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Shopping using mobile applications and the role of the technology acceptance model: Purchase intention and social factors

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Digital Internet's popularity and the e-commerce market continue to grow. In recent years, online media has greatly impacted retail experience and consumer behaviour. This study examines the influence of customer purchase intention (PIN) while considering a combination of social factors and the technology acceptance model (TAM). Previous studies on mobile applications have analysed the TAM effect; however, social factors remain neglected. Thus, highlighting the requirement for social factors, their effect on PIN was investigated. This study examined peer influence (PI) and social influence (SI) in terms of the application of the TAM and 404 responses collected from mobile banking application users in Hungary. SmartPLS was used to conduct structural equation modelling. The results demonstrate that PI and perceived usefulness (PU) are more effective than perceived ease of use (PEOU), along with attitudes towards mobile application usage (ATMAU) and SI. Moreover, ATMAU established a significant relationship with PIN. In addition, PU and PI have a more effective indirect relationship than PEOU and SI with PIN in the mediation of ATMAU.

Keywords: Mobile Applications, Social Factors, Consumer intention

The popularity of the digital Internet and the excitement surrounding the e-commerce market continue to grow. Mobile Internet services consume the highest bandwidth worldwide *(Traichon, 2017)*. The concept of "payment" has evolved significantly in the form of a single individual and a single device. Online media have greatly impacted retail experience and consumer behaviour in recent years. Numerous small and large businesses wish to join an evolving

online sphere *(Traichon, 2017)*. Over the past two decades, customer engagement management and communication relationships have progressed at a break-neck pace. These online portals assist consumers in promoting and spreading the use of new technology *(Nambisan–Baron, 2007)*. Each year, web technology advances with new automated solutions and IT management capabilities. Therefore, it is important to consider the essence of the interaction between marketing and online technology. Customer-firm relationships have been dynamically altered as a result of advancements in mobile technology *(Lopez et al., 2021; Walker–Francis, 2003; Yoganathan–Jebarajakirthy–Traichon, 2015)*.

Numerous studies have examined the management of interactions with and among consumers in relation to emerging innovations and their effects on marketing *(Li, 2020; Wikhamn, 2019; Sharma–Conduit–Rao Hill, 2014)*. Different smartphone applications (apps) are referred to as marketing vehicles because they fundamentally alter the customer-firm relationship. Customers can now access product details *(Barann et al., 2020)* and add items to their cart using an online interface without leaving their laptops or desktops *(Melumad et al., 2020; Barnes–Cumby, 2002)*. Customer behaviour has shifted dramatically as a result of this fundamental trend in Internet technologies. Several studies on Internet technologies, smartphone apps, and consumer partnerships have been proposed *(McLean et al., 2020; Mishra et al., 2021; Bilgihan–Bujisic, 2015)*. Among them, "planned behaviour", "reasoned action", and "technology acceptance model (TAM)" hypotheses were identified as more fundamental for investigating outcomes such as "customer management" and "customer satisfaction" *(Fishbein, 1980; Venkatesh, 2000; Venkatesh–Bala, 2008; Sharma–Conduit–Rao Hill, 2014)*. Davis *(1989)* proposed the most frequently cited TAM. This model presents a complex approach that relies directly on the conventional technology adoption paradigm to resolve and clarify why new information technology (IT) has significant limitations. Limitations include the usage and adoption of IT, styles of systems, target user audiences, and similarity of use contexts.

