Driving Factors Analysis of the Continuance Intention and Brand Loyalty of the Mobile Food Ordering Application

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Abstract

The developing technology and the internet are directly proportional to the rise of internet users and mobile applications. This results in competitiveness among many companies. Mobile applications have arisen as a distinct type of e-commerce that offers users convenience by saving them time and effort. Moreover, as we are experiencing a pandemic, there is a shift in customers' behavior towards food orders from offline to online ordering. Thus, understanding the mobile application driving factors analysis is necessary. In response to this issue, this research is to develop a conceptual model, adopting the affordance-SDL theory and TAM, and also to test the model by focusing on the outcomes of the continuance intention and brand loyalty of the mobile food application. A survey of 264 participants was conducted, and the data were analyzed using the partial least squares structural equation model (PLS-SEM). The main contribution of the results is the finding that out of 10 hypotheses, 9 hypotheses are accepted, and 1 hypothesis is rejected. This study provides a research model of how values and factors on mobile food ordering application drive people to be loyal and continuously use the mobile application regularly.

Keywords
Technology, Acceptance Model, Mobile Food, Application, Customer Loyalty, Structural Equation Modeling.

1. Introduction
Changes and developments will always occur over time. Especially in the field of technology, there is still much that can be explored also formulated into innovation. This is also directly proportional to the number of technology users, one of which is the use of the internet. Of all internet users in the world, Indonesia is included as one of the countries with the largest online market. As of July 2021, online penetration in Indonesia has reached 70%. There is a fairly high increase every year and looks promising to increase in the following year (Statista 2021).

Almost everything can be done using the internet. Starting from utilization in the fields of education, general knowledge, and social, to use in the work industry. The use of the internet can be done using many containers. One of the easiest and most widely used is accessing the internet via mobile. The use of smart cellular (smartphones) also increases every year. More and more people are becoming tech-savvy and not a few of them are making the use of smartphones a necessity, not just a desire. Mobile internet usage is currently experiencing double-digit growth and has reached more than 64% of the population (Statista 2021). This encourages and accommodates the emergence of many new ideas and innovations from all walks of life. One of the new things that have been created is the existence of an online business model or what is commonly called mobile commerce. Mobile commerce is a new business model conducted online, very different from the traditional way.

On the other hand, the pandemic due to the covid 19 virus that is being experienced by people around the world, including Indonesia, also requires some modifications and adjustments in carrying out their daily lives. Starting from the existence of new regulations such as the 5M health protocol also several additional regulations such as the PPKM and PSBB. This of course causes people to change their habits and do more activities at home. These changes in behavior and habits affect various industries and the economy, one of which is the food and beverage industry. This is supported by a statement delivered by the Director-General of Agro-Industry of the Ministry of Industry, in which he stated that people prefer to pack their food or order their food online, which requires the industry to do more and be more active in developing innovation (Press Conference Ministry of Industry 2021).

Many benefits can be obtained by the company if the use and utilization of the application are optimal enough which helps and is linear by maintaining the continuity of these business activities and surviving the many competitors that are always emerging. Based on some literature, several important points that are expected to occur and can be obtained by the company can be seen from two points of view (Rahayu & John 2016 ;Talwar et al. 2020; Rakshit et al. 2021; McKenna 2021).

1. Company business
From a business perspective, the company will experience an increase in business penetration, sales, collaboration with customers and suppliers, image, faster operations, business model efficiency, better productivity, direct communication, and engagement with stakeholders and better and simpler user data collection.

2. Compete with competitors
When viewed from the competitive side with similar companies, it can provide good recognition for the company, has value and is more prominent than competitors, can create a barrier to entry, offer unique services compared to competitors, and provide customers with a mobile customer journey.

From some of the explanations above, it can be concluded that there is a need for more optimal utilization for companies in the food and beverage sector in their MFOA applications. Therefore, this research is intended to find out what are the driving factors which can then be used to formulate several strategies that can be used to help the company to continue to grow and compete.

1.1 Objectives
The research aims to examine the role of mobile food ordering applications by developing a conceptual model of the driving factors focusing on the continuance intention and brand loyalty of the mobile food application. Additionally, to enhance the understanding of what are the factors that have a significant impact on the mobile food application.

