Print ISSN: 1738-3110 / Online ISSN 2093-7717
JDS website: http://accesson.kr/jds
http://doi.org/10.15722/jds.23.03.202503.79

Integrating TAM, TPB, and Time-Saving Orientation to Predict Continued Use of Online Food Delivery: Customer Experience in Distribution Services

Lily PURWIANTI[1], Listia NURJANAH[2], Alifia Lisda Zetty AQMI[3], Edy YULIANTO[4]

Received: December 01, 2024. Revised: January 07, 2025. Accepted: March 05, 2025.

Abstract

Purpose: Digital food services offer convenience and flexibility for consumers to order food anytime, anywhere, due to evolving consumer preferences. However, these safety issues in food distribution (online food delivery) must be addressed to ensure consumer safety. This study aims to address the gap in understanding how time-saving orientation interacts with established models (TAM and TPB) to influence continued use intention for OFD apps in the Indonesian context. **Research design, data and methodology:** The study explores the factors influencing users' intention to continue using online food delivery applications, incorporating the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and Time Saving Orientation (TSO). Using a sample of 413 OFD app users in Indonesia, data was collected through a questionnaire and analysed using PLS-SEM. **Result:** Results indicate that time-saving orientation is the strongest predictor of continued use intention ($\beta = 0.161$, $p < 0.003$), followed by perceived usefulness ($\beta = 0.169$, $p < 0.000$) and perceived ease of use ($\beta = 0.275$, $p < 0.000$). **Conclusions:** This research contributes to the literature by demonstrating the importance of timesaving considerations in OFD app adoption and use, offering insights for scholars and practitioners in the digital food service industry.

Keywords : Online food delivery¸ TAM, TPB, Time Saving Orientation, Behavioral Intention.

JEL Classification Code: M21, M310, M30.

1. Introduction

Digital technology has precipitated substantial transformations across various industrial domains, including the food and beverage sector (Ali et al., 2021). Digital food services provide consumers the flexibility and convenience of ordering food anytime and from any location, allowing them to select from a diverse range of restaurants and menus with minimal effort (Asgari et al., 2023). Likewise, in the culinary field, particularly in restaurants, technology could help facilitate general service operations, such as facilitating online food ordering and delivery (Suhartanto et al., 2019). According to the data retrieved from Kemp (2023), the internet user population in Indonesia at the onset of 2023 reached 212.9 million users, corresponding to a penetration rate of 77 per cent. This marks an upward trend compared to 2022 when there were 204.7 million users with a 73.7 per cent penetration rate. According to this growth, it is revealed

1 First Author. Lecturer, Faculty of Business Management, Batam International University, Indonesia. Email: lily.purwianti@uib.edu
2 Second Author. Lecturer, Faculty of Business Management, Batam International University, Indonesia. Email: listia.nurjanah@uib.edu
3 Third Author. Student, Faculty of Business Management, Batam International University, Indonesia. Email: 2344013.alifia@uib.edu
4 Fourth Author. Lecturer, Faculty of Business Management, Batam International University, Indonesia. Email: edy.yulianto@uib.edu

that approximately 75% of internet users in Indonesia are using the GoFood application, while as many as 50% of users are using the GrabFood application (Wolff, 2023). Based on this data, more than half of the internet users in Indonesia have used online food delivery applications. Similarly, about 45 per cent of restaurants or food and beverage business owners in Indonesia will have adopted online food delivery applications by 2021 (Ahdiat, 2023).

Based on data in regards to the alters in consumer dietary preferences in Indonesia amid the COVID-19 pandemic, prior to the pandemic, it was revealed that as many as 35% of consumers opted to dine in, while only a small percentage which is 14% of consumers preferred utilising online food delivery (OFD) services (Wolff, 2023). However, this trend has shifted significantly in the post-pandemic period, with only 5% of consumers preferring to dine in, while 18% favour OFD services. However, there are concerns related to online food delivery platforms that must be taken seriously (Ray et al., 2019), namely the issues related to safety within food delivery services due to the heightened frequency of traffic accidents (Maimaiti et al., 2018). Furthermore, complications such as traffic congestion and restaurant time inefficiencies persist (Allah Pitchay et al., 2022). Therefore, companies should prioritise enhancing the application performance and focus on reducing delivery issues, particularly concerning delivery time (Allah Pitchay et al., 2022). The merits of the OFD platform include offering a swift method to place a food order (Li et al., 2020). Customers also benefit from the comfort and time-saving associated with placing food orders without leaving their homes or business premises (Chai et al., 2019). Ray et al. (2019) identified the primary factors influencing online food deliveries as preparation time, delivery speed, and the duration needed to complete the ordering system. In addition, reasonable delivery times and delivery fees could aid in preventing potential issues, fostering positive customer attitudes towards the service, and enhancing the intention to keep utilising the platforms (Elvandari et al., 2018).

The user-friendliness of online food delivery applications, supported by a wide variety of menu selections easily accessible through online food delivery platforms, has impacted people's lifestyles, increasing the intention to use these applications in everyday life (Hong et al., 2021). Online food delivery also presents time-saving benefits, resulting in consumers bypassing lengthy queues or spending extra hours required to prepare their meals (Hong et al., 2021). In addition, according to Troise et al. (2021), using an online food delivery application could also provide convenience for consumers to procure food with relative advantages, such as saving time and avoiding long trips. Furthermore, consumer attitudes could be influenced by pleasant enjoyment derived from online food delivery applications, which could shape consumers' desire to continue using online food delivery applications (Wen et al., 2022).

There is no denying that research on OFD has been extensively researched. Numerous researchers have applied the theory of customer satisfaction within the context of online food delivery services (Abbasi et al., 2024; Jingzu et al., 2024; Kurniawan et al., 2024; Osman et al., 2024; Teng et al., 2024) technology acceptance model (Chai et al., 2019; Jingzu et al., 2024; Utami et al., 2022; Weiler & Gilitwala, 2024), theory of planned behaviour (Kumar et al., 2024; Poon & Tung, 2024; Shankar et al., 2022), and UTAUT 2 (Kurniawan et al., 2024). Moreover, previous researches have discussed the convenience and benefits of using online food delivery applications in various countries, including Malaysia (Allah Pitchay et al., 2022; Osman et al., 2024; Poon & Tung, 2022), Italy (Troise et al., 2021), the United States (Wen et al., 2022), and Korea (W. S. Lee et al., 2023). Previous research did not specifically discuss time-saving orientation. Time-saving is essential in research services such as OFD (Allah Pitchay et al., 2022). In Indonesia, no one has examined online food delivery in terms of TAM, TPB, and time-saving orientation. These theories, deriving the theory of reasoned action (TRA), investigate behavioural determinants and their determinants (Allah Pitchay et al., 2022). In addition, time-saving also provides numerous benefits in online food delivery applications, and thus, this factor could also be further researched (Prasetyo et al., 2021).

Therefore, this study aims to address the gap in understanding how time-saving orientation interacts with established models (TAM and TPB) to influence continued use intention for OFD apps in the Indonesian context. This research analyses all aspects influencing consumers' desire to continue using these applications, utilising the Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), and time-saving orientation.

