



CSSR 2021

<https://www.amerabra.org>; <https://fsu.uitm.edu.my/cebs>; <https://www.emasemasresources.com>
8th International Conference on Science & Social Research
8 - 9 December 2021, Virtual Presentation



Digital Transformation of Accounting Profession: Post Covid-19 era

Zairul Nurshazana Zainuddin¹, Mahfuzah Ahmad²,
Nurul Ezhawati Abdul Latif¹, Faizal Mohamed Yusof¹, Suzana Sulaiman¹

¹ Faculty of Accountancy, Universiti Teknologi MARA, UiTM Shah Alam, 40450 Shah Alam, Selangor, Malaysia

² Faculty of Accountancy, Universiti Teknologi MARA, Perak Branch, Tapah Campus, 35400 Tapah Road, Perak, Malaysia

zairul2384@uitm.edu.my, mahfuzah4149@uitm.edu.my, nurulezhawati@uitm.edu.my, faiza549@uitm.edu.my
Tel: +60125093979

Abstract

The accounting profession faces significant challenges and noticeable changes due to the COVID-19 pandemic. The rising demand for digital talent and the need to ensure critical thinking skills are applied in making decisions have become the main challenges for accountants nowadays. A drastic change from the official site to working from home due to lockdown is an issue to be discussed. Therefore, based on case studies, this paper aims to discuss the effects of COVID-19 on the accounting profession. The selection of the case studies is based on the company awarded as Best Employer and Most Attractive Graduate Employers to Work in Malaysia in recent years. By focusing on the importance of digital and critical thinking, a framework is developed to show the transformation of the accounting profession over the last 50 years and future insights for the accounting talent in the current context. The findings show that the Accountant's traditional role of preparing a complete set of accounts is still vital and relevant. However, accountants need to equip themselves with digital and critical thinking skills to become future-fit accountants in the near future, especially in the post-COVID 19 era.

Keywords: Digital Skills; Critical Thinking; Accounting Profession; COVID-19; Transformation

eISSN: 2398-4287 © 2022. The Authors. Published for AMER ABRA cE-Bs by e-International Publishing House, Ltd., UK. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). Peer-review under responsibility of AMER (Association of Malaysian Environment-Behaviour Researchers), ABRA (Association of Behavioural Researchers on Asians) and cE-Bs (Centre for Environment-Behaviour Studies), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.
DOI: <https://doi.org/10.21834/ebpj.v7iS18.3925>

1.0 Introduction

Technology and digital adoption are changing the business landscape. The technology revolution known as the digital age has created opportunities for early adopters, including accounting and finance professionals (Association of Chartered Certified Accountants, 2016). However, the revolution impacts how businesses, specifically accounting and finance professionals work and function as they need to prepare themselves to face this new dawn (The Star, 2019). Furthermore, the recent COVID-19 pandemic crisis and its economic effects lead investors and other stakeholders to demand more high-quality financial information than ever. Accountancy firms, regulators, International Federation of Accountants (IFAC) member organisations and others have quickly made available advice and guidance on the accounting and financial reporting requirements that will need to be considered in addressing the financial effects of COVID-19 when preparing financial statements (Malaysian Institute of Accountants, 2020). According to (Spence, 2020), the pandemic is a pushing factor for accountants to evolve in a hurry, forcing them to adapt to personal and professional changes. Considering the global pandemic, professionals involved in corporate reporting are pausing to assess the impact of coronavirus on their business (Hackett, 2020).

eISSN: 2398-4287 © 2022. The Authors. Published for AMER ABRA cE-Bs by e-International Publishing House, Ltd., UK. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). Peer-review under responsibility of AMER (Association of Malaysian Environment-Behaviour Researchers), ABRA (Association of Behavioural Researchers on Asians) and cE-Bs (Centre for Environment-Behaviour Studies), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.
DOI: <https://doi.org/10.21834/ebpj.v7iS18.3925>

For the accounting profession, this represents a challenge and an opportunity for those prepared to embrace it (Association of Chartered Certified Accountants, 2016). It is more challenging for accountants to prepare the reporting, especially if they lack digital capabilities (Malaysian Institute of Accountants, 2020). The Association of Chartered Certified Accountants (ACCA) report revealed that knowledge of digital technologies is the key competency area where professional accountants have skill gaps (Association of Chartered Certified Accountants, 2016). At present, accountants lack knowledge in the transformation of new disclosure regulations, new forms of disclosures, and awareness of the interconnectedness of financial and non-financial reporting. The emergence of cryptocurrencies, an intangible digital token recorded using a distributed ledger infrastructure with no accounting standard currently exists (Association of Chartered Certified Accountants, 2019), makes it more challenging for the accountants to prepare the reporting, especially if they lack digital capabilities. A longitudinal study of undergraduate accounting students' attitudes towards accounting as a profession in the USA proved that, at the commencement of their course, the students had a reasonably positive attitude towards accounting as a profession (Marriott & Marriott, 2003). However, their attitude towards accounting fell significantly by the end of their studies. They found the subject less exciting and the prospect of being employed as an accountant less enjoyable.

