



## Customer Decisions to Use Online Food Delivery Services During The COVID-19 Pandemic

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### ABSTRACT

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*The coronavirus disease pandemic restricted dine-in service, and restaurants should adapt and rely heavily on no-contact operations and online food delivery services to sustain. Even though online food delivery technology is widely used in the food and beverages business, there is only a few research investigating the customers' behavior intention on online food delivery technology in the coronavirus disease pandemic. This study aims to investigate the influencing factor of behavior intention on online food delivery platforms, by applying the technology acceptance model. An online questionnaire was applied to conduct the survey. The Partial Least Squares-Structural Equation Modeling approach was used to examine 417 respondents empirically. The results showed the significance of perceived usefulness, trust, social influence, and value co-creation in customer intention on online food delivery technology. The findings contribute to the body of knowledge about technology acceptance in an emergency event, specifically during a coronavirus disease pandemic. The practical implication of the study is managers of online food delivery services firms must identify their customers' wants and needs.*

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### Introduction

Coronavirus disease (COVID-19) is an infectious disease, transmission from person to person and the risk of mortality is relatively high (World Health Organization, 2022). As a result, Indonesian government has asked people to stay home, implement large-scale social distancing, work from home, and forcibly close or limit the restaurant dine-in service (Sofa, 2022). Accordingly, many restaurants evolved and depended extensively on contactless operations and online food delivery service (OFDS) systems (Jun, Yoon, Lee, & Lee, 2022). As a result, the demand and supply for OFDS increased during COVID-19.

Online food delivery services made customers interact with the restaurant directly through mobile applications or websites (Ray, Dhir, Bala, & Kaur, 2019). OFDS offer a diverse selection of restaurant listings and customers can compare prices, menus and reviews easily (Jun et al., 2022). Customers may easily purchase meals from

online food delivery services from anywhere, even their homes. During and after the COVID-19 pandemic, more customers and businesses are expected to use the OFDS technology.

With the growth of information technology, innovation emerges in the restaurant business. Furthermore, several large fast-food businesses, notably pizza restaurants are one of the earliest to implement the OFDS technology via websites. Restaurants have implemented OFDS because it has fulfilled or surpassed the expectations of restaurants management (Kimes, [2011](#)). Online food delivery service has gained popularity among customers and establishments due to its perks (Statista, [2022](#)).

The enthusiasm of OFDS has grown rapidly in recent years and it is expected to ascend further. OFDS technology has a global market value of \$31 billion. In 2021, the global revenue of online food delivery services is US\$296 billion, which is predicted to grow to US\$466 billion by 2027 (Statista, [2022](#)). Indonesia online food delivery revenue is projected to reach US\$7,92 billion in 2022 (Statista, [2022](#)). OFDS market is expanding to grow in popularity. However, as customer interest in online food delivery services increases, new competitors with comparable features start to emerge quickly, strengthening market competition (Hooi, Kin Leong, Hui Yee, & Rahman, [2021](#)).

Therefore, providers must maintain a strong relationship with their customers by examining customer participation and perception of the online service to enhance customer loyalty. This is necessary for the business to remain viable and preserve its competitive edge (Yusra et al., [2020](#)). Participation of the consumer in the service process enhances satisfaction, which benefits both the customer and restaurant (Opata, Xiao, Nusenu, Tetteh, & John Narh, 2020), It encourages returning customers to make more purchases, which increases consumer loyalty (Lee, Pan, Hsu, & Lee, [2018](#)), and improve the restaurants sustainability (Chen, Weng, & Huang, [2018](#)).

Existing research provides insight into customers' motivations for using online food delivery systems as well as factors influencing online food delivery service usage (Hong, Choi, Choi, & Joung, [2021](#); Hooi et al., [2021](#); Jun et al., [2022](#)). Furthermore, previous study has examined the characteristics that influence how effectively a person adapts to innovation using the technology acceptance model (TAM) (Davis, Bagozzi, & Warshaw, [1989](#)). Despite the fact that TAM is a strong and effective theoretical framework for customer acceptance, testing and expanding TAM by including other aspects (social influence, trust, enjoyment, and value co-creation) could give insight for restaurants in establishing online food delivery service strategies.



Furthermore, few research have looked into the variables that affect behavior intention in OFDS, particularly in pandemic situations. The pandemic of COVID-19 must be viewed as a context factor affecting in behavior intention, because it has impacted the patterns of customers consumption and behavior (Gu, Ślusarczyk, Hajizada, Kovalyova, & Sakhbieva, [2021](#)). Then, this research aims to investigate the factors influencing customers' intention on OFDS by expanding the TAM with other variables (such as enjoyment, trust, social influence and value co-creation) to develop a comprehensive model and gain insight through analysis in OFDS during the COVID-19 pandemic.

