

The Determinants of Digital Workplace Adoption: A Conceptual Framework

Mimi Zazira Hashim¹, Razli Che Razak², Norrini Muhammad³,
Farah Ahlami Mansor⁴, Wan Nor Hazimah Wan Azib⁵

^{1,2,3}Faculty of Entrepreneurship and Business, Universiti Malaysia Kelantan, ^{1,3,4,5}Faculty of
Business and Management, Universiti Teknologi MARA, Cawangan Kelantan

Correspondence Authors Email: mimiz949@uitm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v12-i10/14822> DOI:10.6007/IJARBSS/v12-i10/14822

Published Date: 06 October 2022

Abstract

The digital workplace is an invaluable organizational resource that can significantly boost the productivity of knowledge workers. The reduction of barriers between people, information, and processes is one of the many benefits offered digital workplace, along with mobility, information searching, communication, and collaboration. However, the Movement Control Order caused commercial losses for more than two thirds of Malaysian SMEs (MCO). 31% of SMEs suffered delays in finishing tasks and projects, while 30% had operational interruptions. From a thorough analysis of the literature on digital workplace adoption, this study presents a conceptual framework to determine the factors that influence digital workplace adoption. The conceptual framework which is based on Unified Theory of Technology Acceptance and Use (UTAUT) will be applied in this study. The proposed framework can be utilized to identify the determinant factors of digital workplace adoption among employees of Malaysian SMEs. In the meantime, Personal Knowledge Management is integrated to the framework serves as a moderator to assess worker's ability in using digital workplace tools.

Keywords: Digital Workplace Adoption, Unified Theory of Technology Acceptance and Use, Personal Knowledge Management, Small and Medium Enterprises.

Introduction

The digital transformation has altered workplaces and the nature of work. Smart technology, cloud computing, big data, Internet of Things, robotics, artificial intelligence are instances of the new digital technologies that are accelerating the pace of change in the workplace. Digital information produces a more agile, productive, and intelligent workplace (Ulukan, 2020); enhanced productivity, communication, cooperation, engagement, and creativity; and decreased waste (Attaran et al., 2019). Adoption of a digital workplace has numerous advantages for the company, employer, and employees. These new digital capabilities can improve performance and expand products, services and customers (Verhoef et al., 2021), increase sales and profits (Warner & Wager, 2019), have a greater competitive advantage,

attract a broader range of customers and employees (Chanas et al., 2019) , improve the work environment (Hwang et al., 2022), mobility, problem solving, information searching, creating connections and removing barriers between people, information, and processes (Haas et al., 2015) .

Digital workplaces are created when individuals do their duties in digital environments as opposed to physical. Digital workplace tools consist of messaging applications, intranets, enterprise social networks, productivity suites, self-service portals, workplace mobility, and intelligent technologies such as chatbots and sentiment analysis applications (Dery & Sebastian, 2017). The digital workplace is a significant organizational tool for maximizing the productivity of knowledge workers. This view is also reinforced by Singh et al (2019), who asserted that small and medium enterprises (SMEs) that accept newer or more recent technologies or technology-oriented SMEs will have superior performance compared to SMEs that do not adapt or embrace these technologies. Additionally, digital technologies have altered the working activities and procedures (Selimovic et al., 2021). Even though the digital workplace delivers multiple benefits to a company in various ways, deploying the technology does not guarantee its success (Schallenmueller, 2016) . According to Mathur & Dhulla (2014), technology adoption is a process comprised of knowledge, awareness, and application of the technology. Numerous studies have examined the elements that influence technology acceptability in the workplace and the extent to which employees embrace and utilize technology systems. Camadan et al (2017), claimed that openness and extraversion have indirect favourable effects on behavioural intention. Enabling employees to feel autonomous, competent, and connected in the workplace of the future is crucial for their anticipated performance and well-being (Meske & Junglas, 2021). Both increase the users' positive attitude toward the digital workplace transformation and their intentions to involve in the change processes.

Most of the existing theories of IT adoption such as Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT) and Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) describe behaviour intentions to adopt or use the technology. However, the intentions do not guarantee actual behaviour (Shropshire et al., 2015) . In other studies, Dasgupta & Gupta (2019) also found there were no significant relationship between behavioural intention and actual use of system and the effect is not always positive (Wiafe et al., 2020). The finding has opened a chance for the researcher to explore the limitations in order to close the gap. The degree of discrepancy between users' intentions for a particular conduct and their actual behaviour is known as the intention-behaviour gap (Bhattacharjee & Sanford, 2009). The intention-behaviour gap occurs when people consciously decide to change their behaviour but fail to do so.

The global COVID-19 outbreak has affected the majority of individuals, businesses, and nations. The epidemic has significantly changed the way in which people work, from physical to digital workplaces. Work from home has suddenly become vital and has accelerated the digital transformation of the workplace. The pandemic has caused significant disruptions among small enterprises. More than half of small and medium-sized enterprises (SMEs) suffer catastrophic revenue losses, overextended loans, and imminent bankruptcy. In their COVID-19 Business Impact Survey including 4,467 enterprises in 132 countries, the International

Trade Centre (ITC) found that 55% of respondents are severely affected by the epidemic. More than two-thirds of Malaysian SME businesses faced losses of up to RM100,000 in 2020 due to Movement Control Order (MCO). A Business Impact Survey conducted by Ernst & Young with 670 respondents, including major, publicly traded organisations as well as small and medium-sized enterprises, evaluated the most significant difficulties across five categories: finance, supply chain, customers, technology, and people. Regarding the technological side, one-third of SMEs identified work-from-home connectivity as the primary concern. On the human resources front, 31% of SMEs suffered delays in completing tasks and projects, while 30% experienced operational disruptions (SME Corp, 2021).

