

The Mediating Role of Employee Agility on The Relationship between Digital Competency and Employee Performance among Civil Servants in Malaysian Public University

Siti Zaleha Ahmad Nadzim

Universiti Sains Malaysia (USM), Malaysia

Email: sitinadzim@student.usm.my

Hasliza Abdul Halim *

Universiti Sains Malaysia (USM), Malaysia

Email: haslizahalim@usm.my

** Corresponding Author*

Abstract

Purpose: The purpose of this study was to determine the mediating role of employee agility on the relationship between digital competency and employee performance among civil servants in Malaysian Public University

Design/methodology/approach: This study employed a qualitative research methodology to collect and analyze data. A total of 5 civil servants from a public university in Malaysia participated in semi-structured interview.

Findings: The result of this study found that: (1) Digital competency has influenced on employee agility, (2) Employee agility has influenced on employee performance (3) Employee agility mediated the relationship between digital competency and employee performance.

Research limitation/implication: The present study contributed to the individual performance research stream by determining mediating role of employee agility in the relationship between digital competency and employee performance.

Practical implication: It is recommended that Malaysian Public University to facilitate employee performance by improving digital competency and encourage agility among civil servants.

Originality/value: The previous study had examined the digital competence variable that effect employee performance. However, the employee agility variable used as mediating variable to test the relationship between digital competence and employee performance are still limited in research. This study may provide a new perspective for research in the field of employee performance. Thus, studying the mediating effect of employee agility towards employee performance is mainly our contribution in this research.

Keywords: Digital Competency, Employee Agility, Employee Performance.

Introduction

With the rapid economic growth over the past six decades, Malaysia has now moved to the high-income category. To realize the vision, Malaysia adopts a new approach to strengthening

its economic performance. Shared Prosperity Vision 2030 (SPV 2030) has been developed and launched in 2019. SPV 2030 is a pledge to develop Malaysia a country with long-term growth and fair and equitable distribution among income categories, ethnic groupings, regions, and supply chains. The commitment strives to improve political stability, boost national economy, and bring people together while honoring ethnic and cultural diversity as the nation-foundation. state's The SPV 2030's main goal is to ensure that all Malaysians have a good level of life by 2030 (SPV 2030 Blueprint, 2019).

By adopting MyDIGITAL in 2020, the government has devised a digital economy growth plan. MyDIGITAL is meant to work in tandem with national development policies including the Twelfth Malaysia Plan (12 MP) 2021-2025 and the SPV 2030. The digital economy has been highlighted as a key economic growth area (KEGA) in achieving SPV 2030, which aims to make Malaysia a country that develops sustainably with equitable and inclusive growth (Malaysia Digital Economy Blueprint, 2020). Malaysia will attain the following goals by 2025:

 Rakyat	 Business	 Government
<ul style="list-style-type: none"> • Creation of 500,000 new jobs • 100% household with access to internet • All students to have access to online learning 	<ul style="list-style-type: none"> • 30% uplift in productivity across all sectors by 2030 • 22.6% of digital economy to Malaysia's GDP • 875,000 micro, small and medium enterprises (MSMEs) adopt eCommerce • Attract 2 unicorns (home-grown or foreign) • RM70 billion investment in digitalisation • Increase the number of start-ups to 5,000 	<ul style="list-style-type: none"> • 100% civil servants to possess digital literacy • 80% end-to-end online government services • All ministries and agencies to provide cashless payment option in 2022 • 80% usage of cloud storage across the government in 2022

To make MyDIGITAL a success, the government must employ digital technology to improve workflow efficiency and productivity, improve civil servants' digital skill sets, leverage data to improve government services, and expand the scope and quality of online services for a better user experience. MyDIGITAL targeted 100% civil servants to possess digital literacy (MyDIGITAL Blueprint, 2020). Thus, there is a need for civil servants to master digital competence to deliver their tasks and improve their performance.

A study on the Development and Implementation of the Public Sector Digital Government Competency and Capability Readiness (DGCCR) Framework 2017 considers the Whole-of-Government (WoG) approach and comprehensively formulates the direction of public sector human capital development in the digital government era. This study helps the public sector identify appropriate digital skill sets and serves as a benchmark for developing the talents of

civil servants across service schemes, multidisciplinary and multi-level positions (DGCCR, 2018).