2. Literature Review

2.1. Technology Acceptance Model (TAM)

To comprehend consumer behaviour regarding technology adoption, the Technology Acceptance Model (TAM) stands as the most widely utilised model. This model was created and derived from the Theory of Reasoned Action (TRA) to enhance user cognisance regarding the acceptance of information technology (Davis et al., 1989). TRA establishes the relationship between attitudes, beliefs, behaviours and intentions (Ajzen, 1991). Perceived Usefulness (PU) and Perceived Ease of Use (PEoU) are the main components influencing TAM (E. Y. Lee et al., 2017; Savari et al., 2024). Perceived Usefulness (PU) refers to how

users utilise the technology to achieve their goals, while Perceived Ease of Use (PEoU) is how easy it is for users to utilise the technology (Madias et al., 2023; Purwianti, Nurjanah, et al., 2024). Conversely, simplicity affects the ease of use related to time and energy (Han & Sa, 2022). TAM postulates that individuals form intentions towards technology based on its perceived usefulness and ease of use (Mustafa et al., 2021). When the technology is easily understood, internet users are more inclined to experience comfort, perceive its utility, and build a positive attitude towards it (Sujood et al., 2022). The impact of PU on BI is also further illustrated by the notion that the more benefits an application offers consumers, the greater the intention to utilise the application and vice versa. According to Troise et al. (2021), the intention to use technology is linked to the anticipated outcomes; thus, when consumers perceive online food delivery applications as beneficial, they are more inclined to utilise them. Yao et al. (2022) assert that PEoU positively influences Attitude (ATT). PEoU has a direct relationship with ATT, indicating that the user-friendliness of technology could build positive consumer attitudes (Chanda et al., 2024). Based on prior research, the following hypothesis was found:

H1: Perceived Usefulness will positively influence Attitude.
H2: Perceived Ease of Use will positively influence Attitude.
H7: Perceived Usefulness will positively influence Behavioral Intention.
H8: Perceived Ease of Use will positively influence Behavioral Intention.
H12: Attitude will mediate the effect Perceived Usefulness on Behavioral Intention.
H13: Attitude will mediate the effect Perceived Ease of Use on Behavioral Intention.

2.2. Theory of planned behaviour (TPB)

TPB elucidates the correlation between attitudes and behaviour and the elements shaping an individual's inclination to engage in specific actions (Mustafa et al., 2021). Attitude (ATT) is defined as the extent to which an individual evaluates either favourable or unfavourable behaviour (Poon & Tung, 2022). Subjective Norms (SN) reflect how an individual perceives the behaviour either shown to be acceptable or unacceptable by others (Singh et al., 2022). Perceived Behavioral Control (PBC) describes an individual's opinion about the ease, difficulty, probability, or improbability of performing particular behaviours (Govaerts & Ottar Olsen, 2023; Purwianti, Jason, et al., 2024). TPB has been widely applied in innovative research on technology (Sujood et al., 2022) and within online food delivery (Troise et al., 2021). Concerning the subject of customer attitudes towards services, the advantages of online food delivery applications in facilitating food selections for customers could result in a positive connection between customer attitudes and the intention to keep using food delivery applications (Allah Pitchay et al., 2022). According to Sujood et al. (2022), SN and BI have a positive relationship. SN is one of the highest predictors, emphasising the importance of retaining current consumers, enhancing their understanding of the benefits of innovative technology, and providing opportunities for continued use. BI could be positively influenced by the supportive views of others in customers' environments, thereby reducing hesitation in using technology (Al-Sabaawi et al., 2023). Poon and Tung (2022) assert that PBC supports individuals' desire and intention to make online purchases through food delivery applications. When consumers have a positive attitude towards OFD applications, they substantially increase their motivation, leading to fewer online ordering errors and a heightened inclination to use OFD services. Additionally, consumers' past experiences would significantly influence their behavioural intentions towards using OFD apps (Fernandes et al., 2021). Previous studies have found a positive relationship between ATT and BI (Chen et al., 2023; He et al., 2019; Koay & Cheah, 2023). Based on prior research, the following hypothesis was found:

H3: Attitude will positively influence Behavioral Intention.
H4: Subjective Norms will positively influence Behavioral Intention.
H5: Perceived Behavioral Control will positively influence Behavioral Intention.
H10: Subjective Norms will positively influence Attitude.
H11: Perceived behavioural control will positively influence Attitude.
H15: Attitude will mediate the effect Subjective Norms on Behavioral Intention.
H16: Attitude will mediate the effect Perceived Behavioral Control on Behavioral Intention.

2.3. Time Saving Orientation (TSO)

According to Allah Pitchay et al. (2022), Time Saving Orientation (TSO) refers to an individual who consistently seeks to save time when shopping online. Yeo et al. (2017) demonstrate that customers prefer to utilise programs that are easy to navigate. Consequently, TSO correlated with customer attitudes and desire to use the system (Yeo et al., 2017). Users believe that the application usage could assist them in performing their tasks more efficiently, especially in terms of time utilisation. Time savings could be achieved by reducing information search costs (Utami et al., 2022). Previous research indicates that timeliness is crucial in service businesses, which leads to good customer ratings (Chapman et al., 2020). This shows that time tends to be an essential component in services, influencing buyer intention behaviour (W. S. Lee et al., 2023). The effect of TSO on BI

could be explained by the notion that the more efficient the time required to achieve a goal, the greater the behavioural intention to use the method. Koay and Cheah (2023) research showed that consumers who have minimal time and contact with store employees with the understanding that consumers only need to buy and pick up their orders at the store, it would be more efficient if they use OFD applications. This underscores the importance of time in services, which could be applied to online food delivery applications due to the availability of real-time information (Lee et al., 2023). Delivery time is critical to satisfying and retaining customers in a digital business environment. According to the concept of time-saving orientation, individuals consistently want to save time when shopping online (Jensen, 2012; Saha et al., 2020). Changes in consumer lifestyle have led most individuals to believe that using apps would save time when shopping (Fernandes et al., 2021). This aligns with research indicating that customers prefer simple and time-efficient programs (Yeo et al., 2017). Based on the results of previous studies, it has been found that TSO has a significant positive effect on ATT and BI (Chapman et al., 2020; Fernandes et al., 2021; W. S. Lee et al., 2023; Yeo et al., 2017). Therefore, this study suggests the following hypothesis:

H6: Time Saving Orientation will positively influence Attitude.

H9: Time Saving Orientation will positively influence Behavioral Intention.

H14: Attitude will mediate the effect Time Saving Orientation on Behavioral Intention.

3. Research Methods and Materials

The target for this study comprises individuals in Batam City, Indonesia, aged above 17 years old, who have experience in using OFD application services. This age-standard group was designated because they can use OFD apps and make payments without requiring consent from their parents or legal guardians (Buettner et al., 2023).

