

## Consumer Insight During Covid-19: Understanding the Influence of Price Saving Benefits, Time Saving Benefits, and Food Safety Risk Perception to Consumer Intention on Online Food Delivery

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**Abstract.** *Technology has a significant impact on human existence, particularly in the phenomenon of online food delivery services. Every year, this makes online food shopping more appealing to the public. The study's goal is to compare consumers' willingness to use online meal delivery services during the Covid-19 pandemic to the new normal. The research methodology employed in the study was multivariate Structural Equation Modeling (SEM). Price savings benefits, time savings benefits, and food safety risk perceptions are all considered crucial and relevant in influencing customer intentions. The relevant data was acquired from online meal delivery customers by 299 data during the survey stage. A Google form was used to conduct the survey online. The Partial Least Square SEM approach will be utilized for the data analysis calculation stage. The findings of this investigation reveal three established hypothetical links. Data analysis revealed that Food Safety Risk Perception has a negative and significant impact on customer intentions. Customers' intentions are positively influenced by the Price Saving Benefit and the Time Saving Benefit is revealed to be the highest beta value. This study also discusses theoretical and practical contributions.*

**Keywords:** *Online food delivery, price saving benefits, time saving benefits, food safety risk perceptions, consumer intention*

**Abstrak.** *Teknologi memiliki dampak yang signifikan terhadap keberadaan manusia, khususnya dalam fenomena layanan pengiriman makanan. Setiap tahun, ini membuat belanja makanan online lebih menarik bagi masyarakat umum. Tujuan studi tersebut adalah membandingkan keinginan konsumen untuk menggunakan layanan pesan antar makanan online di masa pandemi Covid-19 dengan kenormalan baru. Metodologi penelitian yang digunakan dalam penelitian ini adalah multivariat Structural Equation Modeling (SEM). Manfaat penghematan biaya, manfaat penghematan waktu, dan persepsi risiko keamanan pangan semuanya dianggap penting dan cukup relevan dalam memengaruhi niat pelanggan. Data yang relevan diperoleh dari pelanggan pengiriman makanan online dengan jumlah 299 data selama tahap survei. Formulir Google digunakan untuk melakukan survei online. Pendekatan SEM Partial Least Square akan digunakan untuk tahap perhitungan analisis data. Temuan penyelidikan ini mengungkapkan tiga hubungan hipotesis yang mapan. Analisis data mengungkapkan bahwa Persepsi Risiko Keamanan Pangan memiliki dampak negatif dan signifikan terhadap niat pelanggan. Niat pelanggan dipengaruhi secara positif oleh Price Saving Benefit dan Time Saving Benefit ditemukan sebagai nilai beta tertinggi. Studi ini juga membahas kontribusi teoritis dan praktis.*

**Kata kunci:** *Pengiriman makanan online, manfaat penghematan biaya, manfaat penghematan waktu, persepsi risiko keamanan pangan, niat konsumen*

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## Introduction

Technology plays a significant role in human life, particularly in the field of services. Technological advancements are also accelerating each year, prompting many businesses to develop services in response to user requests, such as online food delivery services (OFD). Prior data shows that the segmentation of online food delivery services in Indonesia is expected to reach US\$968 million in 2018, with a 17.7 percent annual growth rate from 2018 to 2022 (Statista, 2017). The availability of an online food delivery service improves order accuracy, productivity, and customer relations (Kimes, 2011), and enhanced the markets (See-Kwong, G., Soo-Ryue, N.G., Shiun-Yi, W. and Lily, 2017).

This makes online food shopping appealing to the general public, resulting in annual purchases of up to 12% (C.Hong et al., 2014). Online food delivery services are used by almost all large restaurants as well as MSMEs. This service phenomenon has grown rapidly in recent years (Marcella puspita & Adriana Aprilia, 2020). However, there are risks associated with using online food ordering services, including food that does not match the order, food that does not arrive at the correct address, and food that is damaged during transit.

In the year 2020, a tragedy struck the entire world. The Covid-19 pandemic is the name given to this calamity. According to the World Health Organization (WHO), the Covid-19 virus poses a very high risk of death (World Health Organization, 2020). The Covid-19 pandemic has had so many effects, particularly in the food sector, that it has changed the behavior of consumers who frequently work from office. Indonesia has a policy that restricts social interaction mobility or social distancing. (Intan Muliana Rhamdhani, 2021). This tragedy compelled food businesses to adapt by collaborating with online media and developing an online platform to connect consumers and restaurants (Cho, M., Bonn, M. A., & Li, 2019).