To embrace the changes in public service transformation, civil servants must be agile. Employee agility is defined as an employee's ability to adapt, react quickly, and rise to the challenge of new demands; employee agility usually translates into a strategic competitive advantage for the organization (Bahrami, et. al, 2016). The Chief Secretary to the Government Tan Sri Mohd Zuki Ali, recently urged civil servants to adhere the F.A.S.T.E.R principles of Flat, Agile, Streamlined, Tech-enabled, Efficient, and Resilient in ensuring that public servants can perform their duties with excellence and succeed in every thoroughly planned policy. FASTER principles refer to the need to work in a positive manner, that is, be open without having to be bound by outdated rules and constrained by various bureaucratic reasons and to be more agile in the execution of work which means to be more flexible and responsive in the implementation of systems and work processes (Sinar Harian, January 1, 2021).

Digital transformation in public service delivery requires civil servants to adapt to the changes to perform well. However, agility among civil servants is still lacking. According to Mohd Bakhari, digitization encompasses not only ICT technology, but also processes and people. Although information technology is fast evolving, users of technology, such as civil servants and people, are still more comfortable working and dealing in the traditional manner, that is, manually and face to face. As a result, in order for the digital government agenda to succeed, civil servants and the people especially the business sector, must adapt to using online services (Berita Harian, October 16, 2020).

According to the Prime Minister Tan Sri Muhyiddin Yassin, the existing procedures in public service and civil servant's way of working in which has been practiced for so long, is no longer suitable and need to be reviewed to facilitate the country's development. Changes in the public service delivery through digital Government required civil servants to be equipped with technology-based knowledge because they are not only the people who will handle the technology, but they are also agents to the Government in delivering information to the people (<https://www.pmo.gov.my>, July 6, 2020).

However, the digital competence capability among civil servants is still insufficient. This can be seen clearly, especially when the COVID-19 pandemic hit the world. The world was shocked by the wave of e-learning/virtual meeting/video conferences that surprised many people, including civil servants from 'sleep.' There are also employees/educators who have long been accustomed to the use of e-learning/virtual meetings, but not least those who have just tried it for the first time. Clearly, the digitization skills and capabilities of public officials are not emphasized on various technologies. The existing service scheme also does not support the Digital Government agenda (Muhaini, 2020).

The main target respondents of this research are the civil servants in Malaysian Public University (MPU). MPU's services are divided into two categories which are academic matters including teaching and research, and non-academic matters involving administrative and support staff (Davis, 1996). Thus, both academic and non-academic matters in the industry were equally weighted in gaining the competitive advantage (Jain, Sinha, & Sahney, 2011; Davis, 1996). The administrative staff are the backbone of the University's operation. Their roles are essential to ensure the success of the University. Therefore, a good work performance among administrative staff is vital for the success of a university. Hence, this study aims at

analyzing and elaborating the mediating effect of the employee agility variable on digital competency and employee performance of civil servants in MPU. Different results and fundamental knowledge from earlier studies about employee agility and the relationship between digital competency toward employee performance can be used as the firm basis and argument to conduct this research.

Literature Review

Gaps in the literature

The effect of digital competency and employee performance has been explored by a few researchers. Waskito (2021) tested the relationship between digital competence and performance among lecturers. Some studies have been explored the effect of employee agility on employee performance. Varshney (2020) reported that workforce agility has influenced on employee performance. Recently, Lim, et.al., (2021) found that that digital competency could be an important skill to master in order to achieve employee agility. However, there is a gap in the literature that this study aims to fill on the mediator role between employee performance and digital competency. Current conceptualization and empirical research are scarce. between digital competency, employee agility and employee performance. Therefore, based on qualitative methodology, this article ties digital competency and employee performance to further the latest scientific view of the relationship between digital competency and employee agility toward employee performance.

Employee Performance

Performance is the overall result or success of an individual throughout particular periods of duty in relation to the work standard, the targets or criteria that have been established in advance and agreed upon (Rivai, 2004). According to Rivai, performance is influenced by one's skills, abilities, and individual traits The capacity of a person to do a work in accordance with predetermined accuracy, completeness, cost, and speed standards is known as employee performance (Sultan, et.al., 2012). Pradhan & Jenna (2017) describes performance into three dimensions which are task performance, adaptive performance and contextual performance. Task performance is made up of job-specific actions, such as the core duties listed in the job description (Conway, 1999). The ability of a person to adapt to and provide crucial support for the job profile in a dynamic work environment is referred to as adaptive performance (Hesketh & Neal, 1999). Individual exhibit contextual performance, which is a sort of prosocial behavior, in a work environment. Employee's performance is influenced by a variety of elements to enhance a particular set of behaviors and achieve the organization's goals within a predetermined time frame (Spencer & Spencer, 1993). There are three main elements that affect employee performance: an individual's willingness to work, their level of effort, and organizational support. Employee performance refers to what employees do and do not do that determines how much they contribute to the organization (Mathis & Jackson, 2004). Competence is a fundamental quality that a person must possess to meet the requirements of a position. It encompasses knowledge, skills, and personality factors that can affect performance. Intellectual, emotional, and social competence are the three dimensions and components that make up an individual's competencies (Spencer & Spencer, 1993). There are a positive and significant relationship between employee competency and performance (Ismail & Abidin, 2010). To increase performance, staff members must be highly competent and able to adapt to

