

ICMR 2019
8th International Conference on Multidisciplinary Research
THE READINESS OF THE ACCOUNTANCY PLAYERS FOR THE
IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE

Chong Jia Hui (a), Lim Tan Chin (b)*, Zubir Azhar (c)

*Corresponding author

(a) Universiti Sains Malaysia, 11800 USM, Penang, Malaysia, cjihui95@gmail.com

(b) School of Management, Universiti Sains Malaysia, 11800 USM, Penang, Malaysia, tclim@usm.my

(c) School of Management, Universiti Sains Malaysia, 11800 USM, Penang, Malaysia, zubirazhar@usm.my

Abstract

Artificial Intelligence (AI) is a conventional innovation by A.M. Turing. It is widely used in engineering automation and robotics area since 1950 while Industry 4.0 has been widely developed since 2013 in western country especially in Germany and United States. Industry 4.0, which is a subclass of the 4th Industrial Revolution, is also known as “smart factory”. It utilises cyber physical systems to monitor manufacturers’ real time physical progress which works well in a decentralized business environment particularly in making important business decisions. However, in Malaysia, its fast-moving development has been only introduced in the 20th century. Malaysian government has granted numerous tax incentives for the years of assessment between 2019 and 2021 for companies involved in Industry 4.0. The study aims to address the readiness of accountancy players; determine the internal strengths and weaknesses as well as external promising opportunities and underlying challenges towards users for adaption dan adoption of Industry 4.0; and identify the significant changing of accounting players’ roles. A focus group discussion and a series of interviews were conducted with six top audit firms which were top management that enable authorize AI implementation. Majority of them are ready to practice AI technology. There were more advantages as AI enhances functional effectiveness and efficiency which able to deal with million data, thus leads to cost saving. Nonetheless, some argued that it failed to meet user’s expectations, unable to detect discrepancies, and high cost commitment. Some significant changes of the accountants’ roles arose when jobs were replaced.

2357-1330 © 2020 Published by European Publisher.

Keywords: Artificial intelligence, e-commerce, mid-tier audit firms, focus group discussion, big data, qualitative.



This is an Open Access article distributed under the terms of the Creative Commons Attribution-Noncommercial 4.0 Unported License, permitting all non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

1. Introduction

The extant literature has defined AI as the use of the intelligent machines and computer programs to understand human intelligence (Rajaraman, 2014). A similar definition is provided by Copeland (2018) who associated AI with the ability of digital computer to perform tasks commonly linked with the intelligent beings (i.e., computer-controlled robots) (Schatsky, Muraskin, & Gurumurthy, 2015).

In developed countries like the US and the UK, the demands for jobs related AI are not uncommon. The Bureau of Labour Statistics in the US, for example, predicted that 15.6 million new positions would be created between 2012 and 2022 with an estimated growth of 0.5% annually in the workforce (West, 2015). While there are so many areas in which AI has been used, in this study, the focus is on accountancy players who are referred as the audit firms and accountants. While study by U.S. Bureau of Labour Statistics viewed that AI can create more jobs in the market, on the other side, Griffin (2016) viewed AI very negatively. He claimed that there is a possibility of 95 percent that the machines for data analytics and number crunching would replace the accountants. Thus, it is interesting to study to what extent the accountancy players in Malaysia are ready for the AI technology's transformation.

2. Problem Statement

An advance technology such as AI embraces into the industries, it is creating fear and anxiety of people by losing their current jobs due to the replacement by AI. According to Frey and Osborne (2013), a study at the University of Oxford stated that there were 47% of the occupational categories at high risk to be automated. In the developed countries, Pitter (2018) reported that the robotics would manage and do the 40 percent of basic accounting works by 2020. A report by Deloitte suggested that certain job positions would be irrelevant while others would be made available as technology progresses. Another report by Chui, Manyika, and Miremadi (2016) stated that robots would automate 800 occupations. Subsequently, McKinsey Global Institute (2017) stated that from 3 percent to 14 percent of workers globally would change their occupation types by 2030. The latest report by Chui, Lund, and Gumbel (2018), it was 0.5 percent of new jobs created annually while 8 to 9 percent of new jobs created by 2030. In Malaysia, the Malay Mail News Article (2017) mentioned that the innovation of technology might threaten jobs, which include the accountancy profession. Hence, this study is conducted to identify the readiness level amongst the accountancy players towards the AI implementation and how significant is the influence towards the roles of the accountants if AI were to automate existing jobs that are currently available in the market. Further to this issue, the society especially the accounting players may want to know the strengths and weaknesses of AI in order to maximize its usage and reduce the chances to be replaced.

