

Technology Acceptance Model and Fin Tech Adoption in Online Impulse Buying: Exploring the Mediating Role of Customer Trust and Data Security

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ABSTRACT

The aim this study is to explore the influence of factors of Technology Acceptance Model (TAM) to adopt Financial Technology (FinTech) in online impulse buying. This study concentrated on understanding the consumers acceptance towards TAM and their FinTech service adoption taking into account the mediating role of customer trust and data security. This study used partial least squares structural equation modeling (PLS-SEM) for testing the research model by collecting data from 372 respondents using FinTech in online impulse buying. The results revealed the role of perceived usefulness and perceived ease of use in FinTech adoption. The study demonstrated that perceived ease of use and perceived usefulness significantly and positively impacts on FinTech service adoption and customer trust act as an important mediator between perceived usefulness and FinTech adoption. The research also reveals that FinTech significantly influence online impulse buying behavior.

Keywords: Technology Acceptance Model, Financial Technology, Customer Trust, Data Security, Online Impulse Buying Behavior.

Introduction

Technology acceptance model (TAM) is the popular theoretical example which explains how men accept and use technology. Davis (1989) created the Technology Acceptance Model (TAM) to describe the factors influencing technology adoption and utilization. According to the paradigm, how people utilize technology depends on users' attitudes towards perceived usefulness and ease of use. TAM facilitates the people to make use of financial technology (FinTech), which is mostly utilized by customers when making purchases online. FinTech facilitates faster, safer, and more effective electronic transactions (Arindy, 2020).

Financial Technology (FinTech) refers to the advanced use of digital technologies in delivering financial services such as payments, lending, investment, insurance, wealth management etc. Impulsive buying behavior is defined as a sudden desire to acquire something without having a strategy or intention to buy it and without taking into account the long-term effects (Nyrhinen, 2024). Customers can postpone payment until a later time, usually after the delivery of products, with this digital invoice service, which is frequently made possible by financial providers collaborating with e-commerce platforms. A new type of credit known as BNPL enables customers to make purchases online or in-store through a mobile app (Powell, 2023). One important factor that customers take into account before using any FinTech service is data security. The personal protection of financial information against unwanted access or disclosure is known as data security. Research has demonstrated that consumers' views of data security have a major impact on their trust and uptake of FinTech services (Abdul-Halim, 2022). The primary reasons for the

increasing use of FinTech services in Germany were data security, consumer trust, interface designs, and value added (Wenxiang Zhang, 2023). Because customer trust is the belief that a person has in the technology's ability to live up to their expectations, FinTech services also improve as trust is increased (Chuang et al., 2016).

From the existing information through review, there is a gap in the research concerning the examination of data security and customer trust as mediators among the factors of TAM and FinTech adoption relationship. By understanding the importance of data security and customer trust in FinTech adoption, this study aims to evaluate the mediating function of data security and customer trust in the pathway from TAM to FinTech adoption which influence for online impulse buying behavior.

Theoretical Framework, Literature Review and Hypothesis Development

Theoretical Framework

TAM (Technology acceptance model) was the preferred model for FinTech adoption. A recent evaluation found that perceived simplicity of use, perceived value, perceived risk, trust, compatibility, and performance and effort expectations are the most studied factors in the FinTech space (Nisha Rajan et.al, 2022). The actual usage behavior of an application or service is greatly influenced by the perception of ease and intention to use. These results have significant ramifications for how goods and services are designed and developed, emphasizing the need for better user experiences, particularly with regard to usability and intent to use (Softer et.al. 2024). Perceived usefulness and ease of use are two key criteria that influence the propensity to use mobile banking. However, several elements, such perceived risk and perceived cost, had little bearing on consumers' intentions to utilize mobile banking (AlSoufi and Ali, 2014). FinTech products businesses will be able to create FinTech applications and build high consumer trust in these applications if they are given the greatest information available for all packages and uses. Performance expectancy, effort expectancy, enabling environments, and privacy enablers all have a significant and positive influence on users' behavioral intention toward FinTech services (Bajunaied, 2023). It is crucial for Fintech innovators to comprehend how their clients feel about data protection and openness. Customers can learn about the use and safe storage of their data (Zhang et.al,2023). FinTech is highly used by the customers for online buying. Online impulse buying typically occurs when a customer experiences strong motivation that results in a desire to acquire a product right now (Rook 1987).