In addition, the data collection technique employed is purposive sampling with a quantitative approach using primary data gathered through offline and online questionnaires distributed via Google Forms. Morgan's Krejcie table indicates that at least 400 responses were necessary to establish an adequate sample size. Of the 425 responses received, 413 were deemed suitable for data analysis after data screening. The conceptual model and hypotheses were evaluated using PLS-SEM, a combination of regression analysis techniques and factor analysis. PLS-SEM eliminates assumptions of Ordinary Least Squares regression, such as multivariate normally distributed data and multicollinearity between exogenous variables (Ghozali, 2021). It employs the bootstrapping method, which ensures data normality and eliminates the need for a minimum number of samples. Hayes (2018) argued that the bootstrapping method is more powerful and accurate than the Sobel test in indirect effect analysis (Rasoolimanesh, 2021).

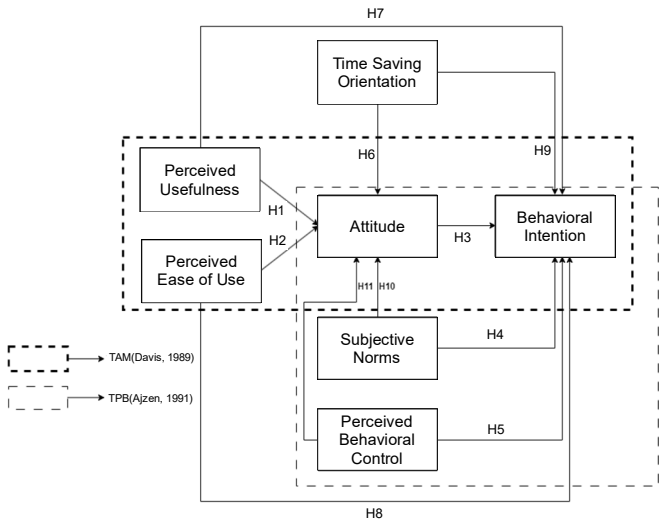

Figure 1: Research Model: Integrating TAM, TPB, and Time-Saving Orientation to Predict Continued Use of Online Food Delivery

In this study, there are three categories of operational variables, specifically, the independent variable consisting of PU, PEoU, SN, PBC, and TSO. The intervening variable consists of ATT, and the dependent variable consists of BI. The cross-sectional questionnaire was meticulously crafted by modifying indicators drawn from previous literature. The five PEoU indicators, four SN indicators, and five PBC indicators were adapted from (Sujood et al., 2022). Troise et al., (2021) used four indicators for PU. On the other hand, four ATT indicators and four TSO indicators are based on (Allah Pitchay et al., 2022) and four BI indicators are adapted from (Poon & Tung, 2022).

Table 1: Respondent Profile

No.	Variable	Indicator	Reference
1.	Perceived Usefulness	1. The online food delivery app would allow me to order food more rapidly.	(Troise et al., 2021)
		2. I believe that using an online food delivery service will make it easier for me to purchase food.	
		3. I believe the online food delivery application is useful	
		4. Overall, I believe that using the online food delivery is beneficial	

No.	Variable	Indicator	Reference
2.	Perceived Ease of Use	1. I believe online food delivery apps can find what I want	(Sujood et al., 2022)
		2. My engagement with online food delivery app is easy to grasp	
		3. I can easily recall how to utilize the online food delivery apps.	
		4. Online food delivery app offers useful suggestions.	
		5. Overall, the online food delivery app was easy to use	
3.	Attitude	1. Buying food through an online food delivery app is a smart idea.	(Allah Pitchay et al., 2022)
		2. Buying food through an online food delivery app is a good idea.	
		3. Buying food using an online food delivery app is sensible.	
		4. Buying food thorigh online food delivery apps is rewarding.	
4.	Subjective Norms	1. People influencing my behaviour would advise me to use an online food delivery app.	(Sujood et al., 2022)
		2. People close to me believe I should use online food delivery apps.	
		3. People that are significant to me would encourage the use of online food delivery apps.	
		4. People who are significant to me would like me to use online food delivery apps.	
5.	Perceived behavioural control	1. I will be able to use online food delivery apps.	(Sujood et al., 2022)
		2. I am fully capable of using an online food delivery apps and have the necessary tools.	
		3. I have the resources to employ an online food delivery apps.	
		4. I understand how to use an online food delivery app.	
		5. I can use online food delivery apps.	
6.	Time-Saving Orientation	1. I believe that using an online food delivery app is quite handy while purchasing food.	(Allah Pitchay et al., 2022)
		2. I believe that using an online food delivery app helps me complete tasks more rapidly in the food shopping procedure.	
		3. I believe I can save time by using an online food delivery app during the purchasing procedure.	
		4. It is critical for me that food purchases be completed as promptly as possible via an online food delivery app.	
7.	Behavioural Intention	1. I believe I will be using online food delivery apps in the future	(Poon & Tung, 2022)
		2. I intend to employe online food delivery apps in the future	
		3. I am considering using an online food delivery app in the future	
		4. I plan to test using an online food delivery app within a year	

4. Results and Discussion

4.1. Descriptive Statistics

Table 2: Respondent Profile

Indicator	Classification	Frequency	(%)
Gender	Female	254	61,50%
	Male	159	38.5%
Age	Ages 17 to 22	123	29,80%
	Ages 23 to 27	137	33,10%
	Ages 28 to 32	88	21,30%
	Ages 33 to 37	34	8,20%
	Ages 38 to 42	21	5%
	Over 42 years old	6	1,60%
Education	High School	116	28,70%
	Diploma	103	24,90%
	Bachelor's Degree	168	40,60%
	Master's Degree	24	5,80%
Occupation	Students	81	19,60%
	Private Employee	157	38%
	Civil Servant	44	10,60%
	Entrepreneur	56	13,50%
	Housewife	39	9,40%
	Unemployed	21	5%
	Teacher	5	1,20%
	Doctor	1	0,30%
	Freelancer	7	1,80%
	Other	2	0,60%
Monthly Income	Less than Rp5.000.000	187	45,30%
	Rp5.000.001 to Rp10.000.000	176	42,60%
	Rp10.000.001 to Rp15.000.000	45	10,80%
	Rp15.000.001 to Rp20.000.000	4	1%
	Above Rp20.000.001	1	0,30%

The table above presents descriptive data of respondents from the questionnaire results. About 61.5% of the 413 respondents were female, according to Table 2's demographic profile. 29.8% of the respondents were between the ages of 17 and 27, followed by 33.1% who were between the ages of 23 and 27 and 65.6% who were 28 years of age or older. The majority of respondents (40.6%) hold a bachelor's degree, followed by those with a high school diploma (28.7%), a diploma (24.9%), and a master's degree (5.8%).