changes in the business environment. This is consistent with the assertion made by Spencer and Spencer (1993) that competency affects employee performance.

Digital Competency

Mengual-Andres et al. (2016) claim that developing digital competence is a way to get a specific level of literacy suitable for today's society. Digital competence, according to Ferrari (2012), is "a set of knowledge, skills, attitudes, strategies, and awareness that are necessary when ICT and digital media are used to perform tasks, resolve problems, communicate, manage information, collaborate, create and share content, and build knowledge in a critical, creative, autonomous, flexible, ethical, and sensible form for work, entertainment, participation, learning, and socialisation." The term "digital competence," which has been used frequently in relation to digital knowledge and application, is defined as "the ability to explore and face new technological situations in a flexible way, to analyse, select, and critically evaluate data and information, to exploit technological potentials to represent and solve problems and build shared and collaborative knowledge, while fostering awareness of one's own personal responsibilities and respect of reciprocal rights/obligations (Spante et al., 2018).

Employee Agility

Employee agility refers to workforce that is flexible and well-trained, in which can easily and quickly adapt to new situations and opportunities (Muduli, 2013). Employee agility is often referred to as the capacity to respond swiftly to changes in the surrounding environment (Patil & Suresh, 2019). The traits of an agile employee have been categorised using a variety of frameworks. Sherehiy and Karwowski (2014) grouped the behavior of agile workforce into the following three dimensions which are proactive, adaptive, and resilient behavior. Proactive behavior includes anticipating problems related to change. Adaptive behavior, which is the ability to take on multiple responsibilities, shift easily from one role to another, and work simultaneously on different tasks in different teams. Resilient behavior includes a positive attitude regarding changes, new ideas, and technology. In a worldwide world with rapidly changing consumer demands, workforce agility has become a strategic requirement for information technology (IT) organisations. Because it enables firms to respond quickly to changes in the external environment and capitalise on emerging trends (Felipe et al., 2016), hence, an agile employee is a crucial component in the development of agile organization, as the employee may be trained to deal with uncertainty and complexity (Muduli, 2016). Employee agility has received very little attention from the research community despite its obvious value (Chonko & Jones 2005). Managers invariably lack knowledge about an organization's agile employee's competencies and the procedures that must be implemented in order to develop and support them (Alavi & Wahab, 2013).

Hypothesis Development

The drive of this study is to test the relationship between digital competency and employee performance among civil servants in Malaysian Public University. Also, the study aims to test employee agility as mediator variable.

The influence of digital competency on employee agility

Digital competence has been studied in various fields, particularly businesses and industries in embracing and leveraging the best technology can offer in this era of modernisation, so much so that digital competence has very narrow and limited literature studied on employee agility. Except a study by Lim, et.al, (2021), the study found that digital competency could be an important skill to master in order to achieve workforce agility. In a study conducted in US among the large firms, the hypothesized relationship between IT competence and organizational agility was strongly supported by the data collected. Other than that, Ravichandran (2018) used the dimension of digital platform capability, information system capabilities, and information technology investment orientation to represent IT competency. In certain empirical studies, competence had been proved to depict less significant in relation to workforce agility. For instance, a literature cited in Muduli's (2016) paper, despite portraying to be one of the keys to agility, competence found to be less relevant in promoting workforce agility. However, a point to note, the study was looking into managerial area, including job rotation to create an agile environment. Based on the empirical finding, the current study proposes that employee agility could be enhanced by the employee digital competency. Hence, this study proposes.