## Literature Review

TAM is a conceptual framework that widely used for understanding new technology acceptance (Davis, [1989](#); Davis et al., [1989](#)). Fundamental theory of TAM is a concept that explains human behavior through behavior intention, attitudes and beliefs. The relationship between these concepts provides a solid and theoretical basis in the theory of planned behavior (Ajzen, [1991](#)). TAM considers general beliefs (eg, perceived usefulness (PU) and perceived ease of use (EOU)) as a critical factor in influencing attitude with behavioral intention (Davis et al., [1989](#)).

In regards to the Technology Acceptance Model (TAM), attitude refers to an individual's general assessment of a technology or system. It encompasses the person's emotions, beliefs, and experiences related to using the technology, and reflects either a positive or negative evaluation. Attitude plays a crucial role in predicting adoption and utilization behavior towards technology (Davis et al., [1989](#)). Attitude as a mediating variable positively associated the relationship of beliefs on behavioral intention (Fishbein, [1963](#)). According to the theory of reasoned action, attitude toward behavior is directly proportional to the sum of the behavior's beliefs (Ajzen, [1991](#)). Thus, attitude as mediating variable is identified as a formative construct and a composite of beliefs. In e-commerce context, Attitude as a mediating variable is a better explanatory model in TAM, rather than TAM without attitude (Ingham, Cadieux, & Mekki Berrada, [2015](#)). Accordingly, the following hypothesis is established.

**H1:** Attitude is positively associated with behavior intention.

TAM commonly analyses the interrelationships of beliefs and behavior. While attitude is explained as a mediating variable of beliefs, EOU is said to be positively associated with PU (Davis et al., [1989](#)). Perceived usefulness refers to the individual's belief about the extent to which using a specific technology or system can improve their job performance. On the other hand, perceived ease of use encompasses the individual's perception about the level of ease associated with using a technology or system, i.e. the lack of effort involved. These notions were initially presented in Davis



et al., (1989) Technology Acceptance Model (TAM), which outlines the determinants affecting an individual's acceptance and utilization of technology.

Many empirical studies investigate the causal relationships among beliefs. Nevertheless, several inconsistencies in the relationships among beliefs are found. Pavlou (2003) and Gefen & Straub (2003) investigate the relationships among beliefs by opposite direction with equally persuasive logical arguments. Pavlou (2003) found that trust positively associated with EOU, while Gefen & Straub (2003) found that EOU positively associated trust. Moreover, according to Ingham et al. (2015), instead of well-established theoretical explanations, the construction of causal relationships among beliefs relies on the general use of structural equations. This explains Davis (1989) first rationale for the causal relationship between EOU and PU, which is more situational and based on data rather than theoretical. It is commonly assumed that PU with attitude as the mediating variable is both indirectly and directly positively associated with behavioral intention. Past study from Jun et al. (2022), examined the direct effects of PU and EOU on behavior intention. Thus, the following hypothesis are formed.

**H2a:** PU is positively associated with attitude.

**H2b:** The relationship between PU and behavioral intention is fully mediated by attitude.

**H3:** EOU is positively associated with attitude.

Davis et al. (1989) developed the notion of enjoyment in to the TAM, and it has been a crucial element for consumers to adopt new technology (Ingham et al., 2015). In the Technology Acceptance Model (TAM), enjoyment refers to the satisfaction or pleasure experienced by an individual while using a technology or system. This positive emotion, derived from successful technology use, is believed to increase the probability of continued usage. Enjoyment is considered a crucial aspect in shaping an individual's attitude towards technology and ultimately, their behavior in terms of adoption and utilization.

Davis et al. (1989) tested the direct influence of enjoyment on behavioral intention as well as the indirect effect via PU using enjoyment as the extrinsic motive. Whatever favorable or bad sentiments one feels toward a certain activity have a causal relationship to intention. Intrinsic (hedonic) and extrinsic (instrumental) motivation are the two broad categories of motivation theory to engage in an activity. PU demonstrates instrumental, whereas enjoyment demonstrates hedonic. According to Henderson et al. (1998), enjoyment is the most influencing factor to behavior intention. Moreover, Childers et al. (2001) argue that enjoyment is critical in understanding consumer attitudes toward behaviors Intention. Moreover, in e-commerce context,



enjoyment is positively associated with behavioral intention directly (Jun et al., (2022); Kim, Ma, & Park, 2009) or indirectly via mediating variable with attitude (Jun et al., (2022); Hassanein & Head, 2007). Accordingly, the following hypothesis is established.