2. Literature Review
2.1 Mobile Food Ordering Application
Mobile Food Ordering Applications is an app-based services which enable consumers to order food online and get it delivered to their doorsteps (Ray et al. 2019; Wang et al. 2020). Basically, many of the several companies engaged in the F&B industry participate to adapt to the times. Keeping up with market wants and behavior and offering more value has led many companies to build applications for their own ordering and delivery. MFOA primarily work in the form of mobile applications and can be classified into two categories (Zhao and Bacao 2020): (1) restaurants companies such as McDelivery, Domino's, Pizza Hut Delivery, or Kopi Kenangan App which have created their own apps for receiving online orders and facilitating and offline delivery, and (2) third-party super app services (platforms) such as Grabfood, Gofood, Shopeefood, and Travelokaeats which act as an interface between consumers and restaurants or catering services (Roh and Park 2019).

2.2 Service-Dominant Logic and Value-In-Use
Service-Dominant Logic (SDL) is a paradigm for a unified understanding of the purpose and nature of organizations, markets, and society which is characterized by shifting attention "from goods to service, from operand resources to operant resources, from being to doing, and somewhat less precisely, from what is exchanged to the process of exchange and from tangible to the intangible" (Lusch & Vargo 2014). SDL aims to customize offerings because customers are always regarded as co-producers and SDL endeavors to amplify customer participation in customization to better meet their needs (Lusch & Vargo 2006). And as for Value, it emerges through customers' use of context and processes involving individual experience, thought, time, location, uncertain conditions, and relational affect (Lusch & Vargo 2006). The value in use reflects the degree to which a customer feels better off given their consumption-related experiences.

2.3 The Lens of Affordances
Affordances denote relational actions that occur among users, technologies (branded apps), and outcomes (Evans et al., 2016). Affordances, generally illustrated as possibilities for action, refer to the "multifaceted relational structure". In this research, we use five affordance constructs, particularly for branded apps, which are visibility, persistence, interactivity, association, and selectivity to the model.

2.4 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was initially developed by Davis as a tool to assess and predict user acceptance of the technology developed it in 1986 with his colleagues and continued to be developed until 1993. TAM aims to evaluate the market potential for various PC applications which are then used as well. for image processing, and pen-based computers as a guide in new product development investments (Davis & Venkatesh 2000). TAM itself is under the supervision of IBM Canada. TAM is derived from the Theory of Reasoned Action (TRA) model developed by Fishbein and Ajzen in 1975. Due to the theoretical and psychometric uncertainty in the TRA model, TAM eliminates the subject norms.

TAM consists of Perceived Usefulness (PU) factors, namely the user's perception of the extent to which the use of a particular system will improve its performance, and Perceived Ease of Use (EOU), namely the user's perception of the extent to which using a certain system will be free of effort (free of effort), and Behavioral Intention (BI) which is determined by the Attitude factor towards use. Psychological research and TAM itself say that the user's desire to use is the single best predictor of actual system use (Davis & Venkatesh 2000). However, in the final version of the 1989 TAM model, Attitude was excluded from the model because it was found that people could still use technology even if they did not have a positive attitude (influence) towards the same use because it could provide increased productivity.

2.5 Partial Least Squares (PLS-SEM)

Partial Least Square is one of the Structural Equation Modeling types, this is a method used to analyze data based on its variance. PLS-SEM has two elements, the first one is an inner model or structural model, and the second one is an outer model or measurement model (Hair et al. 2017). The inner model is the latent variables or constructs and the relationship between each variable. The outer model is the relationship between the latent variable and indicator variable. PLS-SEM is often used as a prediction model as the research usually has limited sources and knowledge regarding the construct's theory. This method has no assumptions for distribution and can be used with a small sample size.