Changing demographics in the workplace with the young generation known as Millennials encompasses almost half of the human capital; this requires organisations to increase their efforts. For years to come, the Millennials will shape the world (Zainuddin et al., 2019). Growing up in the "globally connected, service and information intense, digitally based culture", the millennial generation has developed an "information age mindset" (Frans, 2000). In any form or purpose, they are comfortable and confident in using technology (Cleyle et al., 2006). This generation has grown materially spoiled with an overabundance of technological gadgets at school and home (Cleyle et al., 2006). They are often said to be disloyal, highly self-interested, and, by some, even lazy (Human Resources Professionals Association, 2016). Whether the young generation, known as Millennials, plans to enter corporate, government or not-for-profit public relations, quality critical thinking skills are required for all professionals (Tallent & Barnes, 2015). The crucial task of accountants as the forefront of this evolution, analysing metadata to formulate strategic analysis for senior leadership, integrating these skills is a concern raised as they not only produce prospective strategy but also to see trends for operational groups amid the seemingly unlimited and very inexpensive availability of data (Eng, 2018). By 2030 there will be significant decreases for back office jobs (basic accounting, salary management, data entry, front liners) and more for upstream occupations (Sani, 2017). Therefore, organisations need to develop a leadership base suited to the young generation for the accounting profession (Zainuddin et al., 2018).

Changes in the business environment often result in how organisations operate, trade and are managed (Xydias-Lobo et al., 2004). This requires the leading players in the industry to adapt to digital development. Otherwise, there is a risk that the competition will take the lead (International Federation of Accountants, 2019). On the other hand, educating the younger generation, known as Millennials, with significant exposure to advanced Information Technology and social media will no longer be the same for educators (Zainuddin et al., 2019). Therefore, preparing accounting students nowadays requires continuous adaptation and constant attention from academicians and practitioners. Organisations need to develop a leadership base suited to the young generation for the accounting profession (Zainuddin et al., 2019). Moreover, the impact of COVID-19 has been highly remarked as a current concern to most organisations. This has motivated the study to be conducted by discussing the effects of COVID-19 on the accounting profession based on case studies. The selection of the case studies is based on the company awarded as Best Employer and Most Attractive Graduate Employers to Work in recent years. The gap identified between existing accountants' skills and those needed by the industry focusing on digital skills and critical thinking will be further elaborated in the next section of the study. Then the later section explains the methodology employed, findings, discussion, and showcases a framework developed on the transformation of the accounting profession. Lastly, we conclude our discussion in the closing remarks.

2.0 Literature Review

This section explains the prior literature on digital skills and critical thinking, which led to the accounting profession's transformation in the post-COVID-19 era.

2.1 Digital Skill

Nowadays, digital technologies are mushrooming in all areas, and the COVID-19 pandemic has reinforced this trend since 2020. COVID-19 is the disease caused by coronavirus called SARS-CoV-2. World Health Organization (WHO) announced the virus on 31 December 2019, following a cluster of cases in China's Wuhan Huanan seafood market (Stanway, 2021; World Health Organization, 2020). The virus is now a pandemic that has spread unpredictably quickly among people worldwide in 215 countries (Jamsheela, 2021). At the time of writing, WHO registered over 216,867,420 confirmed cases of COVID-19 and over 4.5 million deaths caused by the virus, with a rough total of 5 million vaccine doses have been administered (World Health Organization, 2021).

COVID-19 has caused the population around the world to be confined at home during the pandemic with the need to have good internet connectivity, appropriate digital tools, and digital skills. Many activities related to work, education, shopping, socialising, and other pastimes moved from the physical to the virtual world (International Telecommunication Union Academy, 2020). In the digital age, it is argued that advanced information technology and social media networks will allow businesses, facilities and machines throughout the value chain to share data in real-time and use smart networks to develop a level of self-awareness that was not previously possible. This will allow the manufacturing machines to suggest task arrangements and adjust operational parameters to maximise productivity and product quality (Lee et al., 2014).

Digital skill is defined as the ability to use information and communication technologies (ICT) in ways that help individuals to achieve beneficial, high-quality outcomes in everyday life for themselves and others, and to reduce the potential harm associated with more

negative aspects of digital engagement (Helsper et al., 2020). The definition of digital skills has shifted from one-dimensional technical skills such as installing software or programming toward content-related or higher-order skills (Helsper et al., 2020; van Laar et al., 2017, 2020a, 2020b). van Laar et al. (2020b) identified two determinants of digital skills; 21st-century skills and 21st-century digital skills for workers. Concerning 21st-century skills for workers, it consists of seven core skills supported using ICT: technical, information management, communication, collaboration, creativity, critical thinking, and problem-solving

For the accounting profession, this represents a challenge and an opportunity for those prepared to embrace it (Association of Chartered Certified Accountants, 2016). It is more challenging for accountants to prepare the reporting, especially if they lack digital capabilities (Malaysian Institute of Accountants, 2020). According to Dato' Hamidah Naziadin, Group Chief People Officer, CIMB at MIA's Corporate Board Leadership Symposium 2020, this is an unprecedented challenge for all companies currently facing (Malaysian Institute of Accountants, 2020). She quoted in her previous speech;

"If there is one critical lesson that has been brought to the fore in the face of this global COVID-19 pandemic, it is the urgency of digitalisation with a compelling reason for all of us to sit up and fast track our digital transformation at all levels."

