Volume:6 Issues: 33 [May, 2021] pp. 199 - 207]
International Journal of Accounting, Finance and Business (IJAFB)
eISSN: 0128-1844
Journal website: www.ijafb.com

DIGITAL CAPABILITIES IN THE DIGITAL ENVIRONMENT: EMPLOYERS' VIEW ON MALAYSIAN YOUTH CAPABILITIES

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Article history
Received date : 15-4-2021
Revised date : 16-4-2021
Accepted date : 29-4-2021
Published date : 31-5-2021

To cite this document:
Rahmat, A. M., Mohd, I. H., & Omar, M. K. (2021). Digital Capabilities in The Digital Environment: Employers' View on Malaysian Youth Capabilities. *International Journal of Accounting, Finance and Business (IJAFB)*, 6 (33), 199 - 207.

Abstract: *Malaysia's initiative towards a digital economy has further boosted the industry players to expedite the effort in restructuring the organisation's development plan by interjecting digital technology such as the Internet of Things, Big Data, Cloud Computing, and Artificial Intelligence (AI) as part of their business trajectories in creating competitive advantage. As digital development accelerates and provides extensive benefits in improving an organisation's efficiency and reputation, employers shifted their needs in hiring digital talents that can integrate digital technologies with daily tasks. The younger generation, who are more 'digital natives' than the senior workers, should have greater employment opportunities in line with the digital economic movement. However, the high unemployment rate of the young graduates in Malaysia shows a stark increase, raise to the critical question of whether the young graduates possess the actual capabilities that employers need in the digital environment or otherwise. Therefore, this study aims to explore a more nuanced and complex understanding of the actual digital capabilities deem to be relevant in the Malaysian employment market, considering employers' opinions and experience in hiring graduates. This study will employ a qualitative, netnography research method in collecting the data by using online interviews. The rationale of employing the netnography method is deemed relevant since the pandemic restricting the movement to collect data face-to-face. This study will gain employers' experience and opinions on the graduates' capabilities specifically, digital capabilities, capturing employers' expectations on graduates' capabilities that make the graduates qualified for employment. The employers will be the one that holds the authority in hiring decisions and must be working with the organisations that heavily rely on the use of digital technology in their business operations. The findings of this study heavily impacted on improving the young graduates' employability in the digital environment, provides a broader perspective to the*

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universities in structuring digital-related syllabus across various course programmes. The government can play its role by providing ideas to formulate an appropriate digital plan that is more specific to young people according to graduates' capacity that is more 'digital native', in accordance to the rapid technological development. The results of this study will contribute in terms of socio-economic aspects to form 'employable graduates.

Keywords: *Digital capabilities, digital technology, youth employability*

Introduction

Industry 4.0 involves transforming goods and services through the innovative application of technology (Babatunde, 2020). The digital transformation involved a holistic integration of production, processing processes and flows of information online through the utilisation of Big Data, the Internet of Things (IoT), Artificial Intelligence, Cloud Computing and devices (Caruso, 2018). The transformation towards digital technology in the current fourth industrial revolution era or 'IR4.0' fostering greater opportunity for economic growth, human capital development through upskilling and new job opportunities. However, the opportunity often hindered by digital technology's democratisation that will replace humans with machines leads to job losses and demand for new capabilities deteriorating insecurities among the existing employees and new graduates.

Industry 4.0 leads to a significant impact on the industrial workforce. The integration of the human force and technology contributes to efficiency and productivity in performing the task. However, the changes in the industrial environment directly affect the position of the workers in the organisation. On the positive side, digitisation has a prominent growth of demand for digital capabilities and technical knowledge to perform multiple tasks required by the new technologies (Caruso, 2018). Therefore, the emergence of new capabilities and new jobs is expected to bloom in the current digital era. OECD (2016) underlines that digitisation generates completely new occupations and jobs, such as networking specialists, big data and Internet engineers, hardware experts, data scientists, experts in cybersecurity, cloud and mobile computing, mobile app developers and others (Caruso, 2018). The way the task is performed also leads to a change of capabilities to match the job contents (Valsamis, 2015). The organisations may benefit from hiring capable talents, which allows the organisation to increase efficiency and productivity in producing goods and services (Caruso, 2018).

