

DIGITAL WORKPLACE ADOPTION: EXTENDING THE UTAUT WITH SELF-AUTONOMY AND RELATEDNESS

Mimi Zazira binti Hashim¹

Razli bin Che Razak²

Muhamad Saufi Che Rusuli³

Norrini binti Muhammad⁴

Wan Nor Hazimah binti Wan Azib⁵

Farah Ahlami binti Mansor⁶

^{1,4,5,6}Faculty of Business & Management, Universiti Teknologi MARA (UiTM), Cawangan Kelantan, Kampus Machang

(E-mail: mimiz949@uitm.edu.my, norri5282@uitm.edu.my, wanno358@uitm.edu.my, farah865@uitm.edu.my)

^{1,2,3,4}Faculty of Business & Entrepreneurship, Universiti Malaysia Kelantan (UMK)

(Email: mimiz949@uitm.edu.my, razlicr@umk.edu.my, msaufi@umk.edu.my, norri5282@uitm.edu.my)

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Abstract: *The rise of the digital workplace has resulted in various initiatives being undertaken across industries. However, intentions do not ensure behavior, and some studies found there is no substantial association between behavioral and actual system use. Yet, limited studies have attempted to investigate behavior intention and user behavior. Hence, this study will investigate the factors influencing the adoption of the digital workplace. The Unified Theory of Acceptance and Use of Technology (UTAUT) has been incorporated with self-autonomy and relatedness from Self Determination Theory (SDT). A thorough literature analysis on digital workplace adoption has been done, and this study contributes a conceptual framework for digital workplace adoption. The proposed framework can be utilized to identify the determinant factors of digital workplace adoption among Malaysian Small and Medium Enterprises (SMEs) employees. In the meantime, Personal Knowledge Management (PKM) is integrated into the framework and serves as a moderator to assess workers' ability to use digital workplace tools.*

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

Introduction

The term "digital workplace" refers to a work platform hosted in the cloud. This type of platform enables businesses to move their operations into the online environment. The platforms are used to store all the apps, data, tools, and capabilities for collaboration that employees require to perform their jobs effectively. Most of it is supplied within a secure online environment, to which they have access at any time, from any location, and via any device of their choosing. A digital workplace gives employees access to all the digital resources they need to properly carry

out their day-to-day work, such as tools for collaboration, project management, and process management. This makes it possible for employees to complete their tasks effectively. In addition, a digital workplace serves as a virtual replacement for physical offices and helps integrate all the many business apps utilized within the firm. This makes it simpler for employees to access the necessary business data and tools through a single platform.

Workplaces and the nature of work have significantly changed due to digital transformation. New digital technologies such as smart technology, cloud computing, big data, the Internet of Things (IoT), robotics, and artificial intelligence are examples of new technologies speeding up the workplace's rate of change. The use of digital information results in a workplace that is more agile, productive, and intelligent (Ulukan, 2020), increased levels of productivity, communication, cooperation, engagement, and innovation, as well as a waste reduction (Attaran et al., 2019), improved performance and expand products, services, and customers (Verhoef et al., 2021), increase sales and profits (Warner & Wäger, 2019), have a greater competitive advantage and attract a broader range of customers and employees (Chanias et al., 2019), improve the work environment (Hwang et al., 2022), as well as mobility, problem-solving, information searching, creating connections and removing barriers between people, information, and processes (Haas et al., 2015).

Digital workplaces are established when employees perform their jobs in digital instead of physical locations. Messaging software, intranets, enterprise social networks, productivity suites, self-service portals, workplace mobility, and intelligent technologies such as chatbots and sentiment analysis applications are examples of digital workplace tools (Dery & Sebastian, 2017). The digital workplace is an important organizational tool for maximizing knowledge worker productivity. This position is also supported by Singh et al. (2019), who argued that SMEs that accept newer or more recent technologies or technology-oriented SMEs would have greater performance in comparison to SMEs that do not adopt or embrace these technologies. Moreover, digital technologies have affected workplace activities and processes (Selimović et al., 2021). Even though the digital workplace offers a variety of benefits to a firm, deployment of the technology does not ensure its success (Schallenmueller, 2016).