It is recommended that the technology acceptance paradigm be addressed in more detail to understand observed behavioural variations. The TAM *(Bagozzi, 2007; Legris–Ingham–Collerette, 2003; Tarute–Nikou–Gatautis, 2017; Vijayasarathy, 2004; Baby–Kannammal, 2020)* contains the following four sets of variables: (1) TAM model's traditional inherent variables of behavioural intention, perceived ease of use (PEOU), and perceived usefulness (PU); (2) device characteristics that influence PEOU and PU symptom variables, such as importance, system assistance, and accessibility; (3) perception of control, including screen design, navigation, terminology, domain awareness, and self-

efficacy; and (4) influence behaviour. External variables include influencing purposes, such as perceived cost, perceived risk, and perceived confidence, as well as accountability, social impact, perceived enjoyment, and individual creativity. In summary, TAM is the most accurate and efficient paradigm for analysing consumer behaviour related to technology *(Liu–Ye, 2021; Kim–Ha–Park, 2015; Kim–Wang–Malthouse, 2015)*. Attitudes towards online shopping system usage are directly affected by PU *(Kim, 2012)*. As a result, this research expands and incorporates TAM to analyse the use of smartphone apps and consumer buying intentions *(Davis, 1989; Kim–Yoon–Han, 2016)*.

Earlier research using this model did not explore changes in consumer buying behaviour or the impact of apps on customer behaviour; rather, it was designed to aid in the adoption and use of mobile apps *(Payne–Frow, 2017; Park et al., 2015)*. This study aims to create a model of mobile apps by considering the fundamental components of the TAM, such as the variables that influence consumer adoption of mobile app services *(Viswanathan et al., 2017)*. Elements include, but are not limited to, interface, device, personality, and social impact factors, as well as technological and other factors influencing behavioural intentions *(Rahimizhian–Avci–Eluwole, 2020; Ajzen, 1991; Juaneda-Ayensa–Mosquera–Sierra Murillo, 2016; Tarute–Nikou–Gatautis, 2017)*.

The primary objective of this study is to address the two gaps identified in the literature review by adding new variables focused on the extension of the technology adoption paradigm, in-depth discussions of users' acceptance of mobile app services, and the use of behavioural questions to increase the model's predictive and explanatory capacity *(Ukhov et al., 2020; Gómez-Llanos–Durán-Barroso–Robina-Ramírez, 2020; Alwabel–Zeng, 2021; Verma–Sharma–Sheth, 2016)*. First, this study aimed to determine the impact of TAMs on purchase intention (PIN) through online technology. Notably, researchers have urged further study on the relationship between consumers and online technologies. Second, we investigated the influence of external factors on the decision to adopt and use mobile apps. This study points to an appropriate number of studies on mobile apps based on the vital values of the variables. It also discusses the particulars and illustrates the emerging threats that developers face due to changing consumer habits. Moreover, it will assist e-commerce businesses in sales and in identifying new growth opportunities. For researchers, this study will aid their understanding of the interaction and impact of social influence (SI) on consumer intentions to adopt, use, and buy through mobile apps.

1. Theoretical Background

The acceptance of technology remains a primary subject of study in the area of information management and includes the existence of several theoretical models. The TAM is primarily used to describe and forecast user acceptance of information systems. Davis *(1989)* developed TAM's developmental context using social science *(Cohen et al., 2020; Boggiano et al., 1987; Gao–Bai, 2014; Park et al., 2009).* Thoughts influence users' expectations and intentions, which in turn influence the situation involving the use of information systems *(Davis,1989).* Therefore, TAM's primary value is to lay a general theoretical foundation that can address, justify, or forecast the factors influencing the use of IT *(Rodrigo–Palacios, 2021; Park et al., 2009).* PEOU and PU are two components of personal trust in TAM *(Dhagarra–Goswami–Kumar, 2020; Saadé–Bahli, 2005).* It is a paradigm that is authoritative, stable, and seamless. The TAM suggests two significant modifications that affect consumer adoption. The ratio of quantity: PU reflects an individual's conviction that a particular system would work for him *(Van Compernolle et al., 2018).* The level to which efficiency has improved, PEOU, reflects a person's perception that a given method is simple to use. Numerous researchers have empirically established the power of organisations and authorities.

