MULTIDISCIPLINARY SCIENCE JOURNAL

RESEARCH ARTICLE
Published Online: January 31, 2024
https://doi.org/10.31893/multiscience.2024129

Customer intention towards self-service checkout at Watson

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Abstract This research focuses on customers intentions to use the self-checkout technology at Watson during the Covid-19 endemic using UTAUT2 model. The main objective is to identify the factors that affect the behavioral intention to use the self-checkout technology from a consumer perspective. This study investigated the influencing factors of performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, and habit towards customers' intention to use the self-checkout systems. The data for this study were collected using a questionnaire shared among 200 respondents who are Watson customers were selected by stratified random sampling technique through online. The data were analyzed using IBM- SPSS version 26 to test the hypotheses. The findings indicate that customers intention is significantly and positively influenced by performance expectancy, effort expectancy, facilitating condition, hedonic motivation and habit behaviour. A number of implications for theory and practice are derived based on the findings.

Keywords: self-checkout technology adoption, Covid-19 pandemic, UTAUT2

1. Introduction

Due to the competitive environment, particularly in developing nations, technology and innovation have played a significant role in the service industry. Over the past two decades, there have been numerous research studies on the acceptability of information technology (IT). A self-checkout machine is one of the effective technological innovations that support regular business operations. The deployment and usage of customers' self-checkout service in Malaysia are increasing, and customers are expected to use it during their shopping. Self-service technology (SST) can be defined as the technology that enables consumers or customers to enjoy a service without having direct interaction with an employee or any service provider. Using interactional technology, multi-channel, multi-device, and location-based systems, a self-service system is an alternative to the conventional cashier-staffed checkout (Katzan, 2011).

According to Andreas (2021), self-service technology is the same as what it sounds like, allowing a customer to complete or manage their transaction or gather information activity without involvement or assistance from an employee. Past research examined several factors that affect the adoption of self-service technology, such as customer satisfaction (Siah et al., 2018; Orel & Kara, 2014). Customers' experiences and perceptions of value creation are shaped by the usage of self-service technology when they have control over it and when it is convenient and simple to use (Turner & Shockley, 2014).

Presently, numerous retail establishments leverage such technology, and among them is Watson, a retail company that has successfully integrated this technological innovation into its operations. Watson is the largest health and beauty retailer in Asia and Europe, with more than 15,200 stores in 25 markets. The self-checkout kiosk helps companies reduce operational costs (Bitner et al., 2002). Customers utilize this technology to enhance their convenience, as well as to achieve greater privacy and control (Alpert, 2008). The development of the self-checkout at Watson in Malaysia helps many people with busy lives, allowing customers to check out their goods by themselves and ensuring privacy. Another benefit is the round-the-clock convenience it offers, as the self-checkout at Watson provides a 24/7 service.

During the post-pandemic period of Covid-19, many people used self-checkout kiosks. The Covid-19 pandemic appears to support the individualistic way of life that has already taken root in contemporary cultures (Wang et al., 2021b). Current social distance-inducing behaviors have led to contactless consumption, where technology-enabled self-services are chosen purely out of health considerations (Wang et al., 2021a). Many individuals employ self-checkout machines for various reasons, yet the ultimate purpose or motivation behind utilizing these automated kiosks remains unresolved. There is no

 Received: August 21, 2023 | Accepted: December 11, 2023

study yet about the intention behind why people are using the self-checkout kiosks at Watson. Therefore, this study aims to understand the real intention behind using the self-checkout kiosks at Watson.

The purpose of this study is to examine the determinants of the intention to use self-checkout systems based on the Unified Theory of Acceptance and Use of Technology (UTAUT2). Hence, the objective of this study is to examine the effect of performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, and habit on consumers' intention to use self-checkout kiosks.

2. Literature Review And Hypothesis Development

2.1. Unified Theory of Acceptance and Use of Technology (UTAUT2)

Venkatesh et al. (2012) created the Unified Theory of Acceptance and Use of Technology (UTAUT2) as an expansion of the original concept, Unified Theory of Acceptance and Use of Technology (UTAUT). This model incorporates elements pertinent to the consumer market that affect behavioral intentions to adopt new technology. Venkatesh et al. (2012) separated the components from the original UTAUT model for the consumer context and added three additional factors. After many years, the UTAUT has demonstrated broad application that improved the theory's generalizability (Venkatesh et al., 2012).

