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USE OF SCAN-TO-ORDER SYSTEM: GENERATION X AND Y IN KLANG VALLEY, MALAYSIA

Sum Ye Kong[1*] and Siew-Phaik Loke[2]

[1]Quest International University, Perak, Malaysia
[2]Quest International University, Perak, Malaysia
[*]Corresponding author: *sumye.kong@qiu.edu.my*

Abstract: The increasing popularity of data handling and processing is transforming industries, including the food service industry. This study investigates consumer adoption of the Scan-to-Order system, a self-service ordering technology gaining popularity in Malaysia. Using the Unified Theory of Acceptance and Use of Technology (UTAUT) framework, the study focuses on four primary adoption-influencing constructs: performance expectancy, effort expectancy, social influence and facilitating condition. A survey questionnaire was employed to obtain data from consumers from Generation X (1961-1980) and Generation Y (1981-2000), and a total of 408 individuals participated in this study. The results indicate that all independent variables have a significant relationship towards consumer adoption, supporting the UTAUT model's application in this context. Furthermore, all factors are internally consistent ($p < 0.01$), and the independent variables significantly impact consumer adoption. The findings imply that improving performance expectations, simplifying effort expectancy, leveraging social influence, and creating supportive environments are critical in encouraging Scan-to-Order adoption. This study enhances theoretical frameworks for technology adoption. It provides significant insights for policymakers, such as the Ministry of Finance, encouraging digitalisation initiatives for economic growth and boosting business competitiveness. Businesses can improve adoption and consumer satisfaction by concentrating on menu clarity and user-friendly interfaces. In addition, future research can benefit from mixed methods methodologies that combine quantitative and qualitative data to provide a broader understanding of consumer adoption behaviour, motivations, impressions, and experiences.

Keyword: Adoption Behaviour, Self-Service Technologies, Self-Service Restaurant Ordering System, Scan-to-Order, UTAUT

INTRODUCTION

In today's society, information technologies are widespread and have entirely changed how individuals engage with everything from placing food orders to boarding on airlines. These computerised systems have accelerated operations and transformed our daily lives, blurring the gap between traditional and modern experiences. The rise of self-service technologies (SSTs) has been one of the most significant innovations (Lithos Technosoft Pvt Ltd, 2023). These digital interfaces enable consumers to access and utilise services independently, fundamentally reshaping our behaviour and expectations (Meuter et al., 2000). Self-service kiosks are at the cutting edge of this evolution, providing exceptional convenience and efficiency across industries. From accelerating hotel check-ins and airport boarding (Shahid Iqbal et al., 2018) to supporting self-checkout at supermarkets and gas stations (Amin et al., 2019), these ubiquitous technologies have become essential to our daily routines.

The food service industry is no exception, embracing SSTs in the form of self-service restaurant ordering systems (SROS). These cutting-edge systems redefine consumer interactions, moving beyond the traditional waiter concept to allow consumers to place orders directly (Noor et al., 2012; Adithya et al., 2017). SROS results in more efficient operations, lower staff costs, and significant data insights for restaurants to personalise recommendations and improve customer experiences.

For instance, the fast-food giant McDonald's. Their embrace of SROS has significantly improved their service, with faster order processing, reduced wait times, and higher customer satisfaction (Othman, 2022). Consumers praise the intuitive kiosks, where they can browse, customize, and pay for their meals at their own pace, eliminating the need to wait for a cashier (Tariq, 2019; Digital News Asia, 2019). This streamlined experience not only benefits customers but also translates

to operational efficiency for McDonald's, freeing up staff for other tasks and providing valuable data insights to personalize recommendations and enhance the dining experience.

During the COVID-19 pandemic, QR code ordering systems, also known as Scan-to-Order (STO) systems, surged in popularity in Malaysia (Lakshmanan, 2022). Their affordability and convenience made them the most attractive option among SROS systems, boasting low start-up costs and minimal maintenance requirements (Tu et al., 2022). Customers simply scan a QR code displayed on the table or menu with their mobile devices, which directs them to a website or application where they can explore the menu and place their orders online. Several Scan-to-Order systems, including Grab's, offer real-time tracking, providing both estimated waiting times and updates on food preparation and delivery, enhancing transparency and mitigating customer anxiety (Grab Malaysia, n.d.).

