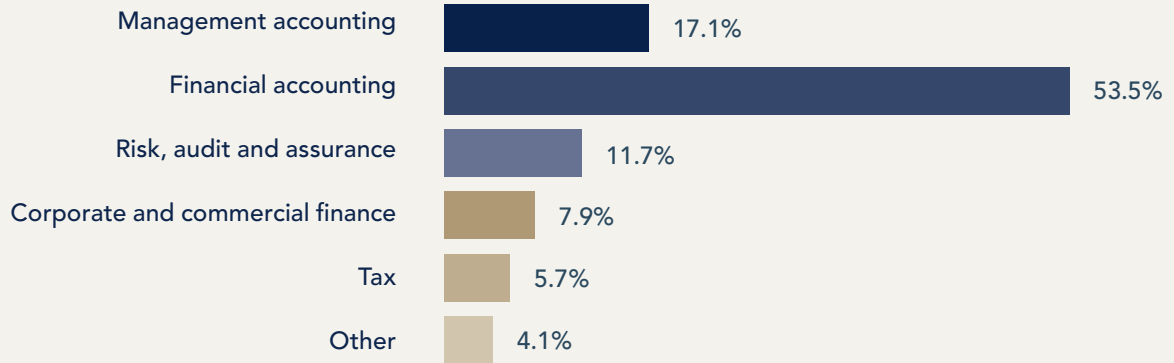
- 18.7% 40+ years
- 35.9% 29 and under
- 45.4% 30-39 years

