

DIGITAL BANKING THROUGH A GENDER LENS: EXAMINING TRUST AND PERCEPTIONS OF NEOBANKS

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Abstract. *Purpose* – the aim of study is to examine how interface design elements (usability, presentation, navigation) influence trust, behavioural intention, and adoption of Neobanks among younger users, using data from students at the University of Debrecen, Hungary.

Research methodology – a modified Technology Acceptance Model (mTAM) was tested via Partial Least Squares Structural Equation Modelling (PLS-SEM) using primary survey data (n = 159, valid respondents under 25 years old) and quasi-exploratory analysis from Neo-bank users.

Findings – perceived ease of usage significantly mediates the relationship between interface quality and behavioural intention. Trust significantly impacts attitudes and intentions toward fintech, with stronger effects observed among female users. These insights advance cognitive trust theory in digital banking contexts.

Research limitations – limited sample diversity and local scope at the University of Debrecen constrain generalizability. The PLS-SEM method focuses on prediction over theory testing may oversimplify complex trust dynamics. Future studies should employ mixed methods and cross-cultural samples for broader relevance.

Practical implications – Neobanks can enhance adoption by prioritizing intuitive interface design and tailoring trust-building strategies to gender-specific user preferences.

Originality/Value – this research integrates gender differences into mTAM and offers novel insights into trust formation for digital banking among younger European university students. A departure from prior studies is focused solely on technical features.

Keywords: consumer perceptions, digital banking, fintech adoption, gender differences, Technology Acceptance Model (TAM).

JEL Classification: D83, G21, O33, C38, J16.

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Abbreviations

ATT – Attitude Toward Using;
 AVE – Average Variance Extracted;
 BEI – Behavioral Intention;
 d_G – Geodesic Discrepancy;
 fintech – financial technologies;
 FL – Fornell–Larcker criterion;
 MGA – Multigroup Analysis;
 mTAM – modified Technology Acceptance Model;
 (m-banking) mobile banking;

NAV – Navigation;
NFI – Normed Fit Index;
PEC – Perceived Usefulness;
PEU – Perceived Ease of Use;
PLS-SEM – Partial Least Squares Structural Equation Modelling;
PRES – Presentation;
STDEV – Standard Deviation;
TAM – Technology Acceptance Model;
TRUST – Trust;
VIF – Variance Inflation Factors.

1. Introduction

The digital revolution has dramatically reshaped the financial services landscape, with fintech innovation acting as a crucial driver of change. Over the past decade, financial technology has increasingly challenged traditional banking models by introducing streamlined, user-centric solutions that utilize digital platforms (Alaassar et al., 2022). One of the most significant outcomes of this disruption is the rise of Neobanks, e.g., digital-only banks, that operate without physical branches and provide a comprehensive range of financial services exclusively through online and mobile channels (Meijer et al., 2023). This shift has not only redefined consumer interactions with financial institutions but has also created both new opportunities and challenges in the adoption of these innovative banking models (Tosun, 2020).

Despite their increasing prominence, Neobanks encounter several critical challenges that impede widespread adoption. Adoption rates remain inconsistent, largely due to persistent trust concerns among consumers who question the reliability and security of fully digital financial services (Nagy et al., 2023). Privacy and data security issues further amplify consumer apprehension, as fears of cyberattacks, unauthorized access, and financial fraud contribute to uncertainty surrounding the safety of personal and financial information (Jafar et al., 2024). Furthermore, digital inclusion poses a significant barrier, especially in areas where technological literacy and access to digital infrastructure are limited, hindering full participation in digital banking innovations (Hasan et al., 2024). Generational and cultural differences also impact the level of trust and willingness to adopt Neobank services, with younger users generally exhibiting greater openness compared to older demographic groups (Melnik, 2024).

Understanding consumer perceptions and trust regarding gender-based differences is vital for the future success of Neobanks and digital banking innovations. Trust significantly influences both adoption behaviors and usage intentions (László et al., 2024). Given that Neobanks operate solely through digital platforms and lack physical branches, establishing trust is crucial for alleviating consumer concerns about security, privacy, and reliability (Meijer, 2021). Moreover, gender differences shape how users perceive and react to trust-building mechanisms, such as women often prioritize social validation and trustworthiness, while men tend to concentrate on functionality and risk-taking aspects (van Deventer, 2024). By recognizing these distinctions, Neobanks can effectively tailor their design, communication, and service strategies to enhance user engagement and promote wider adoption (Nagy

et al., 2023). Therefore, integrating gender-sensitive insights into the development of digital banking technologies fosters inclusive innovation, boosts customer satisfaction, and advances financial inclusion in the rapidly evolving fintech landscape (Aljaafreh et al., 2021).