3. Methods

This research study was made to reach the research purpose. The objective is to develop a conceptual combined model of the TAM model and the lens of affordances, to examine the driving factors of the mobile food application. Combining means using all the factors for both models and modifying them into one conceptual model. The conceptual model is based on expert validation of the definitions of each factor acquired from similar past research. To examine the effect of mobile food application acceptability, ten latent factors or constructs were used with the outcome of: continuance intention and brand loyalty of the mobile food application as shown in Table 1 below:

Table 1. Evaluation of scales for reliability and convergent validity

Construct	Definition
Visibility (IV)	Visibility refers to a customer's ability to effectively access the MFOA's relevant, essential, and/or beneficial information.
Persistence (PST)	Persistence can refer to things like recordability and communality, and it refers to the ability of users to keep track of their history and material through time.
Interactivity (ACT)	Interactivity refers to the degree to which communication with a branded application may synchronize and govern awareness of interactions with it. With active control as a component (over the communication process).
Association (CON)	Associations are exhibited in the context of branded applications via connectivity and provide the ability to link people to branded apps.
Selectivity (SEL)	• Customization refers to the degree to which data acquired from a branded application may be tailored to the user's preferences. • The degree to which services and information reflect the user context (for example, the user's location and activities) is referred to as localization.

Value in Use (VMU)	• Customer emotional engagements and memories with branded applications are demonstrated through experience. The relationship shows a reciprocal and iterative process between them and the application. • The relationship shows a reciprocal and iterative process between them and the application. • Personalization indicates the uniqueness of the actual or perceived use while indicating the reciprocal and iterative process between them and the application.
Continuance Intention (CI)	The desire to use the linked service through a certain branded application in the future is referred to as the "intention to continue."
Satisfaction (MS)	When a person compares the services, he receives while using the program to his expectations, satisfaction may be characterized as pleasure or disappointment with the app.
Brand Satisfaction (BS)	When a person compares the services, he receives while using the program to his expectations, satisfaction may be characterized as pleasure or disappointment in the brand.
Brand Loyalty (BL)	Loyalty is defined as a person's devotion to a brand, which leads to subsequent purchases and favorable word-of-mouth advertising.

4. Data Collection

4.1 Sample

Partial Least Square requires the lowest sample of 10 times the highest number of the arrowhead, both for indicator and latent variables, pointing at a latent variable, in the path model (Barclay et al. 1995). For the pilot test or initial model test, it is suggested to include 30% of the whole sample size for valid data processing (Hair et al. 2011). For this research, it is required to gather 100 respondents for the minimum requirement. The total number of respondents gathered for this research is 264, and 40 collected data were used for the pilot test.

4.2 Data Collection and Processing

We collected data from a survey of MFOA users using an online platform to test the hypotheses and address the research purpose. The questionnaire contains of 51 questions that are considered as the indicator variables, based on TAM instruments. The questionnaire used a 5-point Likert scale, scale stands for strongly disagree, and scale 5 stands for strongly agree. We used PLS-SEM to process and analyze the data collected, and SmartPLS was chosen as the running software. Data processing started with validating the conceptual model using the pilot test and will continue using the whole data for the final model test.

5. Results and Discussion

5.1 Demographic

There are a total of 264 data gathered for the research. Out of those 264, the majority of the respondents are female, which is 53% and the number of male respondents is only 47%. The majority of respondents have unmarried status, which is 81.4% and the number of respondents who are married only reaches 18.6%. The majority of the respondents live in Greater Jakarta, namely 94.3% of respondents, followed by 4.2% of respondents from Java, and 1.5% of respondents from outside Java. Respondents included in Generation Z reached the largest number, namely 55.3% with an age range of under 23 years, the second-largest distribution belongs to generation Y with an age range of 23-42 years as much as 27.7%, then generation X with an age range of 43-57 years reached 186.3%, and finally, for baby boomers with an age range above 58 years, there are 0.8% of respondents. The majority of respondents have jobs as private employees, reaching 43.9%, then as students 34.1%, others 12.1%, as housewives 6.1%, and ASN as much as 3.8 %.