4.2. Measurement Model

Table 3: Indicator reliability, construct reliability, convergent validity and R^2 of the constructs

Variable	Item	Outer Loading	Alpha Cronbach	CR	AVE	R^2
PU	PU1	0.794	0.759	0.762	0.583	
	PU2					
	PU3					
	PU4					
PEoU	PEoU1	0.777	0.807	0.811	0.566	
	PEoU2	0.665				
	PEoU3	0.748				
	PEoU4	0.735				
	PEoU5	0.829				
ATT	ATT1	0.831	0.812	0.815	0.640	0.526
	ATT2	0.756				
	ATT3	0.836				
	ATT4	0.775				
SN	SN1	0.892	0.897	0.900	0.764	
	SN2	0.887				
	SN3	0.831				
	SN4	0.885				
PBC	PBC1	0.805	0.870	0.872	0.658	
	PBC2	0.807				
	PBC3	0.774				
	PBC4	0.809				
	PBC5	0.859				
TSO	TSO1	0.812	0.779	0.787	0.602	
	TSO2	0.806				
	TSO3	0.777				
	TSO4	0.705				
BI	BI1	0.817	0.856	0.857	0.699	0.601
	BI2	0.843				
	BI3	0.851				
	BI4	0.832				

The table shows the outcomes of the indicator reliability test, construct reliability, convergent validity, and construct R^2. No indication in the first round of evaluating Table 3's validity and reliability had a factor loading less than 0.6, indicating that the indicators are trustworthy. Additionally, the constructs showed reliability, as shown by composite reliability (CR) and Cronbach's alpha values for each construct exceeding 0.7. Additionally, none of the measurement model's constructs showed an average variance extracted (AVE) below 0.5, indicating that they met the convergent validity criteria. As a result, this study's measuring model may be considered legitimate (Hair et al., 2019).

4.3. Result Hypothesis Testing

Table 4: Hypothesis Testing

Hypothesis	Original Sample	T Statistics	P Values	Result	Conclusion
PU → ATT	0.418	8.393	0.000	Significant	H1 supported
PEoU→ATT	0.229	3.638	0.000	Significant	H2 supported
SN→ATT	0.178	3.300	0.001	Significant	H3 supported
TSO→ATT	0.150	2.547	0.011	Significant	H4 supported
TSO→BI	0.161	3.001	0.003	Significant	H5 supported
PEoU→BI	0.275	4.855	0.000	Significant	H6 supported
PU→BI	0.169	3.527	0.000	Significant	H7 supported
ATT→BI	0.279	4.753	0.000	Significant	H8 supported
PBC→BI	0.064	1.236	0.216	Not significant	H9 rejected
PBC→ATT	-0.115	1.725	0.085	Not significant	H10 rejected
SN→BI	0.015	0.309	0.757	Not significant	H11 rejected
SN→ATT→BI	0.050	2.897	0.004	Significant	H12 supported
PU→ATT→BI	0.117	4.021	0.000	Significant	H13 supported
PEoU→ATT →BI	0.064	2.758	0.006	Significant	H14 supported
TSO→ATT→BI	0.042	2.175	0.030	Significant	H15 supported
PBC→ATT→BI	-0.032	1.655	0.098	Not significant	H16 rejected

This study contributes to our understanding of the drivers of online food purchases by integrating the TAM and TPB models, and it will be expanded by including the role of ATT as a mediator between the two models, as well as the effect of TSO. The findings of this study indicate that it is required to merge the two models utilizing ATT to investigate the primary determinants of adopting OFD applications. Combining these two models yields intriguing results; some are consistent with earlier studies, while others are not. Combining the two models yields data that show a positive and substantial association between PU, PEoU, and SN on ATT.

4.4. Discussion

H1: Perceived Usefulness will positively influence Attitude.

The findings from the initial study revealed that PU has a significant and positive relationship with ATT, thereby confirming that H1 is positively accepted and affirming that the easier it is to understand the application usage, the more likely the internet users to perceive comfort and usability, fostering a positive attitude towards using the application. Users could effortlessly order food from various restaurants with just a few clicks on their mobile phones without the need to leave their homes or offices. The OFD app offers a diverse selection of food from various restaurants. The app could provide personalised recommendations based on the user's preferences and ordering history, simplifying the

ordering process and aligning it according to users' tastes. Users who experience tangible benefits from online food delivery apps, such as convenience, time efficiency, and variety of food choices, tend to develop a positive attitude towards the service. The findings of this study are consistent with those of previous research (Mariani et al., 2021; Sujood et al., 2022; Troise et al., 2021).

H2: Perceived Ease of Use will positively influence Attitude.

H2 has been confirmed with the results of PEoU having a positive and significant relationship with ATT, which explains that well-designed and intuitive applications make users feel comfortable and have no difficulty navigating the application. The ease and speed of ordering steps allow users to place orders with just a few clicks without going through a complicated process. Users can order food from anywhere as long as they have access to the internet. With that, users do not need to perform a series of complex activities to be able to order and receive food. The applications' ease of use could further characterise ease of use; either through the guidance presented or without instructions from others, users can operate the OFD application. The findings of this study are consistent with those of previous research (Purwianti et al., 2024; Sujood et al., 2022; Yao et al., 2022).

H3: Attitude will positively influence Behavioral Intention.

Another significant and positive relationship is observed in the SN results on ATT, confirming H3 that users would be more inclined to use OFD applications if they know that friends, family and acquaintances hold favourable views about using OFD applications (Troise et al., 2021). Roh & Park (2019) state that relevant opinions from others could exert a more significant influence on the use of OFD applicationsthan the individuals themselves. This emphasises that the opinions and views of others around the user could foster a positive attitude towards using the OFD application. The findings of this study are consistent with those of previous research (Al-Sabaawi et al., 2023; Roh & Park, 2019; Troise et al., 2021)

H4: Subjective Norms will positively influence Behavioral Intention.

H5: Perceived Behavioral Control will positively influence Behavioral Intention.

Furthermore, the results reveal a positive and significant relationship between TSO, ATT, and BI, confirming that H4 and H5 are positively accepted. Users are considered more interested in using an application if it can reduce excessive time consumption, allowing them to allocate their time to other activities. Utilising the OFD application facilitates time savings by enabling users to get their desired food items without the need to travel and endure long queues. This study's results highlight users' positive attitude in using the application, driven by the desire to save time in getting their orders. Meanwhile, TSO also has a positive and significant relationship with BI, suggesting that time tends to be a critical factor in services. This could be applied to the OFD application, as the real-time time information reinforces the belief that using the application would enhance time-saving when shopping. Time-saving is a critical determining factor in contemporary society, where people's lifestyles have become increasingly fast-paced and instant, leading to users who are inclined to choose things that could save their time while providing equivalent benefits. Therefore, the use of OFD applications would likely be utilised by users, as these applications align with the current lifestyle. The findings of this study are consistent with those of previous research (Chapman et al., 2020; Fernandes et al., 2021; W. S. Lee et al., 2023; Saha et al., 2020; Yao et al., 2022).

H6: Time Saving Orientation will positively influence Attitude.

H7: Perceived Usefulness will positively influence Behavioral Intention.