Prior study on digital transformation has emphasised organisation. However, there is little emphasis on employees, particularly in terms of adoption (Meske & Junglas, 2021). Thus, there is a lack of study on the organization's employees' adoption of digital workplaces. To properly implement the digital workplace transformation, companies must guarantee that the digital workplaces has a positive influence on employee performance and participation in daily operations (Ulukan, 2020). Competing for qualified individuals is widely cited as a significant obstacle to digital transformation in company and the workforce (Karacay, 2018). Having digitally skilled staff is a crucial element for a corporation beginning its digital transformation (Marsh et al., 2022). However, according to the European Commission, 88 percent of organisations have not made any steps to address their employees' lack of digital skills (European Commission, 2017).

This paper begins with an introduction to the digital workplace, its benefits, and an overview of the study background. The second section is concerned with the research methodology. The research then explores the concept and adoption of digital workplace in Malaysian small and medium-sized enterprises. The paper then includes a comprehensive analysis of the relevant literature, which leads to the establishment of a conceptual framework for identifying the essential determinants of digital workplace adoption in Malaysian SME. Finally, limits and a conclusion are discussed.

Research Methodology

This paper analyses and critically assesses the related literature and proposes a conceptual framework which allows overcoming limitations encountered in previous research and identifying the determinants for digital workplace adoption in SMEs in developing countries in general and in Malaysia in particular. This study will employ a survey method. Self-administered questionnaires containing each variable will be used for the purpose of data collection. The target population of this study comprises employees in medium size enterprise specifically in the manufacturing and services sector in east coast states namely Kelantan, Terengganu and Pahang. These three states are chosen due to the homogeneity of the three states in terms of geographical area and economic performance. This study will employ stratified random sampling method. Through a stratified random sampling method, the population is allotted into strata. Saunders et al (2007) proposed the most appropriate sample for a population of around 50,000, is 381. As for this study, stratified random sampling design will be applied based on the respondents' who are currently working with small and medium size enterprise and using digital workplace tools. Apart from that, this sampling design is more efficient because each important segment of the population is adequately

sampled, more valuable, and comparisons among groups are made possible (Sekaran & Bougie, 2016).

Digital Transformation in Malaysian SME

The digital transformation has a great impact on small and medium enterprises (SMEs) development in Malaysia. SMEs firms which adopt newer or latest technologies or technology-oriented SMEs, will have a better performance as compared to SMEs that do not embrace or adopt these technologies for effective and efficient business performance enhancement (Singh and Hanafi, 2019). SMEs provide a potential source of economic growth, job creation, innovation and social integration. SMEs are the backbone of Malaysia economy and play an essential role for Malaysia economic development with high contribution to the gross domestic product (GDP). Malaysia's SMEs GDP for 2018 grew at 6.2 per cent as compared to 7.1 per cent in 2017. The sector's contribution to the GDP in that year grew by 38.3% to RM521.7mil from RM491.2mil a year before. In nominal terms, SMEs GDP recorded RM586.9 billion in 2019 (2018: RM551.8 billion) (DOSM, 2020). However, in 2020 the growth of SME's GDP registered at negative 7.3 percent which was lower than Malaysia's GDP for the first time over the past 17 years since 2003 (DOSM, 2021).

In 2019, the National Entrepreneur and SME Development Council has approved a total of eight broad initiatives aimed at further enhancing the contribution that SMEs make to the economy (SME Corps, 2020). Intensifying digitalization, connectivity, and cybersecurity among SMEs are the measures that will be taken. Other measures include enhancing SMEs' integration in the supply chain, supporting more high growth SMEs with relevant incentives, and boosting SMEs' readiness and competitiveness to adopt innovative, disruptive, and compelling technology and business models. The success of small and medium-sized businesses in Malaysia would enable the country to accelerate its transition from a middle-income to a high-income status.

According to the Household Income and Basic Amenities Survey Report 2019 (Department of Statistic Malaysia, 2020), Malaysia's income groups are divided into three categories. The highest 20% of families (T20) have an average monthly income of RM10,960.00 or above. Households in the 40% middle-income household group (M40) have an average monthly income between RM4,850.00 and RM10,959.00. The lowest 40% of households (B40) are those whose average monthly income is less than RM4,849.00. In particular, Digital Malaysia seeks to meet the growing demand for digital goods and services worldwide, boost income levels for citizens, unleash entrepreneurship potential for the B40 group, equip the next generation of workers with digital skills and encourage the adoption of technology by Malaysian SMEs in order to increase productivity. Malaysia launched "Transformasi Nasional 2050" in 2017 as a program for economic growth, societal advancement, and innovation. The plan names internet of things and artificial intelligence as key enablers for bringing Malaysia into the digital future. As part of Malaysia's commitment to the Sustainable Development Goals (SDGs), a national policy on Industry 4.0 known as Industry4WRD was announced in 2018. This policy aims to assist the manufacturing industry to transition into Industry 4.0 (MITI, 2018).

Pelan Jana Semula Ekonomi Negara (PENJANA), also known as the National Economic Recovery Plan, was introduced by the Malaysian government during the COVID-19 epidemic under the direction of the prime minister. To move toward company digitalization, eligible Micro, Small, and Medium-Sized Enterprises (MSMEs) will be on-boarded into e-commerce. This will be accomplished through a program that the government, MDEC, and e-commerce platforms will jointly fund. Participating in e-commerce platforms will support Malaysian SMEs in on-board training, seller subsidy and sales support.