Because of the duration of the covid-19 pandemic, it is extremely rare for people to buy food directly, so most consumers prefer to buy food through online food delivery services. With online food delivery, food will be quickly delivered to the consumer's location. To remain competitive, online food delivery companies use price penetration strategies such as coupons and discounts. This method is attracting for enticing customers to purchase food from the applications. The impact of the Covid-19 pandemic on consumer behavior in terms of protecting themselves or returning customers to restaurants. Consumers are aware that the presence of Covid-19 poses risks and vulnerabilities to congenital diseases (Ali, F., Harris, K. J., & Ryu, 2019). Aside from the threat of threats when eating in restaurants, there are also risks when purchasing food online in the era of the Covid-19 pandemic. Most people are still hesitant to buy food online due to health and hygiene concerns for drivers who deliver food and food boxes ordered from restaurants (Sangeeta Mehrolia, 2020). The existence of these issues causes consumers to reconsider purchasing food online.

Several previous studies revealed insights from online food delivery research. The previous research entitled "*Customers responses to online food delivery services during COVID-19 outbreak using binary logistic regression*" provided the research from India (Mehrolia et al., 2021). Online food ordering and delivery services were start popular on India in 2014. Several start-up online food ordering services with a focus on mobile applications emerged in 2015. Over the last decade, all generations have increased their use of the internet and online shopping. A hundred cases were correctly predicted to be in the group of respondents who ordered food through online food delivery services, while 45 were incorrectly predicted. Of the 317 respondents who did not order food through OFD during the pandemic, 299 cases were correctly predicted, while 18 cases were incorrectly predicted. Previous research study discussed the online food delivery from open innovation perspective (Prasetyo et al., 2021).

The study generated findings on consumer insight based on the extended Theory of Planned Behavior (Ajzen, 1991). The current study will examine customer intentions when using online food delivery services. This study will focus on three dimensions: cost savings, time savings, and food safety risk perception. The study can reveal the user behavior when ordering food using online food delivery services during the Covid-19 pandemic to the new normal by using the evaluation model raised. The previous studies had raised the essential aspect related to the three dimensions (Dazmin & Ho, 2019; Hong et al., 2021a; Inglis, 2003).

The present study evaluates the three fundamental dimensions to affect the consumer's intention as shown in the Figure 1. The Price Saving Benefits variable describes ways to save money, such as giving discounts and providing low-quality service. This variable also has no additional costs, such as free shipping (Yeo, V. C. S., Goh, S.-K., & Rezaei, 2017). Previous study conducted had shown the evidence of strong relationship between price and actual use (Prasetyo et al., 2021). In the implementation, price not only served as the payment purpose, but price can be attached into many benefits. Discounts, bundling offering, vouchers, promotion, attractions, and word of mouth contents can be tracked into price association. The present study proposing the influence of price to the consumer intention to use the online food delivery with the statement:

*H1: Price Saving Benefits has a positive and significant relationship with Consumer's Intention to use the Online Food Delivery services.*

The Time Saving Benefits variable is a variable that describes time savings, such as when a consumer wishes to buy food through an online food delivery service because customers believe that avoiding traffic signs can save them time (C.Hong et al., 2014). Time is the most reliable of all entities since it may move forward without being halted or turning back.

There are many factors that contribute to the justification of the value of time being equivalent to money. Getting rid of tasks that take up a significant amount of time is therefore regarded as a valuable strategy. Accordingly, the following is how the current research stated the second hypothesis regarding the benefits of saving time:

*H2: Time Saving Benefits has a positive and significant relationship with Consumer's Intention to use the Online Food Delivery services.*

The variable known as "Safety Risk Perception" is a variable that helps to explain the risk of food contamination (Nardi et al, 2020). Consumers are willing to pay a greater premium for a product or service if it is more secure than similar offerings that are already available on the market. Since covid-19 can be transmitted over short distances and food can become contaminated with materials that aren't good for consumption, many customers are very concerned about minimizing the adverse effects of this circumstance.