Further research reveals that PEoU and PU have a positive and significant connection with BI. H6 states that when an application is simple to use, users are more inclined to reuse and suggest it to others. The ease of use of an application may have a favorable impact on its appeal. In addition to the program's ease of use, H7 verifies that the usefulness or perceived benefits of utilizing an application are also important factors in predicting intent to use. The many benefits of using OFD applications could enhance the attractiveness of the intention to adopt and utilise OFD applications. The ease and benefits of use are evident in terms of the appearance and features of the ordering process, as well as the application filter options that are capable of processing information regarding the status, estimated delivery time, other consumer reviews, the latest menu, new restaurant information, and details about the desired menu item could increase users' intention to use OFD applications. The findings of this study are consistent with those of previous research (Chiu & Cho, 2021; Pandey et al., 2022; Roh & Park, 2019; Shah et al., 2023).

H8: Perceived Ease of Use will positively influence Behavioral Intention.

Furthermore, ATT towards BI exhibits a positive and significant relationship, as evidenced by the test results and confirms that H8 is positively accepted. This relationship is characterised by the user's attitude towards the service, driven by the perceived value that the OFD application offers users in facilitating food selection and getting orders efficiently. This results in a positive relationship between

user attitude and intention to use the OFD application. Furthermore, a favorable outlook on the application usage is evident in the intention to use it, indicating that utilizing the OFD application is seen as a wise decision for acquiring the desired orders. The findings of this study are consistent with those of previous research (Hwang et al., 2019; Allah Pitchay et al., 2022; Sujood et al., 2022).

H9: Time Saving Orientation does not influence Behavioral Intention.

H10: Subjective Norms does not influence Attitude.

The results of further research indicate that PBC does not influence ATT and BI. These results confirm that H9 and H10 are rejected. This suggests that individual experiences and opportunities do not enhance the interest in using OFD applications. The experiences gained while using the OFD application are deemed insufficiently satisfying or irrelevant to user needs, diminishing their interest in using it. Issues such as delivery delays, order mismatches, or other problems could contribute to reducing interest in using the OFD application. Compared to the opportunity to use OFD applications, this decision is more frequently influenced by factors such as service quality, price and menu variety. This also elucidates that users' attitudes towards OFD applications are more influenced by users' perceptions of value, quality and satisfaction from previous use rather than merely the opportunity to use the applications. The findings of this study are not consistent with those of previous research (Govaerts & Ottar Olsen, 2023; Poon & Tung, 2022; van Twillert et al., 2020).

H11: Perceived behavioural control does not influence Attitude.

The results of testing SN on BI have no effect, which indicates that H11 was rejected. This suggests that the views of others around the user do not influence the behaviour of using the OFD application, even though the opinions of others around the user can influence user attitudes. This finding does not support the idea that SN is a crucial factor in determining consumers' food choices through OFD applications. Consequently, the views of others around the user do not continuously support using the OFD applications. The findings of this study are not consistent with those of previous research (Allah Pitchay et al., 2022b; Sujood et al., 2022; Troise et al., 2021).

H12: Attitude will mediate the effect Perceived Usefulness on Behavioral Intention.

However, the test results demonstrate that SN positively influences BI through ATT. This study confirms that H12 could be positively accepted. When individuals in an individual's social circle, such as friends, family, or colleagues, have a positive attitude towards an OFD application, it serves as social proof that the application is worth using. Humans tend to consider the opinions and experiences of others as references in decision-making. If many people around the individual express their satisfaction with the application usage, the individual is more likely to be interested in trying it. Additionally, individuals often consider social norms and expectations from their environment. If using OFD applications is perceived as typical or expected in the individual's social environment, the individual may feel more encouraged to adopt this pattern of behaviour. If people around them have positive ideas about their decision to utilize OFD applications, psychological benefits may also make them feel more at ease and confident. This should allay any apprehensions or concerns people might have regarding the application. The findings of this study are consistent with those of previous research (Choe et al., 2021; Savari et al., 2024; Troise et al., 2021)

H13: Attitude will mediate the effect Perceived Ease of Use on Behavioral Intention.

Furthermore, the results indicate that the effect of PU on BI is positive and has an effect through ATT. H13 is confirmed to be positively accepted in this study. This finding explains that when applications provide a smooth, intuitive, and efficient user experience, individuals tend to feel satisfied. Such satisfying experiences could enhance individuals' perceptions of OFD applications as practical and useful tools for meeting their needs. In addition, the application consistently provides reliable services, such as on-time delivery, good food quality, and responsive customer support, which could increase individual trust, fostering a positive attitude towards the application. This positive attitude subsequently enhances the interest in using the OFD application. The findings of this study are consistent with those of previous research (He et al., 2019; Hwang et al., 2019; Troise et al., 2021).

H14: Attitude will mediate the effect Time Saving Orientation on Behavioral Intention.

The findings of the following study state that PEoU exerts a significant and positive influence on BI through ATT, confirming that H14 is positively accepted. Applications characterised by intuitive and easy-to-navigate interfaces facilitate user comfort and ease in finding or ordering food. The ease in the ordering process, exemplified by minimal steps to complete an order, could enhance user satisfaction. Furthermore, the ease of payment with diverse methods (e.g., credit card, bank transfer, digital wallet) also augments the user's convenience. This experience builds a positive perception of the OFD application. This favourable attitude translates into greater usage intention as individuals find the helpful application, reliable, and provides a pleasant

experience. Therefore, the convenience of using the application significantly contributes to increasing users' intention to utilise the OFD application. The findings of this study are consistent with those of previous research (Wu et al., 2021; Allah Pitchay et al., 2022; Abas and Puspawati, 2024).

H15: Attitude will mediate the effect Subjective Norms on Behavioral Intention.

Testing TSO on BI through ATT also discovered a positive and significant relationship. H15 confirmed that the OFD applications offer convenience in ordering food without the need to leave the house or contact the restaurant directly. Users could circumvent traffic congestion, parking difficulties, and other inconveniences associated with physically going out to buy food. This convenience makes individuals feel more satisfied with using the application because it could save time and effort. Users with busy schedules highly value applications that facilitate quick food ordering with minimal time or effort. Users could order food while engaging in other activities, such as working, studying, or caring for family, without having to stop or distract themselves. The time savings offered by OFD applications provide significant added value to users. When users perceive tangible benefits in the form of time saved, they develop a positive attitude towards the applications. This positive attitude subsequently enhances the individual's intention to use the application, which is perceived as an effective and efficient solution. The findings of this study are consistent with those of previous research (Jensen, 2012; Saha et al., 2020; Fernandes et al., 2021).

H16: Attitude does not mediate the effect Perceived Behavioral Control on Behavioral Intention.

The results further demonstrate that the relationship between PBC and BI through ATT has no significant effect and confirms that H16 is rejected in this study. According to Prasetyo et al (2021), the regular use of online food delivery applications regularly could be more costly compared to home cooking. Individuals with high levels of self-control are likely to be more aware and prudent in managing finances, preferring to cook for themselves to save costs. The results of this study also reveal that most people with strong self-control tend to avoid impulsive expenditures, including unplanned online food orders. Therefore, the influence of self-control may make individuals less interested in using OFD applications, as they prefer alternatives that are considered healthier, more economical, and more satisfying. The findings of this study are consistent with those of previous research (Dohle et al., 2014; Junça-Silva & Camaz, 2023; Nyrhinen et al., 2024; Prasetyo et al., 2021).