Despite the increasing acceptance of Scan-to-Order systems, there is still a segment of consumers who prefer the tactile experience of paper menus. This transition presents challenges for those unfamiliar with using smartphones to access QR codes, particularly older generations with less experience with technology. Studies by Guszkowski (2021), Lee & Loke (2022), and SinChew (2022) report a desire among consumers to return to paper menus due to navigating the digital interface and understanding how to use QR codes. This can result in a segment of the customer base feeling excluded or left out, which can negatively impact their dining experience (Gordon, 2022).

In addition to the challenges faced by non-tech-savvy users, Scan-to-Order systems also introduce a potential drawback: the reduction in personalized service and interaction between consumers and waitstaff. As orders are placed directly through the mobile application, they bypass the need for waitstaff to take orders manually, streamlining the workflow but potentially diminishing the dining experience (Kuyucu, 2019). This absence of direct interaction can lead to missed opportunities for personalized recommendations, fulfilling special requests, and building rapport with waitstaff, making the dining experience feel more impersonal and less immersive (Inquirer, 2022).

While the adoption of SROS has been widely explored in academic literature, with a particular focus on self-service kiosks in fast-food contexts (e.g., Lu et al., 2017; Rastegar et al., 2021; Intal et al., 2020), research studying the Scan-to-Order system remains limited. Despite its increasing popularity, particularly in the early phases of the pandemic, studies need to be done looking into the factors driving consumers' adopting behaviour towards the system (Wiener-Bronner, 2022). Given the frequency and relevance of Scan-to-Order in Malaysia, further research would be beneficial to explore the factors that influence consumers' adoption of the system.

LITERATURE REVIEW

Self-Service Technologies (SSTs)

Self-service technologies (SSTs) are the digital interfaces that enable consumers to access and benefit from services without direct employee involvement (Meuter et al., 2000). It has emerged as a critical factor for businesses looking to control costs and improve customer experience (Considine & Cormican, 2016). SSTs are progressively replacing traditional face-to-face interaction in commercial services, delivering better accuracy, convenience, and speed (Foroudi et al., 2018). The ATM, established in 1967 by Barclays Bank in London (Batiz-Lazo & Reid, 2008), is the most extensively used SST worldwide. Self-check-in kiosks at hotels and terminals, self-checkout kiosks in supermarkets, and even self-pumping at petrol stations have emerged since then (Shahid Iqbal et al., 2018; Amin et al., 2019).

Self-service has become increasingly common, enabling consumers to complete numerous daily duties with autonomy and convenience. One significant benefit of SSTs is allowing consumers to engage with products and services independently. This includes making autonomous purchases or information enquiries without feeling hurried or experiencing pressure (Meuter et al., 2000; Oyedele & Simpson, 2007). This because it leads to a positive user experience, which increases the likelihood of repeat business. In terms of accessing information, offering self-service options are highly convenient for consumers, enabling them to retrieve information quickly and easily without needing to wait for customer service representatives (Shin and Dai, 2022). For example, restaurant self-service ordering systems eliminate the need for waitstaff assistance, empowering customers to browse menus, customize orders, and even pay directly, all at their own pace.

The rapid evolution of SSTs necessitates ongoing research to understand their full potential. Future studies could investigate the integration of emerging technologies like personalization into SSTs or analyse the effectiveness of different design and implementation strategies across various contexts.