The four main approaches that reflect the modification of the model to a different context, the alterations of the endogenous variables, the additions of the attitudinal antecedents, and the examination of various moderating variables, were the foundation for the adaptation of the UTAUT model (Marikyan and Papagiannidis, 2021). Three constructs from the UTAUT2's original UTAUT are hedonic motivation, price value, and habit formation (Chang, 2012).

The first concept incorporated into the UTAUT is hedonic motivation. It has been demonstrated that the acceptance and usage of technology are significantly influenced by hedonic motivation, defined as the pleasure or satisfaction one obtains from using technology (Venkatesh et al., 2012; Brown, 2005). The second component included in the UTAUT is pricing value. A crucial distinction between the consumer use environment and the organizational use environment, where the UTAUT was established, is the pricing value. In the context of consumer use, the consumer often foots the bill for such use, as opposed to employees. How much something costs and how much it costs could greatly affect how people use technology (Chang, 2012).

The latest incorporation into the UTAUT framework involves the introduction of the experience and habit element. Experience and habit, distinct yet interconnected constructs, are mutually associated. Experience is broken down into three stages by Venkatesh et al. (2003), each of which is predicated on the passage of time.

To assess the utilization and approval of the recent technology or system in this investigation, previous research (Chatterjee & Kar, 2020) utilized the UTAUT2. For example, the latest implementation contains details about the factors influencing customers' choices to utilize self-checkout services. The UTAUT2 model is where the variables used in this investigation were obtained from. The Watson customer will readily embrace self-checkout technology if it aligns with their past experiences and behaviors, making them feel at ease using the technology (Hsu et al., 2007).

2.2. Performance Expectancy

Performance expectancy is the extent to which someone gains something from engaging in a particular work or activity. The previous study highlighted performance expectancy as the primary factor influencing behavior (Lee et al., 2019). The relationship between performance expectations and the customer's inclination to embrace new technology is interconnected. According to Jalil and Koay (2021), the level of performance anticipated significantly influences customers' intentions to adopt innovative technologies. Their study specifically focused on how these attributes impact customers' willingness to engage with self-service technology (SST).

H1: Performance expectancy has a significantly positive effect on customer intention to use self-checkout at Watson during the Covid-19 pandemic.

2.3. Effort Expectancy

According to Jambulingam (2013), effort expectancy refers to how user-friendly a technology is. These features of effort expectation have a significant impact on each individual's tendency to use information technology. This was explored in a prior research conducted by Kayali and Alaaraj (2020), focusing on the determinants influencing the adoption of cloud-based e-learning (CBEL) among students. A second investigation was undertaken on this expectation by Tan et al. (2011). Following an investigation into the elements impacting students' inclination to engage in mobile learning, it was observed that expectations regarding effort exerted a noteworthy impact on these intentions. Research indicates that positive effort expectations play a crucial role in influencing the intentions and behaviors of individuals adopting or using new technologies (Jeong et al., 2019).

H2: Effort expectancy has a significantly positive effect on customer intention to use self-checkout at Watson during the Covid-19 pandemic.

2.4. Social Influence

Social influence occurs when someone perceives another person's suggestion to use a specific technology. According to McLeod (2021), social influence is where an individual's attitudes, beliefs, or behavior are influenced by the presence or action of others. In this context, social influence occurs when an individual is influenced by others to use self-service or self-checkout technology. Social influence can be divided into four areas: conformity, obedience, compliance, and minority (McLeod, 2021). Alalwan et al. (2016) have stated that social influence is related to peer thoughts and activities. Additionally, the knowledge and inspiration offered by family members, friends, or even random individuals play a vital role in shaping an individual's understanding or inclination to adopt new technology (McLeod, 2021). This is also reinforced by Chen and Lin (2018), who claimed that caregivers, friends, or family members can persuade someone to adopt a new technology like a self-checkout system. People around can have an impact on how a new technology, such as self-service technology (SST), is used. According to Wu et al. (2022), research on consumer acceptability and actual usage of technology, societal influences have an impact on people's opinions and readiness to utilize new technologies, serving as a strong antecedent of the behavioral intention to use technology (Cabrera-Sánchez et al., 2021).

H3: Social influence has a significant positive effect on customer intention to use self-checkout at Watson during the Covid-19 pandemic.

2.5. Facilitating Condition

According to Chan et al. (2010), the term "facilitating circumstance" refers to the situation when a person thinks that the current organizational or technical infrastructure can support the application of a new technology. Another researcher, Venkatesh et al. (2012), defines facilitating conditions as the availability of resources and support perceived by a consumer utilizing a particular technology, such as a self-checkout device.