Literature review

Technology adoption involves knowledge, awareness, and technology implementation (Mathur & Dhulla, 2014). Numerous studies have investigated the factors that influence the acceptance of technology in the workplace and how employees embrace and utilize technology systems. According to Camadan et al. (2017), openness and extraversion indirectly affect behavioural intention positively. Enabling employees in the future workplace to feel autonomous, competent, and connected is vital for their predicted performance and well-being (Meske & Junglas, 2021).

Most existing theories of IT adoption, including the 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. UTAUT is an integrated framework based on eight related technology acceptance theories, namely the TRA, TPB, TAM, TAM2, Motivational Model (MM), Model of PC Utilization (MPCU), Diffusion of Innovation (DOI), and Social Cognitive Theory (SCT). Other than that, 70% of information system or technology adoption cases can be predicted using UTAUT (Venkatesh et al., 2003). The theory was established on four constructs, namely performance

expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC), that significantly influence people's behaviour and intentions to use the technology. PE is the degree to which using technology will provide benefits when performing certain activities. Meanwhile, EE is the degree of ease correlated with the use of technology; SI is the extent to which consumers perceive those important others, such as family and friends, believe they should use a particular technology, and FC refers to the resources and support available to perform a behaviour (Venkatesh et al., 2003). UTAUT was formulated in the organizational context focusing on the utilitarian value (extrinsic motivation) of organizational users. UTAUT has been applied by many researchers to study digital workplace adoption in SMEs such as accounting information system (Lutfi, 2022), cloud computing technology (Khayer et al., 2021), e-commerce (EC) (Shahzad et al., 2020) & (Sombultawee, 2020), electronic procurement (S. K. Kit et al., 2021) and (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).

Nevertheless, intentions do not ensure behaviour (Shropshire et al., 2015). Dasgupta & Gupta (2019) discovered that there is no substantial association between behavioural intention and actual system use, and the effect is not always positive (Wiafe et al., 2020). The finding has allowed the researcher to investigate the constraints to close the gap. Intention-behaviour gap refers to the disparity between users' intentions for a given action and their actual behaviour (Bhattacharjee & Sanford, 2009). The gap occurs when individuals intend to modify their conduct but fail to do so. A Business Impact Survey by Ernst & Young with 670 respondents, including major publicly traded companies and SMEs, evaluated the critical challenges in five categories: finance, supply chain, customers, technology, and people. Regarding human resources, 31% of SMEs encountered delays in completing tasks and projects, and 30% experienced operational disruptions (SME Corp, 2021).

Prior research on digital transformation has emphasized the importance of organization. However, insufficient emphasis is placed on employees, especially in terms of adoption (Meske & Junglas, 2021). Thus, there is a shortage of research on the adoption of digital workplaces by the organization's employees. To effectively implement the change to the digital workplace, businesses must ensure that the digital workplace benefits employee performance and engagement in daily operations (Ulukan, 2020). Other than that, competition for qualified personnel is commonly identified as a significant barrier to digital transformation in business and the workforce (Karacay, 2018). Employing digitally skilled workers is vital for a business to begin its digital transformation (Marsh et al., 2022). Nonetheless, 88% of the organizations have not taken any steps to improve their employees' lack of digital skills (European Commission, 2017).

This paper begins with an overview of the digital transformation, digital workplace, previous studies on the digital workplace, and the conceptual framework. Next, the research investigates the concept and adoption of digital workplaces in Malaysian SMEs. Limitations and a conclusion are subsequently discussed.

Digital Transformation in Malaysian Small and Medium Enterprises (SMEs)

The progression of Malaysian SMEs is significantly influenced by digital transformation. SMEs that embrace cutting-edge technologies will have superior performance compared to SMEs that

do not embrace these technologies to improve the effectiveness and efficiency of their business operations (Singh et al., 2019). Correspondingly, SMEs represent a potential driver of economic expansion, the development of new jobs, innovations, and social integration. Malaysia's economy relies heavily on SMEs, which play an important part in the country's overall economic development and significantly contribute to the country's gross domestic product (GDP). The GDP of Malaysia's SMEs increased by 6.2% in 2018, compared to the 7.1% growth recorded in 2017. The industry's contribution to the GDP in that year increased by 38.3%, reaching RM521.7 million, up from RM491.2 million in the previous year. The GDP of Malaysian SMEs was RM586.9 billion in 2019, up from RM551.8 billion in 2018 (DOSM, 2019). However, the growth of SMEs' GDP was reported at negative 7.3 percent in 2020, which was lower than Malaysia's GDP for the first time in the preceding 17 years since 2003. This occurred because Malaysia's GDP grew faster than SMEs' GDP (DOSM, 2021).