The objective of this study is to investigate the various cognitive mechanisms and key determinants, such as perceived usefulness, perceived ease of use, and behavioral intention that influence trust and the adoption of Neobanks among younger users (Laradi et al., 2023; Rababa et al., 2025). Utilizing a modified Technology Acceptance Model (mTAM), this study examines how design elements such as presentation and navigation impact these determinants and, in turn, shape users' trust and their intention to adopt digital banking services. Additionally, the research explores the understudied role of gender differences in these processes, offering nuanced insights into trust and usability in the acceptance of fintech solutions. The research emphasizes that fostering trust is crucial for increasing acceptance and promoting financial inclusion, underscoring its significance for future innovation and service design in the fintech sector.

This study contributes to the field both theoretically, by extending the foundational TAM framework with considerations of trust and gender within the context of digital banking, and by providing practical guidance to Neobank developers and financial institutions on enhancing user experience and tailoring strategies to improve adoption and trust among diverse user groups.

2. Literature review

The study's emphasis on trust as a crucial determinant of Neobank adoption is grounded in widely accepted trust theories and the Technology Acceptance Model (TAM). This model positions trust alongside Perceived Usefulness (PU) and Perceived Ease of Use (PEU) as key antecedents that influence users' attitudes (ATT) and Behavioral Intentions (BI) toward digital technologies (Davis, 1989; Estiyanti et al., 2021; László et al., 2024).

The integration of interface design elements, such as presentation and navigation, as drivers of usability aligns with theories of human-computer interaction, which underscore the impact of system quality on cognitive and affective responses. These responses, in turn, affect acceptance behavior (Nurbaev et al., 2022).

In this study, the modified TAM (mTAM) framework incorporates external variables and mediating pathways (e.g., usability influencing PU through PEU) to reflect the complexities of user experiences and cognitive processing more accurately. This approach is supported by prior studies that extend TAM to the fintech sector (Kapliar et al., 2024). The examination of gender differences in trust and adoption behaviors is theoretically underpinned by cognitive and socio-psychological models, which acknowledge gender-specific processing styles and risk perceptions in technology acceptance (Melnik, 2024; van Deventer, 2024).

2.1. Acceptance of Neobanks' technology

The Technology Acceptance Model (TAM), initially developed by (Davis, 1989), is a prominent framework for understanding technology adoption. Grounded in social psychology, the TAM explores the cognitive, emotional, and technological factors that influence users' attitudes,

beliefs, and intentions regarding the adoption of new technologies (Su & Li, 2021). This model serves both theoretical and practical purposes, providing insights into the determinants of technology acceptance while also offering guidance on strategies that promote adoption (Marikyan & Papagiannidis, 2023).

The first generation of the model (TAM1) identifies two essential user motivation factors that influence technology acceptance: Perceived Usefulness (PEC) and Perceived Ease of Use (PEU). PEC refers to the extent to which an individual believes that using a specific technology will enhance their performance, whereas PEU denotes how easily an individual perceives the system to be (Venkatesh & Davis, 2000). The model suggests that PEU has a direct effect on the intention to use technology, whereas PEU influences this intention indirectly by shaping perceptions of PEC. Empirical studies consistently demonstrate that PEC is the strongest predictor of behavioral intention (Buckley & Davis, 2018; Davis, 1993).

Despite the robust predictive capabilities of the original Technology Acceptance Model (TAM1), its developers aimed to increase its explanatory power by incorporating additional external variables in TAM2. Notably, these include the perceived social pressure to adopt or reject a technology (subjective norms), an individual's social status, job relevance, and the perceived capability of the technology (Venkatesh & Bala, 2008). Over time, the technology acceptance model has undergone significant refinements to adapt to the evolving technological landscape. Researchers continue to modify and extend TAM to fit specific contexts, resulting in customized models (mTAM) that better address the complexities of modern technology adoption (Kapliar et al., 2024). The mTAM has been specifically extended to include trust in examining the relationships between factors that influence consumer intentions to use Neobank services. The original constructs of TAM demonstrate a significant positive effect on technology acceptance, with perceived ease of use also positively influencing trust (Kusumadewi et al., 2021). Additionally, the theorized dimension of trust significantly enhances both the perceived usefulness of and the behavioral intention to use Neobanks (Estiyanti et al., 2021). This extended TAM builds upon its predecessors by incorporating further antecedents to perceived ease of use through anchoring factors that shape initial perceptions, including computer anxiety, control, playfulness, and usage experience (which encompasses usability and perceived enjoyment) (Scholtz et al., 2016).

This study aims to investigate the perceptions and acceptance of emerging neobanking technology among the younger generation of customers, particularly students. We utilize the mTAM framework to gain insights into how individuals perceive the usefulness and ease of use of Neobanks. According to this theory, we assume that when customers view a technology as both beneficial and user friendly, they are more likely to cultivate a positive attitude toward its usage, which ultimately facilitates its adoption. We adapt the model by incorporating external variables to understand the motivations driving fintech usage. Specifically, we introduce the user interface functionality and usability of Neobank applications as key factors influencing perceived usefulness and ease of use. Notably, the presentation of the application plays a significant role in users' acceptance of Neobanks.