**H4a:** Enjoyment is positively associated with attitude.

**H4b:** The relationship between enjoyment and behavioral intention is fully mediated by attitude.

Customers hesitate to buy online because the safetiness or trust issues (Gefen & Straub, 2003). Trust is defined as the Customer's belief in internet technology security. Alternatively, trust is described as a set of specific notions about the vendor's dependability (Pavlou, 2003), a sense of security and confident in transactions of the online platform (Wei, Marthandan, Chong, Ooi, & Arumugam, 2009), or conjunction of vendor dependability and transaction dependability (Dash & Saji, 2008; Wen, Prybutok & Xu, 2011). Previous research from Jun et al. explain trust as a comprehensive concept which contains perceived risk. Past research has revealed that trust is positively associated with behavioral intention (Gefen & Straub, 2003). Furthermore, Past study form Jun et al. (2022), examined the direct effects of trust on behavior intention. Moreover in e-commerce context, Trust is a significant factor for attitude (Lee, 2009). Thus, the following hypothesis are formed.

**H5a:** Trust is positively associated with attitude.

**H5b:** The relationship between trust and behavioral intention is fully mediated by attitude.

Social influence defines as how a customer's perspectives of some key references to one's conduct affects them (Ajzen, 1991; Fishbein, 1963). Venkatesh et al. (2003) describes social influence as a comprehensive concept that contains social factors, subjective norm and images. Subjective norms, including social influence, is not predict effectively in TAM, especially in a voluntary setting (Ingham et al., 2015). Regarding e-commerce technology acceptance, social influence is significantly affecting the behavioral intention (Jun et al., (2022); Henderson et al., 1998). Social Influence is a prominent belief that impacts customer attitudes toward purchasing decisions in e-commerce (Barkhi & Wallace, 2007; Henderson et al., 1998; Kim et al., 2009; Wei et al., 2009). Furthermore in the context of airline business to customer e-commerce of customer acceptance, social influence is found to be a significant factor to attitude and behavior intention (Kim et al., 2009). Thus, the following hypothesis are formed.

**H6a:** Social influence is positively associated with attitude.



**H6b:** The relationship between social influence and behavioral intention is fully mediated by attitude.

Providers and consumers exchange knowledge and resources to develop mutually beneficial value for the firm, known as value co-creation (Prahalad & Ramaswamy, 2004). According to the Service-Dominant (S-D) logic perspective, customer collaboration is the main driving force of growing a company performance. (Vargo et al., 2004). Customers who interact in value co-creation demonstrate a specific behavior (Yen, Teng, & Tzeng, 2020). Customers' value co-creation behavior is organic or voluntary without the company's intervention. Furthermore from previous studies, Yi and Gong classified the value co-creation behavior into two categories: consumer participation and citizenship.

Customers should fully involve in the service process with the providers to ensure the success of value co-creation (Yi & Gong, 2013). Customer participation behavior in online food delivery service is customer interaction with providers, such as personal interaction during the delivery process, sharing detailed order information and completing responsible behavior. Customer participation behavior is critical for the providers growth since it enables the development of market-acceptable products and services. To ensure high service delivery performance, customers and providers should communicate or interact to fill the unmet needs and expectations. The gap is critical for competitive business advantage, providers should meet the customers need and expectation to satisfied the customers (Moghadamzadeh, Ebrahimi, Radfard, Salamzadeh, & Khajeheian, 2020).

Customers' needs satisfaction can be reinforced through participation behavior, as can the benefits they seek. Similarly, customer participation enhances the service quality (Amorim, Rosa, & Santos, 2014). This enhancement encourages customers' behavior intentions and, as a result, firms' market share, sales, and profits (Dagger, Sweeney, & Johnson, 2007). Previous research has demonstrated a positive relationship between customer participation behavior and behavior intention (Bu, Parkinson, & Thaichon, 2022).

**H7a:** Customer participation behavior significantly influences attitude.

**H7b:** The relationship between customer participation behavior and behavioral intention is fully mediated by attitude.