People may be reluctant to adopt new technologies, such as self-service technologies (SST), when there is a lack of assistance, inadequate information, or timely support (Kamaghe et al., 2020). Individuals who are already familiar with a technology or system demonstrate enhanced adaptability to new technologies even prior to their adoption (Chao, 2019). Qi (2019) notes that both external and internal factors play a role in providing support and guidance. In a prior investigation, Qi (2019) examined the factors influencing the decision of Hong Kong residents to utilize check-out-free stores. The study revealed that favorable conditions positively influenced consumers' intentions to use such establishments. However, Tao et al. (2023) found that facilitating conditions were insignificant predictors of behavioral intention. It has been conjectured that Taiwan's catering business has not yet adopted the self-service ordering technology that is common in restaurants.

H4: facilitating condition has a significant positive effect on customer intention to use self-checkout at Watson during the Covid-19 pandemic

2.6. Hedonic Motivation

According to Brown and Venkatesh (2005), hedonic motivation refers to the pleasure that one experiences when adopting new technology. Hedonic factors play a key role in determining whether a consumer will use a self-service technology (Tao et al., 2023). Hedonic motivation is the pleasure and enjoyment experienced when utilizing new technological capabilities and functions. In this study, hedonic motivation refers to the pleasure experienced when using the self-checkout system, a novel innovation.

At Watson, the self-checkout systems are highly beneficial. One advantage is that the technology or kiosks operate quickly.

H5: hedonic motivation has a significant positive effect on customer intention to use self-checkout at Watson during the Covid-19 pandemic.

2.7. Habit

A habit is an ingrained action that occurs instinctively as a result of acquired knowledge, representing a person's inherent behavior. Habit can be viewed in two different ways: earlier behavior and automatic behavior. According to Limayem et al. (2007), habit is the degree to which an individual has the propensity to perform certain behaviors. Meanwhile, Venkatesh et al. (2012) defined habit as the extent to which individuals tend to perform behaviors automatically due to learning. Habits are elements that can affect someone's behavioral intention to use technology, whether directly or indirectly (Venkatesh, 2012). When an individual has high experience in using technology, it can become a habit for them. Chang et al. (2019) have stated that an individual's habit is related to the experience and age of the behavioral intention of someone to

use technology. This can be further supported by Tao et al. (2023), who stated that an individual's habit can significantly affect that individual user's behavior toward technology.

H6: Habit has a significant positive effect on customer intention to use self-checkout at Watson during the Covid-19 pandemic.

3. Research Framework

Based on the literature reviews and theory of the UTAUT2 paradigm, this study developed the research model and hypotheses that were consistent with the real situations of this study which are behavior intention influenced by performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation and habit. Therefore six hypotheses were obtained as shown in figure 1.

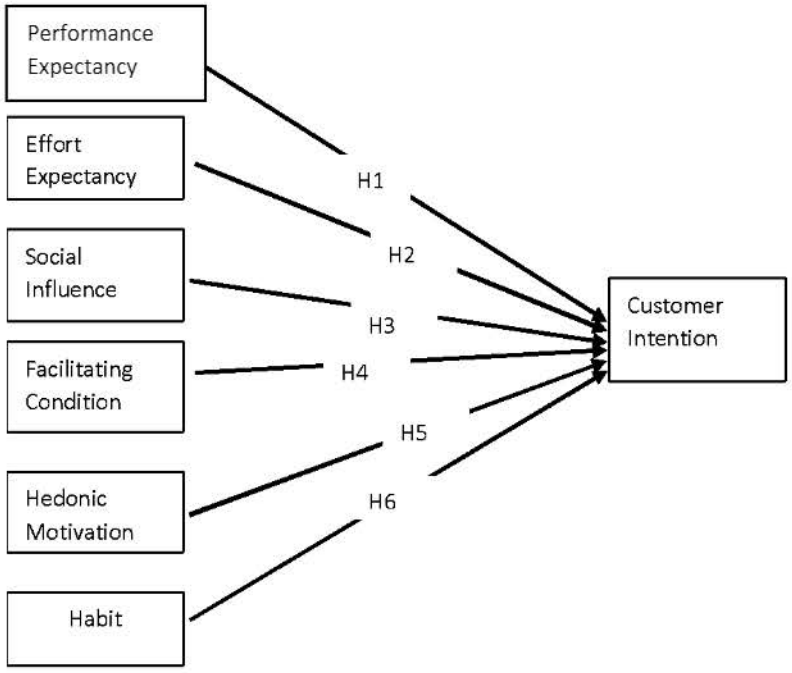


Figure 1 Theoretical Framework of the Research.