A poorly designed and unclear interface in a Neobank application can increase complexity and lead to user rejection of the technology. Conversely, if the Presentation (PRES) is well-crafted and the information is clearly conveyed, users are more likely to embrace and

adopt the technology (Nurbaev et al., 2022). Effective presentation encompasses essential interface design elements such as menus, colours, graphics, and detailed information about each function within the application. Overall, a strong presentation enhances interface usability and communicates the value of fintech applications. Equally important as presentation is navigation in Neobank applications. This result ensures that users can easily and efficiently complete their desired tasks (Singh et al., 2020). An intuitive navigation system seamlessly guides users through the application, enabling effortless access to features and services. In contrast, a convoluted navigation system hinders users' ability to utilize all available functions and offerings fully (Suh & Han, 2002; Zeidy, 2022).

Effective Navigation (NAV) enhances presentation by improving the overall user experience and facilitating interaction with the application (Al-Jarrah et al., 2024). Trust also plays a crucial role as an external factor that influences both attitudes (ATT) toward using Neobanks and the Behavioral Intention (BEI) to utilize their services (Suh & Han, 2002). Trust (TRUST) is fundamental to customer acceptance within the fintech sector (Jaglan, 2021). However, establishing trust poses a significant challenge for Neobanks, as their primary means of communication with customers is through mobile applications, which lack the personal touch of traditional bank branches (Nagy et al., 2023). As a result, many customers continue to view traditional banks as more trustworthy and secure, primarily because of their physical presence and personal interactions (Meijer, 2021).

2.2. Trust and customer adoption of Neobanks

The growing importance of Neobanks as fully digital financial service providers underscores the need for a deeper understanding of the psychological and cognitive factors that influence customer trust and adoption behavior. Trust has consistently been recognized as a critical precursor that shapes customers' intentions to utilize Neobank services (Nagy et al., 2023). Building on the Technology Acceptance Model (TAM) and its extensions, trust interacts with key constructs such as Perceived Usefulness (PU) and Perceived Ease of Use (PEU), ultimately influencing attitudes (ATT) and Behavioral Intentions (BI) towards new technologies (László et al., 2024).

Empirical research supports that trust not only directly influences behavioral intentions but also positively affects perceived usefulness and attitudes toward usage, thereby exerting both direct and indirect impacts on adoption outcomes (Meijer, 2021). Aljaafreh et al. (2021) highlight that initial trust, established through organizational structural assurances and reputation, plays a crucial role in mitigating the consumer uncertainty that is inherent in digital banking. Moreover, digital trust serves as a mediator between interface quality and user acceptance, underscoring the significance of reliability, security, and a consistent user experience (Kalo et al., 2024).

In addition to trust, social approval plays a crucial role in building consumer confidence in Neobanks, especially among younger individuals who are more open to fintech innovations (van Deventer, 2024). Social influence enhances perceptions of usefulness and ease of usage, creating reinforcing pathways that strengthen behavioral intentions (Asif & Sarwar, 2025). However, concerns related to cybersecurity risks, e.g., cyberattacks and unauthorized data access, pose significant challenges to the establishment of trust, highlighting the need for protective measures to maintain customer confidence (Kadim et al., 2024; Kapliar et al., 2024).

Building upon the theoretical and empirical foundation, the following hypotheses are proposed to investigate trust in Neobank adoption:

H1: *Trust positively influences the perceived usefulness of Neobank services.*

H2: *Trust has a positive impact on perceived usage of Neobanks services.*

H3: *Trust positively affects the intention to adopt Neobank services.*

H4: *Trust serves as a mediator in the relationship between interface design factors (e.g., presentation and navigation) and behavioral intention, operating through perceived ease of usage and perceived usefulness.*

The hypotheses presented are grounded in the modified Technology Acceptance Model (mTAM) framework, which identifies trust as a crucial element that embodies consumer confidence and cognitive evaluation processes (Kapliar et al., 2024; Scholtz et al., 2016). By conducting an empirical investigation of these relationships, this study deepens our understanding of the cognitive mechanisms and behavioral impacts linked to trust in the context of digital banking adoption.

The primary countries where Neobanks have emerged, along with the specific calendar years or periods of their development, can be distilled solely from the literature referenced in the accompanying article. Table 1 summarizes information using only the academic and industry sources referenced chronologically in the manuscript.