Customer citizenship behavior entails voluntary actions by customers that may or may not have a benefit to them explicitly (Yi & Gong, 2013). These actions can have an impact on the interest and performance of organizations (Groth, 2005). As a result, citizenship behavior provides "additional value to company" (Yi & Gong, 2013). Given the potential impact on firm performance, the services marketing literature extensively



studies this behavior (Groth, 2005). However, there are few contributions on the causes and consequences of citizenship behavior. Lengnick-Hall et al. (2000), study the numerous advantages of citizenship behavior, which includes acts of cooperation, kindness and helpfulness. Customers who properly use the product or service and encourage a favorable social environment may enjoy and get the benefit from the service experience. Previous research has demonstrated a positive relationship between customer citizenship behavior and behavior intention (Bu, Parkinson, & Thaichon, 2022). Thus, this study tries to test the relationship of customers' behavior intention to behavior intention in online food delivery services.

**H8a:** Customer citizenship behavior significantly influences attitude.

**H8b:** The relationship between customer citizenship behavior and behavioral intention is fully mediated by attitude.

The causal relationships between beliefs and value co-creation are established. The beliefs are recognised as exogenous variables, involving perceived usefulness, perceived ease of use, social influence, trust and enjoyment. Also, the value co-creation including customer citizenship behavior and customer participation behavior are recognised as exogenous variables. Beliefs and value co-creation are modeled as attitude parts towards to behavioral intention. As a result, attitude is used as a mediating variable between beliefs, value co-creation and behavior intention. Thus, the direct relationship between beliefs and value co-creation on behavioral intention are established (Figure 1).

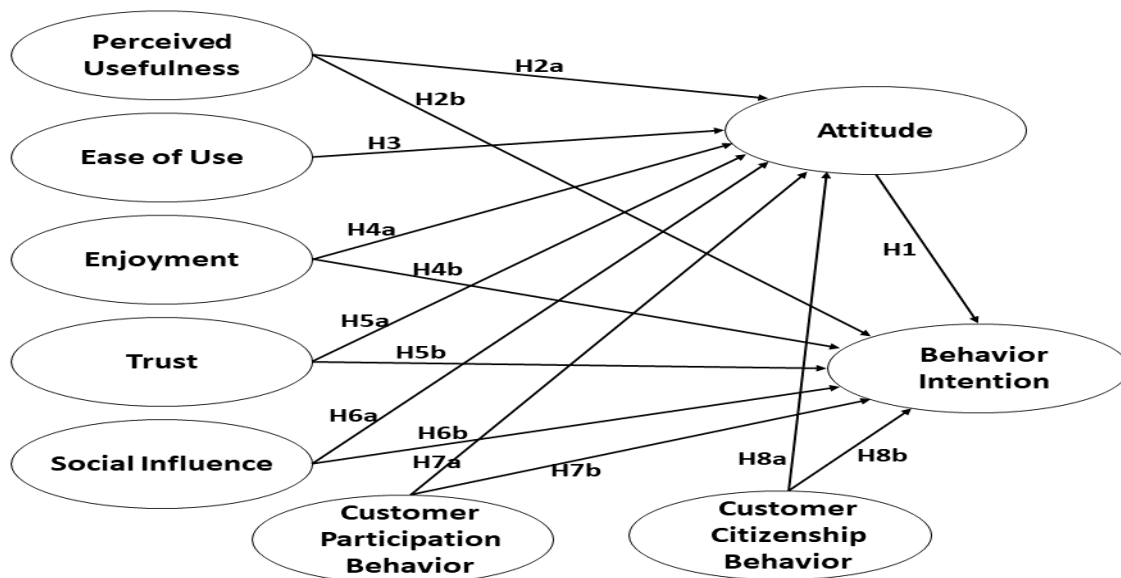


Figure 1. Conceptual Model



## Method

This study investigating behavior intention in online food delivery service includes several key dimensions that provide a comprehensive understanding of customer behavior and attitudes. Suh & Han (2002) provided the attitude items and the behavior intention items were used from Venkatesh et al. (2003) and Suh & Han (2002). These dimensions include perceived usefulness, perceived ease of use, attitude towards the service, enjoyment, trust in the service, social influence, customer participation behavior, customer citizenship behavior, habit, and user demographics. An online questionnaire items was adopted from the literature on online food delivery and other previous studies about behavior intention.