The governments also committed to upskilling the workforce and driving Malaysia's digital transformation, recognizing that a lack of people and skills is one of the most significant obstacles to digital transformation. Among the national strategies are the upskilling of existing workers and the cultivation of future talent. Two strategies are described: Strategy S1: Enhance the competencies of the existing workforce through national development programs tailored to specific industrial industries, and encourage reskilling and upskilling. Strategy S2: Ensure the availability of future talent by preparing students with the required skill sets to work in an Industry 4.0 setting (MITI, 2018). Therefore, in order to assure their survival, profitability and to compete with well-established global businesses, SMEs must enhance the skills of their staff.

Definition and Conceptualizations of Digital Workplace

Workplaces is an environments in which people are physically positioned to engage in work activities (Bystrom et al., 2017). The digital workplace enables employees to work at any time and from any location. Digital workplace is an integrated technology platform that provides all the tools and services that employees need to work effectively, both alone and with others, regardless of location. It is strategically coordinated and managed through digital workplace designs that are flexible and capable of being adapted to meet future organisational needs and technologies (Williams & Schubert, 2018). Marsh et al (2022) define the digital workplace as the technology and practices that contribute to an employee's digital working experience, independent of where the employee works. Digital workplace is defined as component of the IT infrastructure that is visible or experienced by the user, embedded in an organisational and with which employees may carry out work activities characterised by information, communication, and collaboration (Schmidt et al., 2018).

A review of the relevant literature reveals a multitude of different perspectives regarding the digital workplace. The idea of a paperless office was first proposed in the middle of the 1970s by George Pake, who was a co-founder of the Xerox PARC Research Institute at the time. This idea came before the advent of the digital workplace. At the same time, in 1976, a team of researchers at the University of Illinois' Computer-based Education Research Laboratory (CERL) under the direction of Ray Ozzie developed PLATO Group Notes (White, 2012). Late in the 1990s, Jeffrey Bier developed a suite of collaboration software name eRoom Technologies (Koffer, 2015). eRoom is an online platform for collaborative project management that offers a wide range of functionalities, such as e-mail management, calendaring, instant messaging, project plans, database administration, and document management.

Social technology tools, contextual intelligence tools, communication infrastructure, and mobility make up the digital workplace concept (Dahlan et al., 2018). The digital workplace comprises physical, cultural, and digital structures that facilitate work in complex, dynamic,

and frequently unstructured contexts (Dery & Sebastian, 2017). In addition, the digital workplace is a dynamic set of workplace technologies that integrates the Internet of Things, messaging tools, intranets, enterprise social networks, productivity suites, self-service portals, workplace mobility, cloud technologies, analysis tools, and smart technologies such as chatbots into the enterprise (Dery & Sebastian, 2017) as well as automation and artificial intelligence into the enterprise (Baptista et al., 2020). Miller & Marsh (2016) have provided a comprehensive definition of the digital workplace, which includes intranets, unified communication, microblogging, HR systems, email, mobile applications, collaboration spaces, supply chain management systems, and customer relationship management systems. The intranet was widely regarded as a fundamental element of the digital workplace.

Many studies to date have investigated factors that influence the intention to use digital workplace. Table 1.2 summarize selected previous studies related to the digital workplace. To review the previous study, the author focused on the studies which applied UTAUT and SMEs. UTAUT has been applied by many researchers to study DWP adoption in SMEs such as accounting information system (Lutfi, 2022); cloud computing technology (Khayer et al., 2021); e-commerce (Shahzad et al., 2020) & (Sombultawee, 2020); electronic procurement Kit et al (2021); Soong et al (2020) digital advertising (Reyes-Mercado & Barajas-Portas, 2020) ; enterprise system (Awa & Ukoha, 2020); social media (Alhaimer, 2019); smart manufacturing technology (Chei et al., 2019); big data (Silva et al., 2019); Internet technology adoption (Dasgupta & Gupta, 2019) and business application (Ibrahim et al., 2018).

Table 1.2

Selected previous studies of DWP adoption

No.	Author	Construct Studied	Major findings
1.	Lutfi (2022)	Performance expectancy, effort expectancy, social influence, facilitating conditions and Top Management Support (TMS)	Effort expectancy, performance expectancy and facilitating conditions, have a positive effect on the continuance intention of accountants to use Accounting Information System, with TMS having a significant and negative effect on such intention to use. In addition, social influence was found to be significantly related to continuance intention, confirming the need to support technologies such as AIS among SMEs.
2.	Khayer et al (2021)	Performance expectancy, effort expectancy, facilitating conditions, social influence, absorptive capacity, data security and privacy and perceived trust.	Performance expectancy; effort expectancy; absorptive capacity; data security and privacy; and perceived trust are significant predictors of cloud computing adoption. Also, cloud computing adoption positively influences firm performance directly and through organisational agility.
3.	Mensah et al (2021)	Performance expectancy, effort expectancy, facilitating conditions, social influence and Technology, Organization and Environment (TOE)	The environmental factor was a positive predictor of the performance expectancy of electronic commerce (EC) among SMEs, it does not, however, encourage the adoption of EC. The knowledge factor is a significant determinant of the adoption of EC among SMEs. Organizational factor was a positive predictor of both performance expectancy and the adoption of EC by SMEs. The technological factor was not a significant predictor of the intention to use EC but was significant in determining the performance expectancy of EC. Finally, the study demonstrated that the performance expectancy of EC was a significant predictor of the behavioural adoption of EC.
4.	Kit et al (2021)	Performance expectancy, effort expectancy, facilitating conditions, social influence,	Social influence together with performance expectancy and effort expectancy are influencing usage of public electronic procurement among Malaysian's SMEs.