H1: Digital competency has a positive relationship with employee agility

The influence of employee agility on employee performance

The relationship between employee agility and performance has not been adequately studied empirically. However, the concept of agility has been researched in relation to how it affects organizational performance. Early 21st-century business environments are characterized by uncertainty, ambiguity, and volatility, which compels companies to look for novel organizational and business models that will allow them to react rapidly and effectively to market changes (Dyer & Shafer, 2003). One competency utilized to handle these challenges is organizational agility, which is defined as an organization's capacity to recognize its environment, develop strategies and reactions to it, test them, and incorporate the learned information into the organization. (Dyer and Shafer, 2003; Trinh, Molla, and Peszynski, 2012; Worley, Williams, and Lawler, 2014) As a result, organizational agility had an impact on performance. Organizational agility growth has been shown to depend critically on employee agility (Dyer & Ericksen, 2006; Dyer & Shafer, 1998, 2003; Sherehiy, Karwowski, & Layer, 2007). Three core capabilities - proactivity, adaptivity, and resiliency - were used by Sherehiy et al. (2007) to categories the characteristics of an agile workforce. Employee performance is influenced by these employees' talents. According to Varshney (2020), employee performance has been impacted by workforce agility. Therefore, based on the previous empirical findings, this study proposes that:

H2: Employee agility has a positive relationship with employee performance

The linkage between digital competency, employee agility and employee performance

In this new digital era, employee's digital competence is very important. Technical expertise is in high demand as a result of technological advancements and the management of numerous digital networks. Although persons in non-tech professions may not be required to know how to utilize software applications, they must be able to use them because they may have a

significant influence on their daily work routine. Therefore, everyone should be knowledgeable about new technological developments and their potential applications. Additionally necessary for data processing is the capacity for statistical analysis (Davies et al. 2011). Majority of HR leaders, according to Webber (2018), have significant challenges in acquiring the skills needed to support their company's digital transformation. Mohammadyari and Singh have demonstrated how a workforce's digital competency might influence the success of technology adoption (Mohammadyari and Singh, 2015). Digital technology adoption in organizations affects the daily tasks of employees. Tasks that were previously done manually need to be changed to the use of digital technology and this requires employees to have digital competence in performing their tasks. The changes that take place require employees to be agile. A workforce that is agile, according to Plonka (1997), has a positive attitude toward learning and self-development, good problem-solving skills, comfort with change, new ideas, and new technology, the capacity to produce innovative ideas, and the desire to take on new tasks. Gunasekaran (1999) defined the characteristics of agile workforce as Information Technology (IT) skilled workers. Breu et al. (2002) identified the initial indicators of workforce agility, including responsiveness to external change, benchmark for skill assessment, speed of skill development, speed of adaptation to new work environments, speed of information access, speed of IT change, use of mobile technologies, workplace independence, mobile information access, and collaborative technologies. Previous research found that workforce agility has influenced on employee's performance (Varshney, 2020). Therefore, based on the previous empirical findings above, it is postulated that:

H3: Employee agility mediates the relationship between digital competence and employee performance

The conceptual proposed model

The variables of this study are as follows: the independent variable is digital competency, the dependent variable is employee performance, and the mediator variable is employee agility. To prove the proposition from the study, the research conceptual framework composed as follows (Figure 1).

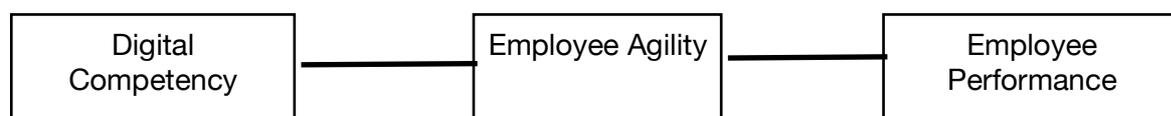


Figure 1: The Research Conceptual Framework

Methods

Participants and procedure

The data for this study collected from Malaysian Public University's examination of five administrative officials with grades N41 and higher. The respondent was contacted via phone, and a meeting with administrative officers who consented to attend was planned online. The

proposed conceptual model is evaluated using a qualitative technique. To place the applicant in the most opportune and secure environment possible during the Covid-19 epidemic, semi-structured interviews for the administrative officer were conducted via online meetings. This instrument was chosen to give researchers the opportunity to collect information that more properly reflects the individual perspectives of participants while also offering the benefit of using an interview guide to make the interviewing of various people more methodical. In order to better understand their job responsibilities, participants were first asked about how administrative officers considered their formal duties. Next, questions about employee agility in administrative tasks, attitudes of digital technology, and digital proficiency were posed. Participants were also questioned if employee agility affected their ability to do their jobs. We promised the interviewees that their information would be kept private and anonymous at the end of the session. Most interviews were conducted in English to facilitate communication.