3. Research Questions

This study answered the following research questions:

- 3.1 Are accounting firms and accountants ready to work using AI?
- 3.2 What are the internal strengths and weaknesses of AI?
- 3.3 How is AI influencing the roles of the accountants?

4. Purpose of the Study

This study was carried out with the following objectives:

- 4.1. To examine the readiness of accounting players towards AI implementation.
- 4.2. To determine the internal strengths / advantages and weaknesses /disadvantages of AI adoption and adaptation.

Identify the AI's influence on the roles of the accountants in the accounting profession.

5. Research Methods

This study is qualitative in nature, which was carried out by focus group discussion and interview with the six prominent and emerging accounting firms' top management in Malaysia name by Alpha, Beta, Gama, Delta, Omega, and Sigma. Top management was chosen as they are involved in making decision of adopting the implementation of AI and possessing the authority of hiring the qualified staff in AI.

Alpha, Beta, Gama, and Delta are known as the prominent accounting firms, which are leading the whole accountancy profession in Malaysia meanwhile Omega and Sigma are the emerging accounting firms in Malaysia. As a result, comparison of the opinions and views between prominent and emerging accounting firms can be made to determine the holistic circumstances by the disruption of technology in accounting. They also have the similar criteria where they have commonly provided the audit assurance and taxation services based in Malaysia.

The representative from Alpha is currently an innovation director of the Southeast Asian team. This unit, which is responsible for accelerating the innovation of new products and services, concerns building new capabilities that will ultimately help Alpha to deal with its clients more innovatively. The director has vast experience and knowledge in devising business strategies for new business collaborations and engagements, apart from the organizational change. The representative from Beta is the assurance partner and regional office leader for the northern region of Beta Limited Liability Partnership, Malaysia. Besides, he also provides IT risk assurance and support services as well as it is based in Penang. He has more than twenty years of experience in assurance and advisory services. The representative from Gama is currently the ASEAN risk assurance competency partner and Malaysia advisory risk partner. Furthermore, she has more than 24 years of experience in assurance and business advisory, corporate governance, IT risk management, IT assurance services and major transformational initiatives. The representative from Delta is now the audit partner handling people and performance for the northern region. His professional experience differs across accounting industries, which include aerospace, semiconductor, electronics, software, consumer markets, property development, construction as well as government and state-owned entities.

The representative from Omega, an emerging accounting firm, acts as one of the executive directors of Omega that is currently based in Malaysia. Presently, this director involves in managing such portfolios as risk management and internal audit. Given his vast experience of more than 15 years in holding these portfolios in diverse industrial backgrounds which include construction and property development, aviation, oil and gas, as well as manufacturing and trading businesses. Meanwhile, the representative from Sigma is the director of Tax Department. He performs the operational and financial services in Asian region.

He has almost 17 years of experience in commercial and public sector environment as well as 10 years of experience in taxation.

6. Findings

The findings are categorized into three main sections: the readiness of the accountancy players towards implementation of AI; internal strengths and weaknesses when using AI; and its influence on the roles of the accountants in Malaysia

6.1. The readiness of the accounting players for AI implementation

Alpha, Beta, Gama, and Delta in Malaysia have adopted some parts of the AI technology in their business processes, particularly in auditing and advisory functions. In Gama, RPA is adding value to advisory activities which encompasses the end-to-end process for routine works, which detects and matches the invoices. In Omega, AI helps in detecting the frauds found in the transactions. Meanwhile for Sigma, it is still employing staff for bookkeeping and data entry, which is basic computerisation. As a conclusion, the four prominent accounting firms in Malaysia have adopted some parts of AI technology, especially in auditing field mainly because their clients are mostly listed companies. Although Omega is an emerging accounting firm, it does not adopt AI in auditing services provided, merely some basic computer skill is applicable. This finding shows that there is a gap between adoption of AI in developed countries and Malaysia with the references to Pash (2016) and CPA Practice Advisor (2017).