Perceived usefulness refers to customers' belief about the ability of the service to improve efficiency. Perceived ease of use refers to customers' belief about the level of ease associated with using the service. Davis et al. (1989) was specifically adapted for usefulness and ease of use items. Attitude towards the service encompasses the overall evaluation or appraisal of the service. Enjoyment refers to the satisfaction or pleasure experienced while using the service. Trust in the service represents the confidence in the reliability and security of the service. Pavlou (2003) and Childers et al. (2001) provided items of trust and enjoyment, respectively. Social influence refers to the influence of friends and family on usage. Ajzen (1991) provided the social influence items. Customer participation behavior refers to the level of active involvement and contribution of customers towards the service, such as providing feedback or ratings. Customer citizenship behavior refers to the voluntary actions of customers that benefit the organization or society as a whole, such as spreading positive word-of-mouth about the service. Yi & Gong (2013) provided the value co-creation items involving customer participation behavior and customer citizenship behavior. Habit refers to the frequency of use over time and user demographics encompass characteristics such as age, gender, and income. By considering these dimensions, your study aims to provide a comprehensive understanding of behavior intention towards online food delivery services and determine the factors that influence adoption and usage behavior.

Other than socio-demographic data, all constructs were assessed using a 5-point Likert scale with "strongly disagree (1)" and "strongly agree (5)". The questionnaire was separated into four components that assessed the constructs: (a) demographic data involving education, gender and household income; (b) firsthand knowledge with online food delivery services; (c) TAM variables such as perceived usefulness, perceived ease of use and attitude when using OFDS and behavior intention on OFDS; (d) enjoyment, trust and social influence for OFDS; (e) value co-creation such as customer participation behavior and customer citizenship behavior in online food delivery services.





Google form was used to create an online questionnaire, then distributed through social media and electronic mail. The current study focused on general Indonesian customers who ordered online food delivery at least one time. At the beginning of the survey, the respondent was screened to ensure the respondent have been used or ordered online food delivery at least one in the previous three months. Pilot study with 26 respondents was conducted in this study to check the validity and reliability before distributed to more respondents. The information was gathered using google forms over the course of three weeks, from April 24 to Mei 13, 2022. A total of 417 replies were received and will be analyzed.

The present study utilized the SmartPLS software for the analysis of the data. The reliability and validity of the measurement model were evaluated through Confirmatory Factor Analysis (CFA) and the calculation of factor loadings. To further assess the robustness and validity of the Partial Least Squares (PLS) model, the following metrics were employed: Average Variance Extracted (AVE), Composite Reliability (CR), Variance Inflation Factor (VIF), and Factor Loadings. The AVE and CR metrics were utilized to assess the reliability of the latent variables, while VIF and Factor Loadings were employed to measure the influence of the predictor variables on the model and the strength of the relationship between the predictor variables and latent variables, respectively. The utilization of these metrics provided supplementary information for the evaluation of the robustness, reliability, and validity of the PLS model.

## Result and Discussion

The table 1 shows the respondent demographically, which dominated by male with 237 people (56.8%). In terms of age, the respondents who dominated were in productive age of 18 – 25 years (30.2%). For last education, most respondents were bachelor’s degree or diploma with 264 people (63.3%). Most respondents are student with 145 people (34.8). Most of the respondent already use the OFDS one until two years (53%) with frequency of use several times a week (37.2%). Lastly, most respondents are living in an urban area (61.6%), specifically in Bogor (26.4%) and Jakarta (24.4).

Table 1. Characteristics of respondents

	Demographic	Frequency	Percentage
Gender	Male	237	56.8
	Female	180	43.2
Age	<18	66	15.8
	18-25	126	30.2
	26-33	117	28.1
	34-41	79	18.9
	>41	29	7



	Demographic	Frequency	Percentage
Education level	Senior high school	116	27.8
	Bachelor's degree or diploma	264	63.3
	Graduate degree (Master or Doctoral)	37	8.9
Monthly income	<Rp.1.000.000	50	12
	Rp.1.000.001 - Rp.4.000.000	136	32.6
	Rp.4.000.001 - Rp.7.000.000	139	33.3
	Rp.7.000.001 - Rp.10.000.00	60	14.4
	>Rp.10.000.000	32	7.7
Profession	Student	145	34.8
	Housewife	46	11
	Entrepreneur	53	12.7
	Government employees	86	20.6
	Others	87	20.9
Period of use	< 1 years	67	16.1
	1 - 2 years	221	53
	2 - 3 years	96	23
	> 3 years	33	7.9
Frequency of use	Several times a day	49	11.8
	Once in a day	98	23.5
	Several times a week	155	37.2
	Once in a week	89	21.3
	Once in a month	14	3.4
	Once in two months	6	1.4
	Once in three months	2	0.5
	Only used once	4	1
Location of residence	Jakarta	102	24.4
	Bogor	110	26.4
	Tangerang	69	16.6
	Bekasi	68	16.3
	Depok	68	16.3
Living area	Urban	257	61.6
	Suburban	159	38.1
	Rural	0	0