		hesitation and perception	
5.	Sombultawee (2020)	Performance expectancy, effort expectancy, facilitating conditions, social influence, IT resources and knowledge	Performance expectancy and effort expectancy, along with facilitating conditions, contributed to e-commerce adoption. However, social influence did not have a significant influence.
6.	Soong et al (2020)	Performance expectancy, effort expectancy, facilitating conditions, social influence and Technology Acceptance Model (TAM).	Effort expectancy, performance expectancy and social influences had a direct effect on the adoption of electronic government procurement in the private sector. The behavioural intention would influence user behaviour.
7.	Shahzad et al (2020)	Performance expectancy, effort expectancy, facilitating conditions, social influence and Resource Based View (RBV).	Performance expectancy, effort expectancy and facilitating condition influenced the use of e-commerce. Meanwhile, social influence and perceived risk are found to be insignificant in this study for both click-and-mortar and pure-player while click-and-mortar companies agree that effort expectancy does impact the use of e-commerce while pure-player disagree.
8.	Awa & Ukoha (2020)	Performance expectancy, effort expectancy, facilitating conditions, social influence, task-technology fit and perceived trust	57 percent of variance on Enterprise system adoption was explained by the predictors with acceptable fit indices and significant relationships between variables. All path coefficients were statistically supported. Facilitating conditions and task interdependence to adoption being the most critical predictors, and complexity to adoption having a negative significant coefficient-a unit increase attracts less adoption likelihoods or vice versa
9.	Alhaimer (2019)	Performance expectancy, perceived price advantage, social influence, hedonic value, facilitating conditions and behavioural intention	Performance expectancy, facilitating conditions, social influence and hedonic value, positively affect behavioural intention to use social media for online advertisement. Perceived price advantage has a negative effect
10.	Silva et al (2019)	Performance expectancy, effort expectancy, social influence, facilitating	Intention to Use of Big Data on the part of SMEs is determined by Performance Expectancy, Social Influence and Facilitating Conditions. Resistance to use

	conditions, resistance to use	new technologies negatively affect the intention to use. The influence of Effort Expectancy is very low, with little significance over the intention to use.
11.	Dasgupta & Gupta (2019)	Performance expectancy, effort expectancy, social influence, facilitating conditions, espoused organizational culture
		Espoused organization culture influences performance expectancy, effort expectancy, social influence, facilitating conditions in a government agency in an emerging economy, India. Effort expectancy has no significant effect on behavioural intention and behavioural intention has no significant effect on system usage.
12.	Cabrera-Sánchez & Villarejo-Ramos (2020)	Performance expectancy, effort expectancy, social influence, facilitating conditions, perceived risk, resistance to use
		Performance expectancy, social influence, facilitating conditions, effort expectancy and resistance to use significantly influence behavioral intention to use BDA in companies. Perceived risk has no significant relationship with the intention.
13.	Wiafe et al (2020)	Performance expectancy, effort expectancy, social influence, facilitating conditions, self-efficacy, anxiety, attitudes toward use
		Performance expectancy, facilitating conditions, anxiety and attitude towards use significantly influences users' intention to use. Social influence, effort expectancy and self-efficacy did not significantly influence intention to use.
14.	Ibrahim et al (2018)	Performance expectancy, effort expectancy, social influence, facilitating conditions, cognitive, management characteristics and organizational structure and technology adoption
		Performance expectancy, management characteristics and organizational size affect technology adoption among agribusinesses critically.

Conceptual Framework

Based on literature review, a conceptual framework is proposed as shown in Figure 1. The conceptual framework is proposed by integrating Unified theory of acceptance and use of technology (UTAUT) and personal knowledge management model. In the UTAUT model, performance expectancy and effort expectancy are regarded as characteristics of information systems and technologies, whereas the remaining two constructs, namely Facilitating Condition and Social Influence are regarded as contextual or organizational factors that have an effect on the behaviour of individuals (Dwivedi et al., 2019). Only Performance Expectancy and Effort Expectancy will be investigated in this research because of the significance that these two factors hold for the adoption of new technologies (Nikolopoulos & Likothanassis, 2017). Kit et al (2014) claimed that SI, FC and PV does not influence the behavioural intention to adopt mobile applications. Hence, this study only include two variables from UTAUT

namely performance expectancy and effort expectancy. Although the UTAUT model has gained widespread acceptance, there are questions about its ability to explain individuals' technology acceptance. It has been suggested that external factors be added to the model to improve its capacity to forecast IT adoption. Personal creativity and trust were added into the UTAUT model by (Kabra et al., 2017). Meanwhile, self-efficacy, risk, trust, security, and attitude were included by (Khalilzadeh et al., 2017). This study proposed an extension of the UTAUT model by adding personal knowledge management as a moderator to predict adoption of digital workplace.

Performance Expectancy

Performance expectancy is the extent to which he or she believes that employing a system will result in improved job performance (Venkatesh et al., 2003). Similar constructs exist in five additional models and theories, including perceived usefulness in the Technology Acceptance Model, extrinsic motivation in the Motivational Model, job-fit in the Model of PC Utilization, relative advantage in the Diffusion of Innovation, and outcome expectancy in the Social Cognitive Theory. Performance expectancy was found as the strongest predictor of an individual's intention to use new technologies in an organizational context, and prior studies in the field found that there was a positive relationship between performance expectancy and continuance intention by (Raza et al., 2017; Maruping et al., 2017; Ibrahim et al., 2018; Kit et al., 2021). It is significantly influence behavioural intention to use big data analytic in companies (Cabrera-Sanchez & Villarejo-Ramos, 2020); influenced the use of e-commerce (Shahzad et al., 2020); influencing usage of public electronic procurement among Malaysian's SMEs (Kit et al., 2021); a significant predictor of the behavioural adoption of e-commerce (Mensah et al., 2021); a significant predictor of cloud computing adoption (Khayer et al., 2021) and a positive effect on the continuance intention of accountants to use Accounting Information System (Lutfi, 2022).

