
GrabFood Technology Acceptance in Manokwari using Expanded TAM

Findy Indah Puspita^{1*}, Andreas Leonardo Sumendap¹, Ratna Juita¹

^{1,2,3}University of Papua, Faculty of Engineering, Informatics Engineering Study Program, Jl. Gunung Salju, Manokwari, West Papua, 98314 Indonesia

Article History

Submitted: 30-07-2026

Revised: 26-08-2026

Accepted: 27-08-2026

Published: 19-09-2026

DOI: 10.32664/j-intech.v14i03.2519

Keywords

Behavioral Intention; GrabFood;
Manokwari SEM-PLS; Technology
Acceptance Model

Corresponding Author:

findyindah1@gmail.com

Abstract

The development of application-based Food delivery services has increased the use of digital technology in daily life. However, research related to the variables that affect technology adoption by GrabFood users in Eastern Indonesia, especially Manokwari City, is still relatively limited. This study examines factors affecting public acceptance of GrabFood technology in Manokwari City using an expanded TAM Model. The model includes Perceived Ease of Use (PEOU), Perceived Usefulness (PU), Attitude Toward Use (AT), Behavioral Intention (BI), Trust (TR), Service Quality (SQ), and Subjective Norm (SN). This quantitative study used questionnaires to collect data from GrabFood users in Manokwari City. Data were analyzed using PLS-SEM with SmartPLS 4. The results showed that all indicators met the required validity and reliability criteria. PEOU positively and significantly affected PU ($\beta = 0.335$, $p < 0.001$) and AT ($\beta = 0.283$, $p < 0.001$). PU positively affected AT ($\beta = 0.345$, $p < 0.001$) and BI ($\beta = 0.150$, $p = 0.034$), while AT positively affected BI ($\beta = 0.272$, $p = 0.002$). Trust and Service Quality positively affected PU but did not directly affect BI. Subjective Norm positively affected AT and BI. The model explained 39.1% of the variance in PU, 44.5% in AT, and 45.5% in BI, indicating moderate explanatory power. These findings support the expanded TAM model in explaining GrabFood technology acceptance in Manokwari and suggest that service providers improve ease of use, user benefits, service quality, and user trust.

1. Introduction

Technological advances have had an impact on the pattern of meeting the needs of the community, especially for obtaining food. The development of Food delivery applications makes it easier for users to search for restaurants, choose menus, make payments, and monitor the status of orders directly through mobile devices. The use of the internet and smartphones makes the process of ordering Food easier, faster, and more time-saving [1], [2]. The most commonly used platform in Indonesia is GrabFood, which brings together users, driver-partners, and business actors in one digital system.

Although Food delivery services continue to grow, the level of user acceptance of technology is influenced by the availability of delivery, the way users view the benefits and convenience of using the service, the level of trust users have, the quality of the service provided, the user's attitude towards the use of the technology, and the influence of the surrounding social environment. Previous research has shown that factors such as acquired

functionality, ease of use, trust, and subjective norms affect a person's desire to use GrabFood services [3], [4]. However, some studies still show mixed results, especially in uncovering the influence of social factors on intention to use services. The difference in the results of the study shows that the technology acceptance model still needs to be tested in different regional contexts, because the characteristics of users and the level of development of digital infrastructure can affect technology adoption patterns.

Most of the research on Food delivery services was conducted in major cities in Indonesia as well as several other countries such as Bangladesh, Vietnam, and South Korea [1], [2], [3], [5], [6], [7]. In Indonesia, Seindang and Muslikh [8] employed the Technology Acceptance Model (TAM) to assess user satisfaction with the Grab application as an online transportation service. Their study included several TAM constructs, such as Perceived Ease of Use, Perceived Usefulness, Attitude Toward Using, Behavioral Intention, and Actual System Usage. However, their research examined Grab primarily as an online transportation platform rather than focusing specifically on GrabFood. There is still not enough research that studies the acceptance rate of GrabFood technology in Eastern Indonesia, especially in Manokwari City. This situation highlights a research gap concerning the application of technology acceptance models in regions that have different user characteristics.

To explain society's acceptance of technology, Technology Acceptance Model (TAM) serves as a conceptual framework for explaining the factors influencing an individual's attitude and intention to use technology [9]. In its development, TAM can be expanded through the addition of external variables that are in accordance with the characteristics of the technology [10]. In Food delivery services, factors that affect user satisfaction include not only benefits and ease of use, but also include trust, service quality, and subjective norms [11], [12], [13], [14]. Therefore, these three variables were incorporated into the research model to provide a more comprehensive explanation of GrabFood technology acceptance.

Several studies in Indonesia indicate that the perceived benefit aspect along with other related aspects contribute to the formation of a person's intention in utilizing Food delivery services [15], [16]. However, limited research has examined the relationship among these variables among GrabFood users in Manokwari City. Furthermore, further investigation is needed to examine how Perceived Usefulness and Attitude Toward Use function as mediating variables in explaining the influence of external variables on Behavioral Intention.

Based on these conditions, this study is focused on analyzing various aspects that affect the acceptance rate of GrabFood technology in Manokwari City using an expanded TAM model. This research studied the impact of perceived ease of use, trust, service quality, and subjective norms on Behavioral Intention, taking into account perceived usefulness and Attitude Toward Use as mediating variables. The main contributions of this research include:

- (1) An empirical test of the expanded TAM model incorporating Trust, Service Quality, and Subjective Norm in the Eastern Indonesia context;
- (2) Testing of Perceived Usefulness and Attitude Toward Use as sequential mediators between external variables and Behavioral Intention;
- (3) Empirical evidence on GrabFood technology acceptance among 217 users in Manokwari City

The research model is the basis for the formulation of the following hypothesis.

- H1: Perceived Ease of Use (PEOU) has a positive effect on Perceived Usefulness (PU).
- H2: Perceived Ease of Use (PEOU) has a positive effect on Attitude toward Use (AT).
- H3: Perceived Usefulness (PU) has a positive effect on Attitude toward Use (AT).
- H4: Attitude toward Use (AT) has a positive effect on Behavioral Intention (BI).
- H5: Perceived Usefulness (PU) has a positive effect on Behavioral Intention (BI).
- H6: Trust has a positive effect on Perceived Usefulness (PU).
- H7: Trust has a positive effect on Behavioral Intention (BI).
- H8: Service Quality (SQ) has a positive effect on Perceived Usefulness (PU).
- H9: Service Quality (SQ) has a positive effect on Behavioral Intention (BI).
- H10: Subjective Norm (SN) has a positive effect on Attitude toward Use (AT).
- H11: Subjective Norm (SN) has a positive effect on Behavioral Intention (BI).