5. Conclusions

This study demonstrates the significant role of time-saving orientation in driving continued use intention for OFD applications alongside established factors from TAM and TPB. Our findings highlight the need for OFD app developers to prioritise time-saving features and communicate these benefits to users experience. The mediating role of attitude underscores the importance of fostering positive user perceptions. These results contribute to the literature by providing an integrated model of OFD app adoption and continued use, particularly in the Indonesian context. Future research could explore cross-cultural differences in OFD app use and investigate the long-term impacts of time-saving features on user loyalty and satisfaction.

The study on the use of OFD apps in Batam City, Indonesia, includes limitations that suggest areas for future research. The data was only collected in Batam City, hence the findings may not be applicable to other countries or backgrounds. The study's methodology failed to account for non-users of OFD applications, making generalization difficult. Future research should include non-users and a larger sample size to improve the validity of the findings. The study focused on intention rather than actual behavior, and post-use evaluation could be more effective in understanding actual behavior. Future research should also examine other variables like risk perception, convenience, interactivity, satisfaction, cost-effectiveness, service support, and psychological effects. The study is limited to using intelligent technologies in digital applications, and future research could explore other domains or markets. The study could also combine TAM and TPB with other theories for better results and implications.

This research focuses on the factors driving interest in using online food delivery (OFD) applications, including perceived ease of use, usefulness, user opinions, and time-saving orientations. It suggests that OFD service providers should improve their application's design and user experience to ensure ease of use and address traffic congestion. The study also helps merchants understand consumer preferences and needs, enabling them to prioritize the use of OFD. By utilizing OFD, merchants can increase their chances of receiving orders and attract new customers through loyalty programs.

The study's conclusions have important ramifications for further investigation into consumers' intentions to use online meal delivery services. It looks at how Indonesian customers' intention to utilize online food delivery apps is influenced by the Technology Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and time-saving orientation. The research provides detailed insights into consumers' intentions regarding online ordering apps and

demonstrates that attitude can be used as a mediator to predict consumers' willingness to adopt online food delivery. The integration of these findings offers valuable information for practitioners and academics investigating consumer attitudes towards using online food delivery applications.

References

Abas, N. I., & Puspawati, D. (2024). E-Wallet Adoption in Continuance Intention As A e-Payment System for Live Streaming Shopping. *Procedia Computer Science, 234*, 1137–1144. https://doi.org/10.1016/j.procs.2024.03.109

Abbasi, A. Z., Qummar, H., Bashir, S., Aziz, S., & Ting, D. H. (2024). Customer engagement in Saudi food delivery apps through social media marketing: Examining the antecedents and consequences using PLS-SEM and NCA. *Journal of Retailing and Consumer Services, 81*. https://doi.org/10.1016/j.jretconser.2024.104001

Ahdiat, A. (2023). Online Motorcycle Taxis Contribute 21% of Orders in Medium-Large Scale Restaurants.

Ajzen, I. (1991). The theory of planned behaviour: Organizational Behavior and Human Decision Processes, 50, 179–211.

Ali, S., Khalid, N., Javed, H. M. U., & Islam, D. M. Z. (2021). Consumer adoption of online food delivery ordering (Ofdo) services in pakistan: The impact of the covid-19 pandemic situation. *Journal of Open Innovation: Technology, Market, and Complexity, 7*(1), 1–23. https://doi.org/10.3390/joitmc7010010

Allah Pitchay, A., Ganesan, Y., Zulkifli, N. S., & Khaliq, A. (2022a). Determinants of customers' intention to use online food delivery application through smartphone in Malaysia. *British Food Journal, 124*(3), 732–753. https://doi.org/10.1108/BFJ-01-2021-0075

Al-Sabaawi, M. Y. M., Alshaher, A. A., & Alsalem, M. A. (2023). User trends of electronic payment systems adoption in developing countries: an empirical analysis. *Journal of Science and Technology Policy Management, 14*(2), 246–270. https://doi.org/10.1108/JSTPM-11-2020-0162

Asgari, H., Azimi, G., Titiloye, I., & Jin, X. (2023). Exploring the influences of personal attitudes on the intention of continuing online grocery shopping after the COVID-19 pandemic.

Buettner, S. A., Pasch, K. E., & Poulos, N. S. (2023). Factors Associated with Food Delivery App use Among Young Adults. *Journal of Community Health, 48*(5), 840–846. https://doi.org/10.1007/s10900-023-01229-1

Chai, L. T., Ng, D., & Yat, C. (2019). Online Food Delivery Services: Making Food Delivery the New Normal *1*(1).

Chanda, R. C., Vafaei-Zadeh, A., Hanifah, H., Ashrafi, D. M., & Ahmed, T. (2024). Achieving a sustainable future by analyzing electric vehicle adoption in developing nations through an extended technology acceptance model. *Sustainable Futures*, *8*. https://doi.org/10.1016/j.sftr.2024.100386

Chapman, W. C., Luo, X., Doyle, M., Khan, A., Kangrga, I., Martin, J., & Wellen, J. (2020). Time Is Money: Can Punctuality Decrease Operating Room Cost? *Journal of the American College of Surgeons, 230*(2), 182-189.e4. https://doi.org/10.1016/j.jamcollsurg.2019.10.017

Chen, Y., Khalid Khan, S., Shiwakoti, N., Stasinopoulos, P., & Aghabayk, K. (2023). Analysis of Australian public acceptance of fully automated vehicles by extending technology acceptance model. Case Studies on Transport Policy, *14*. https://doi.org/10.1016/j.cstp.2023.101072

Chiu, W., & Cho, H. (2021). The role of technology readiness in individuals' intention to use health and fitness applications: a comparison between users and non-users. *Asia Pacific Journal of Marketing and Logistics, 33*(3), 807–825. https://doi.org/10.1108/APJML-09-2019-0534

Choe, J. Y., Kim, J. J., & Hwang, J. (2021). Innovative marketing strategies for the successful construction of drone food delivery services: Merging TAM with TPB. *Journal of Travel and Tourism Marketing, 38*(1), 16–30. https://doi.org/10.1080/10548408.2020.1862023

Davis, Fred & Davis, Fred. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly, 13*(3), 319-. https://doi.org/10.2307/249008.

Dohle, S., Rall, S., & Siegrist, M. (2014). I cooked it myself: Preparing food increases liking and consumption. *Food Quality and Preference, 33*, 14–16. https://doi.org/10.1016/j.foodqual.2013.11.001

Elvandari, C. D. R., Sukartiko, A. C., & Nugrahini, A. D. (2018). Identification of Technical Requirement for Improving Quality of Local Online Food Delivery Service in Yogyakarta. *Journal of Industrial and Information Technology in Agriculture, 1*(2), 1. https://doi.org/10.24198/jiita.v1i2.14573

Fernandes, S., Venkatesh, V. G., Panda, R., & Shi, Y. (2021). Measurement of factors influencing online shopper buying decisions: A scale development and validation. *Journal of Retailing and Consumer Services, 59*(November 2020), 102394. https://doi.org/10.1016/j.jretconser.2020.102394

Ghozali. (2021). Partial Least Squares: Concepts, Techniques and Applications Using the SmartPLS 3.2.9 Program for Empirical Research. Faculty of Economics and Business, Diponegoro University.