Table 1. Countries and periods from literature used in the article (source: authors' compilation)

Country/region	Reported period(s)	Article literature and references
United Kingdom	2015 onward	Meijer et al. (2023), Meijer (2021), Rybacki (2022)
India	post-2015	Kusumadewi et al. (2021)
Indonesia	2015 onward	Estiyanti et al. (2021)
Germany & EU	2015 onward	László et al. (2024), Nurbaev et al. (2022)
Middle East/Africa	Emerging post-2020	Laradi et al. (2023)
Hungary (case study)	2015 onward	Nagy et al. (2023)
United States	Circa 2010s	Kapliar et al. (2024)

3. Research design and methodologies

This study employs a quasi-exploratory analysis to examine students' perceptions of Neobanks at the University of Debrecen, Hungary. Data were collected through an online survey facilitated via Google Forms between September and November 2024. The study targeted a diverse group of students from various faculties and nationalities to ensure comprehensive respondent collection.

The sample utilized in this study is not limited to students from a single nation, specifically Hungary. This constraint might hinder the ability to generalize the findings to an international context, as the experiences and behaviours of students may not necessarily align with those of students from different cultural or educational backgrounds. However, this concern can be addressed by examining how the characteristics of the sample of Hungarian and foreign student populations at the University may reflect or diverge from broader demographic trends.

Table 2. Abbreviations, descriptions, sources of latent variables (source: authors' compilation)

Latent factors	Description of items	Abb.	Sources
Attitude toward Using (ATT)	I feel comfortable when interacting with Neobanks.	ATT1	Suh and Han (2002)
	I am happy to download Neobanks applications.	ATT2	
	I prefer using my Neobanks application over my traditional bank application.	ATT3	
Intention to Use (BEI)	I always intend to use Neobanks.	BEI1	Suh and Han (2002)
	I plan to continue using Neobanks in the future.	BEI2	
	I intend to use Neobanks as much as possible.	BEI3	
Navigation (NAV)	I can easily access the information I need on my Neobank.	NAV1	Scholtz et al. (2016)
	I can quickly and easily find the features I want to use in Neobanks.	NAV2	
	I feel that the icons displayed in my Neobank application clearly explain their functions.	NAV3	
Presentation (PRES)	I like the layout of Neobanks.	PRES1	Scholtz et al. (2016)
	I feel that the information provided by my Neobank is complete.	PRES2	
	I find the information provided by my Neobank to be clear.	PRES3	
	I believe the information given by my Neobank is accurate.	PRES4	
	I think the information from my Neobank is easy to understand.	PRES5	
	I find the menu arrangement in my Neobank application to be well-structured.	PRES6	
Perceived Ease of Use (PEU)	Learning to use the services of a Neobank is easy for me.	PEU1	Davis (1989)
	My interactions with the Neobank are straightforward and easy to understand.	PEU2	
	I find it easy to use a Neobank to accomplish what I want.	PEU3	
	It would be easy for me to become skilled at using the services of Neobanks.	PEU4	
	Neobanks are flexible for transactions.	PEU5	
Perceived Usefulness (PEC)	Using a Neobank makes it easier for me to access banking services.	PEC1	Davis (1989)
	Using a Neobank gives me greater control over my bank transactions.	PEC2	
	I find the Neobank to be useful for managing my banking services.	PEC3	
	Using a Neobank allows me to access bank services more quickly.	PEC4	
	Using a Neobank helps me save money.	PEC5	
Trust (TRUST)	Based on my previous experiences with Neobanks, I know they are honest.	TRUST1	Meijer (2021)
	Based on my past experiences with Neobanks, I know they care about their customers.	TRUST2	
	Based on my previous experiences with Neobanks, I find them to be predictable.	TRUST3	
	Based on my past experiences with Neobanks, I trust them.	TRUST4	

By providing a comprehensive analysis of educational contexts, we can identify potential similarities and differences that could shed light on the generalizability of the study's results.

In total, 164 responses were received, with 159 considered valid after incomplete or invalid submissions were excluded. The final sample included 116 male respondents (73%) and 39 female respondents (24.5%). Additionally, 54.7% of the respondents were under 25 years old, whereas 45.3% were 25 years or older. In terms of academic level, 43.4% were undergraduates, 52.2% were postgraduate students, and 4.4% were pursuing doctoral degrees.

The study also investigated the adoption rates of Neobanks among respondents, revealing that 77.4% use Revolut, 15.1% use Wise, 4.4% use both services, and 3.1% do not utilize any Neobank services. Revolut has established itself as a prominent Neobank since its foundation in the UK in 2015. As of 2023, it boasts a customer base that exceeds cc. 35 million customers across 38 countries (Rybacki, 2022). Thus, Wise is a prominent Neobank established in 2011 as TransferWise; the company was launched to address high fees and unfavourable exchange rates. As of 2023, it serves over 10 million active users and has facilitated cross-border transactions (Wise, 2023).

A Structural Equation Modelling (SEM–PLS) method is utilized with SmartPLS 3.0 to analyse the data by incorporating trust as a mediator between interface usability and behavioral intentions. This approach facilitates the evaluation of both direct and indirect effects within the research model, employing appropriate statistical techniques for testing data. The Partial Least Squares (PLS) method effectively highlights the strength and significance of the relationships among the crucial factors studied. The research adopts a reflective modelling approach for the latent constructs (Hair et al., 2011).