Literature Review

The term "perceived usefulness" describes how prospective users assessed the new technology's impact on their ability to execute their jobs and how it could benefit them in the future. (Moon & Kim, 2001; Venkatesh & Davis, 2000). Because of its potential to transform conventional financial services and promote financial inclusion, fintech is expanding quickly. (Makina D, 2019). The behavior of employing new technologies would be influenced by their perceived utility, which would be influenced by external factors such as organizational support, system features, and individual traits. (Igbaria, Guimaraes, & Davis, 1995). Social influence and perceived usefulness are proven to be key factors in behavior intention to utilize FinTech services. (Shubhangi Singh et al.2020). Perceived usefulness is a vital construct in determining adoption of technology (Venkatesh and Morris, 2000). For mobile banking services, the beneficial impact of perceived usefulness on behavior intention is examined analytically. (Tan & Lau, 2016). Relationships with customers are built on trust, particularly when it comes to financial and commercial transactions. Fintech solutions in various fields aim to establish a foundation of trust by dependability, security, and transparency rather than merely providing speed. Consumer trust increases FinTech adoption. (Wenxiang Zhang, 2023). Since trust has lately been highlighted as a key concern in digital technology services, it makes sense to look into how trust influences attitude as a behavioral element in fintech. (Bunker, D. (2020). "Perceived ease of use" referred to the degree of the probable users considered the new technology is easy to use (Moon & Kim, 2001; Venkatesh & Davis, 2000). The behavior of utilizing new technologies would be influenced by perceived ease of use, which would be influenced by external factors such as organizational support, system characteristics, and person traits. (Igbaria, Guimaraes, & Davis, 1995)." When it comes to Fintech adoption, "perceived ease of use" refers to how easily a user thinks they can learn and use a Fintech service. In other words, it basically indicates how easy and user-friendly they think the technology is, which has a big impact on their willingness to adopt and use it. The easier a user thinks a Fintech service is to use, the more likely they are to adopt it. Users are more likely to adopt a technology that is easy to use and has a clear interface, and simplicity of new technology can also boost usage intention and behavior. (Giovani

et al., Citation2019). When it comes to financial technology, perceived ease of use refers to the time, effort, and comprehension services that are simple, which increases user adoption. (Leong et al., 2020). Considering elements like security and usability is crucial to understanding why customers will choose FinTech services. (Rajan et al., 2022). Impulsive buying is when people decide to buy something quickly without giving it any thought. Numerous cues frequently have an impact on impulsive purchasing decisions. A person's lifestyle is also impacted by technologies that make it easier for new knowledge to enter from the outside world. (Ferdiansyah and Triwahyuningtyas, 2021). Impulsive online purchasing behavior is caused by a variety of variables. A number of internal reasons can also influence customers' impulsive online shopping, in addition to the convenience that comes with technology developments as an external element. (Dhewayanti, K. E. 2024).

Hypothesis Development

- H₁:** Perceived usefulness has a significant relation with FinTech service adoption
H₂: Perceived usefulness has a significant relation with customer trust
H₃: Customer trust has a significant relation with FinTech service adoption
H₄: Perceived ease of use has a significant relation with FinTech service adoption
H₅: Perceived ease of use has a significant relation with data security
H₆: Data security has a significant relation with FinTech service adoption
H₇: FinTech service adoption has significantly associated with online impulse buying behavior.

Research Design and Methods

A research framework was created in order to meet this study's goals. This study employed six variables, which were assessed by using different items, adapted from the existing literature. The aim of this study is to measure consumers acceptance towards the factors of TAM and their FinTech service adoption taking into account the mediating role of customer trust and data security. For this research, both primary and secondary data were employed. Primary data were collected from 372 consumers who were using FinTech in online impulse buying from the Malabar region of Kerala with the help of a standardized and previously established questionnaire. Because of the sampling frame was uncertain, convenience sampling, a non-probability sampling approach, was used to select the samples.

Data Analysis and Results

The analytical method employed in this inquiry is the structural equation model (SEM). SEM has the capacity to control the interactions between variables while also monitoring their signs. SEM, which generates a more accurate covariance matrix, is built on covariance analysis. (Hair, Black, Babin, Anderson & Tatham, 2010). On a Likert scale of 5 to 1, with 5 representing strongly agree and 1 representing strongly disagree, each respondent's responses to a statement item were assessed. First, the instruments utilized in this study's validity and reliability were examined. The statement item is deemed acceptable when factor loading is employed in basic decision-making testing and the factor loading is ≥ 0.70 (Hair et al., 2010).