4. Methodology

This study employed a quantitative research approach, utilizing an online questionnaire survey. This study was conducted on 200 customers of Watson in Malaysia who use self-checkout systems. A pilot test was conducted to analyse the validity of the survey questionnaire among a convenience sample of 20 customers of Watson. During the pilot test, the results show that all constructs have a threshold above 0. 6 Cronbach's alpha value which indicates all the questions' reliability is accepted (Hajjar, 2018).

The survey tools consist of three segments. The first part gathers demographic information about the respondents, while the second section explores the factors influencing customers' willingness to use the self-checkout at Watson during the Covid-19 pandemic. The final segment, labeled as C, focuses on the perceptions of Watson customers regarding their intentions to use self-checkout kiosks during the Covid-19 crisis. The study employed measurement scales that have been previously validated in existing literature. The Unified Theory of Acceptance and Use of Technology (UTAUT) was divided into six aspects: performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, and habit behavior, as illustrated in Figure 1. The survey instrument is based on constructs validated in studies by Venkatesh et al. (2012) and Nguyen and Borusiak (2021). A five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), was utilized. The collected data underwent processing using SPSS version 26, involving descriptive statistics, reliability and validity analysis, Pearson correlation, and multiple regression tests to address the objectives of this study.

Table 1 presents the demographic information of survey participants. The data indicates that 2.5% of the respondents (n=14) are male, while 97.5% (n=186) are female. Additionally, a majority of the participants fall within the age range of 21 to 23 years old, accounting for 41.5% (n=83), followed by 24 to 26 years old at 30% (n=60), 27 years old and above at 18.5% (n=37), and lastly, 18 to 20 years old at 10% (n=10).

In terms of racial distribution, the majority of respondents are Malay, constituting 55% (n=110), followed by Chinese at 25.5% (n=51), Indian at 13% (n=26), and individuals from other races at 6.5% (n=13). Regarding educational attainment, 50%

(n=100) of respondents hold a bachelor's degree, 18.5% (n=37) have completed STPM/Matriculation/Diploma, 13% (n=26) have a secondary school education, 12% (n=24) possess a master's degree, and 6.5% (n=13) have attained a PhD.

Table 1 Respondents' Background.

Background	Categories	Frequency	Percentage (%)
Gender	Male	14	25
	Female	186	97.5
Age	18-20	20	10
	21-23	83	41.5
	24-26	60	30
	27 and above	37	18.5
Race	Malay	110	55
	Chinese	51	25.5
	Indian	26	13
	Others	13	6.5
Education level	PhD	13	6.5
	Master degree	24	12
	Bachelor degree	100	50
	STPM/Matriculation/Diploma	37	18.5
	Secondary school	26	13

5. Reliability Analysis and Validity Test

Reliability analysis is measured by Cronbach's Alpha. Table 2 shows that the value of Cronbach's Alpha for all variables ranges from 0.928 and 0.958 which is significantly higher than 0.70. In fact, each variable is considered acceptable due to each value which is greater than 0.70 will be defined as reliable (Taber, 2017).

Table 2 Reliability analysis of each variable.

Variable	Number of Items	Cronbach's Alpha
Performance Expectancy (PE)	5	0.941
Effort Expectancy (EE)	5	0.956
Social Influence (SI)	5	0.928
Facilitating Condition (FC)	5	0.958
Hedonic Motivation (HM)	5	0.958
Habit (HT)	5	0.953
Customer Intention (CI)	5	0.955

6. Result

In general, the data presented in table 3 indicates noteworthy and favorable correlations between customer intention and various factors: performance expectancy (r=0.714, p<0.01), effort expectancy (r=0.732, p<0.01), social influence (r=0.735, p<0.01), facilitating condition (r=0.780, p<0.01), hedonic motivation (r=0.820, p<0.01), and habit (r=0.821, p<0.01).

Table 3 Pearson correlation for variable of study.