The survey methodology relied on a self-administered questionnaire divided into two main sections. The first section collected demographic information, including gender, age, academic level, and Neobank usage. The second section contained 29 structured statements categorized into seven theoretical constructs adapted from previously validated research to align with the study's objectives (Davis, 1989; Estiyanti et al., 2021). A 5-point Likert scale was employed to measure respondents' levels of agreement, ranging from "totally agree" to "totally disagree", ensuring nuanced data collection. The descriptions and sources of the items are listed in Table 2. This methodological framework provides a robust basis for assessing student perceptions of Neobanks, yielding insights into their adoption patterns and the factors influencing them.

4. Empirical results and discussion

Initially, we carefully assessed six key latent variables: presentation, navigation, perceived usefulness, perceived ease of use, attitudes toward use, trust and behavioral intentions (Table 3). The Cronbach's alpha values for all the latent constructs confidently exceeded 0.80, demonstrating strong internal consistency and reliability. Notably, the highest reliability was recorded in the Perceived Usefulness (PEC) construct (0.935) and the Presentation (PRES) construct (0.927), clearly indicating that these constructs are precisely defined by their respective manifest variables. Although the lowest Cronbach's alpha was noted for Attitude Toward Using (ATT) (0.833), it still surpasses the acceptable threshold (>0.7) for

reliability (Inal et al., 2016). Most factor loadings exceeded the recommended threshold of 0.70, reinforcing the strong convergent validity of the constructs. The exception was PEC5 (0.504), which suggested inadequate representation of the perceived usefulness construct; consequently, this item was removed during the exclusion process. Furthermore, VIF (Variance Inflation Factor) values below 5 confirm the absence of severe multicollinearity in the analysis (Johnston et al., 2018).

The Average Variance Extracted (AVE) values for the latent constructs in this study are presented and meet established thresholds (Table 4), indicating strong validity. Following the Fornell–Larcker criterion, construct validity is affirmed when the square root of the AVE for each latent variable surpasses its correlations with other constructs.

Table 3. Mean, cross loadings, collinearity statistics (VIF), and the validity of both the items and latent variables (source: authors' compilation)

Latent variables (Cronbach's Alpha)	Manifest variables	Mean	Factor loadings before exclusion	Factor loadings after exclusion	VIF
Attitude toward Using (ATT) (0.833)	ATT1	3.881	0.842	0.844	2.298
	ATT2	4.119	0.850	0.849	2.111
	ATT3	3.874	0.889	0.889	1.678
Intention to Use (BEI) (0.891)	BEI1	3.994	0.872	0.87	2.517
	BEI2	3.862	0.967	0.968	2.706
	BEI3	3.931	0.828	0.827	2.629
Navigation (NAV) (0.893)	NAV1	3.962	0.949	0.954	2.844
	NAV2	3.956	0.917	0.916	3.661
	NAV3	3.830	0.837	0.826	2.327
Presentation (PRES) (0.927)	PRES1	3.950	0.727	0.727	2.277
	PRES2	3.818	0.811	0.811	4.138
	PRES3	3.887	0.829	0.827	3.984
	PRES4	3.868	0.826	0.830	3.813
	PRES5	3.987	0.953	0.953	2.560
	PRES6	3.981	0.792	0.791	2.198
Perceived Ease of Use (PEU) (0.926)	PEU1	4.088	0.851	0.851	3.175
	PEU2	4.063	0.871	0.873	3.888
	PEU3	4.201	0.945	0.948	4.291
	PEU4	4.013	0.874	0.875	2.975
	PEU5	4.176	0.829	0.823	2.136
Perceived Usefulness (PEC) (0.935)	PEC1	4.384	0.940	0.946	4.783
	PEC2	4.182	0.854	0.859	2.879
	PEC3	4.220	0.904	0.910	4.279
	PEC4	4.308	0.926	0.933	3.825
	PEC5	3.497	0.504		
Trust (TRUST) (0.879)	TRUST1	3.874	0.971	0.972	2.493
	TRUST2	3.566	0.733	0.729	2.175
	TRUST3	3.579	0.763	0.761	1.853
	TRUST4	3.761	0.787	0.783	2.690

Note: The manifest variable numbers (e.g., 1, 2, 3, ...) are unique to each latent variable and do not correspond across constructs. Each item reflects a specific facet of the respective latent variable only.