5.2 Outer Model Evaluation

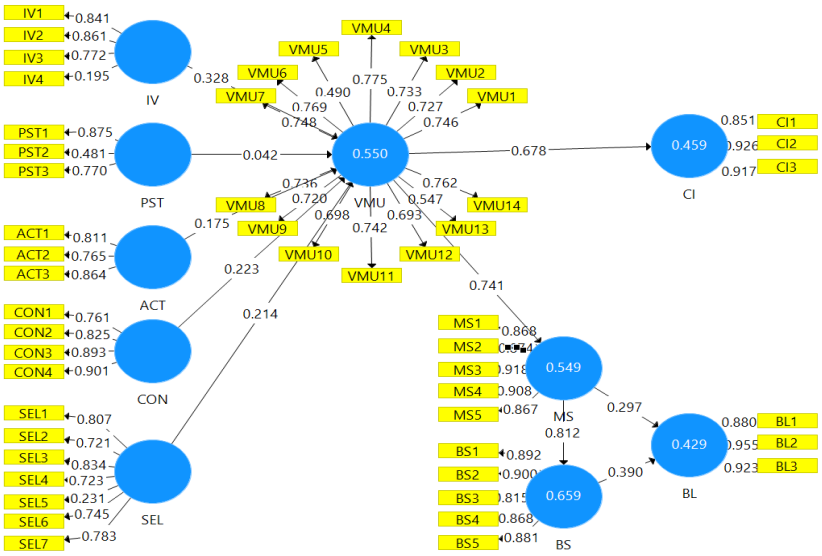

Figure 1. Path Diagram Model

For the initial evaluation (pilot study), from the results of the initial testing of the outer model, there are 7 indicator variables that do not meet the parameter requirements according to the literature, therefore they need to be eliminated to produce a valid model in the study as we can see in Figure 1. Then after testing the specification of the model, all the indicator variables have met the requirements of the literature parameters. The total eliminated indicator variables consisted of IV4, PST2, SEL5, VMU5, VMU10, VMU12, and VMU13. After respecifying the model or eliminating indicator variables, a total of 10 latent variables with 51 indicator variables were obtained.

Table 2. Evaluation of scales for the AVE, CR, and CA

Construct	AVE	CA	CR
Visibility (IV)	0,589	0,655	0,811
Persistence (PST)	0,676	0,520	0,806
Interactivity (ACT)	0,564	0,632	0,795
Association (CON)	0,606	0,785	0,860
Selectivity (SEL)	0,575	0,815	0,871
Value in Use (VMU)	0,534	0,891	0,912
Continuance Intention (CI)	0,735	0,820	0,893
Satisfaction (MS)	0,713	0,900	0,926
Brand Satisfaction (BS)	0,701	0,894	0,922
Brand Loyalty (BL)	0,793	0,869	0,920

For the convergent validity, it can be said that the model is valid. It is shown from Table 2 that all the average variance extracted (AVE) are meeting the assumption, where all the values are above 0.5 (Hair et al. 2011). Also, all the values for Cronbach's alpha (CA) are above 0.5 (Cronbach 1951), and all the composite reliability (CR) values are above 0.7 (Hair et al. 2011), indicating all the latent variables are meeting the assumption.

5.3 Inner Model Evaluation

Table 3. Variance Inflation Factor (VIF) & Path Coefficient

Hypothesis	VIF	Path Coefficient
IV → VMU	1,456	0,207
PST → VMU	1,260	0,069
ACT → VMU	1,262	0,283
CON → VMU	1,416	0,120
SEL → VMU	1,780	0,214
VMU → CI	1,000	0,509
VMU → MS	1,000	0,629
MS → BS	1,000	0,732
MS → BL	2,154	0,173
BS → BL	2,154	0,503

In the test results of the structural model or the inner model on Tabel 3, all data do not have double collinearity, this can be seen from the measurement of the VIF value which has met the parameter requirements according to (Hair et al. 2017) which is greater than 0.2 and less than 5, while according to (Diamantopoulos and Sigauw 2006), the parameter value of VIF is below 3.3. And on the measurement of the path coefficient value, all values meet the parameter requirements, and all have a significant influence and relationship, where the acceptable value parameter for the path coefficient is greater than -1 and smaller than 1, if the value is larger than 0, the hypothetical relationship is considered to be significant. (Hair et al. 2017).

Table 4. R^2 Value & Q^2 Value

Construct	R^2	Q^2	Definition
BL	0,411	0,321	Strong
BS	0,536	0,37	Strong
CI	0,259	0,183	Strong
MS	0,395	0,274	Strong
VMU	0,417	0,216	Strong

As for the determination coefficients, from Tabel 4, predictive accuracy for all variables is strong, following the parameter on (Cohen 1988). Then, in measuring the stone-geisser Q^2 value, all endogen latent variables also have values that meet the parameter requirements with good predictive relevance based on the parameter in literature (Hair et al. 2011).