Via the interview, we conclude that the four prominent accounting firms and Omega have started the adoption of AI in the developed countries whereas in Malaysia, they only adopted some parts of it in the auditing services. There is a controversial opinion between the four prominent accounting firms and Omega with Sigma. This is where Sigma stated that the prominent accounting firms are not yet ready for the AI replacement due to high cost incurred, but they are currently moving towards AI especially Gama. Gama is the first accounting firms, which adapt to the AI since it has a strong support system and IT.

The operation has still mainly operated by the accountants rather than automation technology. As mentioned by Sigma, to invest in AI, there was a huge investment needed especially for manufacturing industry but less likely in the professional industry. Gama also mentioned that the accountants would not easily replace by machine since human judgments and actions were needed, which is in line with Alexander's (2018) argument. Despite the power of AI, the importance of human or social intelligence shall not be underestimated. Moreover, all the panellists also mentioned that Malaysia is unlikely to adopt AI fully since it is still a developing country where staff cost is not too high relatively compared to the cost of AI. Developed countries are more likely to replace AI with the human due to the cost matters.

Although Malaysia is not yet undergoing the huge replacements by AI, the accountants should add value in term of critical thinking and analytical skills for themselves. They are demanded to have higher-level of skills such as the knowledge of data analytics, problem-solving skills, communication skills and others. The panellists stated that they should not be worried about AI, instead they should embrace it.

6.2. The internal strengths and weaknesses of AI

In the accountancy profession, the business processes and services will be more effective and efficient as compared to previous time with AI such as RPA, cloud computing, and others to routine their daily works in the organizations. AI is capable of analysing complex and large data size within a short period of time in certain circumstances. According to representative from Beta, AI can assist in the forensic accounting, the detection of the fraudulent transactions occurred under the same ATM card in different states at almost the same time. This is supported by Raphael (2015). However, the adaption of AI by four prominent accounting firms are not so advance. In Omega, AI can detect the frauds occur when one transaction is split into two transactions to avoid exceeding certain limit that require the approval from the top management. AI is able to capture the patterns, trends, and signals of frauds, and therefore increases the audit efficiency of the company.

The next benefit is the industries can achieve the cost savings as it aligns with Enofe, Amaria, and Anekwu (2012), Ovaska-Few (2017), and CFO Innovation Asia Staff (2018). In Gama, the business transactions can be directly produced the invoices report where RPA involves the end-to-end transactions to add value to their advisory works. One of the common expenses in Gama is toll claimed. For the Penang toll cardholders will pay for RM5.60 while for non-Penang toll cardholders will pay for RM7.00. Gama's automation technology can identify whether are Penang or non-Penang toll cardholders to avoid excess claims paid to them. Besides, AI can increase the human efficiency whereby it is able to move up the lower-job level to the high-level job especially in the accountancy profession. Interestingly, such advantages have given rise to new production systems for the industries. This has brought positive impacts to the accounting if AI is adopted. Thus, Malaysia should encourage more and more firms to adopt it due to its strength of cost savings for the operational processes.

However, there are drawbacks in using AI for example, high cost incurred for installing the system, time-consuming to train staff, and the possibility of the ineffectiveness of system. From the findings, Sigma mentioned that IRB in Malaysia brought a system of RM1million and trained their personnel overseas. Although, IRB has expected that the system could function well, process and detect the discrepancies in the huge amount of data, this expectation was not achieved. Eventually, instead of cutting down the work force, more staff were being employed to check the documents manually.

In summary, there are strengths and weaknesses of AI mentioned by the panellists and interviewee. AI is fast and effective in analysing the Big Data where most of the time the users spend too much time to collect and record data manually but have too little time to use it. AI is able to make high accuracy in simulation on the repetitive works where it can avoid the human errors. Thus, it enables the accountants to provide their better advice to their clients and add value to the company. AI can enhance the quality, efficiency, and effectiveness of accountants' jobs.