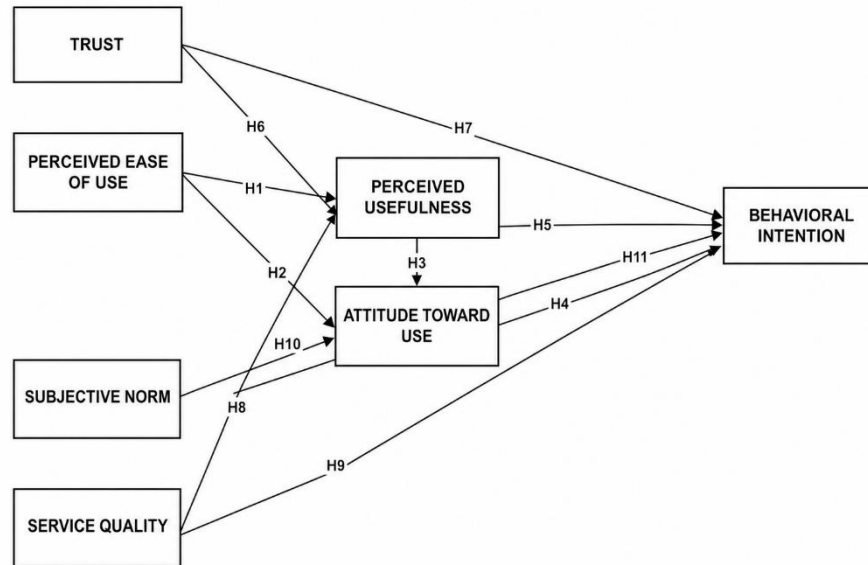


Figure 1. Research model

2. Research Method

The survey method was adopted within a quantitative framework to assess the relationships among latent variables in the GrabFood technology acceptance model in Manokwari City. The research focused on the GrabFood service, with GrabFood users living or active in Manokwari who had previously used the service serving as the study subjects.

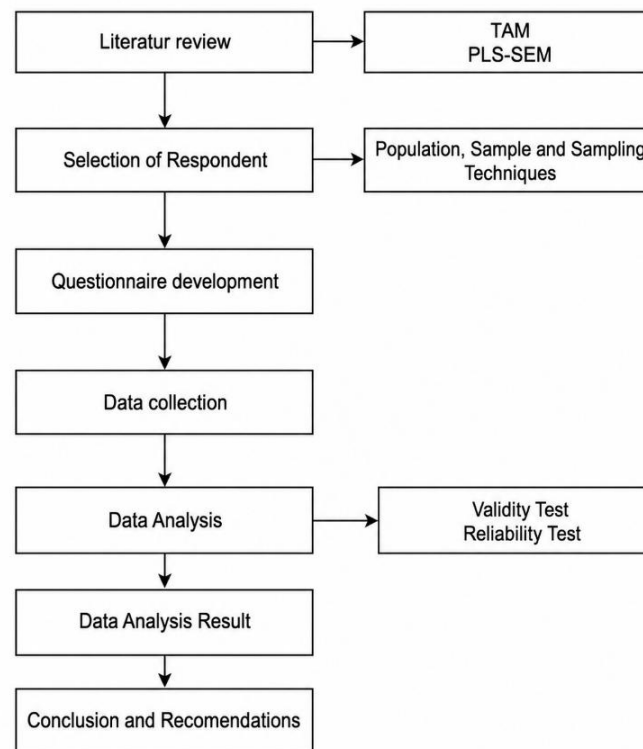


Figure 2. Research flow

The implementation of the research includes a series of stages that have been arranged in a structured and systematic manner, as can be seen in Figure 2. The research process begins by conducting a literature study, then continues by selecting respondents, developing research instruments, collecting data, analyzing the data obtained, as well as formulating conclusions and submitting recommendations based on findings.

The first stage is a literature review, which is the process of studying various theories, concepts, and results of previous research related to technology acceptance models, online Food delivery services, trust, service quality, subjective norms, attitudes towards use, and behavioral intentions. At this stage, a study was also carried out on TAM as a basic model that functions as a basis for analyzing the process of acceptance and adoption of technology by *users*. TAM explained that the level of acceptance of a technology is influenced by the user's assessment of the benefits obtained from its use and the level of convenience felt when the technology is used, which further affects a person's attitude and intention in using a technology.

The collected data were analyzed using the *Partial Least Squares-Structural Equation Modeling* (PLS-SEM) approach. This method was selected because it can simultaneously assess relationships among latent constructs, evaluate complex model structures, and accommodate studies with relatively small samples. The literature review served as the foundation for developing the research model, selecting the study variables, and formulating the research hypotheses.

The second stage is the process of selecting respondents (Selection of respondents). At this stage, the determination of the population, the number of samples, and the sample determination technique are carried out which are adjusted to the focus and purpose of the study. This study discusses the entire audience of GrabFood users in the city of Manokwari. Population is any object or subject that has specific characteristics that are relevant to the purpose of the research and are the object of research, while the sample refers to the part of the population member who is assigned to represent those characteristics [13]. At this stage, the target audience, sample, and sampling method are also determined, as shown in figure 2. Because the exact number of GrabFood users in Manokwari is unknown, this study uses a non-probability sample with a purposive approach, which is the method of taking a number of respondents selected according to the characteristics that have been determined [13]. Respondents were selected from among residents who live or engage in activities in the city of Manokwari, who are familiar with GrabFood's services and have previously used the service. The sample size was established based on the guidelines proposed by Hair et al. (2010), which stated that the number of respondents can be determined based on the result of multiplication between the number of research indicators and the multiplier factor in the range of 5-10 or by ensuring a minimum number of 100 respondents [17]. With a total of 27 indicators, the minimum sample size required is based on the smallest ratio $27 \times 5 = 135$. In this study, 217 respondents were obtained, which allowed the minimum number required to conduct PLS-SEM analysis to be achieved.