In 2019, the National Entrepreneur and SME Development Council approved eight initiatives to further enhance the contribution of SMEs (SME Corps, 2020). The initiatives include intensifying digitalization, connectivity, and cybersecurity among SMEs, 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 SMEs in Malaysia would enable the country to accelerate its transition from a middle-income to high-income status.

The Household Income and Basic Amenities Survey Report 2019 classifies Malaysia's income groups into three distinct categories. The top 20% of families (T20) have a monthly average income of at least RM10,960.00. The average monthly income of the 40% middle-income household group (M40) is between RM4,850.00 and RM10,959.00. Meanwhile, the bottom 40% of families (B40) have an average monthly income of less than RM4,849 per month. Specifically, Digital Malaysia aims to meet the growing global demand for digital goods and services, increase the incomes of its citizens, unleash the entrepreneurial potential of the B40 group, equip the next generation of workers with digital skills, and encourage the adoption of technology by Malaysian SMEs to boost their productivity. In 2017, Malaysia launched "National Transformation 2050" as a program for economic development, social progress, and innovation. The Internet of things and artificial intelligence are identified as important enablers for taking Malaysia into the digital future. Industry Forward, a national policy on Industry 4.0, was unveiled in 2018 as part of Malaysia's commitment to the Sustainable Development Goals (SDGs). This policy aims to facilitate the transition of the manufacturing sector to Industry 4.0. (MITI, 2018).

Pelan Jana Semula Ekonomi Negara (PENJANA), also known as the National Economic Recovery Plan, was implemented by the Malaysian government under the prime minister's leadership during the COVID-19 outbreak. To facilitate the digitalization of businesses, qualifying micro and SMEs would be integrated into EC. This will be achieved through a program jointly funded by the government, MDEC, and EC platforms. Participation in EC platforms will support Malaysian SMEs with onboarding training, seller subsidies, and sales assistance. Recognizing that a lack of people and skills is one of the major hurdles to digital transformation, the government is also committed to upskilling the workforce and advancing Malaysia's digital transformation. The first strategy is to strengthen the competencies of the existing workforce through national development programs customized to specific industrial industries, and the second strategy is to encourage reskilling and upskilling. This second strategy ensures future talent availability preparing students to operate in an Industry 4.0

environment (MITI, 2018). To ensure their survival, profitability, and ability to compete with well-established worldwide enterprises, SMEs must take action to improve the skills of their employees.

Definition and Conceptualizations of The Digital Workplace

A digital workplace is an integrated technology platform that offers employees the tools and services required to operate productively, regardless of location. Marsh et al., (2022) describe the digital workplace as the technologies and practices that contribute to an employee's digital working experience, regardless of the employee's location of employment. It is organized and managed strategically through adaptable digital workplace designs and is capable of meeting future organizational needs and technology (Williams & Schubert, 2018). The digital workplace is defined as an information technology infrastructure component that is seen or experienced by the user, embedded within an organization, and with which workers can conduct work activities characterized by information, communication, and collaboration (Schmidt et al., 2018). Byström et al. (2017) define workplaces as situations in which people are physically positioned to engage in work activities.

The idea of a digital workplace can be broken down into its component parts: social technology tools, tools for contextual intelligence, communication infrastructure, and mobility (Dahlan et al., 2018). The digital workplace comprises physical, cultural, and digital frameworks that support work in complex, dynamic, and unstructured situations. In addition, the digital workplace is a dynamic collection of workplace technologies that integrate the IoT, messaging tools, intranets, enterprise social networks, productivity suites, self-service portals, workplace mobility, cloud technologies, analysis tools, and intelligent technologies such as chatbots into the enterprise (Dery & Sebastian, 2017). The digital workplace also integrates automation and artificial intelligence into the enterprise (Baptista et al., 2020). Likewise, Miller & Marsh (2016) provided a comprehensive definition of the digital workplace, which includes intranets, unified communication, microblogging, human resource systems, email, mobile applications, collaboration spaces, supply chain management systems, and customer relationship management systems. The intranet is considered an essential component of the digital workplace.