RESPONDENTS BY GENDER

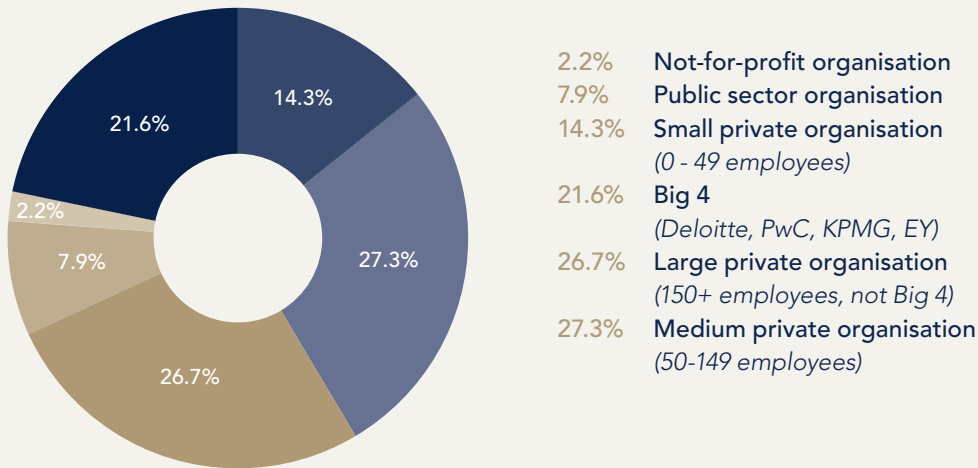


- 0.3% Non-binary
- 0.3% Transgender
- 38.1% Female
- 61.3% Male

RESPONDENTS BY AREA OF ACCOUNTING

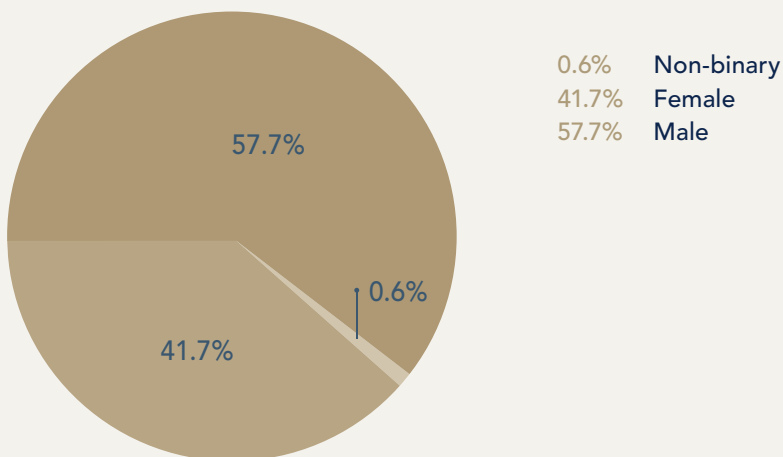


RESPONDENTS BY TYPE OF ORGANISATION

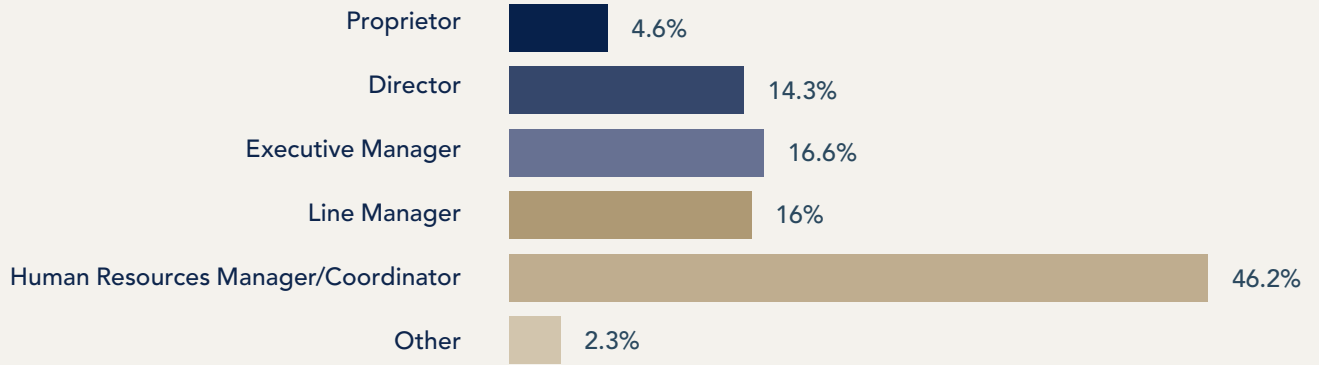


MANAGERS OF EARLY CAREER ACCOUNTANTS

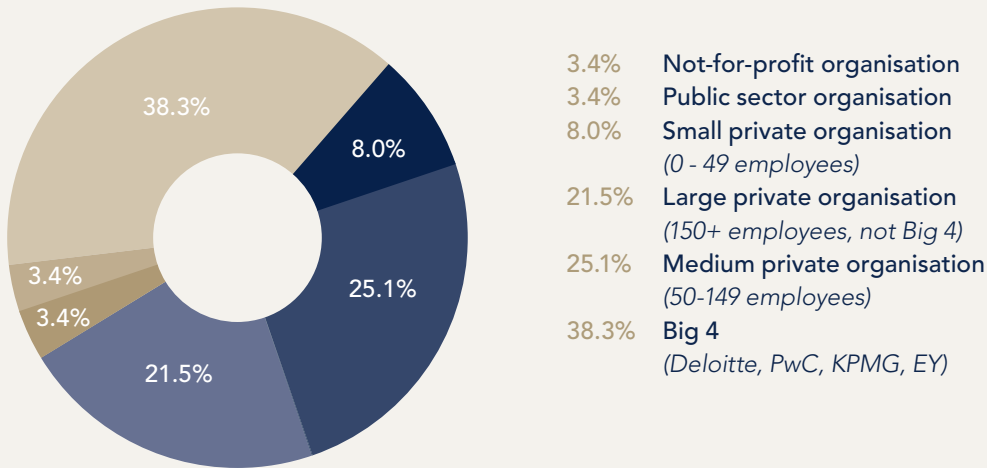
RESPONDENTS BY GENDER



RESPONDENTS BY ROLE IN BUSINESS



RESPONDENTS BY TYPE OF ORGANISATION



KEY FINDINGS

SKILLS FOR SUCCESS

In the interviews with early career accountants and managers, the data and technology skill set emerged as the most important for success by both groups. Overseeing data processing was fundamental, and this included being digitally literate, tech savvy and familiarity with software. While many no longer needed to process the data themselves, understanding automated systems was nonetheless essential for data integrity and how to best perform their own roles.

[early career accountant]: “things are very technology driven so you have to keep up with that, you need to know how to use different apps, how to install certain things, how to get certain things on your phone, and keep up with phishing and hacking”.

Communication was also considered crucial for success by both early career accountants and managers. Being able to engage and articulate in a timely and intelligent fashion with clients, co-workers and senior management, including through virtual meeting tools was paramount.

[early career accountant]: “the role of the accountant is a lot more like a business partner. You interact with a lot of stakeholders ... suppliers, employees, colleagues, directors ... so you need very good communication skills, written and oral”.

One manager also observed the necessity of sound communication skills:

[manager]: “one of the big problems with accounting graduates in particular is they tend to be introverted”.

Accounting skills and knowledge, and staying abreast of new legislation, updates and new systems were integral to their roles, as seen by both early career accountants and managers. Problem-solving was also important, particularly adding value through analytics to inform decision-making. Aspects of professionalism, namely time management, efficiency, and relationship building, were noted as significant skills for success by early career accountants and managers alike. To a lesser extent, working effectively with others (social intelligence and task collaboration); enterprise capabilities (adaptability and initiative) and self-awareness (goal setting and self-development) were mentioned by early career accountants. In contrast to early career accountants, adaptability, curiosity and initiative, part of enterprise, were highly valued by managers. This sense is captured in the following:

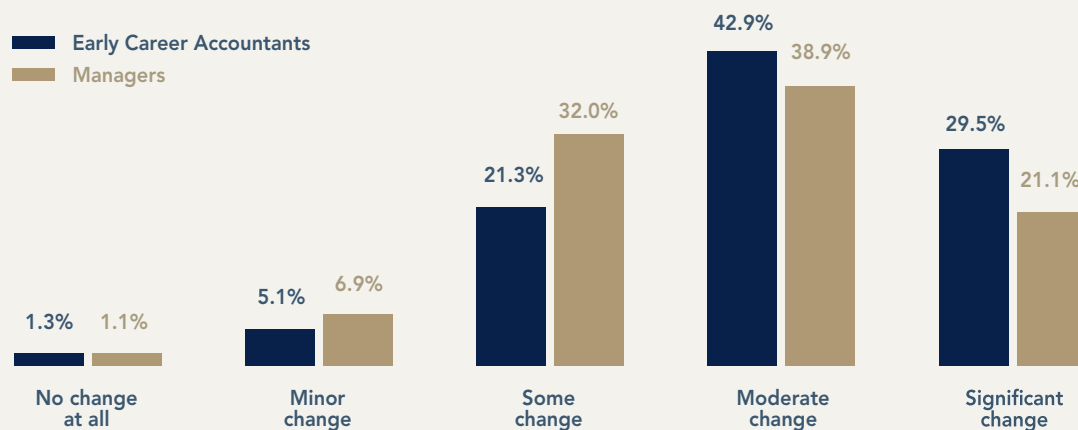
[manager]: “Before just asking someone else, making sure that they go have a look ... actually having a bit of initiative and drive to find the answers themselves”.

Interestingly, ethical behaviour and being able to work effectively with others were each only noted as important by one manager.

IMPACT OF TECHNOLOGY ON REQUIRED SKILLS

Both early career accountants and managers strongly believed that technology changes the skills needed for those in the early stages of their career to succeed in the profession.

CHANGE IN SKILLS NEEDED BY EARLY CAREER ACCOUNTANTS FROM TECHNOLOGY



72% of early career accountants felt technology either moderately or significantly changed the skills for success and only 6% believed there was minor change or no change at all. The larger the private sector organisation, including the Big Four, the greater the perceived impact of technology on required skills. Changes in skills from technology were not believed to be considerable in the public sector.

60% of managers felt technology either moderately or significantly changed the skills needed for early career accountants to succeed in the profession. Only 8% felt there was minor change or no change at all. Managers from large organisations believed the impact of technology to be greater than those in the Big Four, and medium sized businesses.

In terms of how technology changes the skills for success, early career accountants and managers noted five main ways.

First, there is a shift from data processing to analytics, interpreting data, solving problems, and adding value. This includes thinking of ways to automate for efficiency.

[early career accountant]: "if we are using data analytics to look at activities then we will need new knowledge of how these

platforms operate and how we can actually use them to provide solutions, and what solutions are we actually going to get from using these platforms?

[manager]: "so the accounting graduate doesn't need to know how to write the program itself, but they should have enough knowledge to identify areas where it may have problems and liaise with a technologist on working towards putting a solution in place".

Second, there was greater pressure to understand technology, including being aware of different software, learning to code and program and being across emerging technologies.

[manager]: "Now employers are saying 'I don't care about the accounting, they can learn that, they need to come to us with IT skills. Because the IT skills are seen as more important and, or more difficult to find maybe, maybe a combination of both. But the problem is when you say 'IT skills, what do you mean?' You mean someone who can code, mean someone who can drive a spreadsheet or access a financial ledger'. I don't think they mean the latter, or I think it's someone who understands technology".

Third, accounting knowledge and standards must underpin and drive technology, and therefore maintaining currency is important. Considering how accounting standards can be applied with new, complex technologies can become increasingly significant.

Fourth, building people skills has become essential, particularly communicating with clients effectively and in a range of different ways.

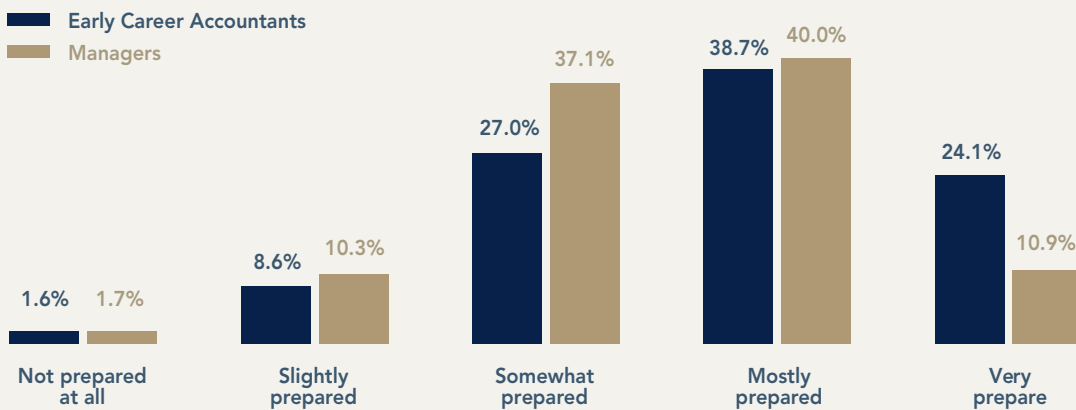
[manager]: “the ability to dissect and be able to present financial information to people in a way that they can understand and is useful for them to use. If they can’t use the information to make decisions there’s not a lot of point”.