The present literature on the TAM is primarily classified into two groups *(Taherdoost, 2018):* the first type of study focuses on the model's use in a specific field scenario, such as e-commerce *(Han, 2021),* health care *(Kamal–Shafiq–Kakria, 2020),* online learning *(Pal–Vanijja, 2020),* or entertainment *(Go–Kang–Suh, 2020),* and the second type of study focuses on the model's overall growth *(Sohn–Kwon, 2020; McFarland–Hamilton, 2006).* To gain a comprehensive understanding of the TAM's implementation status and shortcomings, another study breaks down the TAM and its main components *(Zhong–Oh–Moon, 2021; Valentine–Powers, 2013).* The TAM's fundamental structure retains PU and PEOU *(Davis, 1989)* [18]. Furthermore, the TAM demonstrates when a person employs a structured decision-making process and confronts such facts *(Schmidt–Biessmann–Teubner, 2020; Venkatesh–Bala, 2008).* As the information system (situation) changes, antecedent variables often change *(Mlekus et al., 2020).* They classified the model's expanded variables into five categories: technological, social, operational, human, and consistency *(Ezzaouia–Bulchand-Gidumal, 2020; Zogheib et al., 2015).*

Additionally, the TAM integrates several cognitive science models, including the self-efficacy hypothesis *(Buabeng-Andoh, 2021),* novelty resistance model *(Eliwa et al., 2021),* expectation confirmation theory *(Rahi et al., 2021),* social

presence theory *(Salimon et al., 2021),* social exchange theory *(Sharmin et al., 2021),* immersion theory *(Fussel–Truong, 2021),* usage and satisfaction theory *(Cho–Chi–Chiu, 2020),* and acquisition-transaction efficiency theory *(Leong et al., 2019).* Technological factors must be established through the use of information systems. As a result, the information system interacts with technological variables and consumers. The perceived consistency variables in the cooperative mechanism were combined and reduced to a single-device vector *(Son et al., 2016).* Both organizational and social considerations are information structures, and personal variables external to the body can be merged to construct environmental variables *(King–He, 2006).* Subsequently, some researchers developed alternative hypotheses based on the TAM. Taylor and Todd used one such hypothesis to analyse when they proposed the concept of subjective standards and behaviour management. Investigating arbitrary norms begins with Fishbein and Ajzen's logical conduct *(Ajzen, 1991).* According to *Venkatesh and Davis (2000),* based on TAM, persons or communities that individuals believe are significant to them desire to use modern perceptions of technology *(Wu–Song, 2021; Ajzen, 1991; Son et al., 2016; Traichon–Quach, 2015).*

2. Research Model

We suggest the TAM2 and TAM3 models, which combine PU and PEOU. Similarly, subjective norms have a direct impact on behavioural intentions, or the individual acts directly on PU and indirectly on behavioural intentions *(Rahmi–Birgoren–Aktepe, 2018; Rejón-Guardia–Polo-Peña–Maraver-Tarifa, 2000).* This study extends the principle of social power by including PI and SI. In addition, this study examines consumers' behavioural outcomes and buying intentions. Thus, PI and SI were considered independent determinants of PIN based on consumer attitudes.