According to the Wall Street Journal, employers need a capable talent with new capabilities in analysing big data and using digital technology to create attractive designs (Weber, 2019). In a study conducted by International Telecom Unions, the people between the age of 19-24 are categorised as 'digital native', which highly interacted with digital technology (International Telecommunication Union, 2013). Therefore, the young generation has a greater opportunity to secure employment since they are constantly live in an era where technology is evolving. They are 'millennials' or, also known as Generation Z, who are more tech-savvy, having grown up with technologies (Dimock, 2019). Graduates nowadays should be competitive in the job market compared to the senior worker since they are more 'tech-savvy' corresponds to the previous generation.

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All countries contend with unemployment, labour underutilization, labour income inequality, alongside the rapid transformation of digital technology that introduces new capabilities in the employment market, providing a new opportunity to skilled young workers (ILO, 2020). The millennials are future workers that will enter the labour market, replacing retiring workers. They will be able to contribute to the future economy. However, the Malaysian graduates' unemployment rate increases, raising critical questions about whether they can compete in a challenging environment. Intense competition due to the increase production of graduates from various higher education institution also poses significant challenges to the graduates (The Star, 2020). According to Graduates Statistics 2019, the unemployed graduates equals 170,300 graduates (Graduates Statistics 2019, 2020). Employers are reluctant to hire fresh graduates due to graduates' lack of capabilities and inability to align their working environment capabilities (Oesterreich et al., 2019). The current technological and employment trend shows a widening gap. The graduates cannot compete in the job market even though they are more 'digitally literate' than senior workers. The current scenario raises critical questions about the digital capabilities that the employers needed to fill the employment gap, especially the young graduate (Hays, 2019). Therefore, this paper intends to explore the capabilities needed, focusing on digital capabilities deemed 'mandatory' in the Industry 4.0 era in Malaysia. The right combination of capabilities is crucial for young professionals entering the employment market (Winberg et al., 2020).

Literature review

Digital capabilities are significant capabilities in this new era where new technologies emerge from job creations evolve to job displacement and labour productivity, eventually widening the capabilities gaps (World Economic Forum, 2016). The digital capabilities are closely related to the ability to use computers, understand the power of images and sounds and transform digital media (Bejaković & Mrnjavac, 2020). However, Industry 4.0 interestingly has new dimensions on clarifying digital capabilities. Digital capabilities in Industry 4.0 focus on using digital resources and environment require 'digital intelligence' (DI) requiring information media and technology capabilities for the 21st Century job demands (Prifti et al., 2017). Interestingly, Curtarelli *et al.* (2016) outlined digital capabilities into three categories: (1) Basic digital competencies, (2) digital capabilities for employment and (3) digital capabilities for ICT professions. Curtarelli *et al.* (2016) distinguished digital capabilities according to three competencies comprising basic, immediate, and advanced digital capabilities. The identification of digital capabilities guides this paper to categorise the employers' exact level of digital capabilities. However, in their study, Curtarelli et al. (2016) focus on professionals working in ICT sectors that most working professionals already possess specific digital capabilities to perform specific tasks. Similarly with OECD (2016) categorised digital capabilities into three concepts which are generic, specialist and complementary capabilities.

On the other hand, European Commission developed Digital Competence Framework 2.0 featured five main areas of digital competencies, which are; (1) Information and data literacy, (2) Communication and collaboration, (3) Digital content creation and (5) Safety. The key competencies highlighted deem to be crucial to match with Industry 4.0 technologies such as big data and analytics, autonomous robots, simulation, vertical and horizontal system integration, Internet of Things (IoT), Cloud computing, Augmented Reality (AR), and Cyber Security (Erboz, 2018; Silva et al., 2019). The digitisation automatically generates completely new jobs such as networking specialists, big data and Internet engineers, hardware experts, data

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scientists, experts in cybersecurity, cloud and mobile computing, mobile app developers and others (OECD, 2014, as cited in Babatunde, 2020).