Fifth, early career accountants and managers noted the need to keep focused on self-development, keeping skills current and fine tuning their research skills to help them learn.

PREPAREDNESS FOR TECHNOLOGY

Both early career accountants and managers believed that the former group were largely prepared for the impact of technology.

EARLY CAREER ACCOUNTANT PREPAREDNESS FOR IMPACT OF TECHNOLOGY



51% of managers believed early career accountants were mostly or very prepared, compared with 63% of the accountants themselves. For both groups, just over 10% shared the view that early career accountants were only slightly or not prepared at all for the impact of technology. Managers in small businesses considered early career accountants were better prepared, compared with those in not-for-profits and the Big Four. Public sector early career accountants perceived themselves to be less prepared for the impact of technology than those working in medium and large private organisations, including the Big Four.

Of the early career interviewees, eight felt prepared for the impact of technology. Preparedness was largely determined by the degree of exposure to technology at work.

[early career accountant]: “the Big Four ... their drive towards innovation and the exposure that you get is quite massive, so you kind of understand the fusion that exists between the profession and the innovative practices. You’re kind of there to see firsthand what happens”.

Being adaptable, confident, open to change, and being proactive with learning about new technologies were also important.

Managers were less assured that early career accountants were prepared for technology. They considered that daily life exposure to technology, such as smart phones and apps, helped early career accountants to understand the speed of change and be more open to it. While universities gave insight into broad trends in technology and integrated some software training into the curriculum, this was not considered sufficient to adequately prepare

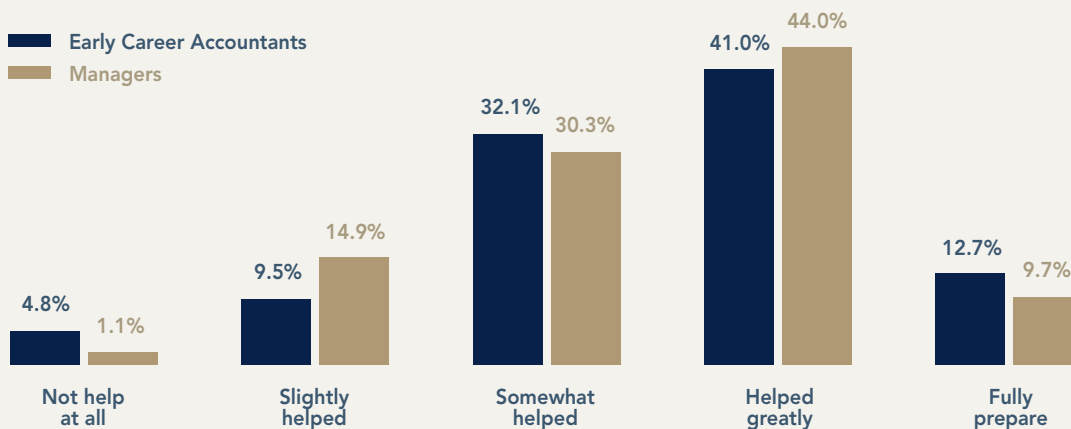
entry-level accountants. Many didn't fully grasp the impact technology could have on job roles and their future career. Gaining exposure through work for early career accountants was deemed far more beneficial by managers, particularly through on-the-job training and development opportunities although this may only be accessible in larger organisations. The importance of a positive attitude to learning was also noted.

DEVELOPMENT OF REQUIRED SKILLS

At university

Both early career accountants and managers believed that while a university degree provided some help in preparing early career accountants for the impact of technology, more could be done.

PREPARATION BY UNIVERSITIES FOR IMPACT OF TECHNOLOGY



Only 54% of both groups considered a university degree helped greatly or fully prepared early career accountants for the impact of technology. 14% of early career accountants and 16% of managers felt that a university degree provided no help at all, or only slightly helped.

Early career accountants did believe universities had prepared them for the impact of technology through authentic curriculum-based activities and assignments where they engaged with real-life data and used relevant software.

IT-specific units, focused on accounting information systems, also helped them to become tech savvy. However, there needed to be more of this, particularly exposure to latest versions and types of software. Connecting with local industry was also important through career fairs and professional networking events.

Managers valued scenario-based learning, case studies, internships, and guest lecturers in preparing new graduates for the impact of technology.