Govaerts, F., & Ottar Olsen, S. (2023). Consumers' values, attitudes and behaviours towards consuming seaweed food products: The effects of perceived naturalness, uniqueness, and behavioural control. *Food Research International, 165*. https://doi.org/10.1016/j.foodres.2022.112417

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *In European Business Review 31*(1), 2–24. Emerald Group Publishing Ltd. https://doi.org/10.1108/EBR-11-2018-0203

Han, J. H., & Sa, H. J. (2022). Acceptance of and satisfaction with online educational classes through the technology acceptance model (TAM): the COVID-19 situation in Korea. *Asia Pacific Education Review, 23*(3), 403–415. https://doi.org/10.1007/s12564-021-09716-7

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach (2 ed.)*. Guilford Publications.

He, Z., Han, G., Cheng, T. C. E., Fan, B., & Dong, J. (2019). Evolutionary food quality and location strategies for restaurants in competitive online-to-offline food ordering and delivery markets: An agent-based approach. *International Journal of Production Economics, 215*, 61–72.

https://doi.org/10.1016/j.ijpe.2018.05.008

Hong, C., Choi, H. (Hailey), Choi, E. K. (Cindy), & Joung, H. W. (David). (2021). Factors affecting customer intention to use online food delivery services before and during the COVID-19 pandemic. *Journal of Hospitality and Tourism Management, 48*(August), 509–518. https://doi.org/10.1016/j.jhtm.2021.08.012

Hwang, J., Lee, J. S., & Kim, H. (2019). Perceived innovativeness of drone food delivery services and its impacts on attitude and behavioral intentions: The moderating role of gender and age. International *Journal of Hospitality Management, 81*(February), 94–103. https://doi.org/10.1016/j.ijhm.2019.03.002

Jensen, J. M. (2012). Shopping orientation and online travel shopping: The role of travel experience. *International Journal of Tourism Research, 14*(1), 56–70. https://doi.org/10.1002/jtr.835

Jingzu, G., Siyu, L., Mengling, W., Yang, Q., Al Mamun, A., & Hayat, N. (2024). Sustainable entrepreneurship through customer satisfaction and reuse intention of online food delivery applications: insights from China. *Journal of Innovation and Entrepreneurship, 13*(1). https://doi.org/10.1186/s13731-024-00399-z

Junça-Silva, A., & Camaz, A. (2023). A longitudinal approach to disentangle how conscientiousness creates happy people: The mediating role of self-leadership and the moderating role of perceived leadership effectiveness. *Heliyon, 9*(6). https://doi.org/10.1016/j.heliyon.2023.e16893

Kemp, S. (2023). Digital 2023: *Indonesia — DataReportal – Global Digital Insights.* Datareportal.

Koay, K. Y., & Cheah, C. W. (2023). Understanding consumers' intention to revisit bubble tea stores: an application of the theory of planned behaviour. *British Food Journal, 125*(3), 994–1007. https://doi.org/10.1108/BFJ-01-2022-0025

Kumar, S., Singh, B., Kumar, V., Chaudhuri, R., Chatterjee, S., & Vrontis, D. (2024). Taking flight with food: investigating the determinants of user acceptance toward drone-based food delivery services in India. *British Food Journal, 126*(3), 1217–1237. https://doi.org/10.1108/BFJ-07-2023-0667

Kurniawan, A. C., Rachmawati, N. L., Ayu, M. M., Ong, A. K. S., & Redi, A. A. N. P. (2024). Determinants of satisfaction and continuance intention towards online food delivery service users in Indonesia post the COVID-19 pandemic. *Heliyon, 10*(1). https://doi.org/10.1016/j.heliyon.2023.e23298

Lee, E. Y., Lee, S. B., & Jeon, Y. J. J. (2017). Factors influencing the behavioral intention to use food delivery apps. *Social Behavior and Personality, 45*(9), 1461–1474. https://doi.org/10.2224/sbp.6185

Lee, W. S., Song, M., Moon, J., & Tang, R. (2023). Application of the technology acceptance model to food delivery apps. *British Food Journal, 125*(1), 49–64. https://doi.org/10.1108/BFJ-05-2021-0574

Li, C., Mirosa, M., & Bremer, P. (2020). Review of online food delivery platforms and their impacts on sustainability. In *Sustainability (Switzerland) 12*(14). MDPI. https://doi.org/10.3390/su12145528

Madias, K., Szymkowiak, A., & Borusiak, B. (2023). What builds consumer intention to use smart water meters – Extended TAM-based explanation. *Water Resources and Economics, 44*. https://doi.org/10.1016/j.wre.2023.100233

Maimaiti, M., Zhao, X., Jia, M., Ru, Y., & Zhu, S. (2018). How we eat determines what we become: opportunities and challenges brought by food delivery industry in a changing world in China. *European Journal of Clinical Nutrition, 72*(9), 1282–1286. https://doi.org/10.1038/s41430-018-0191-1

Mariani, M. M., Ek Styven, M., & Teulon, F. (2021). Explaining the intention to use digital personal data stores: An empirical study. *Technological Forecasting and Social Change, 166*(January). https://doi.org/10.1016/j.techfore.2021.120657

Mustafa, M. H., Ahmad, M. B., Shaari, Z. H., & Jannat, T. (2021). Integration of TAM, TPB, and TSR in understanding library user behavioral utilization intention of physical vs. E-book format. *Journal of Academic Librarianship, 47*(5), 102399. https://doi.org/10.1016/j.acalib.2021.102399

Nyrhinen, J., Sirola, A., Koskelainen, T., Munnukka, J., & Wilska, T. A. (2024). Online antecedents for young consumers' impulse buying behavior. *Computers in Human Behavior, 153*. https://doi.org/10.1016/j.chb.2023.108129

Osman, I., Omar, E. N., Ratnasari, R. T., Furqon, C., & Sultan, M. A. (2024). Perceived service quality and risks towards satisfaction of online halal food delivery system: from the Malaysian perspectives. *Journal of Islamic Marketing. 15*(9), 2198-2228. https://doi.org/10.1108/JIMA-06-2023-0176

Pandey, S., Chawla, D., & Puri, S. (2022). Food delivery apps (FDAs) in Asia: an exploratory study across India and the Philippines. *British Food Journal, 124*(3), 657–678. https://doi.org/10.1108/BFJ-01-2020-0074

Poon, W. C., & Tung, S. E. H. (2022). The rise of online food delivery culture during the COVID-19 pandemic: an analysis of intention and its associated risk. *European Journal of Management and Business Economics*. https://doi.org/10.1108/EJMBE-04-2021-0128