6.3. The influence of AI towards the roles of the accountants

All the panellist discussed the issue on the changing roles of the auditors in detecting audit frauds. They agreed unanimously that with the influence of AI towards auditing works, which was aligned with McCabe (2014). Due to the evolution of time, there is different roles play between past auditors and now as well as future auditors. Generally, the primary works for auditors are vouching for the transactions and

documents which provided by clients. With the adoption of AI in auditing, the audit firms are able to simplify and reduce the auditors' workloads by providing the relevant information and further investigate in high risk's areas by them. This shows that there will be no more samplings but the AI will audit the entire populations. Thus, it is the way that it can add value to the auditors, clients and the organization and to process their audit faster and more accurate rather than to replace accountants directly. This finding is aligned with the report by Alexander (2018) but is not aligned with Pitter (2018). Besides, the panellists also mentioned that the demand for the auditors to have higher-level of skills to handle the high value-added jobs such as advisory and consultancy in the organization. AI will enable them to provide the absolute assurance rather than the reasonable assurance can be referred to NST Business (2017) in the future auditing to reassure the shareholders and investors in the public. In addition, Ovaska-Few (2017) aligns with the finding of authors where AI is good at analysing a large volume of data or big data as compared to the auditors. It was really simplified the workloads of them which enabled them to directly focus on the risk and attention parts. However, Malaysia still needs human beings to manage the business processes as bottom line due to human intelligence or judgments are crucial.

In fact, it will influence the low-level jobs of accounting such as data entry will be no longer existed in the future. As a result, the accountants develop accordingly with the evolution of the time of our great grandfather and our time currently. Actually, the roles of accountants are not just providing figures as they have the responsibility to tell the management. All the representatives gave their opinions whereby AI was disrupting the accountancy players with its development currently. There is no longer for accountants to only do the repetitive tasks in the future, for example, the Chief Finance Officer (CFO) will lead in the discussion whereas the finance staff will only able to do the data entry works. This shows the differences between a high-level job and a low-level job in an organization. The researcher believes that individuals have the self-motivation to move higher in their careers. Nevertheless, more high value-added jobs will be assigned to use their judgments and analytical skills for the future digital workplace.

As an accountant, the individual should concern about the ever changing of accounting landscape in the financial reporting and legislation guidelines. AI is able to move up the accountants to a higher value chain in the business process whereby they will be more focused on the advisory activities to the clients rather than the desk jobs. In summary, the development of AI is evolving the roles of the auditors. It can easily assist the auditors in detecting the frauds whereas auditors have the roles of taking the legal actions towards these fraud activities to the particular individuals or companies. As future accountants, they need to think about what they should improve to work using AI and thus they are not be replaced by it. As humans, we able to think and reflect, we able to make judgments, we able to take actions physically compared to the robotics or machines. Hence, we will be able to act better than AI and thus there will be no chances for it to take over our accounting jobs.

7. Conclusion

The first finding was the four prominent accounting firms and Omega were ready to practice AI technology in their organization since they adopt some parts of AI technology in accounting and auditing whereas Sigma was not yet ready since it only adapts on the basic computerization due to cost concern. For the next finding, there was same number of strengths and weaknesses in this study. However, the four

prominent accounting firms and Omega in Malaysia believe that AI technology will be able to overcome its current weaknesses, which eventually make its strengths outweigh its weaknesses in the future. The third finding was the significant influence towards the roles of accountants, especially in auditing and advisory activities. AI masters in analysing big data than accountants, so it will take over and replace the lower level of jobs or repetitive tasks whereas the accountants are expected to manage the higher level of jobs with good analytical skills and problem-solving skills.

In conclusion, AI technology is not all about replacing the people as the accounting firms in Malaysia still need the human judgments, actions and, intelligence to carry out the processes. This is in line with Google that has developed a system “Duplex AI” which can carry out the tasks over the phone and it acted the same goes between AI and accountants to become AI-accountant. However, AI is about in which ways the organization can allocate the resources effectively to generate better outcomes, benefits and to create shareholders’ values as well as clients’ satisfactions.

Acknowledgments

Grant Bridging Incentive Fasa 1/2019 (304.PMGT.6316562).