The third stage is questionnaire development. At this stage, the research instrument is formulated by referring to a number of indicators related to each variable being researched such as perceived usefulness, trust, service quality, and behavioral intention. Data were collected using a closed-ended questionnaire with a five-point Likert scale, ranging from 1 for "strongly disagree" to 5 for "strongly agree." The questionnaire that has been created is then analyzed using validation and reliability methods to ensure that the research data collection tool can accurately measure the research construct and produce consistent data.

The next stage is data collection. The research was obtained through the distribution of questionnaires to a sample that was eligible as a research participant. The data that has been obtained is then collected and prepared for the next stage of analysis.

The collected data were subsequently analyzed using the PLS-SEM method. The analysis aimed to examine relationships among variables, assess the proposed hypotheses, and determine the influence of each variable within the GrabFood technology acceptance model in Manokwari City. Model evaluation involved two main components: the *outer model* and the *inner model*.

The data analysis results provide an interpretation of the study findings, allowing the relationships among variables and their respective effects on the examined constructs to be identified. The findings were then used to address the research objectives and describe the factors influencing GrabFood technology acceptance in Manokwari City.

The final stage involved drawing conclusions and presenting recommendations. Conclusions were based on the findings obtained from the data analysis, while recommendations were proposed for future studies and relevant parties seeking to improve GrabFood service quality.

3. Result and Discussions

3.1 Respondent Characteristics

The questionnaire was distributed through Google Forms via WhatsApp and completed by 217 GrabFood users in Manokwari. Respondents came from different ages, genders, and levels of how often they used GrabFood. Table 1 shows the characteristics of the respondents, including age, gender, and how often they use GrabFood.

Table 1. Respondent profile

Features	Category	Quantity	Percentage (%)
Age	<20 Years	35	16.1
Age	20 – 25 Years	105	48.4
Age	26 – 30 Years	44	20.3
Age	31 – 40 Years	19	8.8
Age	>40 Years	14	6.5
Gender	Women	137	63.1
Gender	Male	80	36.9
Frequency of use of GrabFood	First time	61	28.1
Frequency of use of GrabFood	Rarely (<1x/month)	85	39.2
Frequency of use of GrabFood	Sometimes (1-3x/month)	46	21.2
Frequency of use of GrabFood	Frequent (>3x/month)	25	11.5

The respondent profile shows that this study targeted 217 GrabFood users in the Manokwari area. The majority of survey participants range 20 and 25 years old, namely 105 people or 48.4%, female as many as 137 people or 63.1%, and most of them were users who rarely use GrabFood services, which was 85 people or 39.2%. If the new and rare categories are combined for the first time, as many as 146 people or 67.3% are included in the group of users who are not used to using GrabFood. This composition shows that the respondents mainly consist of young users who have used GrabFood, but the frequency of use is still relatively low.

3.2 Outer Model

3.2.1 Convergent Validity Test (Outer Loading)

Convergent validity was evaluated using the Average Variance Extracted (AVE) and outer loading values. It is considered adequate when the outer loading of each indicator exceeds the minimum threshold of 0.70. In addition, indicators that have a total outer load of at least 0.50 are still considered to meet the criteria if the construct in question has an AVE value exceeding 0.50 [8]

Table 2. Outer Loading Indicator

Construct	Indicator	Loading	AVE
PEOU	PEOU1	0.869	0.659
PEOU	PEOU2	0.826	
PEOU	PEOU3	0.759	
PEOU	PEOU4	0.804	
PU	PU1	0.815	0.768
PU	PU2	0.843	
PU	PU3	0.865	
PU	PU4	0.791	
SN	SN1	0.796	0.665
SN	SN2	0.866	
SN	SN3	0.847	
SN	SN4	0.835	
TR	TR1	0.813	0.687

Construct	Indicator	Loading	AVE
TR	TR2	0.810	
TR	TR3	0.844	
TR	TR4	0.824	
SQ	SQ1	0.832	
SQ	SQ2	0.807	0.700
SQ	SQ3	0.776	
SQ	SQ4	0.780	
AT	AT1	0.833	
AT	AT2	0.754	0.638
AT	AT3	0.841	
AT	AT4	0.816	
BI	BI1	0.868	
BI	BI2	0.875	0.677
BI	BI3	0.887	

The results of Outer Loading in Table 2 state that all indicators are in the range of 0.754–0.887. The result exceeds 0.70, so each indicator is considered capable of representing its own construct. Therefore, the PEOU, PU, SN, TR, SQ, AT, and BI indicators do not need to be eliminated because they have met the validity of the indicators. The AVE values across all constructs ranged from 0.638 to 0.768. Since every AVE value is above 0.50, all constructs demonstrate sufficient convergent validity. This finding indicates that the indicators for each construct account for more than half of the variance in the corresponding construct.

3.2.2 Discriminant Validity — HTMT

as a basis for assessing whether each construct can be empirically distinguished from other constructs in the research model. The Heterotrait-Monotrait Ratio (HTMT) is used to test the validity of the discriminant. An HTMT value of less than 0.90 is declared to meet the testing criteria; Some studies used a stricter limit, which is 0.85 [18].

The results in Table 4 show all HTMT results to be less than 0.85, with the highest result being 0.702 which occurred in the relationship between PU and AT. Thus, all parts of the model have sufficient differences and there are no problems related to discriminant validity.

Table 3. Heterotrait-Monotrait Ratio (HTMT)

Construct	PEOU	PU	SN	TR	SQ	AT	BI
PEOU							
PU	0.620						
SN	0.301	0.546					
TR	0.481	0.560	0.586				
SQ	0.662	0.585	0.531	0.654			
AT	0.610	0.702	0.509	0.687	0.662		
BI	0.590	0.609	0.572	0.608	0.591	0.687	

3.2.3 Reliability Tests

The measurement of construct reliability is based on the recommendations of Hair et al. (2014), who state that construct reliability can be assessed through the Composite Reliability and Cronbach's Alpha methods. A variable is considered reliable if the Composite Reliability score and Cronbach's Alpha reach more than 0.70 [12].

Table 4. Reliability

Construct	Cronbach Alpha	Composite Reliability	Remarks
PEOU	0.831	0.888	Reliable

Construct	Cronbach Alpha	Composite Reliability	Remarks
PU	0.848	0.898	Reliable
SN	0.859	0.903	Reliable
TR	0.841	0.893	Reliable
SQ	0.811	0.876	Reliable
AT	0.828	0.885	Reliable
BI	0.849	0.909	Reliable

The reliability of the construct was tested using Cronbach alpha and composite reliability. Cronbach alpha values are in the range of 0.811 to 0.859, while composite reliability is in the range of 0.876 to 0.909. These values are all above 0.70, so the research tool is considered consistent and reliable in measuring each construct.