They saw the connection with local industry as critical to understanding what businesses needed and then building that into the curriculum. Making good use of course or program consultative committees and having academics with real-world experience were important. Finally, training in new technologies – such as cloud-based software, blockchain, and artificial intelligence – were also valued by managers. Things that did not work in universities’ favour was the shift to online

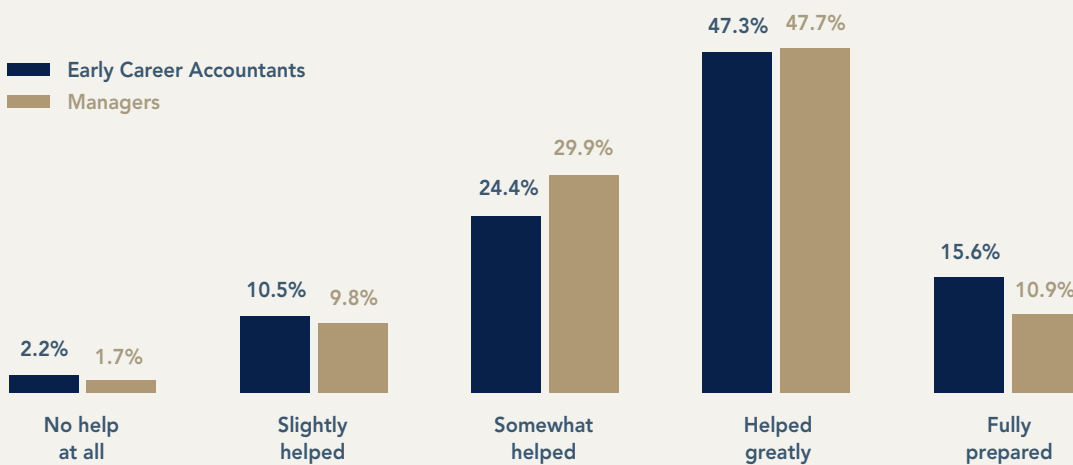
study which managers’ felt lost some of the human connection and group working skills. The lack of space in the curriculum was also a problem, as was communicating the extent of technological change and what it meant for the accounting profession.

[manager]: “the graduates that I’ve come into contact with are not fully aware of the scope and the breadth of the technological change and what that’s going to mean for accounting roles”.

In the organisation

Early career accountants were slightly more positive than managers in the value of internal training for preparing them for the impact of technology.

INTERNAL TRAINING PREPARATION FOR IMPACT OF TECHNOLOGY



63% of early career accountants found on-the-job and in-house training helped greatly or fully prepared them for the impact of technology, compared with 58% of managers. Those based in the Big Four found their training prepared them significantly, compared with those in public sector organisations. Around one-quarter of each sample believed it somewhat helped and just over 10% felt it was of no or only slight help.

Both early career accountants and managers believed organisations prepared them for technology through structured formal training, often online, which targeted software and system changes. Informal, on-the-job training and learning from mentors, co-workers and

management through conversations on how to use and apply technology were important. Some learning was intentional while other learning arose with client needs. There was an advantage of being in a large, well-resourced organisation with a technology strategy and that facilitates regular training, compared with smaller businesses or the public sector. Early career accountants recognised the importance of being proactive and pursuing available learning opportunities to upskill in technology. They did this largely through online resources (webinars, podcasts, YouTube videos), but also subscribed to relevant magazines and website content and attended professional association events.

FUTURE PATHWAYS FOR SKILL DEVELOPMENT

Both early career accountants and managers considered ways to build skills for trends in technology a) while at university, b) when entering the profession and training to become an accountant and c) on an ongoing basis with their employer and professional association.

During university years

Early career accountants and managers considered there were four main ways of building skills for trends in technology at university.

The **top one** was skill development in course curriculum. Core theoretical concepts, identifying technological trends, and integrating cross-functional data and analysis through the latest software were considered valuable. If necessary, incorporating units or modules from the computer science area to get exposure to latest accounting information systems and software, such as blockchain, was recommended. Delivery by skilled academics and with input from industry were fundamental for adding value.

Second, was the practical application of skills. This called for practical learning activities and assignments which drew on real-life data and scenarios. Undertaking an internship or part-time work where students are exposed to the realities of practice and can apply theory in a practical setting were considered crucial.

[manager]: "Placements are an invaluable way of building those skills. I think there's not enough, they need to do more of them across a broader range of organisations. I think starting earlier and having it integrated into the course from their first year of study would help enormously".

[early career accountant]: "I believe experience trumps qualifications. Being able to prove what YOU can bring to the firm far exceeds what you were able to achieve in studies".

Third, many saw the value of personal agency, with students needing to engage with peers, study hard, be curious, develop a positive mindset and focus on continuous learning.

Fourth, the importance of engaging with training opportunities, such as webcasts, online courses, workshops and blogs, on specific content was noted. Some, but perhaps less than expected, felt staying informed of developments in industry through professional contacts was important for skill development.

Entering the profession

Managers believed that being a proactive learner was critical when entering the accounting profession and would enable future learning. Being curious, actively seeking learning opportunities and staying informed of new practice in the industry were also critical. Early career accountants also believed proactivity was key to building skills in technology in their organisation. Being an active learner and undertaking research and self-directed learning was essential to on-going development.