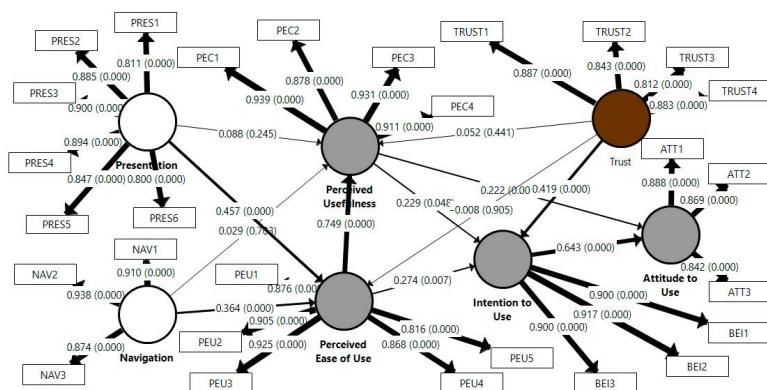
Table 4. Fornell–Larcker criterion assessment of discriminant validity (source: authors' compilation)

Latent variables	ATT	BEI	NAV	PEC	PEU	PRE	TRUST
ATT	0.866						
BEI	0.792	0.906					
NAV	0.678	0.674	0.908				
PEC	0.673	0.679	0.691	0.879			
PEU	0.654	0.672	0.641	0.858	0.915		
PRE	0.714	0.701	0.725	0.716	0.678	0.857	
TRUST	0.669	0.669	0.593	0.496	0.497	0.632	0.857

A recommended AVE threshold of at least 0.50 is suggested for establishing validity (Manley et al., 2021). All constructs in the study report square roots of the Average Variance Extracted (AVE) well above the typical threshold of 0.50, which is considered the standard for establishing adequate convergent validity in Partial Least Squares Structural Equation Modeling (PLS-SEM) analyses.

In the correlation matrix, the diagonal values (square roots of AVE) for the constructs are as follows: ATT (0.866), BEI (0.906), NAV (0.908), PEC (0.879), PEU (0.915), PRE (0.857), and TRUST (0.857). Each of these values exceeds the 0.50 benchmark. These findings illustrate that each latent construct accounts for a greater amount of variance in its indicators compared to any other constructs, thereby robustly affirming both discriminant and convergent validity within the measurement model.

Additionally, no significant multicollinearity issues were detected between the constructs, further confirming that each latent variable captures a unique aspect of the TAM model. The strongest correlations are observed between ATT and BEI, as well as PEC and PEU, which is consistent with technology adoption theories emphasizing the importance of attitudes and usability in influencing user intentions. In contrast, the weakest correlation is between PEC, PEU and TRUST, suggesting that trust in the Neobanks may not significantly affect perceived usefulness. This result may indicate that other factors, such as security features, have a more substantial influence on trust (Gorodianska et al., 2019).

**Figure 1.** Contextual framework and results of the mTAM model

The results of the PLS–SEM presented in Table 5, which are based on the contextual framework illustrated in Figure 1, offer valuable insight into the total, direct, and indirect effects among the latent variables, highlighting their significance and strength. The strongest relationship identified in the model indicates that Perceived Ease of Use (PEU) has a substantial effect (0.749) on Perceived Usefulness (PEC). This finding is consistent with the Technology Acceptance Model (TAM) (Estiyanti et al., 2021), where usability is a primary driver of perceived usefulness.

Table 5. Significant total, direct, and indirect effects of the PLS-SEMs (source: authors' compilation)

Relations	Total effects	Direct effects	Indirect effects	STDEV	T Statistics	P Values
BEI-→ATT	0.643***	0.643***		0.066	9.718	<0.001
NAV-→ATT	0.175***		0.175***	0.053	3.322	0.001
NAV-→BEI	0.169***		0.169***	0.054	3.131	0.002
NAV-→PEU	0.364***	0.364***		0.078	4.651	<0.001
NAV-→PEC	0.301***	0.029	0.273***	0.079	3.796	<0.002
PEU-→ATT	0.453***		0.453***	0.058	7.764	<0.003
PEU-→BEI	0.446***	0.274***	0.172**	0.07	6.390	<0.004
PEU-→PEC	0.749***	0.749***		0.098	7.629	<0.005
PEU-→ATT	0.369***	0.222***	0.147**	0.099	3.725	<0.006
PEU-→BEI	0.229**	0.229**		0.115	1.987	0.048
PRES-→ATT	0.240***		0.240***	0.068	3.507	<0.001
PRES-→BEI	0.224***		0.224***	0.066	3.378	0.001
PRES-→PEU	0.457***	0.457***		0.094	4.859	<0.001
PRES-→PEC	0.431***	0.088	0.343***	0.093	4.625	<0.002
TRUST→ATT	0.269***		0.269***		3.865	<0.001
TRUST→BEI	0.419***	0.419***			5.505	<0.001

Note: ***p < 0.001; **p < 0.05. STDEV: Standard deviations estimated via bootstrap validation.

Moreover, the Behavioural Intention to use (BEI) is significantly dependent on a user's attitude (ATT) towards them (0.643). Additionally, a well-designed interface (PRES) plays a crucial role in enhancing ease of usage (PEU) (0.457), whereas effective navigation strengthens perceived ease of use, reinforcing the principles of user experience design (0.364).