Internet-based companies such as Amazon, Zoom, Netflix, and TikTok experienced growth in sales, while others like travel companies and transport-related platforms faced a steep decline (International Telecommunication Union Academy, 2020). According to Investopedia, the gig economy is based on flexible, temporary, or freelance jobs involving connecting with clients or customers through an online platform (Investopedia, 2021). A review of prior studies highlights that researchers use different terms to describe the information and technology skills such as the Internet, Internet of Things (IoT), digital career literacy, computer literacy, 21st-century, digital competence, e-skills, internet skills, and the digital divide (Helsper et al., 2020; van Deursen et al., 2021; van Laar et al., 2020a).

The other determinants are by adding a digital component to be 21st-century digital skills: technical skills, information digital skills, communication digital skills, digital collaboration skills, critical thinking digital skills, creative digital skills, and problem-solving digital skills. van Laar et al. (2017, 2020a) aims to provide an overview that determines an individual's skill level, which guides educational experts to equip students with those skills to meet the demand of the workforce and employer's training and development program to acquire the skills in the 21st-century. In a digital context, technical skills, information digital skills, and problem-solving digital skills are the significant determinants. In contrast, about 21st-century skills: creativity skills, critical thinking skills, and problem-solving skills are the essential factors determining an individual's skill (van Laar et al., 2017, 2020a).

2.2 Critical Thinking

Critical thinking is becoming a common job requirement for many industries. The COVID-19 pandemic has evolved into unprecedented health, socioeconomic and humanitarian crises (Ramli, 2020). It had a significant impact on global growth and interrupted and demolished major development progress made across social, business, and economy. This pandemic and our reactions to this crisis globally give rise to the need to equip the young generation with critical thinking abilities. With the vast cessation across global, this is a real-life example that the millennial way of thinking needs to be developed to navigate uncertainties they will undoubtedly encounter in the future (Zainuddin et al., 2019). The employability and marketability of graduates for the industrial revolution 4.0 (IR4.0) era did not only emphasise the development of high critical thinking and technical skills (van Laar et al., 2018).

Critical thinking generally refers to objectively analysing and evaluating information using given sources such as facts, data, research findings, and cases and making a reasoned judgment. It involves making informed choices based on the evaluation of evidence and communicating the findings using reflection and reasoning. van Laar et al. (2018) summarised that the key components of critical thinking are the abilities to (1) clarify the subject, (2) assess the suitability of a source, (3) invoke arguments for claims, and (4) link and suggest new ideas for discussion. In a working environment, critical thinking impliedly supports the independent thinking of a worker where they apply openness to new ideas and challenge their beliefs or understanding in further discussion or arguments before sharing their point of view or being able to generate new ideas or connect perspectives during discussion.

With the advancement of technology, where the most manual task has now been replaced with the aid of technology automation, future employees are expected to be involved in more critical thinking projects by providing analysis and evaluation to help businesses ahead of their rivalry as well as helping the business steered in the right direction (Motyer, 2020). Even though technology replaces the grunt work that current employees used to do, the human touch is still needed to provide judgment and decision-making. Besides, the importance of cultivating problem-solving skills and digital innovation (Ismail, 2020) is a way forward for the accounting profession.

3.0 Methodology

The study adopts a qualitative method with semi-structured interviews conducted on two Malaysian companies, Company A and Company B. Company A was awarded two categories as Best Employer for Commitment to Employer Brand and Best Employer for Commitment to High-Performance Culture in 2017. Company B was awarded Most Attractive Graduate Employers to Work for in 2021. The companies are chosen because they are high performing for best practices in human capital, as evidenced by the awards earned by the companies in the previous years. The companies were identified as Company A and Company B for confidentiality reasons, as defined in Table 1:

Table 1. Background of companies

	Company A	Company B
Size	Large listed	Large listed

Core activities	As Malaysia's largest listed integrated pharmaceutical group, Company A has blazed a trail within the healthcare industry to provide quality products and services. Listed on the Main Board of Bursa Malaysia and having established itself as a leader in the local market, the company also has a growing global presence. As part of the drive to become a total integrated healthcare solutions provider, its core businesses span a broad industry spectrum. The business activities include are housing and distribution of pharmaceutical and medical products; generic pharmaceuticals manufacturing; marketing and sales; research and development; trading and installing medical and hospital equipment. The company has also successfully harnessed the synergies of our businesses to expand into the community pharmacy segment.	Company B is the largest electricity utility in Malaysia and a leading utility company in Asia with an international presence in the United Kingdom, Kuwait, Turkey, Saudi Arabia, Pakistan, India and Indonesia. The customers are mainly commercial, industrial, and residential, with about 9.2 million in Peninsular Malaysia, Sabah, and Labuan.
Philosophy and Mission	The corporate philosophy is driven by its motto, Passion for Patients. Above all, the company emphasises delivering its promises to the clients with the highest standards of excellence, as it seeks to create a lasting legacy of doing business with a conscience. The mission is to provide quality products and superior services by professional, committed and caring employees.	The corporate philosophy is driven by its purpose "Together We Brighten Lives Through Innovative and Sustainable Solutions Towards a Better World". The mission is to be a leading provider of sustainable energy solutions in Malaysia and internationally

Face-to-face interviews with the key personnel a respondent formed essential sources of information for this study. The semi-structured nature of the interviews made it possible to start from some key issues identified through the research questions. Then any innovative issues will emerge from open discussion. All the tape-recorded semi-structured interviews were transcribed manually by the authors. To increase the internal validity of the case, the interviewees may be contacted for follow-up questions and to verify several issues discussed in the earlier interview sessions. The respondents for the interview are the key personnel selected based on their position, experiences, contribution, and their initiatives towards the improvement in human capital management within the companies, as tabulated in Table 2 below:

Table 2. Profile of Respondents (R)

Company	Current Position	Years of Working Experience
Company A	R1: General Manager of Operation Finance	More than 15 years
	R2: Manager of Training and Development, Human Capital Management	12 years
Company B	R3: Protégé, Learning & Development, CoE People Development, Group Human Resources and Management	1 year
	R4: Manager, Main Account Recon, Corporate Division.	11 years
	R5: Account Executive	5 years
	R6: Account Executive	5 years
	R7: Account Executive	5 years

4.0 Results

Companies A and B highlighted that the Accountant's role in the past in dealing with numbers is still the same and relevant in the current accounting profession; however, they have moved towards digitalisation. COVID-19 has strengthened the Accountant's work process to depend on technology. Company A identified that the traditional work of accountants as information providers Cooper and Dart (2009), such as preparing a complete set of accounts and reporting financial information, is not enough. They need employees with more critical skills in advising the management based on the number using the digital skills through software and new technology. In comparison, Company B states the traditional work of accountants is still relevant but must add value to financial reporting. Regarding differences in skills possessed between existing and Millennials, Company A believes Millennials lack working experience and stick to Google for information. Company A also wants an employee who can research the previous history to come out with a creative business strategy. Company B shared the same opinion with Company A on experience but acknowledged that Millennials are more technology-savvy than existing accountants from other generations.

Moving towards the cyber era, Company A had a system to cater to future changes by digitalising the accounting process such as approval, budgeting, communication, and documentation online. Interesting to note that Company A has a digital transformation program to upskill the staff knowledge from Group Finance to Operation Finance to prepare for the cyber era. On the other hand, Company B believes communication and the workplace significantly impact the organisation, especially during the current pandemic COVID-19. Company B also noticed that Millennials do not have any problem working from home and having online meetings. However, an accountant from other generations, such as Baby Boomers, has difficulty adapting to the changes. Nevertheless, Company B agreed that accountants nowadays must move toward digitalisation in all working operations. In terms of critical thinking and digital skills, both Company A and B agree that the skills are essential and need to be incorporated into the current accounting education. For Company A, critical thinking is a centre in making excellent corporate decisions, and they presently have the skills in their training program. Meanwhile, Company B shared the same opinion with Company A but on different points by stating that the skills enable the staff to promptly respond to top management

that requires the task to be completed fast, present information concisely, and differentiate a possible solution to a given problem. The findings are summarised based on the respondents' quotes from table 3 below.