Industry 4.0 focuses on utilising the Internet of Things, where there is a need to have big data analytical capabilities to extract information from large amounts of data (Ji & Wang, 2017; Vassakis et al., 2018). Therefore, the employer needs employees that possess data analytical skill to manage information from big data. A recent study conducted by the BCG group highlighted new job roles found that an employer needs high analytical capabilities to combine know-how related to the job or process (Lorenz et al., 2015). The utilisation of big data merely affects decision-making based on data analytics. Nonetheless, big data exploitation needs people with capabilities and expertise to extract data to provide significant knowledge to decision-makers to decide (Provost & Fawcett, 2013). Digital capabilities involve using the internet connection as a getaway of discovering new knowledge through the extraction of big data where digital media, information processing, and social networks are the necessary capabilities required by the graduates frequently asked during a job interview (Lee, 2019). In general, the challenges derived from the transformation also lead to opportunities in creating a new business model that will lead to new job creation and capabilities to align with the revolution of the technology (Lee, 2019). Technological development and the resulting shifts in business models make the continuous adaptation of capabilities essential for active participation in the labour market (UK Commission for Employment and Capabilities, 2014). The next section emphasised the data collection method used to gain employers' experience in hiring candidates in the digital environment, comprising manufacturing and service sectors.

Research Methodology

Various study designs fall under qualitative study. This qualitative approach will draw on a netnography approach that focuses on human stories and understanding in using technologies (Kozinets, 2015). The netnography approach focuses on the data collection procedure utilising digital platforms such as blogosphere (blogging), microblogging, videocasting, podcasting, social networking sites, virtual worlds, and more (Bowler, 2010). Since the Malaysia government employs a controlled movement to break the chain of Covid-19 disease, this study collects data using the virtual interview method, using interactive platforms such as Zoom, Webex, and Google Meet. There are a few steps involved in data collection method. First, an invitation email to conduct a virtual interview were sent to the participants. Second, the participants will respond whether to agree to participate or vice versa. Agreed participants will then be sent a confirmation emails indicating the interview details, which includes the time, date, and attachment of relevant documents such as potential interview questions. The rationale of employing aforementioned details is to ensure the participants have a basic overview of the study's nature, making it easier to answer questions during the conversations take places. The researcher then will set up a reminder through Google Calendar. Overall, the netnography method in this qualitative study deem to be relevant in two ways: (1) The data collection were done in virtual mode using the latest digital applications and software in gaining human experience related to the use and operation of digital technology in the Industry 4.0 landscape and (2) The data collection using digital tools deem to be appropriate to acquiesce with the current policies restricting interstate movement during the pandemic of Covid-19, directing this study to utilise available digital technology to collect rich data.

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The participants are selected from industries related to the manufacturing and services sector that have started to apply Industry 4.0 features in their business operations. The participants are the employer or industry personnel comprised of CEOs, senior managers, and HR managers with a broad knowledge of recruitment and selection challenges. This study invited 75 potential participants to involve in this study. However, only 6 participants provide a positive response and support for this study. Different points of view were gathered from different backgrounds to identify whether all of the industries involved require similar capabilities to fill their vacancies.

Results and Discussions

The participants emphasise that they require the graduates to have digital capabilities because most organisations need people who can use digital technology to perform the task. Digital capabilities possessed by the graduates will satisfy the requirement that organisations need to operate in the digital environment. Besides, the digital capabilities that the millennials possess provide plus point to the graduates to compete with experienced candidate that has limited capacity in operating digital technologies due to the generation barrier.

The majority of employers will find a possible way to reduce training cost. It is also time-consuming as the new worker must complete extensive training hours that may be severe up to 1 month before the job's commencement. In that regard, the organisation must decide to hire the right talent that is already aware of the digital technology and knowledge to use the technology without wasting time and cost in training and development. Even though the employers focus on having talent that possesses digital capabilities, the employers do not expect the talent to be 'digital scientist'. A piece of basic knowledge and understanding of using digital technology and tools are adequate. The employers believe that the basic understanding will support the business operation to run effectively without extensive training spend on the first day of the commencement date.