Self-Service Restaurant Ordering System (SROS)

The self-service restaurant system, SROS, empowers consumers to take control of their dining experience, browsing menus, placing orders, and even paying directly using facilities provided by restaurants (Noor et al., 2012). SROS offers comprehensive menu information and pricing, allowing customers to explore options and personalize their meals without relying on waitstaff. Additionally, integrating e-payment technologies like e-wallets and online banking streamlines the process, enabling seamless payment upon order placement. SROS encompasses three primary categories, each catering to different needs and budgets:

- Self-service kiosks: Featuring expansive touchscreens, these standalone units allow customers to place and customize orders, often even completing payments, without staff assistance (Rastegar et al., 2021). While popular in multi-chain restaurants like McDonald's and KFC (Othman, 2022; Tariq, 2019), their higher cost can be a barrier for smaller establishments.
- Table ordering through tablets: Upscale restaurants like Sushi King and Sakae Sushi have embraced tablets placed at each table, offering a convenient and interactive menu navigation experience (Garg, 2019). Tablets allow for detailed visuals, dietary information, and even personalized recommendations, enhancing customer engagement and potentially increasing order value.
- QR code ordering: Emerging as a cost-effective option for SMEs, QR codes placed on tables enable customers to scan and access the restaurant's menu on their smartphones. This method minimizes physical contact and caters to hygiene-conscious customers (Ignatius, 2022). However, it relies on mobile internet access and might not suit older demographics or those unfamiliar with smartphone technology.

Beyond cost, each category offers distinct user experiences. Kiosks, while efficient, might feel impersonal. Tablets provide a more interactive and engaging approach, while QR code ordering, while convenient, requires additional steps and familiarity with technology.

The future of SROS likely lies in hybrid models, combining elements of each category to personalize the dining experience further. Imagine kiosks that provide AI-powered recommendations based on eating habits or tablets which employ AR technology to present dishes in 3D. SROS will undoubtedly continue revolutionising the restaurant environment as technology advances, empowering businesses and customers to offer a more seamless, personalised, and ultimately more enjoyable dining experience.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) provides a comprehensive framework for studying individuals' adoption and use of information technology (Venkatesh et al., 2003). Building upon the Technology Acceptance Model (TAM), UTAUT consists of significant elements from eight existing models that illustrate why and how humans respond to new technology. It identifies four primary elements that determine adoption willingness: performance expectancy (perceived usefulness), effort expectancy (ease of use), social influence (felt pressure from others), and facilitating condition (resources and support).

Performance expectancy remains the most significant indicator of adoption, regardless of whether adoption is mandated or discretionary (Zhou et al., 2010). While effort expectancy can initially be significant, its influence might decrease as consumers become more comfortable with the technology (Gupta et al., 2008). Social influence reflects the opinions of individuals concerning the way others perceive their technology use, which may be especially significant in a social context such as dining. Finally, facilitating conditions, such as adequate instruction and assistance, directly impact actual usage behaviour and are especially crucial in the early phases of adoption (Marikyan & Papagiannidis, 2021).

Numerous studies have studied Malaysians' intentions to adopt self-service technology (SSTs), with a valuable focus on kiosks in food stores. Lu et al. (2017) noted that perceived usefulness, enjoyment, and convenience drive self-service kiosk adoption. In contrast, Ramayah et al. (2020) emphasise the relevance of attitude and perceived control for electronic ticketing services via self-service kiosks. Within the food industry, studies such as Rashid et al. (2012) and Yaacob et al. (2021) have shed light on kiosk adoption, highlighting factors like ease of use and perceived benefit. However, these studies primarily focus on mandatory or semi-mandatory SSTs in specific settings. The Scan-to-Order system, with its voluntary adoption and mobile-based user interaction, presents a unique context where existing research might not fully translate.

Therefore, this study employs UTAUT to investigate the specific factors influencing consumers' adoption behaviour towards Scan-to-Order in Malaysia. Building on existing research, we aim to understand how performance expectancy, effort expectancy, social influence and facilitating conditions interact to influence Scan-to-Order adoption in the context of voluntary technology and Malaysian cultural factors.

MODEL DEVELOPMENT AND HYPOTHESIS FORMULATION

This study examines the variables influencing consumers' adoption of the Scan-to-Order context. Figure 1 illustrates these factors hypothesised to influence consumers' adoption of the Scan-to-Order system, including performance expectancy, effort expectancy, social influence, and facilitating condition.