Figure 1

Research Model
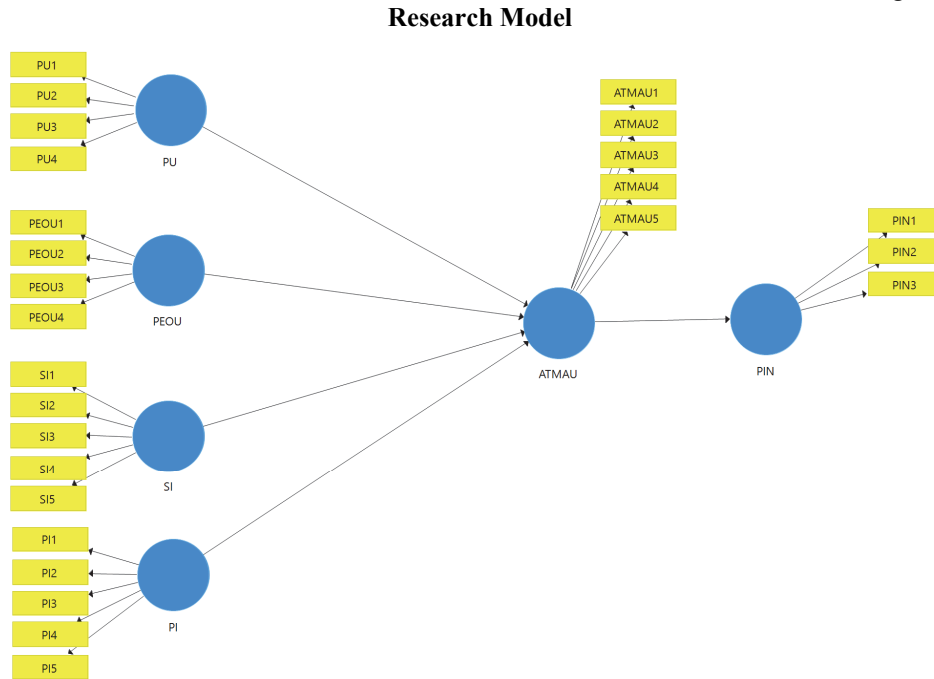
Source: Author

Note: In the above model, variable names are as follows: PU= Perceived Usefulness; ATMAU= Attitudes Towards Mobile Application Usage; PEOU=Perceived Ease of Use; SI=Social Influence; PI=Peer Influence; PIN= Purchase Intention.

We thus hypothesize the following:

H1. PU positively influences attitudes towards mobile application usage (ATMAU).

'PU' refers to the fact that 'the user believes that after using a specific information system, performance can be to obtain the degree of improvement' *(Arpaci–Al-Emran–Al-Sharafi, 2020; Davis, 1989; Silva, 2015).* This implies that using a digital learning system can enable the user to acquire specific knowledge *(Gupta–Arora, 2017).* When the PU is high, it depicts user interest in the digital learning system, as well as a high degree to which specific knowledge can be truly learned. However, if the PU is low, the user believes that using this digital learning system to learn specific knowledge can only be done to a low degree *(Olaleye et al., 2018).* Venkatesh and Davis *(2000)* further argued that because of the PEOU, users made the same effort while completing more tasks; thus, the PEOU affected the PU, and both affected the attitude towards use *(Venkatesh, 2000).* It has been assumed that customers use new technologies

because of both perceived intrinsic and extrinsic benefits. Additionally, the literature review revealed positive attitudinal behaviour towards advanced technologies. For example, the use of mobile apps in online banking depicts customers' positive attitudes towards the acceptance of technology *(Dasgupta–Paul–Fuloria, 2011; Morosan–DeFranco, 2016)*. Customers perceive accessibility and accept technology based on the ease and trustworthiness of mobile apps. Therefore, we hypothesize:

H2. PEOU positively influences ATMAU.

PEOU and attitude towards using mobile apps have a drastic effect on the overall economy because both lead towards the same path. The current study perceives the same interpretation. Therefore, we hypothesize:

H3. SI positively influences ATMAU.

In addition to being independent, humans are also part of society, a member of the group whose behaviour is bound to be affected by other members of the group *(Bastick, 2021; Barnes–Cumby, 2002; Knoll et al., 2015; Quazi–Talukder, 2011)*. Group theory also emphasises that the mental state of an individual's degree and behaviour is affected by the group to which they belong or pursue, and the group influence can be used as a direct determinant of behavioural intention *(Baek, 2013; Qin et al., 2011)*. Under the SI of others, their behaviour can change. Behaviour consists of two attributes of individual perception: subjective and descriptive norms *(Book et al., 2018)*. It has been observed that when a customer decides to leave the app or refuse to use it, the user considers the effect relevant to the decision on the relationship with another *(Laforet–Li, 2005)*. Consequently, people tend to review public opinion. Individuals' compliance with the acceptance of societal customs affects their perception of whether they grasp more SI *(Verma–Sharma–Sheth, 2016)*. Research shows that people are more influenced by public opinion during app adaptation decisions. Moreover, people with more diffusion are likely to adopt apps that are considered more useful. In short, people are more likely to adopt any app when they are influenced by social groups or relationships. Therefore, we hypothesize:

H4. PI positively influences an individual's ATMAU.

The term 'peer group' is defined as a group of five or more people who regularly interact and influence each other. Every study comprises a close group of people or friends known as a social group *(Opoku, 2012)* [88]. Studies have revealed that peer-to-peer interaction significantly influences peer compliance *(Bastick, 2021)*. The process of information sharing and influencing between friends brings about peer influence (PI) *(Gillani, 2012)*, and peers may perceive influence and pressure from peers' groups through signals and messages exerted by perceived groups *(Bapna–Umyarov, 2015)*. Logically, if one friend in a peer group adopts an app, peer pressure will increase to do the same thing. Based on

the social media context, many apps, such as Twitter or Instagram, are partial to photographs that were liked by more friends rather than photos with fewer likes. It further reveals the vital influence of peer groups and the behaviours of peers *(Graf-Vlachy–Buhtz–König, 2018; Walumbwa–Hartnell–Misati, 2017)*. Another study has been performed on social media, demonstrating that PI affects shopping behaviour in China and the United States, even with cultural distinctions between the two nations. Scholars have also suggested that more prominent PI can be observed among university students owing to proximity *(Sherman et al., 2016)*. Therefore, we hypothesize:

H5. ATMAU influences PIN.

Prospectively, mobile app activity and intentions of an individual are determined by their general attitude towards any app, and the intentions of individuals are influenced by two key reasons *(Vahdat et al., 2021; Carter–Yeo, 2016)*. First, users' experience with mobile apps is not jeopardised if they interfere with them. Second, mobile apps are highly targetable and provide additional assistance for purchasing at lower consumption levels *(Vahdat et al., 2021; Alnawas–Aburub, 2016)*. Distinct features of any app related to the persuasive effect of mobile apps are perceived as highly supportive influences on the management process of customer relationships and PIN *(Wang et al., 2021; Son et al., 2016)*. Customers can engage in multiple touchpoints with products by logging into apps and making purchases based on the information provided *(Hsu–Lin, 2008)*. Customers are more likely to visit apps with a considerable duration and a positive attitude towards any app. This process may enhance customer stickiness and PIN *(Lee, 2018)*. Stickiness is considered an essential factor in maintaining a strong relationship between PIN and app attitude *(Bellman et al., 2011)*. Well-designed and improved apps are more appealing to customers than traditional services. Moreover, it can be concluded that successful and easy-to-use apps are more attractive and enhance attitudes towards PIN. Therefore, we hypothesize:

H6. ATMAU mediates the relationships between (a) PU and PIN and (b) PEOU and PIN.

The replication of TAMs has been considered one of the mediating factors in mobile app use *(Asnakew, 2020; Amoroso–Ackaradejruangsri, 2017)*. Scholars have concluded that customer satisfaction and ease of use are essential to positive customer attitudes *(Rivera–Gregory–Cobos, 2015)*. The effect of technological understanding on PIN is mediated by customers' ATMAU. Furthermore, ATMAU effects have been confirmed by different models, such as the affect-behaviour-cognition model. Some studies have suggested that customer attitudes mediate beliefs regarding perceived values and affect stickiness *(Pang, 2021; Hsu–Lin, 2008)*. In this study, ATMAU was clearly linked to prior factors and

consequent factors of TAMs *(Vahdat et al., 2021)*. Thus, we conclude that customer attitudes play a mediating role in the multiplication of app usage, PU, ease of use, and PIN. Therefore, we hypothesize:

H7. ATMAU mediates the relationship between (a) SI and (b) PI and PIN.