3.3 Inner Model

3.3.1 Evaluation of Multicollinearity of Structural Models

The test to check multicollinearity is determined based on the Variance Inflation Factor score or abbreviated as VIF in the inner form. This test was carried out to confirm that any construct that predicts the structural model does not have too strong a relationship, as this condition can reduce confidence in the results of the estimated path coefficient and make it difficult to interpret the influence of each variable. Multicollinearity tests are also used in evaluating structural models in service-based application research[18].

Based on Table 5, the value of the VIF in is ranging from 1.286 to 2.016. All of these values are below the number 5, and even still below 3. Based on the results of the analysis, the structural model does not have the problem of multicollinearity between variables that affect dependent variables. Thus, the model is considered quite good and can be continued to the R-square test stage, path coefficient, and hypothesis significance level.

Table 5. Inner VIF Values

Structural Pathways	VIF
PEOU → PU	1.302
TR → PU	1.484
SQ → PU	1.520
PEOU → AT	1.378
PU → AT	1.653
SN → AT	1.286
AT → BI	2.016
PU → BI	1.744
SN → BI	1.514
SQ → BI	1.687
TR → BI	1.837

3.3.2 R-Square and Predictive Relevance Test

Once the structural model was confirmed to be free of multicollinearity, its explanatory and predictive capabilities were evaluated using R^2 and Q^2 predict. The R^2 coefficient shows how much of the variance in each endogenous construct is explained by the exogenous constructs in the model. Higher R^2 values indicate greater explanatory strength [8]. Predictive ability was then assessed using the PLSpredict procedure and Q^2 predict. A Q^2 value above zero signifies predictive relevance of the structural model. The results indicated that every endogenous construct had a Q^2 value greater than zero, confirming that the proposed model provides sufficient predictive capability [19].

Table 6. R-square Value and Predictive Relevance

Dependent Construct	R-Square	R-Square Adjusted	Q2 Predict
PU	0.391	0.383	0.364
AT	0.445	0.437	0.411
BI	0.455	0.442	0.406

Based on Table 6, the PU construct obtained an R^2 of 0.391, meaning that 39.1% of the variance in perceived usefulness can be accounted for by the exogenous constructs included in the model. For AT, the R^2 value was 0.445, indicating that the variables examined explain 44.5% of the variance in users' attitudes toward GrabFood. Meanwhile, BI recorded an R^2 of 0.455, showing that 45.5% of the variance in the intention to use GrabFood is explained by the variables in the model, while the remaining 54.5% is attributable to factors outside the study. The corresponding Adjusted R^2 values were 0.383 for PU, 0.437 for AT, and 0.442 for BI. These results suggest that the model maintains a reasonably consistent explanatory capability after accounting for the number of predictors included. Furthermore, the results of the Q^2 predict analysis showed a value of 0.364 for the Perceived Usefulness variable, 0.411 for AT and 0.406 for BI. All Q^2 values of the prediction have a positive value (>0) which indicates that the model has adequate predictive capabilities. These findings show that the model can predict endogenous variables well, so that the TAM that was expanded in the study on the acceptance of GrabFood technology in Manokwari has sufficient predictive capabilities on user behavior [19].

3.3.3 F-Square Test

The effect size (f^2) is also considered in assessing the structural model, as it shows the contribution of an exogenous construct to an endogenous construct in the proposed framework. According to Hair et al. [20], f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively. In contrast, an f^2 value lower than 0.02 indicates that the predictor has no substantial effect on the endogenous construct.

Table 7. F-Square Values

Path Relationship	f^2	Remarks
AT → BI	0.067	Small
PEOU → AT	0.105	Small
PEOU → PU	0.142	Small
PU → AT	0.129	Small
SN → AT	0.063	Small
SN → BI	0.048	Small
SQ → PU	0.054	Small
SQ → BI	0.015	No effect
TR → PU	0.055	Small
TR → BI	0.016	No effect

Based on Table 7, most relationships between variables have a low degree of influence, as the value of f^2 is in the range of 0.02 to 0.15. The greatest influence can be seen from the relationship between PEOU and PU with an f^2 value of 0.142, followed by the relationship between PU and AT with a value of 0.129, and the relationship between PEOU and AT with an f^2 value of 0.105. Although they belong to a small category, they contribute more than any other relationship in the model.

At the same time, the relationship between Service Quality (SQ) and BI showed an f^2 value of 0.015, while the relationship between Trust (TR) and Behavioral Intention (BI) reached an f^2 value of 0.016. A score lower than 0.02 indicates that the two constructs do not have a significant influence on the intention to use GrabFood in this study model. In general, the results of the effect size (f^2) test showed that each exogenous construct contributed relatively small to the endogenous construct, so that changes in the endogenous construct were more influenced by the combination of several variables in the model than by just one variable individually [20].

3.4 Hypothesis Testing

Hypothesis analysis was carried out through *the bootstrapping technique* as a test method. The value of the original sample is used to see the direction and degree of influence between variables, while t-statistic and p-

value are used to determine whether the relationship is significant. The hypothesis is considered acceptable if the coefficient has a positive value and a p-value of less than 0.05.

Based on Table 8, out of the 11 hypotheses checked, there were 9 approved hypotheses and 2 rejected hypotheses. The accepted hypotheses are H1, H2, H3, H4, H5, H6, H8, H10, and H11. The findings of the analysis provide an idea that aspects of ease of use, perceived benefits, subjective norms, and attitudes towards use all have a big influence in shaping a person's desire to use GrabFood. The path that has the highest coefficient is PU to AT with a value of 0.345, so the perception of benefits is the most dominant factor in shaping positive user acceptance. Meanwhile, H7 and H9 were rejected because the TR to BI had a p value of 0.155 and SQ to BI had a p value of 0.054. This means that trust and quality of service have not been proven to directly affect behavioral intentions. However, both still play a role because they significantly affect perceived usability. These findings suggest that trust and quality of services shape the perception of benefits first, before leading to the intention of using the service.