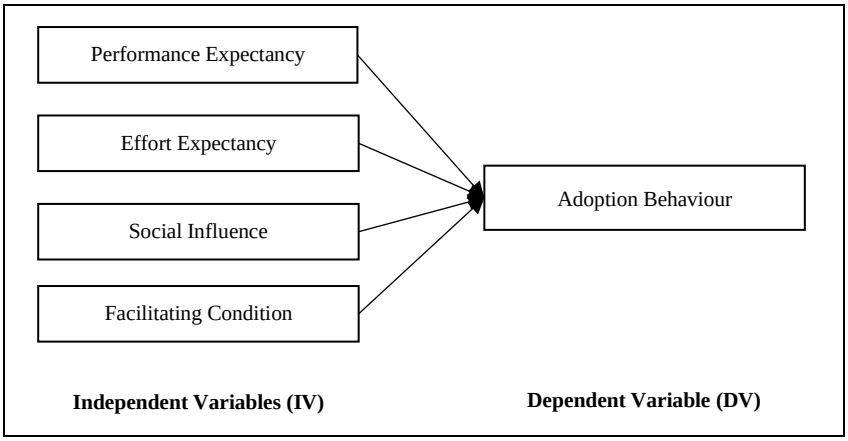

Fig 1: Research Framework

Performance Expectancy

Performance expectancy refers to the efficiency and ease of use provided to consumers by the Scan-to-Order system during food ordering. Several theoretical models illustrate its significance in the adoption of technology. As an example, Yeoh & Chan (2011) revealed a significant relationship between Malaysians' usage of Internet banking and their performance expectancy. Similar results have been noted in other industries where performance expectancy significantly drives technology adoption, including education, airports, retail, and food (Chao, 2019; Dabral et al., 2021). This study, which builds on prior research, examines how performance expectancy affects consumers' adoption of the scan-to-order system.

H_1: There is a significant relationship between performance expectancy and consumers' adoption behaviour towards the Scan-to-Order system.

Effort Expectancy

Effort expectancy refers to the system's accuracy in delivering orders and minimising order errors, lowering the effort consumers require during ordering. Several studies have proven its importance in influencing the adoption of technology, including those done by Sair & Danish (2018), Sung et al. (2015), and Weijters et al. (2007). These results emphasise how crucial perceived convenience and ease of use are in determining consumers' intentions to utilise self-service technologies. Given the importance of effort expectancy, this study investigates its impact on consumers' adoption of the Scan-to-Order system.

H_2: There is a significant relationship between effort expectancy and consumers' adoption behaviour towards the Scan-to-Order system.

Social Influence

Social influence highlights the expected impact of individuals within one's social network - such as family, friends, or coworkers - on consumers' decision to accept or continue using the technology. The adoption of technology may increase when individuals in these social networks support the usage of the technology (Dabral et al., 2021). Consumers with little experience using a new technology often rely on knowledge from their social networks to eventually adopt it (Seo, 2020). Similar to performance and effort expectancy, social influence has been revealed to significantly impact consumers' intentions to adopt new technologies (Tjokrosaputro & Cokki, 2020; Butcher et al., 2002; Chen et al., 2021). In the context of Scan-to-Order systems, social influence can significantly shape consumers' adoption behaviour.

H_3: There is a significant relationship between social influence and consumers' adoption behaviour towards the Scan-to-Order system.

Facilitating Condition

Facilitating condition describes physical components affecting consumers' desire to use the Scan-to-Order system, such as easily accessible QR codes and clear menu descriptions. These tangible features and resources serve as the necessities for Scan-to-Order systems, influencing consumer adoption. Lack or delay of assistance, insufficient information, and limited resources may hinder consumers' adoption of new technologies, especially those associated with self-service (Chan & Petrikat, 2022). Consumers have a greater acceptance of self-service options and are willing to use them frequently when satisfied. Although Venkatesh et al. (2003) initially proposed that the facilitating condition might not have a direct impact on behavioural intention, subsequent studies by Khalufi & Shah (2022), Immonen & Koivuniemi (2018), and Surya et al. (2021) show that it does have a direct and beneficial impact on both intention and actual technology adoption. Thus, this study hypothesised that facilitating conditions are crucial in influencing consumers' adoption behaviour in the Scan-to-Order context.