CFA was implemented to confirm the constructs internal and external reliability and validity. The adequacy of the measurement model was evaluated using the reliability and convergent validity criteria. To test the reliability, CR value was used. All of the results in Table 2 are greater than 0.7, showing good composite reliability (Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, 2017). All nine latent variables of average variance extracted (AVE) was greater than the proposed



boundary value of 0.5, indicating that the scale is convergent (Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, 2017). As result, the construct reliability and convergent validity in this study were supported. In addition, all questionnaire items have a factor loading value greater than 0.5, showing convergent validity.

Table 2. Confirmatory Factor Analysis

Construct	Code	Factor Loadings	VIF	CR	AVE
AT	AT1	0,755	1,063	0,766	0,621
	AT2	0,820	1,063		
BI	BI1	0,684	1,039	0,743	0,593
	BI3	0,848	1,039		
EJM	EJM1	0,734	1,047	0,753	0,605
	EJM3	0,819	1,047		
EOU	EOU1	0,623	1,183	0,776	0,538
	EOU2	0,784	1,264		
	EOU3	0,783	1,147		
PU	PU1	0,811	1,092	0,784	0,645
	PU4	0,795	1,092		
SI	SI1	0,691	1,026	0,731	0,578
	SI2	0,824	1,026		
TR	TR1	0,779	1,054	0,760	0,613
	TR2	0,787	1,054		
CPB	CPB1	0,778	1,048	0,756	0,607
	CPB3	0,780	1,048		
CCB	CCB2	0,651	1,138	0,759	0,513
	CCB3	<b>0,755</b>	<b>1,135</b>		
	CCB5	<b>0,740</b>	<b>1,129</b>		

To check the discriminant validity, each construct of the squared root of AVE and its correlation coefficients with other constructs were compared in this study (Fornell & Larcker, 1981). Table 3 shows the square roots of the AVEs is ranging from 0.717 to 0.803, which greater than the corresponding correlation coefficients between the constructs. As a result, the constructs' discriminant validity was validated (Fornell & Larcker, 1981). In conclusion, the measurement model showed sufficient reliability, discriminant validity and convergent validity.

Table 3. Discriminant Validity and Correlations

Variable	AT	BI	CCB	CPB	EJM	EOU	PU	SI	TR
AT	0,788								
BI	0,241	0,770							
CCB	0,196	0,233	0,717						
CPB	0,242	0,226	0,043	0,779					



Variable	AT	BI	CCB	CPB	EJM	EOU	PU	SI	TR
EJM	0,160	0,140	0,162	0,180	0,778				
EOU	0,184	0,196	0,258	0,223	0,194	0,734			
PU	0,230	0,152	0,234	0,197	0,215	0,260	0,803		
SI	0,150	0,248	0,157	0,142	0,268	0,355	0,178	0,760	
TR	0,326	0,208	0,294	0,120	0,147	0,284	0,255	0,153	0,783

The results of hypotheses testing and structural model analysis are shown in Table 4. Perceived usefulness was found not positively associated on BI ( $\beta = 0.007$ ,  $p = 0.449$ ) and have a significantly positive effect on AT ( $\beta = 0.095$ ,  $p = 0.025$ ), which signifies H2a was not supported and H2b was supported in the model. Perceived ease of use was found to not significantly impact on attitude ( $\beta = 0.007$ ,  $p = 0.449$ ), as a result, it is not supporting the H3. Enjoyment was not positively associated with attitude ( $\beta = 0.046$ ,  $p = 0.212$ ) thus not supporting H4a. Also, enjoyment was not substantially impact to BI ( $\beta = 0.011$ ,  $p = 0.432$ ), as a results, it is not supporting H4b. Furthermore, social influence was discovered to not substantially impact to attitude ( $\beta = 0.044$ ,  $p = 0.216$ ) as a result, it is not supporting the H5a. However, social influence is discovered positively associated with BI ( $\beta = 0.169$ ,  $p \leq 0.000$ ), as a results, it is supporting the H5b. Moreover, trust was also discovered to positively associated with attitude significantly ( $\beta = 0.242$ ,  $p \leq 0.000$ ), thus supporting the H6a. However, trust was not positively associated with BI ( $\beta = 0.077$ ,  $p = 0.086$ ), as a result, the H6b was not supported. Customer participation behavior was discovered to positively associated with attitude significantly ( $\beta = 0.175$ ,  $p \leq 0.000$ ), thus the H7a was supported. Also, customer participation behavior was discovered positively associated with BI ( $\beta = 0.153$ ,  $p \leq 0.001$ ), as a result, the H7b was supported. Customer citizenship behavior was discovered to not affect attitude significantly ( $\beta = 0.079$ ,  $p = 0.066$ ), thus the H8a was not supported. Otherwise, customer citizenship behavior was discovered to positively impact the BI ( $\beta = 0.186$ ,  $p = 0.008$ ), consequently, it is supporting the H8b. Finally, attitude was discovered to positively associated with BI ( $\beta = 0.120$ ,  $p = 0.024$ ), consequently the H1 was supported. In conclusion, all the hypotheses are supported except for hypotheses H2b, H3, H4a, H4b, H5a, H6b and H8a.