Enabling new accountants to accrue experience in using technology through practical application was rated by early career accountants and managers alike. Considerable value was placed on exposure to different forms of technology and opportunities to practice using it as part of their role. Accruing experience in different work areas and in diverse tasks and projects that use emerging software and systems were beneficial for their learning. Participating in formal training was considered important for both groups, such as internal events, online courses and professional association education.

[early career accountant]: "rather than just doing the job itself, you need to have training platforms where you actually can train with mock data. Just putting them into the deep end will not do any favours for both parties".

Workplace networks were identified as playing a significant role in developing new professionals, particularly for the early career accountants themselves. Mentoring, on-the-job learning, buddy systems and informal networking allowed them to ask questions, observe and take notes, seek support and learn from their co-workers. Managers placed considerably more value on finely tuned enterprise and interpersonal skills for aiding skill development. Being confident, adaptable, eagerness for expertise, and being able to listen to others were deemed valuable. These skills were noted, to a lesser extent, by early career accountants. More specifically, they recognised the importance of being flexible, creative, and open to change.

In an ongoing way

Both early career accountants and managers believed becoming a talent champion through agency and continuous learning was crucial to ongoing skill development. This involved continually seeking ways to work smartly with technology, staying informed of future technologies, looking to be challenged to upgrade skills and self-directed learning to enhance professional knowledge to better meet client demands. The following comment helps to typify this:

[early career accountant]: "Certainly if you work for large multinational companies, there are many opportunities there that it's always evolving. We work in such a competitive environment where if you're not advancing, you're not progressing in getting ahead of the competition, you're just left behind. So we're constantly looking for innovation and finding new ways of doing things. 9 out of 10 times, it involves technology".

Formal training, through professional associations, external providers and the employing organisation, was considered very important. Online courses and webinars were favoured and the facilitative role of the professional association, particularly for those based in smaller organisations. While early career accountants were attuned to the insights and development offered by professional associations, such as their trending topics in monthly magazines and podcasts, managers were far less aware.

Again, enterprise skills were considered important by both early career accountants and managers, including have a positive mindset, confident, being adaptable and open to upskilling. Building and drawing on networks to learn from others was still important but less so than during the early stages of professional life. Similarly, practical experience was mentioned as important, more so among early career accountants. Interestingly, some early career accountants and managers considered that a positive work environment with software champions and access to the latest technology played a limited role in ongoing skill development for technology.

RELATIVE VALUE OF UNIVERSITIES, ORGANISATIONS AND PROFESSIONAL ASSOCIATIONS

Both early career accountants and managers were asked to rank how universities, organisations and professional associations were positioned for and capable of developing new skills arising from trends in technology.

RANK POSITION FOR DEVELOPING NEW SKILLS FOR TECHNOLOGY

	1st Rank		2nd Rank		3rd Rank	
	N	%	N	%	N	%
Managers						
Universities	92	52.6	49	28.0	34	19.4
Organisations	46	26.3	86	49.1	43	24.6
Professional Associations	37	21.1	40	22.9	98	56.0
Early Career Accountants						
Universities	122	38.7	80	25.4	113	35.9
Organisations	115	36.5	115	36.5	85	27.0
Professional Associations	78	24.8	120	38.1	117	37.1

Managers clearly felt confident that universities were best positioned to deliver on skills arising from technological trends among early career accountants. Approximately half of the group ranked universities first, organisations second, and professional associations third. More Big Four managers ranked universities first than from other organisation types. They ranked professional associations far less than others, particularly small businesses and public-sector organisations who saw value in their position for developing skills for technology. Fewer small businesses ranked organisations first.

Early career accountants were less definitive in their responses. While 39% ranked universities first, this was very closely followed by organisations. The value of professional associations was also more greatly recognised among early career accountants than managers. Early career accountants working in smaller organisations ranked universities first, and those in the Big Four, not-for-profit organisations and the public sector ranked organisations as most important. Early career accountants working in medium and larger organisations (excluding the Big Four) tended

to favour professional associations as a source of developing new skills arising from technology.

Manager

When asked to explain their ranking, managers placed such value on universities largely due to their capacity to develop foundational skills in technology among emerging accountants, as the building blocks for learning. These could then be built upon in the workplace and through practice and facing real-world problems. Universities helped new accounting employees to understand broad trends in technology, and what was expected and needed in the workplace. Some also felt that highly skilled academics were best positioned to teach future-oriented capabilities, including those related to technology, as part of a degree course. The need for universities to collaborate with industry and professional associations to build skills was noted by some, such as through internships and guest lectures.

“academic experts with genuine intellectual horsepower and if they’ve got the right programs in place”.

Those who did not rank universities first considered their primary focus on core, theoretical content and lack of resources prevented them from doing more of a deep dive into the implications of new technologies.

Organisations were valued due to their exposure to new technologies and opportunity for hands-on practice and gaining real-world experience when using them in the field. They were considered to have more resources to train new accountants in cutting-edge technologies and provide a rich learning environment through sharing knowledge and collaboration. It was noted that this, however, may not be the case for smaller businesses. While some advocated that there was an 'adapt or die' culture with technology and organisations were driven to upskill their staff as quickly as possible, other managers believed organisations would wait until technologies were proven to work and implemented, rather than anticipating future skill development.