H_4: There is a significant relationship between facilitating condition and consumers' adoption behaviour towards the Scan-to-Order system.

RESEARCH METHODOLOGY

Sample and Data Collection

A survey questionnaire was chosen as the data collection method, targeting consumers from Generation X (born 1961-1980) and Generation Y (1981-2000). These generations, having grown up alongside the digital revolution, possess a strong familiarity with digital technology and comprise a significant portion of the target market for Scan-to-Order systems.

Purposive sampling focused on four popular restaurants in One Utama Shopping Centre, Klang Valley: McDonald's, KFC, Domino's Pizza, and Pizza Hut. These restaurants were chosen for their implementation of the Scan-to-Order system, ensuring that respondents possess firsthand experience and can provide valuable insights. Within each restaurant, respondents were selected using a combination of age and self-reported Scan-to-Order usage, ensuring a diverse range of perspectives.

Respondent Profiles

A total of 408 respondents participated in this study, with 52.9% being female. The largest age group was 21-30 years old, representing 65.2% of the sample. Chinese respondents constituted the majority at 43.4%, followed by Malay respondents at 41.4%. Respondents with undergraduate degrees were the most represented group, accounting for 49.5%. In terms of experience using the Scan-to-Order system, 33.8% had less than 1 year of experience, while 37.5% had 1-5 years of experience. McDonald's was the most popular restaurant, chosen by 62% of respondents, followed by Pizza Hut with 18.9%. Notably, most respondents used mobile wallets either occasionally or regularly, with "Sometimes" and "Always" categories encompassing the majority of participants.

TABLE I: PROFILE OF THE RESPONDENTS

Profile	Category	Frequency	Percentage
Gender	Female	216	52.9
	Male	192	47.1
Age	21 to 30	266	65.2
	31 to 40	73	17.9
	41 to 50	43	10.5
	51 and above	26	6.4
Race	Chinese	177	43.4
	Malay	53	41.4
	Indian	169	13.0
	Others	9	2.2
Educational Level	Primary/Secondary	94	17.2
	Diploma	42	23.0
	Undergraduate	70	49.5
	Postgraduate	202	10.3
Working Experience	Less than 1 year	153	33.8
	1 to 5 years	32	37.5
	6 to 10 years	138	20.8
	More than 10 years	85	7.8
Most Visited Restaurant	McDonald's	16	62.0
	KFC	62	15.2
	Domino's Pizza	253	3.9
	Pizza Hut	77	18.9
Frequency using Mobile Wallet	Never	197	2.0
	Rarely	8	3.2
	Sometimes	106	20.6
	Always	13	48.3
	Often	84	26.0

DATA ANALYSIS AND RESULTS

Cronbach's Alpha Reliability Analysis

TABLE II: RELIABILITY STATISTICS

Variables	Cronbach's Alpha	Number of Items	Level of Reliability
Adoption's Behaviour	0.760	4	Moderate
Performance Expectancy	0.612	5	Moderate
Effort Expectancy	0.846	5	Strong
Social Influence	0.729	5	Moderate
Facilitating Condition	0.694	5	Moderate

The results showed that all variables achieved satisfactory levels of internal consistency, as indicated by their respective Cronbach's Alpha values. The effort expectancy variable exhibited high internal consistency, indicating that the items assessing effort expectancy (e.g., ease of scanning and system navigation) are reliable and consistently measure the construct. Similarly, consumers' adoption behaviour demonstrated moderate internal consistency, suggesting that the items assessing adoption behaviour are reliable measures and consistently measure the construct.