	PE	EE	SI	FC	HM	HCI
PE	1	.858**	.757**	.820**	.853**	.713**
EE	.858**	1	.816**	.881**	.884**	.813**
SI	.757**	.816**	1	.825**	.786**	.799**
FC	.820**	.881**	.825**	1	.929**	.880**
HM	.853**	.884**	.786**	.929**	1	.840**
HT	.713**	.813**	.799**	.880**	.840**	1

**. Correlation is significant at the 0.01 level (2-tailed).

PE=Performance Expectancy, EE=Effort Expectancy, SI=Social Influence, FC=Facilitating Condition, HM=Hedonic Motivation and HT=Habit

The model summary for customer intention toward self-checkout is presented in Table 4. The R Square coefficient determination indicates that six independent variables collectively account for 74.7% (R2 = 0.747) of the total variance in customers' intention to use self-checkout. This regression model, detailed in the table, examines the relationships between expected speed, expected ease of use, expected enjoyment, and expectation of control with respect to expected service quality. Additionally, a second table explores the connection between expected service quality and purchase intention.

The standardized coefficients reveal that performance expectancy (p = <0.05, β = 0.166), effort expectancy (p = <0.05, β = 0.210), facilitating condition (p = <0.05, β = 0.283), hedonic motivation (p = <0.05, β = 0.580), and habit (p = <0.05, β =

0.521) are all significantly related to the intention to use self-checkout technology at Watson. However, the variable social influence (p = >0.05, β = 0.137) is found to be insignificant in relation to the intention to use self-checkout technology.

Table 4 Regression for Customer Intention determine.

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.
(Constant)	.976	.152		6.402	.000
Performance expectancy	.158	.076	.166	2.086	.038
Effort expectancy	.188	.086	.210	2.190	.030
Social influence	.128	.068	.137	1.885	.061
Facilitating conditions	.266	.118	.283	2.265	.025
Hedonic motivation	.549	.110	.580	5.008	.000
Habit	.449	.074	.521	6.059	.000

a. Dependent Variable: customer intention.
R= 0.864. R square= 0.747. Adjusted R= 0.739. F = 94.977

7. Discussion

The study examines the factors influencing the acceptance of self-checkout systems and explores the causal relationships among the constructs using a proposed research framework based on the original UTAUT2. The research on customers' intention to self-check out using new technology has been widely discussed (Cebeci et al., 2020). The findings reveal the significance of five key determinants of intention: performance expectancy, effort expectancy, facilitating conditions, hedonic motivation, and habit. These five constructs together explained 74.7% of the variance of behavioral intention. Similar to the findings of past research using the UTAUT2 model, performance expectancy has an influence on continuous use intention (Schomakers et al., 2022; Cheng et al., 2020). When someone expects a given technology to perform as expected, they believe they will benefit from it (Azizi et al., 2020). Customer experience has a positive relationship with their intention to use something (Wijaya et al., 2019). This shows that the customer's intention to use the Watson self-checkout kiosks is influenced by their experience using the kiosks. Effort expectancy and consumer intention are related. Effort expectancy is the expectation of how easily certain technologies can be used. Customers are less likely to perceive a low-level risk associated with using self-service technology when they feel in control of the situation when using self-service technology (Lee and Lyu, 2019). Customers believe that the Watson self-checkout kiosks meet their requirements. Some examples demonstrating how the kiosks fulfill customer needs include helping them maintain privacy, especially when purchasing products for intimate areas. The results of this study also indicate that there is a relationship between the facilitating condition factor and customer intention, which is consistent with previous work done (Erjavec et al., 2022; Chayomchai et al., 2020; Sattari et al., 2017). Likewise, there is a positive relationship between hedonic motivation and customer intention to use Watson self-checkout technology, which is in alignment with some previous research by other researchers (Park et al., 2020; Azizi et al., 2020; Ziefle, 2021) that the factor of hedonic motivation is one of the important factors that can predict customer intention to use a certain technology. Customers are likely to be more drawn to using the system as they discover the various features and functionalities to be enjoyable. This inclination is expected to increase as their amusement with the self-checkout technology grows. This study also reveals that habit, which encourages people to use the app, and customer intention have been accepted. Habit is one of the important factors that can validate a customer's intention to use something (Venkatesh, 2012). According to previous research about the customer's intention to use self-checkout kiosks at supermarkets by Cebeci et al. (2019), the factor of habit significantly affected the customer's intention to use the self-checkout in supermarkets. Once users begin using an app, this behavior develops into a routine and habit, encouraging people to use the app. That means H1, H2, H3, H4, and H5 are accepted.