This is especially true to the fact that covid-19 can't be predicted for the infection situation, and that food can become contaminated with any bad possible materials that aren't good for consumption. Thus, a negative effect is expected in this relationship. Because of this, the following is the appropriate way to conceptualize the third hypothesis:

*H3: Food Safety Risk Perception has a negative and significant relationship with Consumer's Intention to use the Online Food Delivery services.*

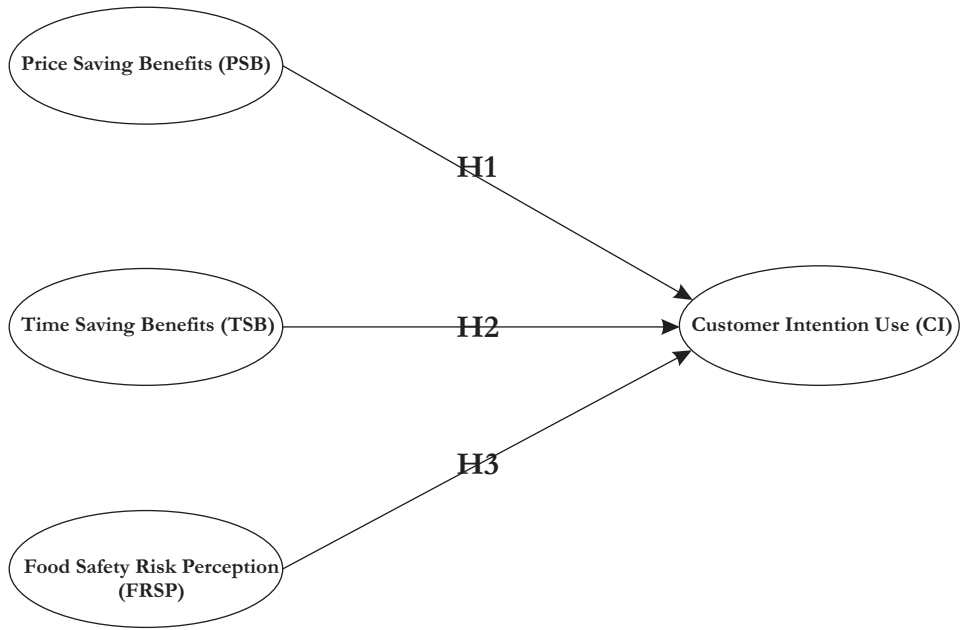


Figure 1.  
Hypothesis Model for Online Food Delivery Evaluation

Research Methodology

This study defines respondents as the one who have lived or are currently living in the city of Surabaya. Further, the respondents have used delivery service applications such as third-party logistic providers as the population of the study. The sampling technique used is snowball sampling. In determining the number of samples will be determined using the maximum likelihood theory (Weston & Gore Jr, 2006). The sample in this study has a minimum score of 200 respondents. In making the questionnaire, it refers to the main references (Hong et al., 2021b). Questions will be adjusted to use Indonesian. The answers to the questionnaire will be carried out using the five-point Likert scale method.

At the survey stage, it was carried out to collect the required data from third party logistic providers. The survey will be conducted online using a Google form. Online consultation is provided for respondents who had a problem in filling out the questionnaire.

At the Pre-Processing stage, the data consists of two validity tests and reliability tests. The test was carried out on testing the data obtained from the survey results. Data validity and reliability tests were also carried out so that the data can be managed to become valid and reliable data. Validity Test is a step that is carried out to test a data obtained into a valid category. The validation test has the objective of measuring each indicator that has been evaluated. Indicators that have been declared valid and show a convergent validity will show a coefficient that is greater than twice the standard error. In the discriminant validity test, two compositions were tested whether they were different, and each composition was independent (Minto, 2016). The reliability test is a tool for measuring the consistency of a questionnaire which is an indicator of a variable or composition. In a questionnaire it can be declared reliable if the respondent's answers to the questions are consistent. At the model suitability test stage, it is carried out to ensure that a parameter will be developed in the model so as to produce an estimated covariance matrix that is close to the sample covariance matrix.



For the first evaluation the test can use the chi-square test and the fit index. In testing the outer model is an inferential analysis carried out in the early stages. The outer model has measurements that must be considered, namely convergent validity, discriminant validity, and composite validity. In convergent validity by looking at the value of the loading factors. Next is the measurement of discriminant validity with two methods, namely by looking at the cross-loading analysis and the Fornell Larcker criterion. After measuring discriminant validity, composite reliability was measured by looking at the value of composite reliability and Cronbach's alpha value. To test the inner model, inferential analysis is carried out on the inner model. At this stage it is done by looking at the value on the T-table and looking at the T-Statistic value with a significance of 0.05. For the value of the path coefficient can be seen to determine the influence on positive or negative variables.