Pearson Correlation Coefficient Analysis

TABLE III: CORRELATIONS

	AB	PE	EE	SI	FC
AB					
PE	.601**				
EE	.648**	.568**			
SI	.760**	.648**	.693**		
FC	.716**	.505**	.650**	.707**	

*Note: AB = Adoption Behaviour; PE = Performance Expectancy; EE = Effort Expectancy; SI = Social Influence; FC = Facilitating Condition. **Correlation is significant at 0.01 level (2-tailed)*

The analysis revealed significant positive correlations between all independent variables - performance expectancy, effort expectancy, social influence, and facilitating condition - and the adoption behaviour ($p < 0.01$). This suggests that these variables are essential in influencing consumers' adoption of the Scan-to-Order system.

Independent Samples Test Analysis

TABLE IV: INDEPENDENT SAMPLES TEST

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	*df*	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
PE	Equal variances assumed	.519	.472	.422	406	.673	.03447	.08173	-.12618	.19513
	Equal variances not assumed			.411	95.387	.682	.03447	.08382	-.13191	.20086
EE	Equal variances assumed	.114	.736	-.035	406	.972	-.00354	.10226	-.20456	.19748
	Equal variances not assumed			-.035	97.974	.972	-.00354	.10195	-.20585	.19877
SI	Equal variances assumed	.018	.892	-.828	406	.408	-.08126	.09819	-.27428	.11175
	Equal variances not assumed			-.818	96.646	.415	-.08126	.09929	-.27833	.11581
FC	Equal variances assumed	.303	.582	.157	406	.875	.01503	.09582	-.17333	.20340
	Equal variances not assumed			.161	100.312	.872	.01503	.09331	-.17009	.20015
AB	Equal variances assumed	.710	.400	.314	406	.754	.02854	.09084	-.15004	.20711
	Equal variances not assumed			.324	100.618	.747	.02854	.08820	-.14644	.20351

Note: AB = Adoption Behaviour; PE = Performance Expectancy; EE = Effort Expectancy; SI = Social Influence; FC = Facilitating Condition.

Based on the t-test results, it can conclude that there is no statistically significant difference in adoption behaviour between Gen X and Gen Y. Levene's test for equality of variances yielded a *p*-value of more than 0.05, which indicated that the variances are not significant different from Gen X and Gen Y. Additionally, the observed t-statistic was falls within the

non-significant range. Therefore, the study accepted the null hypothesis and conclude that the observed differences in adoption behaviour between the two generations are likely due to chance and cannot be attributed to any systematic differences between them. Further research with different measures might be needed to fully explore the nuances of adoption behaviour across generations.

Multiple Linear Regression Analysis

TABLE V: MODEL SUMMARY, ANOVA AND REGRESSION COEFFICIENT

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.813[a]	.662	.658	.40160

[a.] *Predictors: (Constant), FC, PE, EE, SI*

Model		Sum of Squares	*df*	Mean Square	F	Sig.
1	Regression	127.121	4	31.780	197.049	.000[a]
	Residual	64.996	403	.161		
	Total	192.117	407			

[a.] *Predictors: (Constant), FC, PE, EE, SI*
[b.] *Dependent Variable: AB*

Model		Unstandardized Coefficients		Mean Square	F	Sig.
		B	***Std. Error***	***Beta***		
1	(Constant)	.595	.135		4.414	.000
	PE	.156	.043	.141	3.613	.000
	EE	.093	.038	.105	2.426	.016
	SI	.349	.045	.378	7.686	.000
	FC	.294	.041	.310	7.179	.000

[a.] *Dependent Variable: AB*

The coefficient of determination (R^2) of 0.662 indicates that approximately 66.2% of the variance in consumers' adoption behaviour can be explained by the four independent variables in the model. This result confirms that performance expectancy, effort expectancy, social influence, and facilitating condition all have a positive and statistically significant influence on consumers' adoption of the Scan-to-Order system ($p < 0.01$). Consequently, all hypotheses proposed in the study are supported.