5.4 Hypotheses Testing

In testing the relationship between variables in the model, the results obtained were out of a total of 10 hypotheses, only 9 were accepted and 1 was rejected. The accepted hypotheses were H1, H3, H4, H5, H6, H7, H8, H9, and H10, and the rejected hypothesis was H2. This is based on a two-tailed test with a significance level of 5%.

Table 5. Bootstrapping's t-value and p-value

Hypothesis	T Statistics	P Values	Status
IV → VMU	3,114	0,002	Accepted
PST → VMU	1,289	0,198	Rejected
ACT → VMU	4,333	0,000	Accepted
CON → VMU	2,376	0,018	Accepted
SEL → VMU	3,247	0,001	Accepted
VMU → CI	10,816	0,000	Accepted
VMU → MS	17,971	0,000	Accepted
MS → BS	21,228	0,000	Accepted

MS → BL	2,087	0,037	Accepted
BS → BL	6,865	0,000	Accepted

From Tabel 5 we can say that the first hypothesis, the third, the fourth, and the fifth hypotheses statements, all have positive results this is consistent with the findings in Fang (2019) following the lens of affordance, confirming that all affordances of the proposed application were a significant predictor of VMU. The findings of the study on the link between selectivity and VMU are also consistent with Choi (2016)'s prior work, which identified customisation and localization as positive drivers that permit a wide range of consumer values in cellular systems. Furthermore, the findings show that when customers utilize branded applications, visibility and association enhance their VMU, which is mainly unexplored in previous study.

In the sixth hypothesis statement, results in a positive value that has a significant effect, in accordance with previous research (Fang 2019). VMU was also successfully translated into CI through suitable brand competence and brand warmth, essentially the cognitive and emotional pathways, which narrowed to brand loyalty in earlier research (BL). Our empirical study leads a promising avenue for academics to include brand humanization in order to increase our knowledge of how new media can facilitate positive brand perception and the resulting loyalty by being one of the first to map brand competence and warmth to cognitive and affective considerations (Fang 2019).

The seventh hypothesis statement has a favorable impact and is accepted; this is consistent with prior study by Dirsehan & Cankat (2021), which found that using MFOA leads to MFOA satisfaction. In other words, restaurant customers place orders through the MFOA, and the MFOA's performance determines their degree of pleasure. People have specific expectations before they utilize mobile apps. As a result, the success of mobile applications is determined by this expectation. Users evaluate their expectations against the perceived value of what they receive (Chang et al. 2009; Kotler and Armstrong 2010).

This is a positive value in the statement of the eighth hypothesis, which is consistent with prior research by Dirsehan & Cankat (2021), who found that customers have expectations from the usage of MFOA and restaurant brands in this study. They rate the level of service they receive based on their usage of MFOA and the restaurant's meal quality (Chang et al. 2009; Zhao et al. 2012). The findings also show that as long as people are happy with MFOA, they will be happy and loyal to the restaurant.

According to prior study by Dirsehan and Cankat (2021), the ninth hypothesis statement has a positive value. Customers who are really satisfied become loyal to the restaurant and are more likely to return (Lambin et al. 2007).

According to Dirsehan & Cankat (2021) 's research, the eleventh hypothesis statement resulted in a positive value. In line with the existing research, this supports the substantial link between restaurant pleasure and loyalty (Bennett and Rundle-Thiele 2004; Cronin et al. 2000; Eriksson and Vaghult 2000).

6. Conclusion

The main objective of this study is to explore the role of mobile food ordering applications by developing a conceptual model of the driving factors focusing on the continuance intention and brand loyalty of the mobile food application. In order to fulfill the research objectives, this research begins with designing a conceptual model which is then tested using PLS-SEM software.

From a total of 10 hypotheses, there is 1 rejected hypothesis and 9 accepted hypotheses. This means that visibility has a significant effect on value in MFOA usage. Then there's interactivity – active control, which has a big impact on the value of MFOA usage. In MFOA utilization, association–connectedness has a big impact on value. Additionally, selectivity – customisation and localisation have a substantial impact on the value of MFOA utilization. While persistence has no bearing on the value of MFOA consumption, it does have an impact. Furthermore, the value of MFOA usage has a substantial impact on MFOA retention and satisfaction. Then there's the MFOA satisfaction, which has a big impact on restaurant brand satisfaction and loyalty. Finally, customer happiness with a restaurant brand has a substantial impact on loyalty to that brand.

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