"We spend a lot of money on those systems and that technology so, we need to make sure that our teams are up to speed on how it works. There is a very large kind of risk, our credibility is on the line in terms of what we deliver".

While some pointed to universities to introduce prospective new accountants to emerging technologies, others felt professional associations could fill this gap and be well positioned to give insights on what is to come. There was a sense among many that accounting professional associations could be at the forefront of cutting-edge training yet this potential was not being realised in the way of actual development offerings in technology-related skills, with the focus more on technical practice and governance. The value of professional associations was particularly noted for smaller businesses who are less resourced to build skills for new technologies'.

Early career accountants

Universities were valued for giving a broad overview of trends in technologies and what to expect to encounter in the workplace. It was a good beginning point to provide a broad overview of systems being used across

the industry, with later employment drilling down to exposure in specific technologies.

"University is meant to prepare you for the workforce, so it should adapt with the changing technological climate to prepare students. Once people have graduated and join the workforce, their employers are responsible for upskilling their workers".

Many, however, felt universities were not always quick enough to respond to evolving practice and could not fully prepare them on how to actually use the latest technologies.

"it can give you a bit of a textbook example on how things are but it can't really prepare you for when you actually get thrown into the deep end and have to deal with it".

Nonetheless, universities as a central hub that connects prospective accountants with professional associations and employers were valued.

Many felt the key strength of organisations was their exposure to diverse technologies and the opportunities to see them in use. This helped early career accountants to understand how the latest technologies are integrated in practice and what they mean for the profession. Organisations were also better resourced to deliver on quality training which comes free to employees.

"organisations can help channel private investments into new technologies and help emerging markets accelerate their efforts to achieve the sustainable development goals".

Participants recognised how important professional associations could be for in depth, short courses and other forms of training that develop specific skills for technology. Their ability to connect with students and professionals at the very start through to the end of their careers meant they could respond well to varying needs. Their importance to employees in smaller organisations, who have less access to training, was emphasised. However, many of the early career accountants that were surveyed expressed a lack of knowledge of what professional associations offered in the way of development for technology.

CONCLUSIONS

This commissioned study has sought to inquire:

1. The ways in which technology impacts on (i) the required skill sets and (ii) ongoing professional development of early career accountants;
2. The extent to which organisations are looking for, and value, different skills among early career accountants, because of trends in technology; and
3. The views of early career accountants and organisations into the provision of training that arises from trends in technology, with specific reference to the source of this training.

To collectively address these issues, the report draws on survey data collected from 315 early career accountants (and 10 interviews with this group) as well as survey evidence gathered from 175 managers and/or recruiters of early career accountants (and 10 interviews with this group). Descriptive statistical analysis was used to highlight the key findings. To frame the report, the work of Jackson et al. (2020) was used to identify the broad capabilities of business school graduates. The value of the ten categories of graduate capabilities identified by Jackson and her colleagues allows different stakeholders to best distinguish those capabilities most applicable to different disciplinary areas, such as accounting. We note that other business functions such as marketing or human resource management, for example, are likely to emphasise different behaviours and capabilities deemed essential by both early graduates and managers.

Skills for success

The interview and survey data were encouraging in that the views of early career accountants and managers were very similar. Effective communication, data and technology, problem solving, accounting skills and knowledge, and professionalism were rated by both groups as important skills for the contemporary accountant and therefore constitute key development

areas going forward. The strong emphasis on communication and technology-related skills echo other recent investigations in the profession. In addition, there was broad agreement among early career accountants and managers in terms of the skills which had less emphasis, including: working effectively with others, self-awareness, critical thinking, enterprise, self-management, and responsibility and accountability. The relative lack of importance given to working effectively with others is noteworthy, given earlier studies that have advocated it as one of the most important skills in the profession.

Impact of technology on required skills

While technology was believed to change the skills needed for early career accountants to succeed in the accounting profession, the impact was considered greater among early career accountants than managers. Clearly, those newer to the profession are perceiving the effects of technological trends and the demands being placed on the skills needed to undertake their work. This was more acutely felt by early career accountants and managers in large private sector organisations and far less among those working in the public sector. This may reflect differences in the rate that new technologies are being introduced into different sectors, with greater pressure among private organisations to innovate to survive.

Both early career accountants and managers believed there were five ways that technology impacted on the skills required of new accountants: shift from data processing to problem-solving and adding value; greater pressure to understand technology; the need for accounting knowledge and standards to underpin and drive technology; building of people skills has become essential; and self-development and lifelong learning is critical. These provide clear pathways for empowering and upskilling early career accountants to succeed in their roles amidst technological change.

Preparedness for technology

While just over one-half of both groups believed early career accountants were largely prepared for technology and the situation was not dire, there was certainly room for improvement. Moreover, managers tended to consider that early career accountants were not as well prepared for technology as did early career accountants themselves. This suggests the need for greater discussion, benchmarking and evaluation of performance in technology-related skills among new accountants and their managers.