Hypothesis Testing

The independent variables in this study have a positive and statistically significant influence on consumers' adoption behaviour at a significance level of 0.01. All variables exhibit statistically significant positive relationships with consumers' adoption behaviour, with *p*-values less than the chosen significance level of 0.01. These findings align with those of previous studies, further validating the importance of performance expectancy, effort expectancy, social influence, and facilitating condition as key determinants of technology adoption. This research contributes to the body of knowledge surrounding technology acceptance models like UTAUT by further supporting the existing evidence for these four key constructs.

CONCLUSION AND FUTURE WORKS

This study examined the variables affecting Malaysians' adoption behaviour in the context of the Scan-to-Order system. The results showed a strong correlation between performance expectancy, effort expectancy, social influence, facilitating conditions, and consumers' adoption behaviour. These findings support the existing body of knowledge on the role of performance and effort expectancy in affecting customers' adoption decisions. When consumers perceive the system is easy to use with minimal effort, they are more likely to adopt and utilize it frequently. Meanwhile, opinions from friends, family, and coworkers can affect consumers' decision to accept and utilize the Scan-to-Order system. Furthermore, favourable facilitating conditions, such as technical assistance, availability of resources, and ease of system use, significantly impact consumers' decisions about adopting and utilizing a specific technology. This study supports the significance of these four fundamental components in technology adoption models and provides the path for further research into specific aspects impacting consumer behaviour in this context.

Scan-to-Order adoption can be notably increased by focusing on three primary areas: food accuracy (clear descriptions, real-time updates), menu clarity (intuitive layout, visuals), and user-friendly interfaces (easy navigation, minimal processes). This is consistent with Hassan et al.'s (2020) research on self-service technologies, which emphasised the significance of personalising consumer contact for acceptance. According to Iqbal et al. (2018), greater-quality technology boosts usage. Actively collecting and applying consumer feedback in these areas is critical for optimising adoption and unlocking benefits such as enhanced autonomy (e.g., ingredient adjustments, order time slots) via technology. Businesses can unleash the full potential of Scan-to-Order and improve consumer dining experiences by prioritising these areas.

These findings may be employed by policymakers, such as the Ministry of Finance, to plan and implement effective digitalisation programmes for the food service industry. The study's implications can also be aligned with the digitisation initiatives outlined in the Malaysia Budget 2024, which emphasises the importance of digital transformation and adopting technologies such as Scan-to-Order to drive economic growth while improving business competitiveness (Ministry of Finance Malaysia, 2023). Allocating budget funds for training programmes, improvements to technology, and marketing initiatives highlighting the benefits of the Scan-to-Order system could be specific policy actions. Furthermore, integrating these activities with current government programmes such as MDEC and MyDIGITAL may boost the impact of digitalisation efforts (MIDA, 2021).

Future studies could build on the UTAUT model to explore additional dimensions or variables that may influence customers' adoption of the Scan-to-Order system. The theoretical model could include variables such as perceived security, trust in technology, personal innovativeness, and cultural aspects specific to the Malaysian setting. This could provide researchers with a better understanding of the adoption process and assist in identifying potential obstacles or facilitators for different user groups. In addition, using different data collection methods can improve the quality and reliability of research findings. Objective measures such as transaction data, web analytics, system usage logs, and behavioural observations may be combined with self-reported data in future studies. Using mixed methods approaches that incorporate qualitative and quantitative data may contribute to deepening and providing a more complete knowledge of consumer adoption behaviour, providing significant insights into their motives, views, and experiences.

Overall, this research study provides valuable insight into how consumers adopt the Scan-to-Order system in Klang Valley, Malaysia. These findings may assist policymakers and businesses in implementing specific measures to encourage technology usage and improve consumption experiences. Restaurant operators can use the findings to improve their Scan-to-Order systems by addressing performance expectations, simplifying effort expectations, utilising social influence, and assuring conducive conditions. This can result in improved consumer satisfaction, operational efficiency, and a market competitive advantage. Furthermore, researchers may expand on this research by studying the impact of cultural characteristics, age variations, and other relevant variables on technology adoption in the food service industry. Businesses across the industry may collaborate to take digitalisation initiatives ahead and contribute to a more efficient, sustainable, and customer-focused food service environment in Malaysia by taking advantage of these insights.

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