Numerous studies have examined the aspects that impact the intention to utilize digital workplaces. Table 1 provides a summary of previous research on the digital workplace. To evaluate the preceding study, the author focused on studies that utilized the Unified Theory of Acceptance and Use of Technology (UTAUT) and SMEs.

Table 1: Selected previous studies of digital workplace adoption

No.	Author	Constructs Studied	Major findings
1.	Lutfi (2022)	Performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), and Top Management Support (TMS)	EE, PE, and FC positively affect accountants' continuance intention to use the Accounting Information System (AIS), with TMS having a significant and negative effect on such intention to use. In addition, SI 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)	PE, EE, FC, SI, absorptive capacity, data security, privacy, and perceived trust.	PE, EE; absorptive capacity; data security and privacy; and perceived trust are significant predictors of cloud computing adoption. Also, the adoption of cloud computing positively influences firm performance through organizational agility.
3.	Mensah et al. (2021)	PE, EE, FC, SI, and Technology Organization and Environment (TOE)	The environmental factor positively predicted the PE 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. The organizational factor was a positive predictor of both PE 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 PE of EC. Finally, the study demonstrated that the PE of EC was a significant predictor of the behavioural adoption of EC.
4.	Kit et al. (2021)	PE, EE, FC, SI, hesitation, and perception	SI, together with PE and EE, are influencing the usage of public electronic procurement among Malaysian SMEs.
5.	Sombulta wee (2020)	PE, EE, FC, SI, IT resources, and knowledge	PE and EE, along with FC, contributed to EC adoption. However, SI did not have a significant influence.
6.	Soong et al. (2020)	PE, EE, FC, SI, and Technology Acceptance Model (TAM).	EE, PE, and SI had a direct effect on the adoption of electronic government procurement in the private sector. The behavioural intention would influence user behaviour.
7.	Awa & Ukoha, (2020); Shahzad et al. (2020)	PE, EE, FC, SI, and Resource-Based View (RBV).	PE, EE, and FC influenced the use of EC. Meanwhile, SI and perceived risk are insignificant in this study for both click-and-mortar and pure-player, while click-and-mortar companies agree that EE impacts the use of EC, while pure-player disagrees.
8.	Awa & Ukoha, (2020)	PE, EE, FC, SI, task-technology fit, and perceived trust	The predictors explained 57% of the variance in Enterprise system adoption with acceptable fit indices and significant relationships between variables. All path coefficients were statistically supported. FC and task interdependence to adoption are the critical predictors, and complexity to adoption having a negative significant coefficient-a unit increase attracts fewer adoption likelihoods or vice versa

9.	Alhaimer (2019)	PE, perceived price advantage, SI, hedonic value, FC, and behavioural intention	PE, FC, SI, 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)	PE, EE, SI, FC, resistance to use	The intention to use big data on the part of SMEs is determined by PE, SI, and FC. Resistance to using new technologies negatively affects the intention to use. The influence of EE is very low, with little significance over the intention to use.
11.	Dasgupta & Gupta (2019)	PE, EE, SI, FC, and espoused organizational culture	Espoused organizational culture influences PE, EE, SI, and FC in a government agency in India's emerging economy. EE has no significant effect on behavioural intention, and behavioural intention has no significant effect on system usage.
12.	Cabrera-Sánchez & Villarejo-Ramos (2020)	PE, EE, SI, FC, perceived risk, resistance to use	PE, SI, FC, EE, and resistance to using significantly influence behavioural intention to use Big Data Analytic in companies. Perceived risk has no significant relationship with intention.
13.	Wiafe et al. (2020)	PE, EE, SI, FC, self-efficacy, anxiety, attitudes toward the use	PE, FC, anxiety, and attitude toward use significantly influence users' intention to use. SI, EE, and self-efficacy did not significantly influence the intention to use.
14.	Ibrahim et al. (2018)	PE, EE, SI, FC, cognitive, management characteristics and organizational structure and technology adoption	PE, management characteristics, and organizational size affect technology adoption among agribusinesses critically.

Conceptual Framework

As indicated in Figure 1, a conceptual framework is proposed by integrating the Unified Theory of Acceptance and Use of Technology (UTAUT) with self-autonomy and relatedness from Self Determination Theory (SDT).