Table 4. Results of Structural Model Analysis

Path Relationship	Patch Coefficient	T-Statistics	P-Values	Results
H1 AT -> BI	0,120	1,986	0,024	Supported
H2a PU -> AT	0,095	1,961	0,025	Supported
H2b PU -> BI	0,007	0,129	0,449	Not Supported
H3 EOU -> AT	0,007	0,128	0,449	Not Supported
H4a EJM -> AT	0,046	0,800	0,212	Not Supported
H4b EJM -> BI	0,011	0,170	0,432	Not Supported
H5a SI -> AT	0,044	0,788	0,216	Not Supported
H5b SI -> BI	0,169	3,361	0,000	Supported
H6a TR -> AT	0,242	4,839	0,000	Supported



Path Relationship	Patch Coefficient	T-Statistics	P-Values	Results
H6b TR -> BI	0,077	1,370	0,086	Not Supported
H7a CPB -> AT	0,175	3,628	0,000	Supported
H7b CPB -> BI	0,153	3,123	0,001	Supported
H8a CCB -> AT	0,079	1,507	0,066	Not Supported
H8b CCB -> BI	0,150	2,618	0,005	Supported

Using the TAM's extended approach, this study investigated the factors influencing on customer behavior intentions in OFDS. This study's findings confirmed the importance of perceived usefulness (PU), trust (TR), social influence (SI), customer participation behavior (CPB) and customer citizenship behavior (CCB) in OFDS customer acceptance. The results of the data analysis revealed that attitude (AT), SI, CPB and CCB were factors that directly impacted the behavior intention. Moreover, PU, CPB and TR were discovered to positively associated with AT as the mediating variable. Thus PU, CPB and TR impact the behavior intention as well. As the results of path analysis, the proposed model in the current study does fit to explain the antecedents of behavior intention on OFDS. Six of the eight proposed variables (AT, PU, TR, SI, CPB and CCB) were discovered to be statistically influences on behavior intentions on OFDS platform.

In comparison to the other belief factors, the path coefficients of TR were the most impactful predictors of AT in online food delivery service. Besides that, SI was discovered to be the most significant factor to influencing the behavior intention of OFDS. These results support the previous study on adopting new technologies and services in the context of online shopping (Gefen & Straub, 2003; Ingham et al., 2015; Kim et al., 2009; Venkatesh et al., 2003).

According to the results, PU is an impactful factor directly to AT and indirectly to BI in OFDS context. This finding backs up earlier research on the adoption of new technology in the context of online buying (Childers et al., 2001; Ingham et al., 2015). Moreover, the research results are in line with the earlier research, which shows that if clients believe an online food delivery service would be useful, they are more likely to use it (Hong et al., 2021; Jun et al., 2022).

Furthermore, the result show that EOU is not positively associated with AT. It is consistent with (Yuan, Liu, Yao, & Liu, 2016; Zhao & Bacao, 2020). Customers attitudes toward OFDS will no longer be determined by their ease of use after they have gained enough experience from the previous use of OFDS. Additionally, during the COVID-19 pandemic, other factors such as trust, safety, and efficiency are more important and can offer customers more value.

TR with attitude is the second most significant factor influencing customers' intention on OFDS. This finding is in line with the past study in the context of online shopping (Hassanein & Head, 2007), that TR significantly affects the customer



technology adoption intention. Customers could be concerned if the restaurant receives orders correctly or if the quality of food delivered is comparable to that of dine-in service, emphasizing the importance of TR in the context of online food delivery services (Hong et al., [2021](#)). During the COVID-19 pandemic, trust positively influenced behavior intention on OFDS because contactless delivery & hygienical was necessary and needed.