Effort Expectancy

Effort expectancy refers to the level of difficulty that one can anticipate when making use of the technology (Venkatesh et al., 2003). Effort expectancy has been validated in various UTAUT studies as a significant variable of user's behaviour intention (Alalwan et al., 2017). Effort expectancy significantly influence behavioural intention to use big data analytic in companies (Cabrera-Sanchez & Villarejo-Ramos, 2020), influenced the use of e-commerce (Shahzad et al., 2020), had a direct effect on the adoption of electronic government procurement in the private sector (Soong et al., 2020), contributed to e-commerce adoption Sombultawee (2020), influencing usage of public electronic procurement among Malaysian's SMEs (Kit et al., 2021), a significant predictors of cloud computing adoption (Khayer et al., 2021) and have a positive effect on the continuance intention of accountants to use Accounting Information System (Lutfi, 2022).

Personal Knowledge Management

Personal knowledge management (PKM) is defined as an individual's ability to handle explicit knowledge at the personal level. Thus, information can be disseminated throughout an organisation, resulting in the acquisition of new, relevant knowledge and the making of well-informed decisions (Liu et al., 2017). Hosseingholizadeh et al (2018) concurred that PKM research focuses primarily on addressing the issue of information overload. The existing literature clearly points to personal knowledge management as a means of increasing

individual effectiveness in the work environment and in the knowledge society (Pauleen & Gorman, 2012). Through personal knowledge management, one can develop good study habits, enhance information literacy, improve professional knowledge and competitiveness and, finally, establish a solid foundation for knowledge development (Pauleen & Gorman, 2012). Cope with big data, people's knowledge management becomes personally useful as well (Daas et al., 2015). Pauleen (2009) claimed that individuals who occupy personal knowledge management can process various types of information, and all available information can be transformed into more valuable knowledge that can ultimately be connected to their work and life. Individuals can handle significant large amounts of information in a short period of time, as well as quickly and efficiently obtain the required knowledge to accurately utilize that knowledge and to improve work efficiency and their capability (Razmerita et al., 2009). Personal knowledge management can also help individuals to assess the quality of information and determine the extent of the information associated with the problems they encounter (Liu et al., 2017).

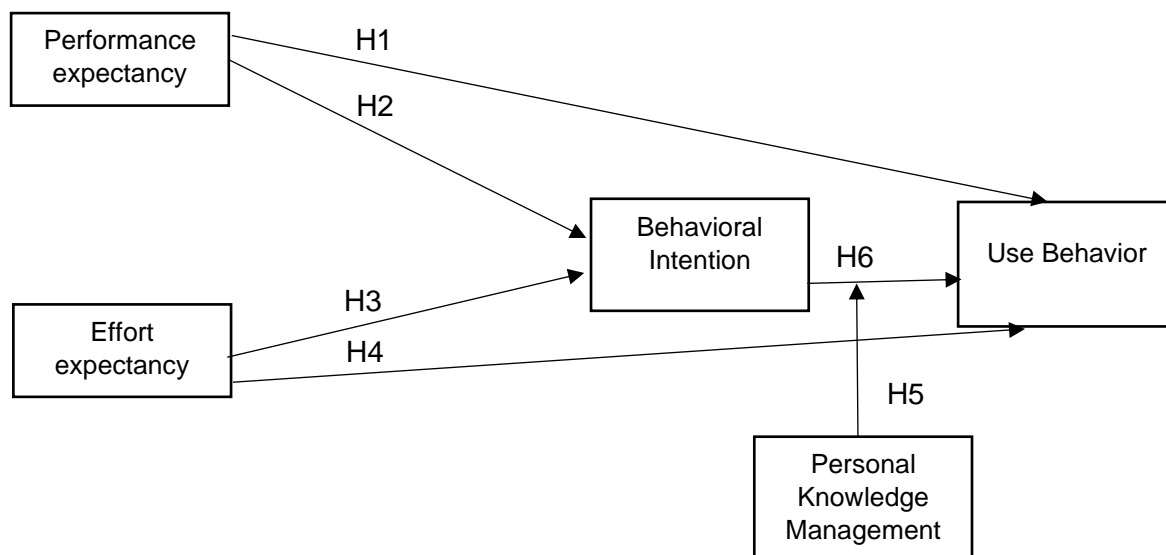


Figure 1: Conceptual framework

Conclusion

Digital workplace is necessary for SMEs to achieve macro-economic gains for a competitive company in the global economic world. The conceptual framework that has been proposed enables researchers to conduct empirical tests and gain a better understanding of the critical determinants for the adoption of digital workplace technology in small and medium-sized enterprises (SMEs) in Malaysia in particular and in SMEs in other developing countries in general. This is very important for the smooth implementation of digital workplaces adoption in SMEs. Within the context of this proposed framework, it is possible to conduct an analysis of the present practice of adopting digital workplaces and to have a discussion about specific suggestions for improving the adoption of digital workplaces in SMEs. The study also makes a contribution to the improvement of knowledge regarding the critical determinants for the adoption of digital workplaces in SMEs. The managers may evaluate the conditions and possible determinants that would lead to the successful adoption of digital workplaces in their respective businesses.