Table 8. Hypothesis test results

Hypothesis	Path	Original Sample (O)	t-statistic	p-value	Verdict
H1	PEOU → PU	0.335	5.233	0.000	Accepted
H2	PEOU → AT	0.283	4.484	0.000	Accepted
H3	PU → AT	0.345	4.848	0.000	Accepted
H4	AT → BI	0.272	3.133	0.002	Accepted
H5	PU → BI	0.150	2.126	0.034	Accepted
H6	TR → PU	0.222	2.991	0.003	Accepted
H7	TR → BI	0.125	1.421	0.155	Rejected
H8	SQ → PU	0.224	3.005	0.003	Accepted
H9	SQ → BI	0.116	1.924	0.054	Rejected
H10	SN → AT	0.212	3.415	0.001	Accepted
H11	SN → BI	0.194	2.892	0.004	Accepted

3.5 Mediation Testing

As for finding out the effect of mediation between constructs, it is shown in table 9:

Table 9. Spesific indirect effects

Mediation Pathway	Original Sample	STDEV	T-statistic	P-value	Results
PEOU → PU → AT	0.116	0.031	3.758	0.000	Significant
PEOU → AT → BI	0.077	0.035	2.208	0.027	Significant
PU → AT → BI	0.094	0.031	3.054	0.002	Significant
SN → AT → BI	0.058	0.026	2.201	0.028	Significant
TR → PU → AT	0.077	0.032	2.389	0.017	Significant
SQ → PU → AT	0.077	0.033	2.339	0.019	Significant
PEOU → PU → AT → BI	0.031	0.012	2.716	0.007	Significant
TR → PU → AT → BI	0.021	0.010	1.993	0.046	Significant
SQ → PU → AT → BI	0.021	0.010	2.086	0.037	Significant
PEOU → PU → BI	0.050	0.026	1.910	0.056	Insignificant
TR → PU → BI	0.033	0.020	1.652	0.099	Insignificant
SQ → PU → BI	0.034	0.021	1.621	0.105	Insignificant

According to Table 9, the mediation test findings reveal that perceived usefulness and attitude toward use contribute to explaining how the intention to use GrabFood is formed. Several mediation pathways have proven to be quite influential, especially those related to attitudes towards use. This means that users may not want to use GrabFood just because the application is easy to use, trustworthy, or has quality services. These factors used to form the belief that using GrabFood was beneficial, then that belief built a positive attitude, and that positive attitude ultimately encouraged someone to want to use GrabFood.

The results in Table 9 also show that the $PEOU \rightarrow PU \rightarrow AT \rightarrow BI$, $TR \rightarrow PU \rightarrow AT \rightarrow BI$, and $SQ \rightarrow PU \rightarrow AT \rightarrow BI$ have significant significance. Thus, usability perceptions and attitudes toward use work sequentially in the model. Meanwhile, the $PEOU$ to PU to BI , TR to PU to BI , and SQ to PU to BI path did not have a significant impression. This shows that just feeling the benefits are not enough to make someone want to use GrabFood, so a positive attitude towards the product is still important before someone actually intends to use the service.

The findings suggest that Perceived Usefulness and Attitude Toward Use function as the main mediators in the expanded TAM model. This, Trust and Service Quality indirectly affect Behavioral Intention through the formation of perceived usefulness and positive user attitudes.

3.6 Results and Discussion

The findings indicate that perceived ease of use positively influences perceived usefulness and users' attitudes toward using GrabFood. As users find the platform easier to learn and operate, they are more likely to recognize its usefulness and develop more favorable attitudes toward its use. This result supports the TAM framework, which suggests that a system that is easier to use enhances users' perceptions of its usefulness [8]. A similar pattern was also reported in a GoFood study, where ease of use was found to improve perceived usefulness and users' attitudes [7].

Perceived usefulness positively affects users' attitudes toward use and their behavioral intentions. This shows that the real benefits of GrabFood, such as saving time, easy access to Food, and convenience when ordering, are the main factors that shape users' positive attitudes and desire to use the service. These findings are consistent with earlier GrabFood studies, which showed that perceived usefulness influences the intention to reuse [3], [4]. In addition, users' attitudes toward using the app also affect their intentions, so users who have a positive attitude toward GrabFood are more likely to intend to use the service. These findings support research on GoFood and Food ordering apps, indicating that attitudes significantly influence individuals' behavioral intentions.

Although Perceived Usefulness has a significant positive effect on Behavioral Intention, its effect is relatively weak ($\beta = 0.150$, $p = 0.034$) compared with its stronger effect on Attitude Toward Use ($\beta = 0.345$, $p < 0.001$). This indicates that recognizing the usefulness of GrabFood may not, by itself, be sufficient to generate a strong intention to use the service. Users may recognize the benefits of GrabFood, but these benefits may need to be accompanied by a favorable attitude toward using the application before they translate into stronger behavioral intentions. The mediation results further show that the $PEOU \rightarrow PU \rightarrow BI$ indirect pathway is not significant ($p = 0.056$), indicating that Perceived Usefulness alone does not provide a sufficiently strong indirect pathway from ease of use to Behavioral Intention. This finding differs from the study reported in Reference [18], which found a significant positive effect of Perceived Usefulness on Behavioral Intention with a coefficient of $\beta = 0.395$ ($t = 4.096$, $p < 0.001$). Compared with this previous finding, the weaker $PU \rightarrow BI$ relationship in the present study suggests that the contribution of Perceived Usefulness to Behavioral Intention may vary according to the characteristics of the service and its adoption context. In Manokwari, where GrabFood is still relatively new, users may already recognize the usefulness of the service without yet developing a sufficiently strong intention to use it regularly. Thus, in this context, Perceived Usefulness appears to have a stronger role in shaping users' attitudes than in directly determining their Behavioral Intention.

Trust and quality of service positively affect perceived usefulness, but do not directly affect behavioral intent. These results show that trust and quality of services are still important, but the effect is more clearly seen in shaping the perception of benefits than directly influencing the desire to use the service. These findings remain relevant to research on the use of Food delivery services, where perceived service quality, perceived benefits, trust, and attitudes are considered important factors in explaining user intent [13]. This means that users who believe in the service and feel that the quality of GrabFood services are good will first feel that GrabFood is

useful to them. These findings differ from some previous studies by GrabFood that found that trust influences repurchase intent [3], [4], but are in line with service-based application research showing that service quality does not necessarily directly affect behavioral intent [18], although in contrast to other studies that have found that trust influences intention to use online Food ordering services [21]. In addition, research on Food delivery services using the modified TAM model also indicates that service quality influences users' attitudes toward using the platform [22].