PEU directly influences behavioural intention (BEI) and does so indirectly through Perceived Usefulness (PEC), with a total effect of 0.446 (direct: 0.274; indirect: 0.172). The significance of the indirect path (PEU→PEC→BEI) indicates that perceived usefulness partially mediates the relationship between ease of use and the intention to use. Notably, the indirect effect is considerably stronger than the direct effect, suggesting that the Presentation (PRES) primarily impacts usefulness (PEC) through ease of use (PEU) (total: 0.431; direct: 0.088; indirect: 0.343). Similarly, Navigation (NAV) contributes to Perceived Usefulness (PEC) mainly through its influence on ease of use (total: 0.301; direct: 0.029; indirect: 0.273). T statistics exceeding 1.96, all the relationships are statistically significant at the 95% confidence level (p < 0.05). These high values underscore that ease of use serves as a dominant predictor within the model.

The empirical findings suggest that trust has a statistically insignificant positive effect on Perceived Usefulness (PEC) and ease of use (PEU) within the structural model. The path coefficients and associated t-values do not confirm that higher levels of trust correlate with increased perceptions of the utility of Neobank services among younger users. Hypotheses H1–H2 are not supported. Trust significantly improves users' attitudes toward using Neobank solutions. The PLS-SEM analysis shows that this relationship is strong among young users, highlighting the dynamics involved in trust formation and its Impact on Attitude (ATT). Thus, H3 is supported.

Based on these findings, we can conclude that the User Interface (UI) and navigation are essential for system adoption. Since the user interfaces Presentation (PRES) and Navigation (NAV) have a significant effect on Perceived Ease of Use (PEU), prioritizing improvements in user experience should be a key focus. Perceived Ease of Use (PEU) serves as a crucial driver that directly influences both perceived usefulness (PEC) and attitude (ATT) while also indirectly affecting Behavioural Intention (BEI).

The structural model demonstrates that Perceived Ease of Use (PEU) serves as a primary mediator between interface design elements, e.g., presentation and navigation, Perceived Usefulness (PEC), and Behavioral Intention (BEI). Trust also functions as a mediator in these relationships. However, some mediation effects, particularly those linking trust to perceived usefulness, are somewhat weaker or not significant compared to the principal usability pathways. Nonetheless, trust is acknowledged as an important construct in the indirect mechanism that connects interface design to the intention to use (BEI). Although enhancing Trust (TRUST) could facilitate intention and adoption, the lower correlations indicated in Table 3 suggest that further improvements may be necessary to strengthen its impact on adoption. H4 is partially supported.

The model fit indicators are as follows: the Standardized Root Mean Square Residual (SRMR) is 0.066, which is below the acceptable threshold of 0.08, indicating an adequate model fit. The Normed Fit Index (NFI) stands at 0.834, exceeding the 0.80 mark, which suggests a strong structural fit. d_G (geodesic discrepancy) is 0.808, remaining within an acceptable range (Henseler et al., 2016). Additionally, the rms Theta (root mean square Theta) is recorded at 0.191, falling below 0.12, which might suggest a satisfactory fit in the outer model (Benitez et al., 2020).

We conducted Multigroup Analysis (MGA) via PLS-SEM and bootstrapping to assess whether the relationships differed significantly between groups by gender, e.g., male vs. female. The path coefficients presented in Table 6 illustrate the strength of the relationships (total effects) between the constructs. The significance of these relationships is determined by t statistics and p values ($p < 0.05$), whereas Standard Deviation (STDEV) provides an estimate of variability for each group.

In this context, we clarify our use of terminology when describing multigroup effects. "Significant for both" indicates that a particular path coefficient is statistically significant in both female and male groups, as evidenced by t statistics exceeding the threshold at a 95% confidence level ($p < 0.05$). "Stronger for [group]" signifies that, while the effect is statistically significant in both groups, the magnitude of the total effect (path coefficient) is comparatively greater in the specified group. In contrast, "weaker" denotes that the magnitude of an effect is comparatively smaller in one group relative to another, regardless of significance. By distinguishing between significance and effect size, we enable a more nuanced interpretation of both the reliability and strength of relationships across groups.

Table 6. Significant gender differences within the mTAM of Neobanks (source: authors' compilation)

Relations	Female total effect	Male total effect	Female T value	Male T value	Interpretations
NAV→ATT	0.141	0.193***	1.486	3.077	Stronger for males
NAV→BEI	0.140	0.189***	1.304	2.958	Stronger for males
NAV→PEU	0.400**	0.374***	2.234	3.724	Significant for both, stronger for females
NAV→PEC	0.202	0.328***	1.406	3.265	Stronger for males
PEU→ATT	0.447***	0.458***	4.455	6.629	Significant for both
PEU→BEI	0.407***	0.468***	3.042	5.878	Significant for both, stronger for males
PEU→PEC	0.797***	0.723***	2.768	10.344	Significant for both, stronger for females
PEU→ATT	0.322	0.384***	1.419	3.407	Stronger for males
PRES→ATT	0.133	0.283***	0.748	3.987	Stronger for males
PRES→BEI	0.098	0.279***	0.569	4.145	Stronger for males
PRES→PEU	0.344	0.474***	1.321	4.662	Stronger for males
TRUST→ATT	0.343***	0.260***	2.962	3.798	Significant for both, stronger for females
TRUST→BEI	0.438***	0.401***	2.860	4.904	Significant for both, stronger for females

Note: ***p < 0.001; **p < 0.05.