This study contributes to the body of knowledge when its attempts to develop and validates a research model on the digital workplace adoption. The research model integrates the Unified Theory of Technology Acceptance and Use (UTAUT) and Individual Learning which is the underlying theory of Personal Knowledge Management as the underpinning theoretical of the research. The study adds to the existing technology adoption literature by considering Performance Expectancy and Effort Expectancy from UTAUT. Meanwhile, Personal Knowledge Management will be used as a moderator to measure the ability of an employee to apply digital workplace tools.

There are limitations in this study. First, this study is at the stage of conducting a literature review and constructing a conceptual model. Consequently, a following experimental investigation is required to validate the suggested conceptual model and confirm the results specifically for developing countries. Secondly, there is little study identifying the internal driving force behind employees' behaviour changes and technology adoption. The framework could be expanded by integrating other variables from different theory such as Self Determination Theory. The theory claims that individuals need supports for basic psychological needs. It is crucial for employees' expected performance as well as general well-being in the future workplace environment to feel independent, competent, and connected.

References

- Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, 37(3).
<https://doi.org/10.1016/j.ijinfomgt.2017.01.002>
- Alhaimer, R. (2019). Factors affecting smes owners to use social media for online advertisement in Kuwait. *Journal of Legal, Ethical and Regulatory Issues*, 23(2).
- Attaran, M., Attaran, S., & Kirkland, D. (2019). The need for digital workplace: Increasing workforce productivity in the information age. *International Journal of Enterprise Information Systems*, 15(1), 1–23. <https://doi.org/10.4018/IJEIS.2019010101>
- Awa, H., & Ukoha, K. (2020). Studying enterprise systems' acceptance using integrated unified theory of acceptance and use of technology (UTAUT). *Journal of Sustainability Science and Management*, 15(5). <https://doi.org/10.46754/JSSM.2020.07.010>
- Baptista, J., Stein, M. K., Klein, S., Watson-Manheim, M. B., & Lee, J. (2020). Digital work and organisational transformation: Emergent Digital/Human work configurations in modern organisations. *Journal of Strategic Information Systems*, 29(2).
<https://doi.org/10.1016/j.jsis.2020.101618>
- Bhattacharjee, A., & Sanford, C. (2009). The intention-behaviour gap in technology usage: The moderating role of attitude strength. *Behaviour and Information Technology*, 28(4).
<https://doi.org/10.1080/01449290802121230>
- Bystrom, K., Ruthven, I., & Heinström, J. (2017). *Information Challenges, Challenging Information in Digital Workplaces: Report from the European Network for Workplace Information Symposium 2015 European Network for Workplace Information Symposium and Network: Focus and Scope*. <https://doi.org/10.6245/JLIS.2016.421/690>
- Cabrera-Sanchez, J. P., & Villarejo-Ramos, A. F. (2020). Acceptance and use of big data techniques in services companies. *Journal of Retailing and Consumer Services*, 52. <https://doi.org/10.1016/j.jretconser.2019.101888>

- Camadan, F., Reisoglu, I., Faruk, O., & Mcilroy, D. (2017). The International Journal of Information and Learning Technology Article information : How Teachers Personality Affect on Their Behavioral Intention to Use Tablet PC. *Emeraldinsight*, 35(1).
- Chanias, S., Myers, M. D., & Hess, T. (2019). Digital transformation strategy making in pre-digital organizations: The case of a financial services provider. *Journal of Strategic Information Systems*, 28(1). <https://doi.org/10.1016/j.jsis.2018.11.003>
- Chei, S. Y., You, Y. Y., Song, K. Y., Kim, J. S., & Cho, M. S. (2019). Effects of manufacturing and non-manufacturing occupations on smart manufacturing technology acceptance – UTAUT2 model perspective. *International Journal of Innovative Technology and Exploring Engineering*, 8(8).
- Daas, P. J. H., Puts, M. J., Buelens, B., & van den Hurk, P. A. M. (2015). Big data as a source for official statistics. *Journal of Official Statistics*, 31(2), 249–262. <https://doi.org/10.1515/JOS-2015-0016>
- Dasgupta, S., & Gupta, B. (2019). Espoused organizational culture values as antecedents of internet technology adoption in an emerging economy. *Information and Management*, 56(6). <https://doi.org/10.1016/j.im.2019.01.004>
- Department of Statistic Malaysia. (2020). *Household Income and Basic Amenities Report*. <https://www.dosm.gov.my/v1/index.php?r=column/pdfPrev&id=TU00TmRhQ1N5TUxHVWN0T2VjbXJYZz09>
- Dery, K., & Sebastian, I. M. (2017). The Digital Workplace Is Key to Digital Innovation. In *MIS Quarterly Executive* (Vol. 16, Issue 2). <http://aisel.aisnet.org/misqe/vol16/iss2/4>
- DOSM. (2019). *Small and Mediums Enterprise Performance 2018*.
- DOSM. (2021). *Small and Medium Enterprise Performance 2020*. https://www.dosm.gov.my/v1/index.php?r=column/cthemByCat&cat=159&bul_id=KzdrS25pRTZ1VGFkcTINY0FEczBYUT09&menu_id=TE5CRUZCbH4ZTZMODZlbnk2aWRRQT09
- Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model. *Information Systems Frontiers*, 21(3). <https://doi.org/10.1007/s10796-017-9774-y>
- European Commission. (2017). *ICT for work: Digital skills in the workplace*. <https://digital-strategy.ec.europa.eu/en/library/ict-work-digital-skills-workplace>
- Haas, M. R., Criscuolo, P., & George, G. (2015). Which problems to solve? Online knowledge sharing and attention allocation in organizations. *Academy of Management Journal*, 58(3). <https://doi.org/10.5465/amj.2013.0263>
- Hosseingholizadeh, R., Sharif, A., & Kouhsari, M. (2018). PKM Tools for Developing personal knowledge management skills among university students. *International Journal of Information Science and Management*, 16(1).
- Hwang, B.-G., Ngo, J., & Teo, J. Z. K. (2022). Challenges and Strategies for the Adoption of Smart Technologies in the Construction Industry: The Case of Singapore. *Journal of Management in Engineering*, 38(1). [https://doi.org/10.1061/\(asce\)me.1943-5479.0000986](https://doi.org/10.1061/(asce)me.1943-5479.0000986)
- Ibrahim, A. M., Hassan, M. S., & Gusau, A. L. (2018). Factors influencing acceptance and use of ICT innovations by agribusinesses. *Journal of Global Information Management*, 26(4). <https://doi.org/10.4018/JGIM.2018100107>