Assessment of Measurement Model

Table 1: Convergent Validity and Reliability Measures

Constructs	Indicators	Item Loadings	Ave Variance Extracted	Composite Reliability	VIF
Perceived Usefulness	PU1	0.837	0.792	0.918	2.340
	PU2	0.915			2.510
	PU3	0.918			2.452
	PU4	0.889			2.887
Perceived Ease of Use	PEOU1	0.840	0.644	0.844	1.526
	PEOU2	0.825			1.580
	PEOU3	0.739			1.292

Customer Trust	CT1	0.818	0.872	0.715	0.834	1.230
	CT2					1.230
Data Security	DS1	0.804		0.623	0.768	1.065
	DS2	0.775				1.065
FinTech Service Adoption	FTSA1	0.797	0.704	0.541	0.779	1.132
	FTSA2		0.703			1.230
	FTSA3					1.266
Online Impulse Buying	OIBB1	0.901	0.715	0.662	0.794	1.132
	OIBB2					1.132

Table 1 demonstrates how reliable all of the variables' properties are. According to Fornell & Larcker, 1981, while testing the convergent validity, the value of the factor loading should exceed 0.70 on the respective constructs. The latent variables PU, PEOU, CT, DS, FTSA and OIBB fall within the allowed ranges for convergent validity. In addition to convergent validity, Average Variance Extracted (AVE) was also calculate by the researcher and it shows that all values are in between 0.541 to 0.792, which was beyond the suggested threshold of 0.50 (Fornell & Larcker, 1981). Internal consistency reliability was measured by Composite Reliability (CR). 0.768 to 0.918 was the range of CR values of each construct, which was beyond the threshold, suggested by Hair et al. (2013). To test the multicollinearity problems, the latent variables, Variance Inflation Factors (VIFs) were measured. The result gives the VIF values that occur between 1.065 to 2.887, which was significantly less than the cutoff value of 3.3. So that, this study did not face any fears about collinearity.

Table 2: Discriminant Validity Using Fornell and Larcker Criterion

Constructs	CT	DS	FTSA	OIBB	PEOU	PU
CT	0.846					
DS	0.233	0.789				
FTSA	0.586	0.322	0.736			
OIBB	0.253	0.607	0.390	0.814		
PEOU	0.324	0.506	0.521	0.528	0.803	
PU	0.298	0.370	0.443	0.835	0.464	0.890

Additionally, by computing the square root of the AVE coefficient, discriminant validity evaluates the correlations between variables (Kock, 2017). AVEs square root for each latent construct must be greater than the correlations of any of the variables, according to Fornell and Larcker (1981). The values on the diagonal must, in other words, be more than the numbers shown in the row to their left (Kock, 2017). Table 2 shows that the metrics used in the study have discriminant validity, demonstrating that all latent variables meet the criteria for validity.

Table 3: Hypotheses Testing

Hypothesis	Relationship	β	T-value	P-value	Result
H1	PU->FTSA	0.172	3.847	0.000	Supported
H2	PU->CT	0.298	5.430	0.000	Supported
H3	CT->FTSA	0.437	10.577	0.000	Supported
H4	PEOU->FTSA	0.296	6.953	0.000	Supported
H5	PEOU->DS	0.506	11.600	0.000	Supported
H6	DS->FTSA	0.006	0.146	0.884	Not Supported
H7	FTSA->OIBB	0.390	9.069	0.000	Supported