Hypothesis testing was carried out to find out how much the value of similarity and influence on the variables of this study is using factor measurements. The SEM method is also used in testing the hypothesis at the next stage. From SEM it will be seen the value that has been generated from the hypothesis test and will be an input for making results and conclusions. At this stage the formulation and results of conclusions are made and used to provide a conclusion regarding the analysis of the behaviour of users of online food delivery services during the Covid-19 pandemic to the new normal. From the results that have been done and obtained, the researcher will provide a result and conclusion to serve as a guide and reference for further research. In the design of data collection, the research used the questionnaire method. Questionnaires that have been designed is using the survey tool. The questionnaire will be distributed to research respondents. Questionnaire distribution is carried out online using the Google Form platform. The research will contact and find the right respondent according to the criteria of the research.

Respondents will fill out the questionnaire that has been provided in accordance with the directions of the researcher. Question and answer sessions can be carried out using social media such as chat applications and email. The questionnaire was prepared using Five Likert Points. The distribution of the questionnaire was carried out on the data needs of the respondents which could be used in testing and analysis using the SEM method. This activity was carried out so that the questionnaires distributed to the respondents would produce valid and reliable data. Researchers also used a sample of respondents consisting of 229 respondents.

## Results and Discussion

### *Results*

Based on the results of observations from the questionnaires that were distributed, in this study the percentage of gender found that for women there were 103 respondents with a value of 45% while for men there were 126 respondents with a value of 55% as shown in Figure 2.

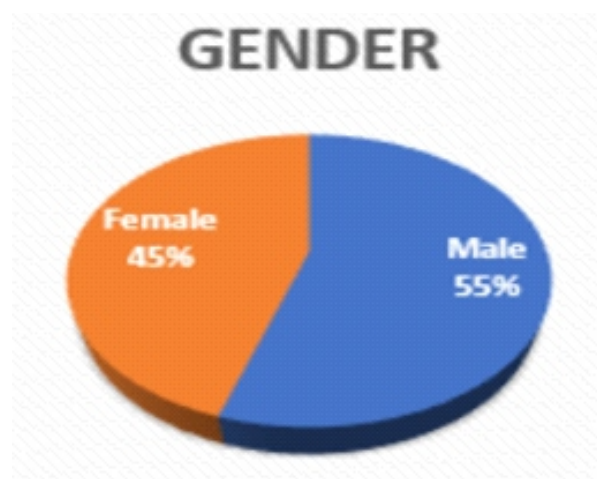


Figure 2.  
Gender Proportion

Based on the results of observations from the questionnaires that have been disseminated in this study, the percentage of income per month for respondents who filled out the research questionnaire was <Rp. 1,500,000 47% had 47%, Rp. 1,500,000-Rp. 2,000,000 had 21%, IDR 2,000,000-IDR 2,500,000 has 8%, IDR 3,000,000-IDR 5,000,000 has 13%, IDR 5,000,000-IDR 10,000,000 has 8%, and for >IDR .10,000,000 has a value of 3%. The following is the percentage of income per (month) as shown in Figure 3.

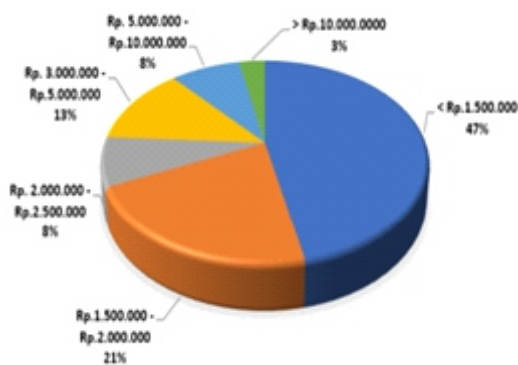


Figure 3. Income Proportion

Validity and reliability tests were carried out using SEM-PLS. The function of this analysis is to find out which variables are invalid and which variables are not reliable. The results of the validity and reliability tests can be seen in Table 1. Most of the values are exceeding the minimum score of 0.7, 0.7, 0.7 and 0.5 for Cronbach's alpha, rho\_A, Composite Reliability, and Average Variance Extracted (Cayaban, Prasetyo, Persada, Borres, et al., 2023; Cayaban, Prasetyo, Persada, Mariñas, et al., 2023; Ong, Prasetyo, Mariñas, et al., 2022; Ong, Prasetyo, Vallespin, et al., 2022).