Table 3. Respondents' Quotes

Company A	Company B
What are the Accountant's roles and skills in the past?	
Do you think activities related to preparing a complete set of accounts and reporting financial information are still relevant for accountants nowadays?	
How are the skills the existing accountants possess different from those required by the new generation known as Millennials?	
What do you see as the most significant changes in the role and skill of accountants nowadays compared to the past?	
R1 <i>"Accountant's roles in the past, they are more on numbers. They make analytical reviews and analyses based on numbers. But nowadays, I think that's not enough. We need more than that. With new technology nowadays, a lot of things can be done by software. Critical thinking is what we need from accountants nowadays. Nowadays, the Accountant should advise the management based on the numbers and results received from the new technology and the need for critical thinking. They are not just presenting numbers like the accountants in the past. Besides, the Millennials lack working experience but stick to Google; they get the information from the Internet. That's the main difference. Being in top management, they need more than that. They need experience; they also need to do some research on the previous history. That's important."</i>	R3 <i>"The changes from the previous and current accounting positions are that the accounting they are using right now mostly depends on the cloud accounting system. There are no longer keeping the files and the documents in the files room or bookkeeping room. Cloud accounting is very convenient because, in terms of the current working environment, we usually work from home and don't use to go to the office, so cloud accounting is very dependable. Future or current accountants will need future hub skills like analytical thinking and IT savvy. They must become familiar with the software system because they no longer do the back-end works like key-in the numbers. So, they are currently considered decision-makers because of their opinion on the numbers from the accounting. Their opinions for the company's direction are critical."</i>
R2 <i>"In terms of Accountant's skills in the past, there are not so many changes. But there are changes in terms of digitalisation. We move towards digitalisation, and every process involved in the systems needs to be approved online. So, everybody is moving towards the company's changes right now for an account. For technical skills, our staff have that skill already. But now, we want to polish their soft skills partly by identifying our staff's development program. We divide them into two; one is a soft skill, and another is a technical skill. We want to have balance. We want to cater for their technical skills and their soft skills."</i>	R4 <i>"The accountants' roles in the past until now are still the same. They prepare for the full set of accounts, manage, monitor spending and budget, and have tax planning and audit. Preparing a full set of accounts is still relevant, but the difference is that you must add value to the financial reporting. They need to know what the numbers are about by being able to explain or translate the numbers. From that, the accountants can analyse the numbers for the management to make decisions. The existing accountants also are more experience compared with Millennials, but the Millennials are more technology savvy."</i>
How will the future be different for organisations in the cyber era?	
How should the accounting profession prepare for the changes in the cyber era?	
R1 <i>"At the moment, there are not many changes because we do not know the impact of the COVID-19 in the future. I prefer to work face-to-face rather than meeting online since I am from Generation X. You do not know the facial expression, which is the challenge. When you meet personally, you can feel the connectivity. The accounting profession needs to prepare in terms of technology because all works like preparing and approving payments are online. So, there is a gap in communication because everything is through email. Even though it is quicker, human interaction is lacking."</i>	R3 <i>"The significant change from this working environment is the communication platform. Usually, we work at the office, and we do not have any problem communicating. But currently, working from home and using the Internet has a different communication environment, which is now quite difficult compared to the face-to-face working style. There might be problems regarding Internet connectivity and the coverage area at home. Besides, the Millennials have trouble communicating with the older generation like Baby Boomers because they sometimes do not know how to use the platform when they are working from home. We usually use Webex for an online meeting. So, working from home has a major drawback, especially for the older generation. Besides, the fresh graduate and current university students should have virtual communication skills because companies start thinking about developing this working from the home environment during the current pandemic and until a longer period. So, from that, the Millennials should be able to develop these skills. So, current Millennials must have this kind of virtual communication because face-to-face interaction is not the same. It requires different communication skills in terms of virtual and face-to-face communication."</i>
R2 <i>"There should be no problem because we have a system, for example, approving our financial process. Even right now, when it comes to budgeting, everything now we communicate online. All paperwork and document that need to be done will be shared online. I think there should be no issue with this. We are adapting it accordingly at the moment. We also have programs for our Finance Department, which are towards digitalisation. Besides, we have financial literacy, management accounting, financial reporting, and taxation programs. We also have a digital transformation program. We want to have at least everybody in the Finance team have basic knowledge about finance, even though they are in the Finance Department, but some of them still do not have a basic foundation in finance. There is still a gap for each individual. If the team members want to upskill their knowledge, they can move to the next level by undergoing another training. So, with this platform, you can learn new things and be part of their career path. In this company, we have Group Finance and Operation Finance. If they want to move to Group Finance from the Operation Finance department, they already have the skills and knowledge. That is our target and main objective for this development program."</i>	R5 <i>"The most significant impact that I can see in the organisation is the workplace itself because, before this, we work in the office from 8-5, but now the organisation allows workers to work remotely, which you can work anywhere, anytime with a flexible schedule. Another impact on the organisation is effective communication. For example, meeting. Nowadays, we do meetings online. There might be no problem for those newcomers, but those who have 10 to 20 years of experience are getting bored because they prefer to have physical face-to-face meetings. But I believe that meeting online is more interesting because this platform, like Webex, has graphics and sticky notes. Since accounting services already go virtual, traditional accounting skills are not sufficient anymore. For example, an accounting firm is looking for employees with accounting and technical knowledge because these two pieces of knowledge will help you advise the management."</i>
Do you think Critical thinking and Digital teaching and learning need to be incorporated into the current accounting education? Why is that so?	
Is it necessary to equip future accountants with critical thinking and digital skill?	
R1 <i>"Critical thinking is very important because using critical thinking means you must know a lot of information based on your experience, reading, and updating with the current situation. You also need to know other people's opinions. When you</i>	R3 <i>"My opinion of critical thinking is that critical thinking not only looking at the data, analyse the data, but critical thinking also has the element of problem solving, which is they should be able to</i>

combine all this, you can decide by using critical thinking. You cannot just use one source of information to make a good decision. That's where critical thinking comes in."

R2

"I think yes. The company is already equipped with, we in the plan to equip not only for Accountant, our staff for the critical thinking and digital skills. That's why we develop our career path program for our staff. We have a career path development program for our staff. The training and development programs we have right now aim to achieve the company's strategic goal: to improve the capability for superior performance. That's why we have two categories of employee programs, and another one is successor. And then for employees, we have soft skills and technical skills, and leadership skills for the successor."

analyse, they should be able to state the problem first and able to differentiate possible solution. So, from that possible solution which is maybe they are many options to those problems, the deduction and the indication for the solution also required for critical thinking, I think."

R6

"I believe these two are very important, critical thinking and digital skill to equip the graduates for the industry. Because as we know, our bosses always prefer those who can complete the task based on urgency and present information simply and concisely, which requires critical thinking. The changes in tax law and regulatory requirements also require active reading and keeping up with what is happening worldwide, involving critical thinking. So, it is crucial, and I believe our education should incorporate all these elements."

In a nutshell, both companies believe that preparing a complete set of accounts and reporting financial information is still vital for accountants. The most significant change in the role and skill of accountants nowadays compared to the past is that accountants nowadays are involved in technology; thus, they need to have digital skills because all works include systems and software. Therefore, the accounting profession should prepare themselves for technological advancement and have the critical skill to sustain competitiveness in the current industry. Hence, the digital and critical thinking skills are the effects of COVID-19 on the accounting profession, which resulted in the digital transformation framework, as explained in the discussion section.

5.0 Discussion

Despite the growth in the number of the management accounting profession by 2024, a troubling pattern has emerged in the accounting profession (Thomson, 2016). The issue arises when businesses say entry-level employees lack many necessary skills, from leadership (the most needed but least possessed competency) to planning, budgeting and forecasting, and strategic thinking and execution. A study by the Institute of Management Accountants (IMA) and the American Productivity & Quality Center (APQC) showed the skills gap in entry-level management accounting and finance had expanded worldwide, with 90 per cent of organisations struggling to hire the right accounting talent (Thomson, 2016). Accountants nowadays are no longer regarded as information providers and financial analysts (Cooper & Dart, 2009). They have to adapt to the rapid market environment changes and become an organisation's strategic partner (Xydias-Lobo et al., 2004). They will need the competencies, skills, and outlook to enable them to meet more requests for comprehensive and forward-looking information and more frequent ad hoc reporting from ever more stakeholders (Association of Chartered Certified Accountants, 2016).