However, it was observed that enjoyment was not a key factor in customer attitude and behavior intention in OFDS context. This finding contradicts earlier research in the context of online purchasing (Oh et al., [2009](#)), which enjoyment was found to positively associated with attitude. This research reveals that many customers believe that using OFDS does not have to be exciting, fun, and enjoyable. Online food delivery services should focus more on other factors such as usability.

Customer participation and citizenship behavior was found to be positively affect the behavior intention. These findings support the previous study about purchase intention of brand value co-creation in digital marketing (Choi, [2016](#)). Moreover, the results of this study also in line with earlier research about value co-creation behavior and purchase intention in influencer marketing (Bu, Parkinson, & Thaichon, [2022](#)). CPB and CCB helps to strengthen the customer relationship. Customers' lifetime value – the length of their relationship with the company – increases their participation in value creation. The implications for business outcomes are intriguing. When a company keeps its customers for life, it can achieve higher levels of profitability. For starters, the costs of replacing lost customers are high. Furthermore, the greater the present value, the longer the relationships between firms and their customers.

## Conclusion

This research enhances the existing theory and has practical implications. The findings of this research contributed to the body of knowledge about technology acceptance in an emergency condition, particularly during the pandemic of COVID-19. The food and beverage industry becoming more competitive and during the pandemic, food and beverage business have a difficulty to reach their customer, this research contributes to the literature on OFDS by providing a theoretical framework.

In this study, TAM was employed to investigate the behavior intention on OFDS theoretically. TAM with other factors (such as value co-creation, trust, enjoyment and social influence) is thought to be a better explanation than the classic TAM model. Moreover, this research is necessary because it sought to investigate behavior intention using the TAM model which has rarely been investigated in the context of OFDS.

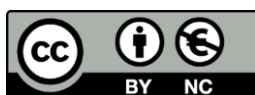


Moreover, the result of this research also revealed that in online food delivery services, utilitarian value (i.e., perceived usefulness) is more important than hedonic value (i.e., enjoyment). This finding is aligned with the previous study from Jun et al. (2022). Thus, this study's findings have an academic contribution to online food delivery services context. As a result, this research seeks to build a conceptual model for understanding the customer intentions to use the OFDS technology.

One of the main values of the food and beverage service industry is the dine-in experience. Unfortunately, in times of a global pandemic, it was curtailed and even eliminated (Jun et al., 2022). To find new sources of revenue and maintain the customers, many food and beverage businesses are transforming into online food delivery services. The dine-in experience is restricted by Indonesian government policy due to COVID-19 pandemic. On another side, online food delivery service demand is increasing. This creates a new opportunity for the food and beverage service industry to adopt new technology in OFDS to gain customers. The study findings can assist the food and beverage industry in devising a plan for operating profitable OFDS.

The managerial implications of the study are, food and beverage companies that provide OFDS must encourage social influence, environmental friendliness, and the quality of OFDS itself. According to the research findings, having high perceived usefulness is critical for gaining customer intention on OFDS. Providing accurate information in OFDS could increase the perceived usefulness (Kang & Namkung, 2019). It is advised that OFDS providers should provide an update information by maintaining product information on a regular basis based on consumption trends (e.g., menu information, price, or restaurant list). They also need to provide a valid and reliable information, such as time, specific delivery areas and business hours, thus the customers ordering effectiveness will be increased.

Managers of OFDS must understand the gap of needs and meet the expectation of their customers. During the COVID-19, it is important to enhance the clean value of OFDS (e.g., contactless delivery, hygiene and food safety) to minimize the discomfort effect of COVID-19. Because the dine-in service is prohibited, and the customers are expected to eat at home. As a result, food and beverages managers should find a solution to attain the customers, while at the same time convincing consumers to keep utilizing online delivery services. Food and beverages managers should create appropriate channels of communication with their customers in order to encourage their participation. Customers must be encouraged to understanding their needs and expectation. With online food delivery services technology, customers will perceive a specialized approach with the providers, thus meeting the needs and expectation gap and improving customer satisfaction, business performance and intention to use.



However, this study has some limitations, such as its focus on the Indonesian context and its use of a cross-sectional design, which do not allow for causal inference. These limitations suggest areas for future research, such as conducting more in-depth research in other countries and using longitudinal designs to understand the dynamics of technology acceptance better.

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