In examining the direct effects related to Navigation (NAV), it becomes clear that males often exhibit more pronounced correlations. A significant relationship exists between Navigation and Perceived Usefulness (PEC) and between Presentation and Attitude to Use (ATT), with these connections being notably stronger among males. Conversely, females show a greater influence of trust on their attitudes and intentions toward technology usage. This result emphasizes the critical role that trust plays in shaping how females perceive and interact with these financial technologies.

Additionally, the relationship between Perceived Ease of Use (PEU) and Perceived Usefulness (PEC) is more pronounced among females, suggesting that they prioritize ease of use when assessing its usefulness. In contrast, males demonstrate stronger connections between perceived usefulness and attitudes toward use, highlighting the differing cognitive processes and priorities of each gender in relation to financial technology engagement.

5. Conclusions

The transition to digital banking has significantly reshaped trust dynamics, particularly among younger customers. The aim of the study was to shed light on how digitalization has mitigated traditional trust concerns, with social approval through fintech platforms playing a crucial role in the formation of consumer behavior. The findings from the modified Technology Acceptance Model (mTAM) and PLS-SEM analysis confirm that usability, presentation, and navigation are crucial determinants of the perceived usefulness, user attitudes, and adoption of Neobanks. Indirect effects highlight the mediating role of Perceived Ease of Use (PEU) between interface quality (presentation and navigation) and the behavioural intention to use Neobanks. Gender differences also play a substantial role in shaping trust in Neobanks. Women generally exhibit higher levels of trust in digital banking, driven by perceived ease of

use and social validation, whereas men tend to be more active in financial decision-making and risk-taking.

In summary, the results of the article support acceptance of hypotheses H3, and provide partial support for H4, indicating the multi-faceted and gender-influenced role of trust in Neobank adoption among younger users.

The manuscript offers an extensive discussion of User Experience (UX) and User Interface (UI) design elements. This research aspect deserves further exploration, especially considering the growing concerns consumers have about the safety of their personal information (Rabbi et al., 2024). Moreover, factors such as income, education, and technological access further influence trust and adoption patterns (Kamdjoung et al., 2024). Financial institutions should focus on building user-centric experiences to increase customer satisfaction and long-term engagement (Melnyk, 2024).

The findings of this study are limited by the lack of sample diversity and the specific context of the University of Debrecen in Hungary, which may hinder the generalizability of the results to broader populations or different cultural settings. The reliance on a relatively small, predominantly student sample under the age of 25 restricts insights into various age groups and professional backgrounds. Furthermore, while the PLS-SEM methodology is effective for predictive modeling within small samples, it predominantly emphasizes prediction over theory testing, which may oversimplify the complex dynamics of trust and adoption behaviors in digital banking. Additionally, the cross-sectional survey design restricts the ability to draw causal inferences.

Future research should aim to utilize larger, more culturally diverse, and representative samples to address these limitations, incorporate mixed-methods approaches, longitudinal designs, and examine additional psychological, socioeconomic, and technological factors, e.g., AI-driven financial services, blockchain, and fintech collaboration to enhance our understanding of trust dynamics and fintech adoption across different user segments.

While the determinant of trust is a key factor, future studies should integrate additional variables such as age, social and professional status, education, and location to provide a more comprehensive understanding of financial decision-making in digital banking (László et al., 2024). The mTAM model used in this study effectively predicts fintech adoption. However, its predictive power could be improved by incorporating additional psychological (cognitive) and behavioural factors, e.g., digital literacy, risk perception, and sustainability concerns (Karim et al., 2024). The competitive landscape of digital banking should focus on the factors that induce customer retention in Neobanks. Essential themes could include perceived risk, security concerns, cultural influences, and blockchain integration (Gorodianska et al., 2019). Further research is needed to explore the impact of digital transformation policies on trust and banking adoption in younger generations (Dragolea et al., 2023). This subject includes studying how financial regulations, cybersecurity measures, and data privacy laws shape customer perceptions (Meijer, 2021). For instance, implications of data breaches, effectiveness of encryption technologies, and transparency of data handling practices significantly emphasizes the importance of implementing robust security measures to build consumer confidence in digital banking solutions.

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Author contributions

DM and JV conceived the study and were responsible for the design and development of the data analysis. BA and DM were responsible for data collection and analysis. DM and JV were responsible for data interpretation. BA wrote the first draft of the article.

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