The rejection of H7 (Trust → Behavioral Intention) can be further understood in relation to the adoption context of GrabFood in Manokwari. In this study, Trust does not have a significant direct effect on Behavioral Intention ($p = 0.155$). This finding differs from Siregar et al. [12], who found a significant effect of Trust on Behavioral Intention to use ShopeeFood ($\beta = 0.493$, $p < 0.001$). In their study, 58.2% of respondents had used ShopeeFood for 6–12 months, indicating a relatively more established experience with the service. This difference may help explain the different findings, as repeated interactions with a digital service may provide users with greater experience from which trust can develop into a more direct determinant of Behavioral Intention. In the present study, GrabFood is still relatively new in Manokwari, and 67.3% of respondents were first-time or infrequent users. Therefore, many respondents may not yet have had sufficient repeated experience to develop a strong and established trust-to-intention relationship.

The mediation results further clarify this finding. The Trust → PU → BI indirect pathway is not significant ($p = 0.099$), whereas the Trust → PU → AT → BI sequential mediation pathway is significant ($p = 0.046$). This indicates that Trust may contribute to Behavioral Intention through a sequential cognitive and attitudinal process rather than through a direct pathway. Users may first recognize GrabFood as useful based on their trust in the service, then develop a favorable attitude toward using it, which subsequently contributes to their Behavioral Intention. Thus, the rejection of H7 does not indicate that Trust is unimportant; rather, its influence appears to operate through Perceived Usefulness and Attitude Toward Use in the present Manokwari context.

The non-significant direct effect of Service Quality on Behavioral Intention in H9 can also be understood through this context. This finding is consistent with Winasis and Sembel [18], who found that Service Quality did not significantly influence Behavioral Intention among users of application-based Grab transportation ($\beta = 0.015$, $p = 0.421$). This suggests that positive evaluations of service quality do not necessarily translate directly into behavioral intention. In the present study, Service Quality significantly affects Perceived Usefulness, but the Service Quality → PU → BI indirect pathway is not significant ($p = 0.105$). In contrast, the Service Quality → PU → AT → BI sequential mediation pathway is significant ($p = 0.037$). This indicates that, for GrabFood users in Manokwari, perceived service quality may first shape their recognition of the usefulness of the service and subsequently contribute to a favorable attitude before influencing Behavioral Intention. The relatively high proportion of first-time and infrequent users may also contribute to this pattern because limited repeated experience may not yet allow service-quality evaluations to become a direct determinant of intention. Therefore, the rejection of H9 does not mean that Service Quality is unimportant; rather, its influence on Behavioral Intention appears to operate through Perceived Usefulness and Attitude Toward Use in this context.

The high proportion of first-time and infrequent users is also related to the purposive sampling criterion applied in this study. Respondents were only required to have used GrabFood at least once. A stricter usage-frequency criterion could have provided respondents with more established experience with the service and potentially more stable perceptions of its usefulness, ease of use, trust, and service quality. For comparison, Setiawati et al. required respondents to have used GrabFood at least three times per month [23]. However, applying a similar criterion in the present study was difficult because GrabFood is still relatively new in Manokwari, which limited the availability of habitual or frequent users. Therefore, the minimum criterion of having used GrabFood at least once was retained to obtain a sufficient number of respondents. This sampling condition should be considered when interpreting the findings, particularly those involving Trust, Service Quality, and Behavioral Intention, because limited repeated experience may affect the development of stable user perceptions and intentions.

Subjective norms positively influence attitude of use and the intention of behavior. This means that pressure from the surrounding environment, such as friends, family, or co-workers, can form a good attitude and encourage someone to use GrabFood. These results support research on Food ordering apps that show that Subjective norms are connected to the user's plan to use the app [10], although in contrast to other studies on

GrabFood that found no significant impact on social influence [3]. These findings are also supported by research on online Food ordering services in Indonesia, which shows that social factors and attitudes influence behavioral intentions [15].

According to Table 8, the mediation test results indicate that perceived usefulness and attitude toward use play a significant role in explaining why someone intends to use GrabFood. The $PEOU \rightarrow PU \rightarrow AT \rightarrow BI$, $TR \rightarrow PU \rightarrow AT \rightarrow BI$, and $SQ \rightarrow PU \rightarrow AT \rightarrow BI$ sequential mediation pathways proved to have a significant influence. This shows that ease of use, trust, and quality of service are the first factors that shape the perception of benefits. After that, the perception of benefits forms a positive attitude, and this positive attitude further encourages the intention to use the service. Meanwhile, the $PEOU \rightarrow PU \rightarrow BI$, $TR \rightarrow PU \rightarrow BI$, and $SQ \rightarrow PU \rightarrow BI$ pathways do not have a significant effect, indicating that the perception of benefits itself is not strong enough to directly affect the intention to use the service without going through a positive attitude.

The study's results suggest that acceptance of GrabFood technology in Manokwari depends mostly on how users perceive its benefits, their attitudes toward using the technology, how easy they find it to use, and what they think others think about it. This study also shows that Perceived Usefulness and Attitude Toward Use act as intermediary factors that connect Perceived Ease of Use, Trust, and Service Quality with Behavioral Intention. These results support the expanded Technology Acceptance Model (TAM) in explaining how people in Manokwari City form their intention to use GrabFood services.

4. Conclusions and Future Works

This research shows that the modified technology acceptance model can explain the level of public acceptance of the GrabFood application in Manokwari City. This study found that all the constructs meet the required standards for validity and reliability, and that most of the connections between the variables are strong enough to be considered significant. Perceived Ease of Use is positively related to both Perceived Usefulness and Attitude Toward use. Perceived Usefulness also positively influences Attitude Toward using and Behavioral Intention. Positive effect of Attitude Toward Use on Behavioral Intention. Trust and the quality of service have a positive impact on how useful something is perceived to be. In addition, the subjective norm has a positive influence on attitude toward use and behavioral intention. On the other hand, no significant direct influence of Trust on Behavioral Intention was found, nor was there a direct significant influence of Service Quality on Behavioral Intention. These findings reinforce the use of the expanded TAM model in explaining the acceptance rate of Food delivery services in Eastern Indonesia. Practically, GrabFood service providers must improve the ease of using the application, the benefits obtained by users, the quality of service, and the level of trust through aspects of transaction security, clarity of order information, and service reliability, so as to form a positive attitude and increase users' desire to use GrabFood services.