Based on Table 2, all the values of outer loadings exceeding the score of 0.7. Based on collinearity test, the overall VIF values are below 5.00 as shown on Table 3. Therefore, there is no collinearity problem. Based on Heterotrait-Monotrait Ration (HTMT) score, none of the score is above 0.95 as shown on Table 4. Therefore, there is no discriminant problem. Based on Figure 4, two path coefficients are having positive results and one path coefficient is having negative value.

Table 5 projects the hypotheses validations, where all the relationship are in accordance with hypotheses statement. Therefore, the entire three hypotheses are accepted. The model generates 19 percent of R2, meaning that the evaluated model contributed to 19 percent for total consumer intention to use, where the other 81 are possible form the outside measured factors.

Discussion

The Food Safety Risk Perception variable influences the risk of food safety for people who use online food delivery services. This variable has 3 (three) indicator items, however one indicator has score below 0.7. Therefore, two measured indicators were used such as:

- 1. It is very likely that customers will experience poisoning because of the way food is sent via online food delivery services,
- 2. Food sent via online food delivery services is likely to contain germs that can cause disease.

For the recommendation given by the result is improving hygiene standards for online food delivery as well as increasing security in food packaging that will be given to consumers.

The results of the H1 test in this study produced a negative but significant influence on Customer Intention. It is known that currently we are entering a transitional period from the Covid-19 pandemic to the new normal period, however, there are still many people in the city of Surabaya who are still thinking about cleanliness and food safety when using online food delivery services.

The Time Saving Benefits variable gives an effect on the risk of a time saving advantage when using online food delivery services. This variable has 3 (three) indicator items, namely:

- 1. I feel that using online food delivery services can save time
- 2. Using a food delivery service helps me complete my food purchases quickly
- 3. I feel the need to use online food delivery services so that orders/transactions can be made as quickly as possible

The recommendation for this insight is to provide accurate time estimates so that drivers have consistent timeliness in delivering food to consumers. In testing the H2 hypothesis in this study, it produced a positive and significant influence on Customer Intention. Online food delivery service activities are very busy because people are very dependent on these services in this new normal period.

The Price Saving Benefits variable gives an effect on the benefits of saving on food prices when using online food delivery services. This variable has 3 (three) indicator items, namely:

- 1. I feel that using an online food delivery service saves money
- 2. Online food delivery services have cheap offers
- 3. Online food delivery services offer better value for money

The suggestion for this insight is to provide more promotional offers for food that is traded on online food delivery services to increase traffic and attract consumers. In testing the H3 hypothesis in this study, it produced a positive and significant influence on Customer Intention. During the Covid-19 pandemic, many people depended on using online food delivery services, so many promos were offered to consumers.

Table 1.  
*Reliability and Convergent Validity Tests*

No.	Factors	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
1	TSB	0.798	0.808	0.881	0.711
2	PSB	0.896	0.903	0.935	0.828
3	FSRP	0.876	1.689	0.929	0.867
4	CI	0.924	0.927	0.952	0.867

Table 2.  
*Outer Loadings Value*

No.	Indicators	CI	FSRP	PSB	TSB
1	CI.FSRP1		0.986		
2	CI.FSRP3		0.874		
3	CI.PSB1			0.905	
4	CI.PSB2			0.906	
5	CI.PSB3			0.917	
6	CI.TSB1				0.838
7	CI.TSB2				0.809
8	CI.TSB3				0.881
9	CI1	0.917			
10	CI2	0.941			
11	CI3	0.936			

Table 3.  
Collinearity Statistics Test

No.	Indicators	VIF
1	CI.FSRP1	2.543
2	CI.FSRP3	2.543
3	CI.PSB1	2.896
4	CI.PSB2	2.489
5	CI.PSB3	2.877
6	CI.TSB1	1.589
7	CI.TSB2	1.704
8	CI.TSB3	1.972
9	CI1	2.785
10	CI2	4.495
11	CI3	4.209