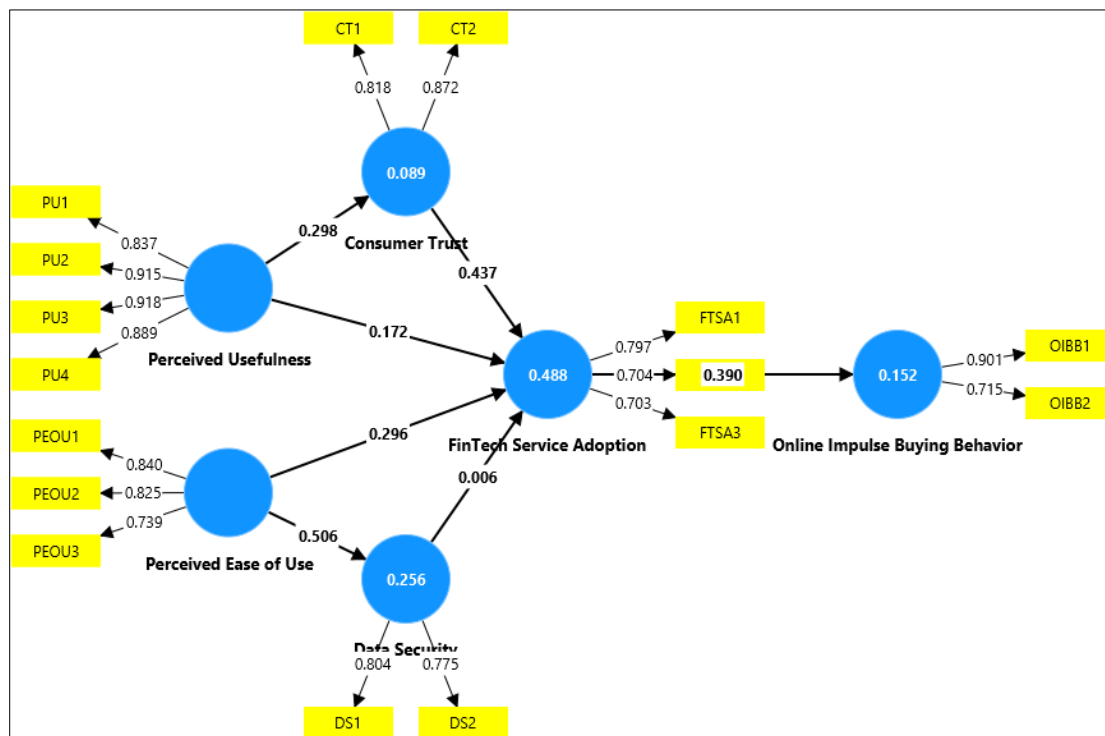


Fig. 1: Path analysis of structural model

Structural Model

Table 3 shows the path coefficient that PU has a positive significant relation with FTSA ($\beta = 0.172$, $P = 0.000 < 0.05$). PU also displays a positive significant relation with CT ($\beta = 0.298$, $P = 0.000 < 0.05$). The CT shows a significant mediation effect FTSA ($\beta = 0.437$, $P = 0.001 < 0.05$). The model reveals that PEOU was significantly related with FTSA ($\beta = 0.296$, $P = 0.001 < 0.05$) and DS ($\beta = 0.506$, $P = 0.000 < 0.05$) but DS does not show a significant mediation effect with FTSA ($\beta = 0.006$, $P = 0.884 > 0.05$). Finally, FTSA significantly influence for OIBB ($\beta = 0.390$, $P = 0.000 < 0.05$). It was evident that the six hypotheses were supported and one was not supported. The R² value for TAM to adopt FinTech was 0.488, showing that the four exogenous constructs explain 48.8%, that the consumers were influenced for adopting Fin-Tech and the R² value for Fin-Tech adoption that influence for online impulse buying was 0.152.

Discussion

The results indicate that the factors of the Technology Acceptance Model (TAM), such as perceived usefulness and perceived ease of use, significantly and positively influence customers' adoption of FinTech services, and that positively result in online impulse buying. Data security on FinTech services is crucial to maintain customer trust and increase FinTech promotion which can in turn increase FinTech adoption. Perceived usefulness and FinTech adoption were positively and significantly related and the mediating influence of customer trust significantly relate perceived usefulness with FinTech service adoption. Data security which acts as a mediator was not significantly influence for fintech service adoption. The strong influence of TAM factors highlights the importance of instinctive design and clear value propositions in FinTech platforms to attract and retain the customers for impulse buying.

Adoption of FinTech is also greatly influenced by the customers trust and reliability of FinTech platforms. Their wish to employ these financial tools is increased by trust. The research findings suggest that customers have a strong behavioral intention to adopt FinTech, through the factors of TAM, which is positively and significantly linked online impulse buying. The customers financial empowerment is achieved by their improved access to financial services through the use of FinTech. Thus, the research emphasizes the role TAM in the adoption of FinTech which result in online impulse buying. This research contributes to advancing theoretical frameworks and offer practical advice to for online retailers to make use of financial technologies and be success in their business.

Conclusion

To conclude, this study offers insightful information on the association between the TAM factors that influence the users for FinTech adoption. The study confirms the significant role of TAM factors in influential customers' decisions to adopt FinTech services, which helps them to conduct online buying and which result in impulse buying. Trust acts as a vital link between perceived usefulness and FinTech adoption, suggesting that FinTech providers must focus on fostering trust to maximize user engagement and retention.

Additionally, the link between FinTech adoption and impulse buying highlights the behavioral shifts introduced by technology-driven financial solutions. This provides opportunity to the online business men to gain revenue. If the online business is able to provide ease of use of technology, usefulness, and trust that perceived by the customer, they can be a success and can retain satisfied customers for ever. This study not only fills gaps in the existing research by looking into factors of TAM that influence for FinTech adoption but also gives us a clear picture of how FinTech adoption are influence by social security and customer trust which will result in impulse buying behavior.

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