This study also has a limitation concerning the usage experience of the respondents. The purposive sampling criterion only required respondents to have used GrabFood at least once. Consequently, 67.3% of the respondents were first-time or rare users, indicating that a substantial proportion of respondents had limited experience with the service. This condition may affect the extent to which stable perceptions of usefulness, ease of use, trust, and other TAM-related constructs have been formed. A stricter minimum usage-frequency criterion could have reduced this limitation. However, applying a similar criterion in this study was difficult because GrabFood is still relatively new in Manokwari, making it difficult to obtain a sufficient number of habitual or frequent users. Therefore, the criterion of having used GrabFood at least once was retained to obtain an adequate number of respondents, although this resulted in a high proportion of first-time and infrequent users. Future studies should consider applying a minimum usage-frequency criterion when GrabFood adoption in Manokwari becomes more established.

This study has limitations because it only involves respondents who use GrabFood services in Manokwari City, so the results obtained cannot be applied or used for other areas that have different user characteristics. In addition, the research model only uses the variables contained in the expanded TAM, so it is still open to the possibility of other factors influencing the intention to use GrabFood. The next study should expand the research area, compare it with other Food delivery platforms, and add variables such as price, promotion, user

satisfaction, or user habits so that the technology acceptance model can be explained more fully and comprehensively.

5. Declarations

Author Contributions

The first author was responsible for the conceptualization of the study, development of the research instrument, data collection, data processing and analysis, interpretation of the findings, and preparation and revision of the manuscript. The second and third authors contributed through academic supervision, providing input on the research design and methodology, reviewing the interpretation of the findings, and critically reviewing and revising the manuscript. All authors reviewed and approved the final version of the manuscript and agreed to its submission for publication.

Funding Statement

This research did not receive any grants or financial support from government agencies, research institutions, educational institutions, private organizations, or other external funding sources. All costs associated with the implementation of the research, including data collection and manuscript preparation, were independently funded by the authors. No external funding party was involved in the study design, data collection or analysis, interpretation of the findings, manuscript preparation, or the decision to publish the results.

Conflict of Interest

The authors declare that there are no financial or non-financial conflicts of interest that could have influenced the design of the study, data collection and analysis, interpretation of the findings, or preparation and publication of this manuscript. The study was conducted independently, and the authors have no financial, professional, or other competing interests with the GrabFood service provider that could compromise the objectivity of the research findings.

Data Availability Statement

The research data were obtained through a questionnaire distributed to GrabFood users in Manokwari City. The data supporting the findings of this study may be made available by the authors upon reasonable request for academic or research verification purposes, subject to applicable confidentiality and privacy considerations. Data or information that could directly or indirectly identify individual respondents will not be publicly disclosed.

Use of Artificial Intelligence (AI)

Artificial Intelligence (AI) technology was used solely as a supporting tool during the editing and refinement of the manuscript, particularly for language editing, grammar checking, and improving sentence clarity and structure. AI was not used to generate or manipulate research data, conduct data collection, determine the research methodology, perform or establish statistical analyses, or replace the authors' scientific judgment in interpreting the findings. All data, analytical results, interpretations, conclusions, and other scientific content presented in the manuscript were reviewed and verified by the authors. The authors retain full responsibility for the accuracy, integrity, originality, and scientific content of the manuscript.

Ethical Approval and Informed Consent

This study was conducted in accordance with fundamental research ethics principles, including voluntary participation, adequate information provision, confidentiality, and protection of respondents' privacy. Before completing the questionnaire, respondents were informed about the purpose and academic context of the study, the voluntary nature of their participation, the intended use of the collected data, and the confidentiality of their responses. Respondents provided their informed consent by voluntarily proceeding to complete the research questionnaire. Formal ethical approval or ethical clearance was not obtained from an institutional research ethics committee for this study.