- Kabra, G., Ramesh, A., Akhtar, P., & Dash, M. K. (2017). Understanding behavioural intention to use information technology: Insights from humanitarian practitioners. *Telematics and Informatics*, 34(7). <https://doi.org/10.1016/j.tele.2017.05.010>
- Karacay, G. (2018). *Talent Development for Industry 4.0*. https://doi.org/10.1007/978-3-319-57870-5_7
- Khalilzadeh, J., Ozturk, A. B., & Bilgihan, A. (2017). Security-related factors in extended UTAUT model for NFC based mobile payment in the restaurant industry. *Computers in Human Behavior*, 70. <https://doi.org/10.1016/j.chb.2017.01.001>
- Khayer, A., Jahan, N., Hossain, M. N., & Hossain, M. Y. (2021). The adoption of cloud computing in small and medium enterprises: a developing country perspective. *VINE Journal of Information and Knowledge Management Systems*, 51(1). <https://doi.org/10.1108/VJIKMS-05-2019-0064>
- Kishore Mathur, S., & Dhulla, T. v. (2014). Factors Influencing Professionals' Decision for Cloud Computing Adoption. *International Journal of Research in Advent Technology*, 2(4).
- Kit, A. H. L., Ni, A. H., Badri, E. N. F. B. M., & Yee, T. K. (2014). UTAUT2 influencing the behavioural intention to adopt mobile applications. In *Thesis-Bachelor* (Issue May).
- Kit, S. K., Ahmed, E. M., & Tan, K. S. (2021). Social influences' effects on Malaysia's SMEs' public electronic procurement usage. *International Journal of Electronic Government Research*, 17(1). <https://doi.org/10.4018/IJEGR.2021010105>
- Koffer, S. (2015). Designing the digital workplace of the future – what scholars recommend to practitioners. *International Conference on Information Systems: Exploring the Information Frontier*, 1–21.
- Liu, C. H., Wang, J. S., & Lin, C. W. (2017). The concepts of big data applied in personal knowledge management. *Journal of Knowledge Management*, 21(1). <https://doi.org/10.1108/JKM-07-2015-0298>
- Lutfi, A. (2022). Factors Influencing the Continuance Intention to Use Accounting Information System in Jordanian SMEs from the Perspectives of UTAUT: Top Management Support and Self-Efficacy as Predictor Factors. *Economies*, 10(4). <https://doi.org/10.3390/economies10040075>
- Marsh, E., Vallejos, E. P., & Spence, A. (2022). The digital workplace and its dark side: An integrative review. In *Computers in Human Behavior* (Vol. 128). Elsevier Ltd. <https://doi.org/10.1016/j.chb.2021.107118>
- Maruping, L. M., Bala, H., Venkatesh, V., & Brown, S. A. (2017). Going beyond intention: Integrating behavioral expectation into the unified theory of acceptance and use of technology. *Journal of the Association for Information Science and Technology*, 68(3). <https://doi.org/10.1002/asi.23699>
- Dahlan, M. K., Abdullah, N., & Suhaimi, A. I. H. (2018). A study on supporting factors of digital workplace diffusion in public sector. *Communications in Computer and Information Science*, 886. https://doi.org/10.1007/978-981-13-1628-9_29
- Mensah, I. K., Wang, R., Gui, L., & Wang, J. (2021). Exploring the Elements Influencing the Behavioral Adoption of E-Commerce by Chinese Small and Medium Enterprises (SMEs). *Information Development*. <https://doi.org/10.1177/02666669211048486>
- Meske, C., & Junglas, I. (2021). Investigating the elicitation of employees' support towards digital workplace transformation. *Behaviour and Information Technology*, 40(11). <https://doi.org/10.1080/0144929X.2020.1742382>