Unified Theory of Acceptance and Use of Technology (UTAUT)

In the UTAUT model, performance expectation (PE) and effort expectation (EE) are considered characteristics of information systems and technologies. In contrast, facilitating conditions (FC) and social influence (SI) are considered organizational elements that influence the behaviour of persons (Dwivedi et al., 2019). For this study, only PE and EE will be examined due to the importance of these two criteria for the adoption of new technology (Nikolopoulos & Likothanassis, 2017). According to Kit et al. (2014), neither SI nor FC alter the behavioural intention to embrace mobile applications. Although the UTAUT has acquired considerable support, its capacity to explain individuals' technology acceptance is argued. It has been suggested that external elements be incorporated into the model to enhance its ability to predict IT adoption. Personal innovativeness and trust were incorporated into the UTAUT by (Kabra

et al., 2017). In addition, self-efficacy, risk, trust, and attitude were added (Khalilzadeh et al., 2017). This study also extended the UTAUT model by adding personal knowledge management as a moderator to predict digital workplace adoption.

Performance Expectation (PE)

PE is the degree to which an individual believes implementing a system would increase job performance (Venkatesh et al., 2003). Similar constructs exist in five other models. Perceived usefulness in the Technology Acceptance Model (TAM), extrinsic motivation in the Motivational Model (MM), job fit in the Model of PC Utilization (MPCU), a relative advantage in the Diffusion of Innovation (DOI), and outcome anticipation in the Social Cognitive Theory (SCT). On the other hand, Raza et al. (2017), Maruping et al. (2017), Ibrahim et al. (2018) and other researchers have found a positive relationship between PE and continuance intention. PE was found to be the strongest predictor of an individual's intention to use new technologies in an organizational context (Kit et al., 2021). It influences the use of e-commerce (EC) (Shahzad et al., 2020), affects the usage of public electronic procurement among Malaysian Small and Medium Enterprises (SMEs) (Kit et al., 2021), is a significant predictor of the behavioural adoption of EC (Mensah et al., 2021), is a strong predictor of cloud computing adoption [17], and has a positive effect on the continuance intention to use Accounting Information System (AIS) among accountants (Lutfi, 2022).

Effort Expectation (EE)

The term "effort expectation" describes the degree of difficulty that may be foreseen when utilizing the technology (Venkatesh et al., 2003). EE has been confirmed as a significant variable of user behaviour intention in numerous research. Other than that, EE has a significant impact on behavioural intention to use big data analytics in businesses (Cabrera-Sánchez & Villarejo-Ramos, 2020), on the use of EC (Shahzad et al., 2020)(Sombultawee, 2020), on the adoption of electronic government procurement in the private sector (Soong et al., 2020), on the use of public electronic procurement among Malaysian's SMEs (S. K. Kit et al., 2021), a significant predictor of cloud computing adoption (Khayer et al., 2021) and have a positive effect on the continuance intention of accountants to use AIS (Lutfi, 2022).

Self-determination Theory (SDT)

SDT is an essential theory for understanding factors related to intrinsic motivation, autonomous extrinsic motivation, and psychological wellness (Ryan & Deci, 2020). SDT particularly claims that individuals need support for basic psychological needs based on three fundamental psychological needs: autonomy, competence, and relatedness. Self-autonomy describes a sense of initiative and ownership in one's actions. Competence refers to an individual's feeling of confidence in pursuing and effectively mastering activities in their view. Meanwhile, relatedness concerns a sense of belonging with significant others that share the same values. Enabling employees to feel autonomous, competent, and connected in the future workplace environment is vital for their expected performance and well-being (Meske & Junglas, 2021).

In order for an individual to be self-determined, they are driven by two types of motivation: intrinsic and extrinsic. Intrinsic motivation refers to activities for which the reward is inherent to the activity or task (Salehan et al., 2017) or the activities independent from supervision and unaffected by others. Meanwhile, extrinsic motivation refers to situations in which the outside provides the reward, i.e., motivation is caused by triggers external to the individual. In Information System studies, SDT is applied to explain decisions for sharing information and rumours in online discussion forums (Marett & Joshi, 2009), factors affecting an individual's

efforts in open-source software development (Ke & Zhang, 2011) and the influence of autonomy and competence on intentions to use new technology (Bakke & Henry, 2015). Results from a prior study revealed intrinsic motivations as a key determinant in explaining online user behaviours.