Poon, W. C., & Tung, S. E. H. (2024). The rise of online food delivery culture during the COVID-19 pandemic: an analysis of intention and its associated risk. *European Journal of Management and Business Economics, 33*(1), 54–73. https://doi.org/10.1108/EJMBE-04-2021-0128

Prasetyo, Y. T., Tanto, H., Mariyanto, M., Hanjaya, C., Young, M. N., Persada, S. F., Miraja, B. A., & Redi, A. A. N. P. (2021). Factors affecting customer satisfaction and loyalty in online food delivery service during the COVID-19 pandemic: Its relation with open innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 1–17. https://doi.org/10.3390/joitmc7010076

Purwianti, L., Jason, J., & Yulianto, E. (2024). The Influence of Price Value, E-WOM, Subjective Norm, Perceived Behavior Control on Online Purchase Intentions through Attitude. *MEC-J (Management and Economics Journal), 8*(3), 265–284. https://doi.org/10.18860/mec-j.v8i3.28891

Purwianti, L., Nurjanah, L., Katherine, K., & Chen, R. (2024). The Impact of TAM, Social Influence, and Information Quality on Purchase Intention in E-commerce. *Journal Organisasi Dan Manajemen, 20*(2), 187–206. https://doi.org/10.33830/jom.v20i2.9123.2024

Rasoolimanesh, S. M., W. M., R. J. L., & K. P. (2021). Are we in right path for mediation analysis? Reviewing the literature and proposing robust guidelines. *Journal of Hospitality and Tourism Management, 48*, 395–405.

Ray, A., Dhir, A., Bala, P. K., & Kaur, P. (2019). Why do people use food delivery apps (FDA)? A uses and gratification theory

perspective. *Journal of Retailing and Consumer Services*, *51*(May), 221–230. https://doi.org/10.1016/j.jretconser.2019.05.025

Roh, M., & Park, K. (2019). Adoption of O2O food delivery services in South Korea: The moderating role of moral obligation in meal preparation. *International Journal of Information Management, 47*, 262–273. https://doi.org/10.1016/j.ijinfomgt.2018.09.017

Saha, S. K., Zhuang, G., & Li, S. (2020). Will consumers pay more for efficient delivery? An empirical study of what affects E-customers' satisfaction and willingness to pay on online shopping in Bangladesh. *Sustainability (Switzerland), 12*(3). https://doi.org/10.3390/su12031121

Savari, M., Zhoolideh, M., & Limuie, M. (2024). The combination of climate information services in the decision-making process of farmers to reduce climate risks: Application of social cognition theory. *Climate Services, 35*. https://doi.org/10.1016/j.cliser.2024.100500

Shah, A. M., Qayyum, A., & Lee, K. Y. (2023). Customers' dining choice using meal ordering apps: insights from China and Indonesia. *Asia Pacific Journal of Marketing and Logistics 35*(6). https://doi.org/10.1108/APJML-11-2021-0828

Shankar, A., Dhir, A., Talwar, S., Islam, N., & Sharma, P. (2022). Balancing food waste and sustainability goals in online food delivery: Towards a comprehensive conceptual framework. *Technovation, 117*. https://doi.org/10.1016/j.technovation.2022.102606

Singh, A., Rana, N. P., & Parayitam, S. (2022). Role of social currency in customer experience and co-creation intention in online travel agencies: Moderation of attitude and subjective norms. *International Journal of Information Management Data Insights*, *2*(2). https://doi.org/10.1016/j.jjimei.2022.100114

Suhartanto, D., Helmi Ali, M., Tan, K. H., Sjahroeddin, F., & Kusdibyo, L. (2019). Loyalty toward online food delivery service: the role of e-service quality and food quality. *Journal of Foodservice Business Research*, *22*(1), 81–97. https://doi.org/10.1080/15378020.2018.1546076

Sujood, Bano, N., & Siddiqui, S. (2022). Consumers' intention towards the use of smart technologies in tourism and hospitality (T&H) industry: a deeper insight into the integration of TAM, TPB and trust. *Journal of Hospitality and Tourism Insights*. https://doi.org/10.1108/JHTI-06-2022-0267

Teng, S. L., Zailani, S., Rahman, M. K., Bhuiyan, M. A., & Mamun, A. Al. (2024). Impact of service innovation and digital supply chain capability on risk protection in supporting online foods delivery. *Kybernetes*, *53*(7), 2483–2501. https://doi.org/10.1108/K-08-2022-1082

Troise, C., O'Driscoll, A., Tani, M., & Prisco, A. (2021). Online food delivery services and behavioural intention – a test of an integrated TAM and TPB framework. *British Food Journal*, *123*(2), 664–683. https://doi.org/10.1108/BFJ-05-2020-0418

Utami, R., Yani Amril, D., Jundrio, H., Pemasaran Internasional, M., & Tempo, P. (2022). Pengaruh Perceived Usefulness, Perceived Ease Of Use, Dan Time Saving Terhadap Continuous Usage Intention Dengan Attitude Towards Mobile Apps Sebagai Variabel Mediasi Pada Aplikasi Simpool Di Masa Pandemi Covid 19. https://doi.org/10.56881/masarin.v1i1.125

van Twillert, A., Kreijns, K., Vermeulen, M., & Evers, A. (2020). Teachers' beliefs to integrate Web 2.0 technology in their pedagogy and their influence on attitude, perceived norms, and perceived behavior control. *International Journal of Educational Research Open, 1*. https://doi.org/10.1016/j.ijedro.2020.100014

Weiler, A. S., & Gilitwala, B. (2024). Why Bangkokians use online food delivery services after COVID-19 restrictions have been lifted. *Rajagiri Management Journal, 18*(2), 151–166. https://doi.org/10.1108/ramj-08-2023-0244

Wen, H., Pookulangara, S., & Josiam, B. M. (2022). A comprehensive examination of consumers' intentions to use food delivery apps. *British Food Journal, 124*(5), 1737–1754. https://doi.org/10.1108/BFJ-06-2021-0655

Wolff, H. N. (2023). Indonesia: favorite food delivery apps 2023 | Statista.

Wu, X., Nix, L. C., Brummett, A. M., Aguillon, C., Oltman, D. J., & Beer, J. M. (2021). The design, development, and evaluation of telepresence interfaces for aging adults: Investigating user perceptions of privacy and usability. *International Journal of Human Computer Studies, 156.* https://doi.org/10.1016/j.ijhcs.2021.102695

Yao, Y., Wang, P., Jiang, Y. J., Li, Q., & Li, Y. (2022). Innovative online learning strategies for the successful construction of student self-awareness during the COVID-19 pandemic: Merging TAM with TPB. *Journal of Innovation and Knowledge, 7*(4), 100252. https://doi.org/10.1016/j.jik.2022.100252

Yeo, V. C. S., Goh, S. K., & Rezaei, S. (2017). Consumer experiences, attitude and behavioral intention toward online food delivery (OFD) services. *Journal of Retailing and Consumer Services, 35*(July 2016), 150–162. https://doi.org/10.1016/j.jretconser.2016.12.013