Data gathering and measures

The interview question consisted of two sections, which was demographic information (age, gender, ethnicity, marital status, education background and years of experience). On the other section, the semi-structured interviews guideline echoed the themes covered in the variables, which are digital competency, employee agility and employee performance. In addition, they were asked about their work situation and their task at work. The guideline for the interviews is based on survey item: Digital Competency (Carretero et al., 2017), Employee Agility (Muduli, 2016), Employee Performance (Pradhan & Jena, 2017).

Findings

The inductive analysis of the interviewees' data reveals two major aspects in the civil servant's performance that are considered to include forms of digital competency and employee agility.

Digital Competency

When discussing the activities in the daily tasks performed by the administrative officer, all respondents agreed that their tasks performed require them to use digital technology. Among the tasks of administrative officers that involve digital technology are communication, preparation and storage of data, data analysis, reports, etc.

One of the respondents mentioned that apart from using digital technology to carry out the administrative tasks, they also need to be skilled in operating digital technology-related equipment such as computers, software, and the latest applications. In addition, the provision of digital content for information sharing through digital platforms is also their responsibility.

Interviewer: What are the challenges in performing your tasks as administrative officer that require you to use digital technology?

Respondent: Challenges faced when the tasks require me to use high digital knowledge and skills. Also, aspects of data security, internet access disruptions, and scams are among the things that concern me.

Interviewer: How did you overcome those challenges?

Three respondents agreed that the challenge could be overcome by constantly updating themselves with the latest digital knowledge and skills.

One of the respondents thinks that sharing digital knowledge and skills/digital competences among colleagues can help them to complete the tasks.

The other respondent also mentioned that guidance from the expert such as the IT department helps them face and resolve the issues encountered in carrying out tasks related to digital technology.

Employee Agility

When answering the question about employee agility, the administrative officers concluded that employee agility is their ability to change quickly in line with changes in the organization and environment. The intended changes are related to the use of digital technology in their tasks.

In addition to the ability to change, they also need to adapt with digital technology in performing their tasks and make such changes as the new norms.

They also explained that many challenges are faced during the transition from manual/traditional working methods to the adoption of digital technology. However, high resilience is required for challenges to be overcome well. In facing this situation, digital competence is required so that with digital knowledge and skills, they can cope with the changes that occur in their tasks and performing well.

Respondent 1: The ability to change quickly is essential to ensure that I can adapt to the changes that are taking place in the work process due to the use of digital technology.

Respondent 2: I try to adapt to new environments and approaches to improve my task performance by learning new knowledge and skills.

The other three respondents agreed that many challenges need to be faced in the changes that have taken place in the traditional/manual aspects of work to digital technology. The problems and challenges encountered need to be addressed quickly so that job performance is not harmed.

All the respondents also agreed that digital competence is essential to ensure that they can deliver their task well.

From those answers, it can be seen that administrative officers have the agility to support them in coping with the changes that occur in their tasks and roles as administrative officer due to the adoption of digital technology. Digital competence also helps them to perform well.

Discussion

The objective of this study was to study employee agility plays mediates roles between digital competency and employee performance. It was clear that proposition 1 there is a relationship between digital competency and employee agility. Digital competence has influenced employee agility. This finding supported by Lim, et.al, (2021) reported that digital competency could be an important skill to master in order to achieve employee agility. There is also positive

relationship between digital competency and employee agility. A study by Chakravarth, et al. (2013) who found that digital competency complements agility. Further, employee agility has influenced on employee performance as proposition 2 statement, there is a relationship between employee agility and employee performance. This finding supported as according to Ulrich and Yeung (2019) individual agility is the ability of people and leaders to learn and grow. More agile individuals find personal well-being and deliver better business results. In the organizational context, agile organisation makes better performance. Complex technologies must be the primary drivers of organizational agility, while Sherehiy, Karwowski, and Layer (2007) contend that people, as opposed to technologies, are more responsible for flexibility and speed. Before enterprises can become agile, the employees must be agile. If a team is flexible and well-trained, it can swiftly and easily adjust to new possibilities and market conditions, which can make all the difference (Muduli, 2013). This can lead to employee's better performance as reported by Varshney (2020), employee agility has influenced in employee performance. This has been confirmed in the research by Varshney (2020) that the creation of an agile employee and the organization digital transformation rely on the digital competencies of the employee of the organization. Therefore, it is clear as proposition 3, employee agility mediates the relationship between digital competency and employee performance.