> *"Digital capabilities are important, but we do not expect the candidate to have all the knowledge, only to understand the data and trend, but they don't need to understand the number, they must know how to apply what they learnt in the working environment." (Employer 2)*

> *"They need to understand the software and be computer literate. We need data analytical capabilities to analyse the data. The candidate does not necessarily possess advanced technical skill but must have basic knowledge in managing data to predict the cost involved in maintaining an aircraft and understanding the process and requirement." (Employer 4)*

> *"As for my department, we do not need specific technical skill. As long as you have digital skill, this is enough. Basic knowledge will be fine. We expect the graduates to have excellent digital literacy in using computer software such as Excel since my department focuses on managing the plant's operation." (Employer 5)*

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"Digital skill is important in our sales and marketing team. They need to have high social media capabilities to interact with potential clients. We need the candidates to have good social media capabilities for the organisation's visibility." (Employer 1)

"Since cloud computing is not booming yet, we need an experienced team that can run cloud computing. But we also encourage the graduates from relevant background to have digital capabilities. However, general digital capabilities such as the ability to work with a computer is a must-have skill." (Employer 6)

"Our company we have practice digitisation, especially in a communication system, name workplace, an internal social platform that works like Facebook, to update on our task. We highly utilise the cloud-computing system for training purposes. We highly rely on IoT technology to perform our task. Our team heavily relies on a digital system to handle passengers." (Employer 3)

Based on the employers' viewpoint, digital capabilities are highly needed across different department and positions. Digital literacy is part of digital capabilities, which the employer require the candidate to have excellent capabilities in using computer software. The majority of the employers put great attention on data analytical capabilities. They expect the graduates to understand and analyse the data, interpret and extract the data in a presentable format such as PowerPoint. It can be seen that there is a need to integrate digital literacy with the use of digital technology, such as IoT and Cloud Computing. Digital capabilities are closely related to media capabilities, which extensively focus on using social media to analyse consumer preferences. Media capabilities also involved in the ability to search for information online. The search for information may involve analysing the market trend, changing consumer preferences, and searching for relevant information deemed necessary for the organisation's growth. Information media capabilities have often been neglected as the organisation often rely on existing information available internally. In digital technology, information media capabilities are crucial in giving unlimited access to information to help the organisation decide. The tools used in information media use search engines such as Google, media technology such as Facebook, Instagram and other social platforms.

Conclusion

The present study is an effort to explore employers' perspectives on the actual digital capabilities highly required among the graduates in Malaysia. This study shows that most participants are sceptical about the level of digital capabilities possessed by the graduates. However, not denying the possibility of hiring graduates shows an effort and willingness to learn new things. The digital era that is currently happening suppose to be a valuable opportunity that allows the students to possess good digital capabilities since they are 'Generation Z' that is more tech-savvy that growing up in a technological environment. As highlighted earlier, the employers express the needs on having basic digital capabilities; a basic understanding of digital capabilities is sufficient to compete in a job market that is far more challenging compares to previous industrial revolutions. Therefore, this study urges the

stakeholders, including future graduates, to upskill their basic digital literacy into more advanced digital capabilities to remain relevant in the employment market and connect the digital capabilities with the real working environment. To conclude, most organisations in Malaysia started to move their business strategies to a higher level by utilising digital technologies such as IoT, Big Data, Digital Media and Cloud Computing as parts of the strategies in increasing their reputation competitive advantage. The graduates must have a basic understanding of digital technologies; however, having intermediate digital capabilities adds values to future graduates and provides greater opportunity to compete with experienced workers.

The implications of this research will contribute to different stakeholders, including the students, higher education institutions (HEIs), organisations, and government. Students may benefit from this research by identifying capabilities demanded by the employer, encouraging them to participate in upskilling short course programs and developing required capabilities before completing studies. The employer also plays a vital role in creating an effort in creating a platform by providing resources such as facilities in completing a group project for more significant work experience in a working environment. Higher education institutions will also benefit from this research in creating a dual knowledge program by collaborating with employers to provide hands-on training with government bodies' certificates. The government plays a vital role in supporting higher education efforts by escalating government expenditure by developing new training and development programs related to digital technologies relevant to the current technological needs.

Overall, digital capabilities are applicable across multiple industries and jobs. Therefore, the graduating students must have basic knowledge and capabilities in managing data and modern interface so that they manage to at least; meet the minimum requirement of the employers. However, possessing intermediate digital capabilities brings future graduates to a whole new game and tells different stories from the employers' expectations.

Acknowledgments
The authors gratefully acknowledge the assistance of the Faculty of Business and Management, Universiti Teknologi MARA in providing the research funding (Project Number: 600-RMC/SRC 5/3 (052/2020).

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