6. References

- [1] R. Chowdhury, "Impact of perceived convenience, service quality and security on consumers' behavioural intention towards online food delivery services: the role of attitude as mediator," *SN Bus. Econ.*, vol. 3, no. 1, pp. 1–23, 2023, doi: 10.1007/s43546-023-00422-7.
- [2] Man The Nguyen, A. G. Le, T. T. T. Bui, N. V. B. Dang, and N. T. Ngo, "The Behavioral Intention of Using Online Food Delivery Services During the COVID-19 Pandemic in Vietnam," *Int. J. Asian Bus. Inf. Manag.*, vol. 13, no. 1, pp. 1–19, 2022, doi: 10.4018/ijabim.313097.
- [3] M. P. B. Giovanna Putri Andrian, "FAKTOR YANG MEMENGARUHI REPURCHASE INTENTION PADA LAYANAN GRABFOOD," *J. Ilm. Manaj. BISNIS DAN Inov. Univ. SAM RATULANGI (JMBI UNSRAT)*, vol. 9, no. 3, pp. 1272–1284, 2022, [Online]. Available: <https://ejournal.unsrat.ac.id/v3/index.php/jmbi/article/view/41007>
- [4] A. P. ANISA LATHOFIA, "ANALISIS FAKTOR-FAKTOR YANG MEMPENGARUHI NIAT PEMBELIAN ULANG LAYANAN PENGANTARAN MAKANAN ONLINE GRABFOOD APLIKASI," *Int. J. Soc. Sci. Manag. Rev.*, vol. 06, no. April, pp. 1–10, 2023, doi: 10.37602/IJSSMR.2023.6219.
- [5] S. An, T. Eck, and H. Yim, "Understanding Consumers' Acceptance Intention to Use Mobile Food Delivery Applications through an Extended Technology Acceptance Model," *Sustainability*, vol. 15, no. 1, p. 832, 2023, doi: 10.3390/su15010832.
- [6] R. Y. Joselina Rizki Bimantari, Noor Alamsyah, Santi Ika Murpratiwi, "ANALISIS MODEL PENERIMAAN TEKNOLOGI UNTUK LOMBOK RESTORAN MAKANAN TRADISIONAL DI APLIKASI GOFOOD," vol. 13, pp. 280–290, 2024, doi: 10.23887/janapati.v13i2.74816.
- [7] K. Talahatu, E. Mailoa, U. Kristen, and S. Wacana, "Analisis Adaptasi Technology Acceptance Model (TAM) Food Delivery Service pada Pedagang Mitra Go-Food di Kecamatan Sidorejo Kota Salatiga," *Kesatria J. Penerapan Sist. Inf. (Komputer Manajemen)*, vol. 6, no. 2, pp. 511–520, 2025, doi: 10.30645/kesatria.v6i2.594.
- [8] M. S. Elan and A. R. Muslikh, "Analisis Kepuasan Pengguna Aplikasi GRAB Sebagai Transportasi Online Dengan Metode TAM," *J-Intech*, vol. 12, no. 02, pp. 248–259, 2024, doi: 10.32664/j-intech.v12i02.1304.
- [9] F. D. Davis, "Perceived Usefulness, Perceived ease of use, and user acceptance of information technology," *J. MIS Q.*, vol. 65, no. 1, p. 131, 1989, doi: 10.2307/249008.
- [10] V. Venkatesh and H. Bala, "Technology Acceptance Model 3 and a Research Agenda on Interventions," *Int. J. Soc. Sci. Manag. Rev.*, pp. 273–315, 2008, doi: <https://doi.org/10.1111/j.1540-5915.2008.00192.x>.
- [11] R. N. Suprehatin, Aisya Nadya Putri, "FAKTOR-FAKTOR YANG MEMPENGARUHI NIAT KONSUMEN MAKANAN SIAP SAJI UNTUK GUNAKAN APLIKASI PENGANTARAN MAKANAN SELAMA PANDEMI COVID-19," vol. 20, pp. 1–11, 2023, doi: 10.17358/jma.20.1.1.
- [12] M. M. Shabrina Tamimi Siregar, Ratni Prima Lita, "TECHNOLOGY ACCEPTANCE BY CULINARY SMES IN PADANG CITY FOR SHOPEEFOOD E- COMMERCE SERVICES," *Procur. J. Ilm. Manaj.*, vol. 7, no. 2, pp. 152–164, 2023, doi: 10.35145/procuratio.v11i1.2821.
- [13] P. D. Gefen, E. Karahanna, D. W. Straub, S. M. I. S. Triwulanan, and N. Maret, "Kepercayaan dan TAM dalam Belanja Online : Model Terintegrasi Diterbitkan oleh : Pusat Penelitian Sistem Informasi Manajemen , Universitas Minnesota URL," vol. 1, no. 1, 2003.
- [14] S. Iqromi, "EKSPLORASI DETERMINAN FAKTOR PENGGUNAAN FOOD DELIVERY SERVICE PLATFORM BERBASIS TEORI TECHNOLOGY ACCEPTANCE MODEL (TAM) YANG DIMODIFIKASI : STUDI PADA MAHASISWA FAKULTAS EKONOMI UIN MALANG (SKRIPSI)," Universitas Islam Negeri Maulana Malik Ibrahim Malang, 2025. [Online]. Available: <http://etheses.uin-malang.ac.id/id/eprint/80090>. [Accessed: Aug. 24, 2026].

- [15] R. Wangsadinata, C. N. Geraldine, and A. Aprillia, "Pengaruh Technology Acceptance Model (Tam), Perceived Enjoyment, Dan Perceived Risk Terhadap Behavioral Intention ...," *J. Manaj. Perhotelan JMP*, vol. 7, no. 2, pp. 104–114, 2021, doi: 10.9744/jmhot.7.2.104-144.
- [16] C. A. Sugiharto, H. C. Lestari, I. L. Kananda, M. F. Ramadhan, and S. Salsabila, "Understanding Customer Intention to Use Online Food Delivery Services In The Post-Pandemic Era In Indonesia," *Dinasti Int. J. Manag. Sci.*, vol. 5, no. 3, pp. 720–737, 2024, doi: <https://doi.org/10.31933/dijms.v5i3.2365>.
- [17] J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate Data Analysis*, 7th ed. 2010.
- [18] M. Winasis and J. S. Sembel, "The Impact of Perceived Value and Service Quality on Customer Satisfaction and Intention to Use App-Based Transportation," *Feed. J. Hum. Resour.*, vol. 3, no. 2, pp. 81–96, 2023, doi: <https://doi.org/10.19166/ff.v3i2.7460>.
- [19] H. Sukmawati *et al.*, "Penerimaan dan Penggunaan Layanan Mobile Banking Perbankan Syariah: Ekstensi Technology Acceptance Model," *J. Ilm. Ekon. Islam*, vol. 7, no. 03, pp. 1845–1857, 2021, [Online]. Available: <http://jurnal.stie-aas.ac.id/index.php/jiedoi:http://dx.doi.org/10.29040/jiei.v7i3.3615>
- [20] I. Elfirdaus, T. L. M. Suryanto, and A. Pratama, "Penggunaan Aplikasi Perplexity Sebagai Menggunakan Simplifikasi Technology Acceptance Model," *JITET (Jurnal Inform. dan Tek. Elektro Ter.)*, vol. 12, no. 3, pp. 2547–2553, 2024, doi: <http://dx.doi.org/10.23960/jitet.v12i3.4803> EVALUASI.
- [21] A. Pramezwary, K. G. Yulius, V. P. Viensa, and J. F. Pujangga, "Factors Driving Generation Z ' S Use of Online Food," *J. Manaj. Perhotelan*, vol. 9, no. 2, pp. 101–112, 2023, doi: 10.9744/jmp.9.2.101-112.
- [22] Z. A. Mh. Khathamy Fhadlullah Haq Syahlevy, Pradita Eko Prasetyo Utomo, "ANALISIS PENERIMAAN APLIKASI MCDONALD'S DENGAN MENGGUNAKAN METODE TEKNOLOGI ACCEPTANCE MODEL (TAM)," *J. Akad.*, pp. 46–53, 2025, doi: DOI: <https://doi.org/10.53564/akademika.v17i2.1726>.
- [23] N. K. SETIAWATI, I. K. G. SUKARSA, G. K. GANDHIADI, and I. P. E. N. KENCANA, "Faktor-Faktor Yang Melatarbelakangi Keputusan Konsumen Menggunakan Jasa Layanan Grabfood Pada Aplikasi Grab Di Kota Denpasar," *E-Jurnal Mat.*, vol. 11, no. 2, p. 79, 2022, doi: 10.24843/mtk.2022.v11.i02.p364.