An accountant is a profession that involves partnering in management's decision making, devising planning and performance management systems. It provides financial reporting and control expertise to assist management in formulating and implementing an organisation's strategy (Talha et al., 2010). According to Cooper and Dart (2009), their roles are transformed to become more business-oriented such as internal business consultants or strategic management consultants, from 2000 onwards. Accountants should not only provide timely and accurate information in 1970 to 1980, known as Responsible and Rationale person. In 1990, their roles transformed into known as Bean counters, Number Crunchers, Scorekeepers and Information providers (Baldvinsdottir et al., 2009). But also have to be proactive in cross-functional teams and equip themselves with 'future-oriented skills and 'forward looking' mentality (Ruttanaporn, 2001).

They are expected to be a 'hybrid accountant', 'value creators', and 'all-rounder' personnel in an organisation in the future (Zainuddin et al., 2016). They have to change their roles and tasks according to the needs of both internal and external parties (Xydias-Lobo et al., 2004). The extreme image of a 'hybrid' accountant requires accountants to possess a balanced characteristic of analytical skills, high competence and independence, communication and interpersonal skills, business management skills, and the ability to understand business environments (Zainuddin et al., 2016). The transformation can be illustrated in the framework diagram below:

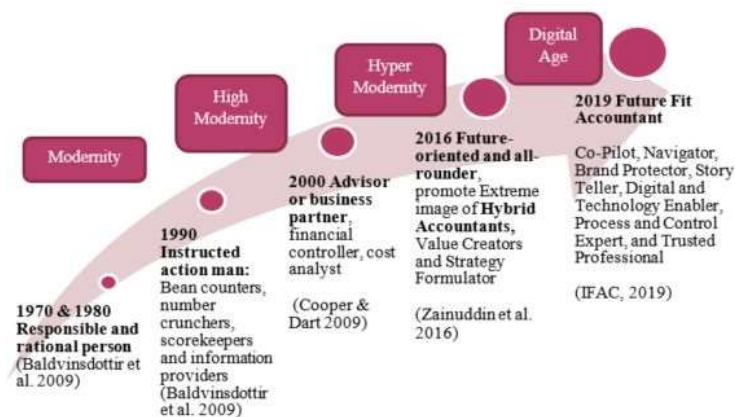


Fig 1: Transformation of the Accounting Profession

Although the growing concern about emerging technologies impacts the accounting profession, the profession's role has always remained consistent (Grimes, 2017). International Federation of Accountants (2019) highlighted that starting 2019, the finance function roles are diversifying into a role of Co-Pilot, Navigator, Brand Protector, Story Teller, Digital and Technology Enabler, Process and Control Expert and Trusted Professional to become Future-Fit Accountant in the next decade. Future-Fit Accountant is briefly described as digital ready and fit enough to encounter any unpredicted challenges ahead. The centuries-old accounting profession has come a long way from manual bookkeeping to present-day artificial intelligence (AI), changing the day-to-day structure of how we work as accountants and across other professional services industries (Grimes, 2017). As businesses evolve in the Digital age, so will professional accountants' expectations and how they react to business needs, especially in the era of COVID-19. Therefore, digital and critical thinking skills are necessary to fulfil the expectation of a Future Fit Accountant among the younger generation.

Based on the framework, the transformation of the accounting profession is now entering the phase of the Future Fit Accountant, as highlighted by IFAC, 2019. As businesses evolve in the Digital age, so will professional accountants' expectations and how they react to business needs, especially in the era of COVID-19. Therefore, our study is consistent with the prior studies that show the need for the accounting profession to transform according to time. The emergence of digital and critical thinking skills is necessary to fulfil the expectation of the Future Fit Accountant among the younger generation, especially in the post-COVID 19 era. The implication of being unable to adapt and cope with the recent changes may lead to the accounting profession is no longer relevant and not meeting the expectation of business needs. Therefore, the COVID 19 pandemic is a wake-up call for the accounting profession to enhance the skills demanded by multiple stakeholders, particularly the organisations.

6.0 Conclusion

Accountants are valuable human capital in organisations. They have a thorough understanding of the organisations and are uniquely placed to contribute to sustainable business success (Zainuddin et al., 2018). Williams and O'Donovan (2015) proved that accountants turned to provide business advice due to these reasons; accountants being known and trusted sources for business advice, their perceived competency levels, geographical proximity, timeliness, and cost competitiveness. They are expected to convey their opinions in decision-making to the organisations, which is a broader task than presenting numbers (Zainuddin et al., 2018). Therefore, it is vital for the accountancy profession and professional accountancy organisations to remain relevant to accountants in business (Rughani, 2016).

Move forward; corporate leaders are required to craft the most effective and compelling strategies for harnessing and developing digital talent who can drive a culture of high performance, innovation, and sustainability especially in the era of COVID-19 which is testing business continuity planning and business sustainability strategies to the maximum (Ramli, 2020). The accounting profession is no exception to this evolution (Eng, 2018). Tomorrow's accountants should rise above the profession's historical competencies and stereotypes to be true business partners (Eng, 2018). They possess the ability to bridge what the business wants with the underlying customer and enterprise data stored by their organisations (Eng, 2018). Future accountants will increasingly need education in digital technology, including cloud computing and the use of big data, globalisation (outsourcing of accounting services), and evolving regulations such as tax regulation, new forms of corporate reporting, and integrated reporting regulation (Islam, 2017). Professional accountants will need the skills to provide more all-inclusive corporate reporting, which tells less about the numbers and the organisation's narrative (Islam, 2017). Therefore, accountants need to transform by equipping themselves with digital and critical thinking skills in the era of COVID-19. This will ensure the profession's relevance, hence becoming the future-fit accountants in the near future.