Early career accountants in the public sector felt better prepared than those in medium and larger sized private sector organisations. Again, this may reflect fewer demands and less pressure to use, coordinate and leverage new software and processes than in private organisations. Managers in small businesses were more positive about the preparedness for technology than their early career accountants. This may also be due to staff being less exposed to a flow of emergent technologies due to different organisational needs and resource capacity. Exposure to technology played a big role in how prepared early career accountants felt for technology, along with being a proactive learner, open to change, adaptable and confident. While universities may not always be able to provide the necessary exposure to latest technologies, they can focus on fostering agency, and the attitude and mindset for innovative behaviour.

Stakeholder development of skills for technology

Both early career accountants and managers emphasised the importance of personal agency and a lifelong approach to learning, enterprise skills, formal training, networks, and opportunities to practice in the development of technology-related skills. There were unexceptional results for how well universities were seen by both early career accountants and managers to help prepare graduates for the impact of technology. However, what was valued in universities was authentic curriculum, the use of real data, relevant software, practical case analyses, internships, and industry guest speakers. Managers were also reassured by their involvement in university course or program consultative committees, as well as university teaching staff with real-world experience. Online study was

not favoured as it was perceived as inhibiting collaboration with others. Recent shifts to this mode of learning due to COVID-19 may have flow-on effects if more graduates enter the accounting profession with predominantly online study experience. Concerns for the lack of space for technology-related learning in the curriculum highlighted the benefit of a review of accreditation requirements.

Both early career accountants and managers saw benefits in both formal and on-the-job training by organisations to prepare early career accountants for the impact of technology. Workplace networks, developed through buddying, mentoring and informal events, played an important role in development. Superior access to learning in larger, well-resourced organisations was noted, with scope to add further value in public sector organisations and small businesses. The importance of proactivity and adopting a lifelong learning approach to technology was emphasised.

Future pathways for skill development and the role of stakeholders

There were differences in how early career accountants and managers felt universities were positioned and capable of delivering on technology-related skills. Managers clearly believed higher education was the best positioned, providing the building blocks for future learning in technology yet in collaboration with industry and professional associations. While early career accountants also acknowledged the benefit of universities for giving broad insights into the importance and nature of technology in the profession, they considered that organisations, and to a lesser degree, professional associations could give far better access to, and training in, latest technologies.

Given the complexity of technology (intelligent automation, blockchain, cloud-based software) there remains an important, complementary, and yet slightly different role to be played by universities, organisations and professional associations in terms of collaboratively contributing to the skill development of technology among early career accountants. This is a positive feature of the landscape with the strengths of each stakeholder able to make a valuable contribution to building accountant talent.

CALLS TO ACTION

- In terms of the perceived skills for success, the consistency in the list of skills perceived as both important and less important by early career accountants and managers is reassuring. However, and taking just two of the skills regarded as less important –working effectively with others, and responsibility and accountability – it is suggested the lower importance of each might undermine the future capacity of accountants to successfully work and operate as business advisers in the case of the former, and help ensure organisations act in an ethical and responsible manner in the case of the latter. This offers universities and professional associations an opportunity to further shape the desired skill sets of future accountants.
- The impact of technology on required skills as well as the interface between technology and accounting knowledge and standards was recognised as highly significant by early career accountants and managers. This represents a clear opportunity for university providers, internal training by organisations, and professional associations alike to play a pivotal role to better prepare technology skills among accountants. This would enhance the value of early career accountants to their organisations.
- Building on the previous point, universities and organisations were deemed more relevant by managers for developing new skills for technology than were professional associations. Early career accountants were less discerning in the source of the acquisition of new skills for technology with universities, organisations and professional association all of comparable value. This invites a call to action for professional associations to potentially adapt their training, development and exams in line with technology and to better support client, and especially managers', expectations.
- The role of a university degree in helping prepare early career accountants for technology was lower than expected. This might be explained by early career accountants completing degrees in areas other than accounting, and the general willingness of the accounting profession to seek talent beyond the accounting course pipeline. This suggests some need to thoughtfully consider and improve this talent pipeline, when technology is not exposed to those taking the accounting curriculum.
- In addition, the quantity and/or quality of in-house or internal training on technology by organisations for early career accountants based in the public sector and in smaller organisations provides a clear opportunity for professional associations to offer targeted assistance to their members working in certain sectors and small businesses.
- With regards to future pathways for skill development of technology among early career accountants, our study points to the recognition of both unique and collaborative sets of contribution from all stakeholders – universities, organisations and professional associations. Our data has revealed specific strengths of each stakeholder. Opportunities exist to further capitalise on these in terms of co-creation models. This might include, for example, universities, organisations and professional associations co-ordinating short programs around technology to best develop future talent in flexible and timely ways. These could be in the form of micro-credentials or single course modules focused on relevant areas such as cybersecurity, data analytics and programming.

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