Conclusion

As a conclusion, the purpose of this research was to identify the mediating role of employee agility between digital competency and employee performance. Qualitative and interview technique was used to find out the result for the objective of this study. The finding shows there is a high level of digital competency among employees to employee agility. In addition, the results of the interview revealed a link between staff agility and performance. The real success of the Malaysian Public University depends on the performance of its employees. It was suggested that to increase the performance among the civil servants in Malaysian Public University, the digital competency and employee agility should be improved. Based on the results of the research and discussion, the several conclusions can be outlined to support the proposition as follows.

1. The variable of digital competency influences employee agility.
2. The variable of employee agility influences employee performance.
3. The variable of employee agility mediates the influence between digital competency and employee performance.

Theoretical Implications

The study contributes to the employee performance literature by adding more knowledge to the identification of employee agility plays mediate roles on the relationship between digital competency and employee performance. Thus, the study will be responding to a recent call in the organizational performance literature that may fill in gaps in the theoretical knowledge about the mediating effect of employee agility to employee performance in Malaysian Public University. Additionally, the study is adding more evidence to the positive impact of digital competency on employee agility and employee performance. Because of this study a new research scope, it provides the reference value for academic in research.

Practical and Social Implications

The study's findings, which supported the idea that investing in human resources practices might improve employee performance, have important management implications for Malaysian Public University. First, managers at Malaysian Public University should concentrate on enhancing their digital competency through various training and development initiatives. Such exercises can give government employees the digital competency (knowledge, skill, and ability) they need to be more successful in their administrative tasks and other future requirements. In digital environments, characterized by uncertainty, variation, and rapid change (Nambisan & Wright, 2019), such continuous competence renewal (Danneels, 2002) is vital for long term survival. Consequently, digital competence should not primarily be understood as an institutional spine of a corporation, but rather as a portfolio of individual competences, i.e., “knowledge, skills, attitudes, and personal characteristics. Besides that, the management of Malaysian Public University also need to give attention to the effort which can promote employee agility. Therefore, digital transformation always includes an element of agility (Warner & Wager, 2019).

Limitations and Suggestions for Future Research

The limitation of this research is that it is only for the participants of civil servants in one Malaysian Public University in Northern Malaysia which means the participants were all information provided only in this organization. Therefore, this research cannot be generalized to other countries and the scope of digital competency is limited. The sampling size was small, which was difficult to present the whole result of public university in Malaysia. The recommendation thus is for future direction to continue to provide the employee agility variable are used as mediating variable between digital competency an employee performance by adopting quantitative research methodology to give more valuable data with large-size sample to support the proposition. Further research should focus on different sector to enrich the knowledge of this new scope, such as manufacturing sector. In addition, researcher suggested that explore the predictors influence digital competency would provide comprehensive research proposed model to build a new contribution.

Acknowledgement

The authors would like to thank the School of Management and library, Universiti Sains Malaysia for its support.

References

- Alavi, S., & Wahab, D. A. (2013). A review on workforce agility. *Research Journal of Applied Sciences, Engineering and Technology*, 5:16, 4195-4199.
- Bahrami MA, et al., (2016). The Mediating Role of Organizational Learning in the Relationship of Organizational Intelligence and Organizational Agility, *Osong Public Health Res Perspect* <http://dx.doi.org/10.1016/j.phrp.2016.04.007>.
- Breu, K., Hemingway, C. J., Strathern, M., & Bridger, D. (2001). Workforce agility: The new employee strategy for the knowledge economy. *Journal of Information Technology*, 17(1), 21-31.