This study investigates in-depth the transformation of the accounting profession in the post-COVID-19 era. However, our findings are limited to the accounting profession in the company awarded Best Employer and Most Attractive Graduate Employers to Work in Malaysia. Future researchers may extend the study to other corporate entities or accounting and auditing firms. Another limitation is that the focus of the study is limited to Malaysia, with future recommendations to extend the research to other countries within or across different industries by employing other research methods. It will be interesting to know the transformation of the accounting profession by using a longitudinal approach in the future.

Acknowledgements

The authors would like to express their gratitude to the Ministry of Education of Malaysia for funding the research project through the FRGS grant (FRGS/1/2019/SS01/UiTM/02/21). Our appreciation also goes to the Faculty of Accountancy, Universiti Teknologi MARA, for facilitating the research project.

References

- Association of Chartered Certified Accountants. (2016). *Drivers of change and future skills*. <https://www.accaglobal.com/content/dam/members-beta/docs/ea-patf-drivers-of-change-and-future-skills.pdf>
- Association of Chartered Certified Accountants. (2019). *Accounting for Cryptocurrencies*. <https://www.accaglobal.com/in/en/student/exam-support-resources/professional-exams-study-resources/strategic-business-reporting/technical-articles/cryptocurrencies.html>
- Baldvinsdottir, G., Burns, J., Nørreklit, H., & Scapens, R. W. (2009). The image of accountants: from bean counters to extreme accountants. *Accounting, Auditing & Accountability Journal*.

- Cleyle, S., Partridge, H., & Hallam, G. (2006). Educating the Millennial Generation for evidence based information practice [Article]. *Library Hi Tech*, 24(3), 400-419. <https://doi.org/10.1108/07378830610692163>
- Cooper, P., & Dart, E. (2009). Change in the management accountant's role: drivers and diversity.
- Eng, A. C. (2018). Tomorrow's Management Accountants. *Strategic Finance*, 99(7), 6-7.
- Frاند, J. L. (2000). The information-age mindset changes in students and implications for higher education. *Educause review*, 35, 14-25.
- Grimes, R. (2017). *The Changing Face of the Accountancy Profession*. IFAC. <https://www.ifac.org/knowledge-gateway/preparing-future-ready-professionals/discussion/changing-face-accountancy-profession>
- Hackett, D. (2020). *Corporate Reporting During a Pandemic*. CIMA. <https://www.cimaglobal.com/Members/Insights/2020-CIMA-Insights/Corporate-reporting-during-a-pandemic/>
- Helsper, E. J., Scheider, L., van Deursen, A. J., & van Laar, E. (2020). The youth Digital Skills Indicator: Report on the conceptualisation and development of the digital skills measure.
- Human Resources Professionals Association. (2016). *HR & Millennials: Insights Into Your New Human Capital. A White Paper by the Human Resources Professionals Association*. HRP. <https://hrpa.s3.amazonaws.com/uploads/2020/10/HRPA-Millennials-Report-20161122.pdf>
- International Federation of Accountants. (2019). *Future-fit Accountants: CFO & Finance Function Roles For The Next Decade*. IFAC. <https://www.ifac.org/knowledge-gateway/preparing-future-ready-professionals/publications/future-fit-accountants-roles-next-decade>
- International Telecommunication Union Academy. (2020). *Digital Skills Insights 2020*. <https://academy.itu.int/index.php/main-activities/research-publications/digital-skills-insights/digital-skills-insights-2020>
- Investopedia. (2021). *Gig Economy*. <https://www.investopedia.com/terms/g/gig-economy.asp>
- Islam, M. A. (2017). Future of accounting profession: Three major changes and implications for teaching and research. *Business Reporting, International Federation of Accountants (IFAC)*.
- Ismail, L. H. (2020). *Kelestarian Pendidikan dan Kebolehpasaran Graduan Pasca Covid-19*. <https://news.uthm.edu.my/ms/2020/06/kelestarian-pendidikan-dan-kebolehpasaran-graduan-pasca-covid-19/>
- Jamsheela, O. (2021). A Study of the Correlation between the Dates of the First Covid Case and the First Covid Death of 25 Selected Countries to know the Virulence of the Covid-19 in Different Tropical Conditions. *Ethics, Medicine and Public Health*, 19, 100707. <https://doi.org/https://doi.org/10.1016/j.jemep.2021.100707>
- Lee, J., Kao, H. A., & Yang, S. (2014). Service innovation and smart analytics for Industry 4.0 and big data environment. *Procedia CIRP*, Malaysian Institute of Accountants. (2020). *The Financial Reporting Implications of COVID-19*. <https://www.at-mia.my/2020/04/17/the-financial-reporting-implications-of-covid-19/>
- Marriott, P., & Marriott, N. (2003). Are we turning them on? A longitudinal study of undergraduate accounting students' attitudes towards accounting as a profession. *Accounting education*, 12(2), 113-133.
- Motyer, C. (2020). *8 Essential Skills ACCA Graduates Need in 2021*. <https://blog.learnsignal.com/blog/8-essential-skills-acca-students-will-need-in-2021>
- Ramli, A. (2020). *Digital Talent a Must to Surmount Covid-19 Crisis*. MIA. <https://www.at-mia.my/2020/04/15/digital-talent-a-must-to-surmount-covid-19-crisis/>
- Rughani, S. (2016). *A Relevant Accountancy Profession*. IFAC. <https://www.ifac.org/news-events/2016-12/relevant-accountancy-profession>
- Ruttanaporn, S. (2001). Management accounting practices of large corporations in Thailand. *Working Paper Series, Faculty of Commerce and Accountancy, Culalongkorn University*, 2(1), 55-70.
- Sani, R. (2017). Riding the Industry 4.0 wave. *New Straits Times* <https://www.nst.com.my/education/2017/08/268377/riding-industry-40-wave#:~:text=Requirements%20for%20multi%2Dskilled%20and,%2Dto%2Dbe%20created%20ones>.
- Spence, P. (2020). *Changing with the times: Work in the age of COVID-19*. CIMA. <https://www.cimaglobal.com/Members/Insights/2020-CIMA-Insights/Changing-with-the-times-Work-in-the-age-of-COVID19/>
- Stanway, D. (2021). *First COVID-19 case could have emerged in China in Oct 2019 - study*. Reuters. <https://www.reuters.com/world/china/first-covid-19-case-could-have-hit-china-oct-2019-study-2021-06-25/>
- Talha, M., Raja, J. B., Seetharaman, A., & Jain, S. P. (2010). A new look at management accounting [Article]. *Journal of Applied Business Research*, 26(4), 83-96. <https://doi.org/10.19030/jabr.v26i4.309>
- Tallent, R. J., & Barnes, J. J. (2015). Think Bubbles and Socrates: Teaching Critical Thinking to Millennials in Public Relations Classes. *Universal Journal of Educational Research*, 3(7), 435-441.
- The Star. (2019). *Accountants in digital age*. <https://www.thestar.com.my/news/education/2019/06/16/accountants-in-digital-age>
- Thomson, J. (2016). *The Management Accounting Profession Will Double by 2024 - Are We Prepared?* Accounting Today. <https://www.accountingtoday.com/news/the-management-accounting-profession-will-double-by-2024-are-we-prepared>
- van Deursen, A. J. A. M., van der Zeeuw, A., de Boer, P., Jansen, G., & van Rompay, T. (2021). Digital inequalities in the Internet of Things: differences in attitudes, material