Among all variables, H6 is rejected, indicating that social influence is the only variable that has no significant relation to customer intention. This means that the opinions and suggestions of family and friends, regarding whether customers should or should not use the Watson self-checkout system, did not have any influence on customers' intention to use it. This study's result is consistent with Erjavec et al. (2022) and Alfany et al. (2019), indicating that the effect of social influence on behavioral intention within the UTAUT model was insignificant. This suggests that advice from important people or those around a customer does not influence their attitude toward using a certain technology. This result could be attributed to the fact that people nowadays are not as closely connected to those around them due to the prevalent use of technology, with social media platforms such as Facebook, Instagram, TikTok, and others exerting a significant influence. Due to the decrease in social interactions as a result of the COVID-19 pandemic (Korukcu et al., 2021), more individuals are using social media, which increases the likelihood that its users will adhere to a uniform standard of behavior. Additionally, the availability of online reviews and professional opinions allows consumers to make decisions about using an app based on these reviews, eliminating the need to consult with family and friends.

8. Conclusions

This research aimed to enhance the comprehension of Malaysian self-service checkout by assessing the components of UTAUT2. The UTAUT2 model has demonstrated its effectiveness in scrutinizing the fundamental factors influencing the intention to adopt technology. The results indicate that customers regard determinants such as effort expectancy, performance expectancy, facilitating conditions, hedonic motivation, and habit behavior as crucial elements affecting their intention to use self-checkout. These determinants are interconnected with technological and environmental factors. In summary, the findings of this study will contribute to the advancement of strategies for both academic scholars and industry professionals in the realms of corporate and marketing tactics. The empirical evaluation of an integrated model in this study seeks to elucidate customer decisions regarding the utilization of self-checkout technology.

9. Significant Implications of the Research

The theoretical, managerial, and government implications of the study are examined in the implications of the study that are based on the research findings from the previous chapter.

9.1. Implication of Theoretical

The findings of this research successfully integrated the dimensions in the Unified Theory of Acceptance and Use of Technology (UTAUT2) that was developed by Venkatesh (2003) to discuss the influence of performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation and habit on customer intention to use the Watson self-checkout technology. The research results found that the key factors that influence customer intention to use Watson self-checkout technology are performance expectancy, effort expectancy, facilitating condition, hedonic motivation and habit but not social influence. From the theoretical standpoint, the findings imply a variety of consequences. Firstly, this study has contributed to enhancing the literature knowledge regarding customer intention to use Watson self-checkout technology in Malaysia, as this system is still in a new phase and lacks research. Second, the overall findings are new in the literature review and contrast with those of previous research.

Last but not least, this study contributes to the growing body of knowledge about the intention to deploy Watson self-checkout technology in developing countries like Malaysia. To identify areas for improvement in the self-checkout kiosks, the Watson company in Malaysia must comprehend the factors influencing customers' decisions to use or avoid self-checkout technology, such as the Watson self-checkout system.

9.2. Implication of Managerial

The findings of this study provide useful information that can help professionals and developers improve their adoption of Watson self-checkout technology. By knowing what makes a customer use the self-checkout kiosks, it will become easier for the company to add what is not enough or even improve their kiosk machine. This research is about the customer's intention to use the Watson self-checkout technology. By doing this research, the management of the company will be able to know what makes their consumer use their machine. If they get a positive response, they may add another machine to another place that does not have that kiosk yet.

9.3. Implication of Government

In Malaysia, there remains a lack of awareness and proficiency regarding the utilization of Watson self-checkout technology. Therefore, the objective of this research is to investigate customer intent to adopt Watson self-checkout technology through the application of the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). The utilization of Watson self-checkout technology offers numerous advantages to its users, including time savings and enhanced privacy protection. For instance, when purchasing sensitive products from Watson, users can protect their privacy by bypassing the need to visit a counter and instead use the self-checkout kiosks. Recognizing these appealing advantages that draw customers to adopt such technology might incentivize government investment in self-checkout technology. Although its application may not be suitable for environments like Watson, there is potential for integration in settings such as hospitals to improve convenience for consumers.

I affirm that I have secured the necessary consent, as mandated by relevant laws, to disclose any personal information or images of patients, research subjects, or other individuals utilized in this study. The research diligently adhered to ethical guidelines for studies involving human subjects, and all participants' consent was duly confirmed.

Ethical considerations

This study is voluntarily participation and the respondents agreed to take part in the study. Information gathered during this study is confidential.

Conflict of Interest

The authors declare that they have no conflict of interest.

Funding

The authors acknowledge the support given by Fakulti Pengurusan Teknologi dan Teknousahawanan, Universiti Teknikal Malaysia Melaka, for the financial support and facilities provided in completing this research.

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