- Breu, K., Christopher, J. H., Mark, S. and David, B. (2002). "Workforce Agility: The New Employee Strategy for the Knowledge Economy", *Journal of Information Technology*, Vol. 17, No. 1, pp. 21-31
- Brown, L., George, B. and Mehaffey-Kultgen, C. (2018). The development of a competency model and its implementation in a power utility cooperative: An action research study. *Industrial and Commercial Training*, 50, pp. 123–135.
- Carretero, S., Riina Vuorikari, Yves Punie, & European Commission. Joint Research Centre. (2017). *DigComp 2.1 : the digital competence framework for citizens with eight proficiency levels and examples of use*. Publications Office.
- Chakravarty, A., Grewal, R., & Sambamurthy, V. (2013). Information Technology Competencies, Organizational Agility, and Firm Performance: Enabling and Facilitating Roles. *Information Systems Research*, 24(4), 976–997. <https://doi.org/10.1287/isre.2013.0500>
- Chonko, L. B., & Jones, E. (2005). The need for speed: Agility selling. *Journal of Personal Selling & Sales Management* 25: 4, 371-382.
- Conway, J.M. (1999). Distinguishing contextual performance from task performance for managerial jobs. *Journal of Applied Psychology*, 84(3), 3–13.
- Davies, A., Fidler, D. and Gordis, M. (2011). Future work skills 2020. <https://www.downes.ca/cgi-bin/page.cgi?post=20>
- Danneels, E. (2002). The dynamics of product innovation and firm competences. *Strategic management journal*, 23(12), 1095-1121.
- Davis, A. (1996). Employee assistance provision in higher education. *Employee Counselling Today: The The Journal of Workplace Learning*, 8(5), 4–12. <http://doi.org/10.1108/13665629610127735>.
- Digital Government Competency and Capability Readiness (DGCCR).(2020). Jabatan Perkhidmatan Awam. <http://www.jpa.gov.my>.
- Dyer, L., & Shafer, R. A. (2003). Dynamic organizations: Achieving marketplace and organizational agility with people (CAHRS Working Paper #03-04). Ithaca, NY: Cornell University, School of Industrial and Labor Relations, Center for Advanced Human Resource Studies. Available at <http://digitalcommons.ilr.cornell.edu/cahrswp/27/>.
- Felipe, C.M., Roldan, J.L. and Leal-Rodríguez, A.L. (2016). "An explanatory and predictive model for organizational agility", *Journal of Business Research*, Vol. 69 No. 10, pp. 4624-4631, doi: 10.1016/j.jbusres.2016.04.014.
- Ferrari, A. (2012). *Digital competence in practice: An analysis of frameworks*. Luxembourg Publication office of the EU.
- Gunasekaran, A. (1999). "Agile Manufacturing: A Framework for Research and Development", *International Journal of Production Economics*, Vol. 62, Nos. 1 & 2, pp. 87-105.
- Hesketh, B., & Neal, A. (1999). Technology and performance. In D.R. Ilgen & E.D. Pulakos (Eds), *The changing nature of performance: Implications for staffing, motivation, and development* (pp. 21–55). San Francisco, CA: Jossey-Bass.
- Ilomaki, L., Paavola, S., Lakkala, M. and Kantosalo, A. (2016). Digital competence —An emergent boundary concept for policy and educational research. *Education and Information Technologies*, 21, pp. 655–679.
- Ismail, R., & Abidin, S. Z. (2010). Impact of workers' competence on their performance in the Malaysian private service sector, 2(2), 25–36.
- Jain, R., Sinha, G., & Sahney, S. (2011). Conceptualizing service quality in higher education. *Asian Journal on Quality*, 12, 296–314. <http://doi.org/10.1108/15982681111187128>.