- access, skills, and usage [Article]. *Information Communication and Society*, 24(2), 258-276. <https://doi.org/10.1080/1369118X.2019.1646777>
- van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2017). The relation between 21st-century skills and digital skills: A systematic literature review. *Computers in Human Behavior*, 72, 577-588. <https://doi.org/https://doi.org/10.1016/j.chb.2017.03.010>
- van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2018). 21st-century digital skills instrument aimed at working professionals: Conceptual development and empirical validation [Article]. *Telematics and Informatics*, 35(8), 2184-2200. <https://doi.org/10.1016/j.tele.2018.08.006>
- van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2020a). Determinants of 21st-century skills and 21st-century digital skills for workers: A systematic literature review. *Sage Open*, 10(1), 2158244019900176.
- van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2020b). Measuring the levels of 21st-century digital skills among professionals working within the creative industries: A performance-based approach. *Poetics*, 81, 101434. <https://doi.org/https://doi.org/10.1016/j.poetic.2020.101434>
- Williams, B. R., & O'Donovan, G. (2015). The accountants' perspective on sustainable business practices in SMEs [Review]. *Social Responsibility Journal*, 11(3), 641-656. <https://doi.org/10.1108/SRJ-07-2014-0096>
- World Health Organization. (2020). *Coronavirus disease (COVID-19)*. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19>
- World Health Organization. (2021). *WHO Coronavirus (COVID-19) Dashboard*. https://covid19.who.int/?gclid=Cj0KCQjwzbv7BRDIARIsAM-A6-0oYziu-RZ1KpzePTGfiDONTJOAHGKeLAg7MEPNbn8tMFQuOXhpG5saApkLEALw_wc
- Xydias-Lobo, M., Tilt, C., & Forsaith, D. (2004). The future of management accounting: a South Australian perspective. *Journal of Applied Management Accounting Research*, 2(1), 55.
- Zainuddin, Z. N., Latif, N. E. A., Sulaiman, S., Yusof, F. M., & Ahmad, M. (2019). Critical Thinking: Way Forward for Human Capital in the Age of Millennial. *International Journal of Academic Research in Business and Social Sciences*, 9(13), 183-195.
- Zainuddin, Z. N., Sulaiman, S., & Abdul Hamid, S. F. (2016). Transformation in Management Accounting Profession: Malaysian Scenario. *Malaysia Pacific Management Accounting Journal*, 3(1), 1-19.
- Zainuddin, Z. N., Sulaiman, S., Abdul Hamid, S. F., Kasim, E. S., & Sahol Hamid, N. (2018). Ethical Champion Towards Business Sustainability: Malaysian Evidence. *International Journal of Academic Research in Business and Social Sciences*, 8. <https://doi.org/10.6007/IJARBS/v8-i11/5277>