Personal Knowledge Management (PKM)

An individual's capacity to manage explicit knowledge at the personal level is referred to as Personal Knowledge Management (PKM). As a result, information can spread throughout an organization, acquiring fresh, pertinent knowledge and making informed decisions (Liu et al., 2017). According to (Hosseingholizadeh et al., 2018), PKM research largely focuses on finding solutions to the problem of information overload. The body of research demonstrates that using PKM can increase an individual's effectiveness in both the workplace and the knowledge society (Pauleen & Gorman, 2012). Through PKM, one can construct a strong basis for knowledge development, improve information literacy, increase professional knowledge, and make themselves more competitive (Pauleen & Gorman, 2012). As people learn to manage their information, they become more personally useful (Daas et al., 2015). According to Pauleen (2009), people who possess PKM skills are able to process a variety of information and turn it all into more useful knowledge in their job and personal lives. People are able to process vast volumes of information fast, as well as swiftly and effectively pick up the necessary knowledge, use it correctly, and increase their competence and work efficiency (Razmerita et al., 2009). Moreover, PKM can also assist people in evaluating the value of information and figuring out how much information is related to the issues they encounter (Liu et al., 2017).

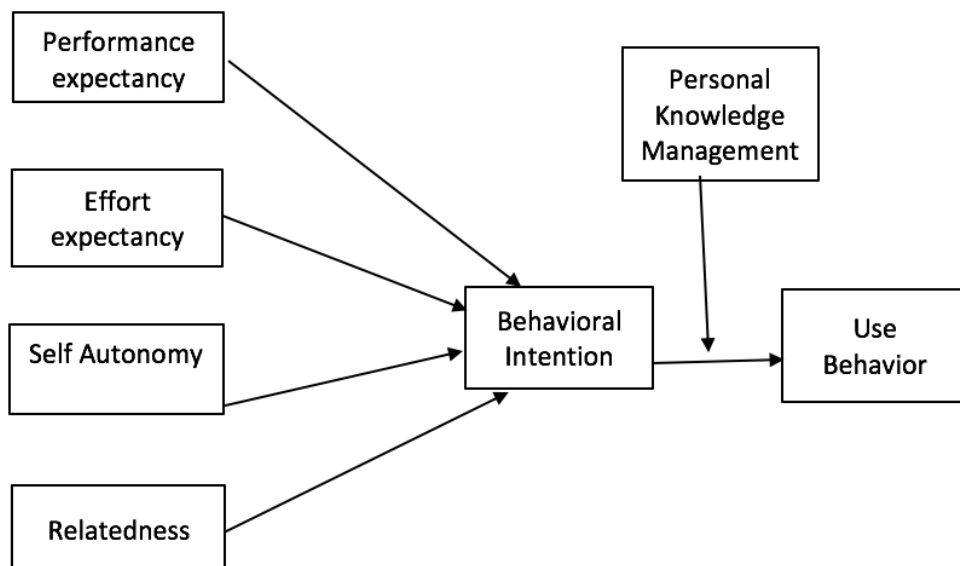


Figure 1: Conceptual framework

Conclusion

A digital workplace is vital for Small and Medium Enterprises (SMEs) to realize macroeconomic gains and remain competitive in the global economy. The study advances knowledge regarding the essential drivers for adopting digital workplaces in SMEs. Developing a conceptual framework for digital workplace adoption contributes to the body of knowledge. The Unified Theory of Acceptance and Use of Technology (UTAUT), Self-Determination Theory (SDT), and Personal Knowledge Management (PKM) are all incorporated into the research model. The study adds to the existing technology adoption literature by considering

performance expectancy (PE) and effort expectancy (EE) from UTAUT, Self-Autonomy, and Relatedness from SDT. In the meantime, PKM will serve as a moderator for assessing an employee's competency using digital workplace tools.

The suggested conceptual framework allows researchers to conduct empirical experiments and better understand the essential drivers for adopting digital workplace technologies among SMEs in Malaysia and other developing countries. This is crucial for efficient digital workplace adoption in SMEs. The suggested framework also enables SMEs to analyze the current practice of adopting digital workplaces and make specific recommendations for enhancing the adoption of digital workplaces. Other than that, managers may assess the conditions and potential determinants that would facilitate the successful adoption of digital workplaces in their organizations. This research includes completing a literature evaluation and developing a conceptual model. Consequently, subsequent experimental research is necessary to validate the proposed conceptual model and corroborate the results for developing countries.

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