References

- Alexander, A. (2018). Accounting Today. Changing tools, changing roles. *Technology is driving the audit of the future*, 32(3), 10-14.
- CFO Innovation Asia Staff (2018). *Robotic Process Automation: Ten early adopters asia pacific realize hefty cost savings*. Retrieved 2018, 28 April, from <https://m.cfoinnovation.com/story/14309/robotic-process-automation-ten-early-adopters-asia-pacific-realize-hefty-cost-savings>
- Chui, M., Lund, S., & Gumbel, P. (2018). *How will automation affect jobs, skills, and wages?* McKinsey Global Institute. Retrieved 2018, 9 April, from <https://www.mckinsey.com/global-themes/future-of-organizations-and-work/how-will-automation-affect-jobs-skills-and-wages>
- Chui, M., Manyika, J., & Miremadi, M. (2016). *Where machines could replace humans and where they can't (yet)*. McKinsey Quarterly. Retrieved 2018, 8 April, from <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/where-machines-could-replace-humans-and-where->
- Copeland, B. (2018). *Artificial intelligence*. Retrieved 2018, 30 April, from: <https://www.britannica.com/technology/artificial-intelligence>
- CPA Practice Advisor (2017). *BDO partners with AI firm MindBridge for audit*. *Accounting & Audit*. Retrieved 2018, 25 April from <http://www.cpapracticeadvisor.com/news/12356071/bdo-partners-with-ai-firm-mindbridge-for-audit>
- Enofe, A., Amaria, P., & Anekwu, D. (2012). Major changes affecting the accounting profession: empirical investigation. *International Journal of Business and Public Administration*, 9(2), 77-96.
- Frey, C. B., & Osborne, M. A. (2013). *The future of employment: how susceptible are jobs to computerisation?* Retrieved 2018, 7 April, from https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf
- Griffin, O. (2016). *Economia. How artificial intelligence will impact accounting*. Retrieved 2018, 11 March, from <https://economia.icaew.com/features/october-2016/how-artificial-intelligence-will-impact-accounting>
- Malay Mail News Article (2017, 19 May). *How technology is changing the face of accounting in Malaysia*. Retrieved 2018, 26 April, from <http://epaper.mmail.com.my/2017/05/19/how-technology-is-changing-the-face-of-accounting-in-malaysia/>

- McCabe, S. (2014). Voices CPA.com study gauges firms preparedness for the future. *Accounting Today*. Retrieved 2018, 12 March, from <https://www.accountingtoday.com/opinion/cpacom-study-gauges-firms-preparedness-for-the-future>
- McKinsey Global Institute (2017). Jobs lost, jobs gained: workforce transitions in a time of automation. Retrieved 2018, 8 April, from <https://www.mckinsey.com/~media/McKinsey/Global%20Themes/Future%20of%20Organizations/What%20the%20future%20of%20work%20will%20mean%20for%20jobs%20skills%20and%20wages/MGI-Jobs-Lost-Jobs-Gained-Executive-summary-December-6-2017.ashx>
- NST Business (2017). Technology is disrupting accountancy profession, said MIA. Retrieved 2018, 26 April, from <https://www.nst.com.my/business/2017/09/277250/technology-disrupting-accountancy-profession-said-mia>
- Ovaska-Few, S. (2017). How artificial intelligence is changing accounting. *Journal of Accountancy*. Retrieved 2018, 5 April, from <https://www.journalofaccountancy.com/newsletters/2017/oct/artificial-intelligence-changing-accounting.html>
- Pash, C. (2016, 29 June). KPMG will soon be using artificial intelligence for audits in Australia. *Business Insider Australia*. Retrieved 2018, 3 April, from <https://www.businessinsider.com.au/kpmg-will-soon-be-using-artificial-intelligence-for-audits-in-australia-2016-6>
- Pitter, A. (2018, 19 March). Voices job disruption is quickly coming to accounting, too. *Accounting Today*. Retrieved 2018, 20 March, from <https://www.accountingtoday.com/opinion/job-disruption-is-quickly-coming-to-accounting-too?brief=00000158-6edb-da3c-af5a-ffff76ed0000>
- Rajaraman V. (2014, March). John McCarthy – Father of artificial intelligence. *Personality Traits*, 198-207. Retrieved April 8, 2018, from <https://www.ias.ac.in/article/fulltext/reso/019/03/0198-0207>
- Raphael, J. (2015). How artificial intelligence can boost audit quality. Retrieved 2018, 3 April, from <http://ww2.cfo.com/auditing/2015/06/artificial-intelligence-can-boost-audit-quality/>
- Schatsky, D., Muraskin, C., & Gurusurthy, R. (2015). Cognitive technologies: the real opportunities for business. *Deloitte Review*, 16, 114-129. Retrieved March 18, 2018, from https://www2.deloitte.com/content/dam/insights/us/articles/cognitive-technologies-business-applications/DR16_cognitive_technologies.pdf
- West, D. M. (2015). *What happens if robots take the jobs? The impact of emerging technologies on employment and public policy*. Center of Technology Innovation at Brookings. Retrieved 2018, 24 April, from <https://www.brookings.edu/wp-content/uploads/2016/06/robotwork.pdf>