- Lim, Y. S., Hasliza, A. H., and T. Ramayah. (2021). Agile or not? The Upsurge of Diggcom and Social Media Usage Among Teachers. *Journal of Applied Structural Equation Modeling*: 5(2),1-21, July 2021 DOI: 10.47263/JASEM.5(2)04.eISSN: 2590-4221
- Malaysia Digital Economy Blueprint (2020). Economic Planning Unit, Prime Minister's Department.
- Mathis, R. L., & Jackson, J. H. (2004). *Human Resource Management* (10th ed.). Mason, Ohio: Thomson South-Western.
- Mohammadyari, S., & Singh, H. (2015). Understanding the effect of e-learning on individual performance: The role of digital literacy. *Computers and Education*, 82, 11–25. <https://doi.org/10.1016/j.compedu.2014.10.025>
- Mohd Bakhari Ismail (2020). Selesa kerja cara lama sekat keupayaan masyarakat. October 16, 2020. <https://www.bharian.com.my/amp/kolumnis/2020/10/742498/selesa-kerja-cara-lama-sekat-keupayaan-masyarakat-digital>.
- Mohd Zuki Ali (2021). Penjawat awam perlu lebih cemerlang. January 1, 2021. <https://www.sinarharian.com.my/ampArticle/117087>.
- Muduli, A. (2013). Workforce Agility: A Review of Literature. *IUP Journal of Management Research*, 12(3), 55–65.
- Muduli, A. (2016). Workforce agility: Examining the role of organizational practices and psychological empowerment. *Global Business and Organizational Excellence*, 36(5), 46–56. <https://doi.org/10.1002/joe.21800>
- Muhyiddin Yassin (2020). Teliti Semula Prosedur, Cara Kerja Pentadbiran Kerajaan Pasca COVID-19 – Muhyiddin. Julai 6, 2020, <https://www.pmo.gov.my/ms/2020/07/teliti-semula-prosedur-cara-kerja-pentadbiran-kerajaan-pasca-covid-19-muhyiddin/>.
- Muhaini binti Yahya (2020). Kajian Tahap Kompetensi Digital Pegawai Awam. *Varia Ranah: Sorotan Ilmiah Perkhidmatan Awam Jilid I dan II*. Jabatan Perkhidmatan Awam.
- Nambisan, S., Wright, M., & Feldman, M. (2019). The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes. *Research Policy*, 48(8), 103773.
- Patil, M., & Suresh, M. (2019). Modelling the Enablers of Workforce Agility in IoT Projects: A TISM Approach. *Global Journal of Flexible Systems Management*, 20(2), 157–175. <https://doi.org/10.1007/s40171-019-00208-7>
- Plonka, F. S. (1997). “Developing a Lean and Agile Workforce”, *Human Factors and Ergonomics in Manufacturing*, Vol. 7, No. 1, pp. 11-20.
- Pradhan, R.K., & Jenna, L.K. (2019). Employee Performance at Workplace: Conceptual Model and Empirical Validation. *Business Perspectives and Research* 5(1) 69-85. DOI10.1177/2278533716671630
- Ravichandran, T. (2018). Exploring the relationships between IT competence, innovation capacity and organizational agility. *The Journal of Strategic Information Systems*, 27(1), 22–42. <https://doi.org/10.1016/j.jsis.2017.07.002>
- Rivai, V. (2004). *Manajemen Sumber Daya Manusia untuk Perusahaan Dari Teori ke Praktek*, Grafindo Persada, Jakarta.
- Shared Prosperity Vision 2030 Blueprint (2019). Ministry of Economic Affairs.
- Shafer, R. A., Dyer, L., Kilty, J., Amos, J., & Ericken, J. (2001, Fall). Crafting a human resource strategy to foster organizational agility: A case study. *Human Resource Management*, 40(3), 197-211. doi: 10.1002/hrm.1011.
- Sherehiy, B., Karwowski, W., & Layer, J. K. (2007). A review of enterprise agility: Concepts, frameworks, and attributes. *International Journal of Industrial Ergonomics* 37: 5, 445–460.

- Sherehiy, B. & Karwowski, W. (2014). The relationship between work organization and workforce agility in small manufacturing enterprises, *International Journal of Industrial Ergonomics* 44:3, 466-473.
- Spante, M., Hashemi, S. S., Lundin, M., & Algiers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use. In *Cogent Education*. <https://doi.org/10.1080/2331186X.2018.1519143>
- Spencer, M. L. J., & Spencer, S. M. (1993). *Competence at Work-Models for Superior Performance*. New York: John Wiley & Sons.
- Sultan, A., Irum, S., Ahmed, K., & Mehmood, N. (2012). Impact of training on employee performance: A study of telecommunication sector in Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 4(6), 646- 661.
- Trinh, P., Molla, A., & Peszynski, K. (2012). Enterprise systems and organizational agility: A review of the literature and conceptual framework. *Communications of the Association for Information Systems*, 31(1), 167-193.
- Ulrich, D. and Yeung, A. (2019). Agility: the new response to dynamic change Vol. 18 No. 4 2019, pp. 161-167, Emerald Publishing Limited, ISSN 1475-4398 *Strategic HR Review*.
- Varsney, D. & Varshney, N.K. (2020). Workforce Agility and its links to emotional intelligence and workforce performance: A study of small entrepreneurial firms in India, *Wiley Periodicals, Inc. GBOE*. 2020;39(5):1-11. wileyonlinelibrary.com/journal/Joel.
- Warner, K. S., & Wager, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3), 326-349.
- Waskito, K.S. (2021). The Role of Digital Competence on Lecturer Performance of S1 Accountancy Study Program of Private Universities in Bandung Metropolitan Area Through Work Satisfaction with Servant Leadership Moderating Variable, *Dinasti International Journal of Management*, <https://dinastipub.org/DIJMS>, Volume 3, Issue 1, September 2021 E-ISSN : 2686-522X, P-ISSN : 2686-5211.
- Weber, Y., & Tarba, S. Y. (2014). Strategic agility: A state of the art. *California Management Review*, 56(3), 5-12.
- Worley, C., Williams, T., & Lawler, E., III. (2014). *The agility factor: Building adaptable organizations for superior performance* [Kindle edition]. San Francisco, CA: Jossey-Bass.