Table 4.  
HTMT Test

No.	Indicators	CI	FSRP	PSB	TSB
1	CI				
2	FSRP	0.039			
3	PSB	0.349	0.223		
4	TSB	0.424	0.162	0.416	

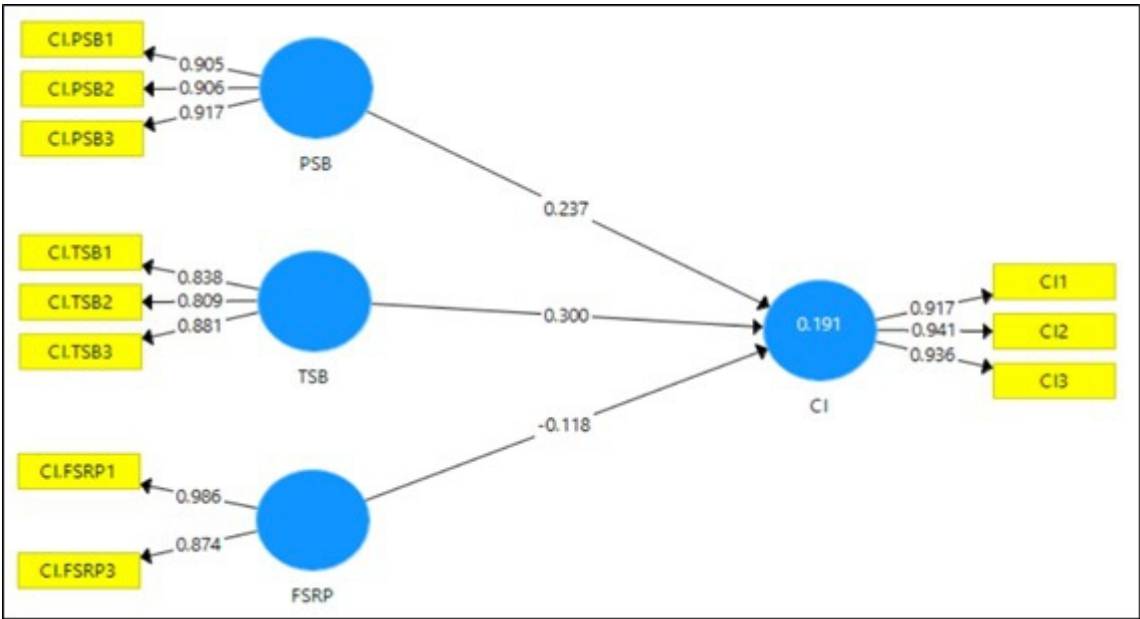


Figure 4.  
Path Analysis Result



Table 5.  
Hypotheses Result

No.	Hypotheses	Beta Value	P-Value	Note
1	H1: PSB→CI	0.237	0.001**	Accepted
2	H2: TSB→CI	0.300	0.000**	Accepted
3	H3: FSRP→CI	-0.118	0.097*	Accepted

\*\*<sub>1</sub>: p-value<0.05; \*<sub>1</sub>: p-value < 0.10

Conclusion

Based on the results of the hypothesis testing that has been carried out in this study regarding what factors influence Customer Intention towards the use of online food delivery services during the new normal conditions. From the results of the analysis, there are 3 (three) recommendations put forward by researchers, namely: 1) Improving hygiene standards for online food delivery and increasing security in food packaging that will be given to consumers; 2) Provide accurate time estimates so that drivers have consistent timeliness in delivering food to consumers; 3) Providing more promotional offers for food that is traded on online food delivery services to increase traffic and attract consumers.

Suggestions for online food delivery service companies are.

1. Provide promotions so that the attractiveness and traffic of using and purchasing food with online services increases.
2. During the transition from the Covid-19 pandemic to the new normal, there were still many people in Surabaya who were still afraid of food hygiene and the health of delivery drivers. Therefore, companies need to have higher standards for consumer comfort and trust in using online food delivery services.

Suggestions for future researchers

1. For future researchers, they should take respondent data with a wider range and more respondents from this study.
2. In this study, there were 3 (three) accepted hypotheses and 6 (six) rejected hypotheses.

3. Should the hypothesis be rejected. further researchers ensure that respondents can understand and understand the intent of each questionnaire so that the data obtained is analyzed easily.

Based on the results obtained, there are limitations on data and conditions that may vary after the Covid-19 pandemic vaccine invented. In this case if this research is developed for the future, it will have different results.

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