- Miller, P., & Marsh, E. (2016). The digital renaissance of work: Delivering digital workplaces fit for the future. In *The Digital Renaissance of Work: Delivering Digital Workplaces Fit for the Future*. <https://doi.org/10.4324/9781315240275>
- MITI. (2018). *Ministry of International Trade and Industry Malaysia 2018*. www.miti.gov.my
- Nikolopoulos, F., & Likothanassis, S. (2017). Using UTAUT2 for cloud computing technology acceptance modeling. *ACM International Conference Proceeding Series*. <https://doi.org/10.1145/3018896.3025153>
- Pauleen, D. (2009). Personal knowledge management: Putting the “person” back into the knowledge equation. *Online Information Review*, 33(2). <https://doi.org/10.1108/14684520910951177>
- Pauleen, D. J., & Gorman, G. E. (2012). Personal Knowledge Management. Individual, Organizational, and Social Perspectives. *Records Management Journal*, 22(2). <https://doi.org/10.1108/09565691211268207>
- Raza, S. A., Umer, A., & Shah, N. (2017). New determinants of ease of use and perceived usefulness for mobile banking adoption. *International Journal of Electronic Customer Relationship Management*, 11(1). <https://doi.org/10.1504/IJECRM.2017.086751>
- Razmerita, L., Kirchner, K., & Sudzina, F. (2009). Personal knowledge management: The role of Web 2.0 tools for managing knowledge at individual and organisational levels. *Online Information Review*, 33(6), 1021–1039. <https://doi.org/10.1108/14684520911010981>
- Reyes-Mercado, P., & Barajas-Portas, K. (2020). Analysis of the Usage Intensity of Digital Advertising Platforms by SMEs Using an Integrated Models. *Journal of Business-to-Business Marketing*, 27(4). <https://doi.org/10.1080/1051712X.2020.1831215>
- Saunders, M., Lewis, P., & Thornhill, A. (2007). Research Methods for Business Students (Edinburgh, Pearson Education Limited). *Journal of Applied Psychology*, 87(4).
- Schallenmueller, S. (2016). Smart workplace technology buzz. In *The Impact of ICT on Work*. https://doi.org/10.1007/978-981-287-612-6_7
- Schmidt, C., Praeg, C. P., & Gunther, J. (2018). Designing Digital Workplace Environments. *2018 IEEE International Conference on Engineering, Technology and Innovation, ICE/ITMC 2018 - Proceedings*. <https://doi.org/10.1109/ICE.2018.8436349>
- Sekaran, U., & Bougie, R. (2016). Research Method for Business Textbook (A Skill Building Appra). In *United States: John Wiley & Sons Inc.*
- Selimovic, J., Pilav-Velic, A., & Krndzija, L. (2021). Digital workplace transformation in the financial service sector: Investigating the relationship between employees’ expectations and intentions. *Technology in Society*, 66, 101640. <https://doi.org/10.1016/J.TECHSOC.2021.101640>
- Shahzad, A., Keong, C. H., Altaf, M., & Anwar, F. (2020). Malaysian SMEs performance and the use of E-commerce: A multi-group analysis of click-and-mortar and pure-play E-retailers. *Pakistan Journal of Commerce and Social Science*, 14(1).
- Shropshire, J., Warkentin, M., & Sharma, S. (2015). Personality, attitudes, and intentions: Predicting initial adoption of information security behavior. *Computers and Security*, 49. <https://doi.org/10.1016/j.cose.2015.01.002>
- Silva, J., Hernández-Fernández, L., Torres Cuadrado, E., Mercado-Caruso, N., Rengifo Espinosa, C., Acosta Ortega, F., Hernández P, H., & Jiménez Delgado, G. (2019). Factors affecting the big data adoption as a marketing tool in SMEs. *Communications in Computer and Information Science*, 1071. https://doi.org/10.1007/978-981-32-9563-6_4

- Singh, D., Singh, M., & Hanafi, N. B. (2019). Disruptive Technology and SMEs Performance in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 9(12), 136–148. <https://doi.org/10.6007/IJARBS/v9-i12/6681>
- SME Corp. (2021). *COVID-19: Impact on Businesses and SMEs-Global, Regional & National Perspectives*.
<https://smecorp.gov.my/images/pdf/2021/LTPKS/BI/Main%20Report/6.%20SME%20Insights%202019-20%20-%20Special%20Highlights.pdf>
- SME Corps. (2020). *Policies on SME and Entrepreneurship Development Section 2 SME Development Policies and Programmes*.
- Sombultawee, K. (2020). Antecedents and consequences of e-commerce adoption for SMEs. *Kasetsart Journal of Social Sciences*, 41(2). <https://doi.org/10.34044/j.kjss.2020.41.2.05>
- Soong, K. K., Ahmed, E. M., & Tan, K. S. (2020). Factors influencing Malaysian small and medium enterprises adoption of electronic government procurement. *Journal of Public Procurement*, 20(1). <https://doi.org/10.1108/JOPP-09-2019-0066>
- Ulukan, S. E. (2020). Integrating cultural change management program with smart workplace transformation and refurbishment project schedule. *Civil Engineering and Architecture*, 8(5), 847–859. <https://doi.org/10.13189/cea.2020.080512>
- Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). TECHNOLOGY ACCEPTANCE MODEL - Research. *MIS Quarterly*.
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Qi Dong, J., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901.
<https://doi.org/10.1016/j.jbusres.2019.09.022>
- Warner, K. S. R., & Wäger, M. (2019). Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Planning*, 52(3).
<https://doi.org/10.1016/j.lrp.2018.12.001>
- White, M. (2012). Digital workplaces: Vision and reality. *Business Information Review*, 29(4).
<https://doi.org/10.1177/0266382112470412>
- Wiafe, I., Koranteng, F. N., Tettey, T., Kastriku, F. A., & Abdulai, J. D. (2020). Factors that affect acceptance and use of information systems within the Maritime industry in developing countries: The case of Ghana. *Journal of Systems and Information Technology*, 22(4).
<https://doi.org/10.1108/JSIT-06-2018-0091>
- Williams, S. P., & Schubert, P. (2018). Designs for the digital workplace. *Procedia Computer Science*, 138. <https://doi.org/10.1016/j.procs.2018.10.066>