'PEOU' means 'users believe that using a specific information system does not affect the willingness to use' *(Zeng et al., 2021)*. Self-efficacy positively influences both PEOU and PU *(Davis, 1989)*. However, by definition, self-efficacy and PEOU are concepts with the same connotation. This study inherits the context of previous studies and uses TAM along with the extended part of social factors collectively, as the primary theoretical framework to examine the data. Different TAM models have distinct features; for example, research on TAM simultaneously considers PU and PEOU *(Venkatesh, 2000)*. In TAM2, the influence of social factors is also considered to elaborate attitudes towards mobile apps *(Blazquez–Alexander–Fung, 2020)*. The social psychologist effect demonstrates that PIN towards mobile apps is influenced by social factors *(Schepers–Wetzels, 2007)*. The logic behind this hypothesis is trust, perceived lack of risk, and improved features of the apps used by communities and their peers. Based on the results, there is an increase in customer confidence and a positive attitude towards buying products through mobile apps.

3. Research Methods

This study examined the use of digital smartphone apps in the context of smartphone users in Hungary. The primary objective was to recognise and comprehend the popularity of online shopping in Hungary. Currently, mobile apps cover the bulk of utilities available in Hungary. These apps cover various categories, including aesthetic objects, shoes, computing equipment, homes, automobiles, toys, and books. Since 2019, the number of smartphone app users has observed a dramatic spike. Critical research variables were measured using a formal questionnaire and fitting scale. We adopted the research questionnaire developed by *Vahdat et al. (2021)*. The reason for adopting the questionnaire was that a similar study was conducted on a specific mobile app in Iran. Moreover, the addressed study used social and peer influence together. The questionnaire used a five-point scale of approval for strongly agreeing and a single scale for strongly disagreeing to prevent traditional approach variance. A questionnaire

was sent to the digital app users for testing purposes, and complete responses were obtained for analysis.

In this analysis, we updated the previously validated models and variables. This study summarises all the variables with a high degree of validity. Five scale elements were used to determine PU and PEOU, resulting in five social impact items *(Abd Malik–Annuar, 2021; Kucukusta et al., 2015; Wang–Lin, 2011).* Two studies *(Khare–Pandey, 2017; Lee–Tsao–Chang, 2015)* have become the basis for this method to derive ATMAU and PI *(Lee, 2018)* and have further *(Erkan–Evans, 2018)* become the basis for this method to derive buying.

3.1 Data collection

Data collection was conducted in Budapest, Hungary, from January to March 2021, with a sample of 404 responses. The target for the study was mobile phone banking app users. Since the population was unknown, a non-probability sampling technique was used. Purposive and snowball sampling techniques were used. Cross-sectional studies are useful for timely analyses. Owing to the coronavirus pandemic, only an online survey was conducted, with minimal interference from the researcher. The analysis proposed for this study is structural equation modelling with SmartPLS. The limitations of the study include the time span and number of respondents. Missing values are treated with mean replacement in SmartPLS *(Hair et al., 2017).*

4. Analysis and Results

The analysis can begin with an understanding of the respondents' demographics so that the results will be clearer.

To understand the sample characteristics, we described the cross-tabulation between marital status, educational level, and sex. Table 1 shows that 54% were female respondents and 46% were male respondents. Of the total respondents, 49% were single, and 51% were married. Most respondents, both female and male respondents, were at the master's education level, and the least were those who were below graduation. Each responder had a mobile banking app installed on their phone.

Demographic Characteristics: marital status, education level, gender cross-tabulation

Marital status	Education level				Total
	Below graduation	Graduation	Masters	PhD	
Female					
Single	12	23	43	28	106
Married	0	6	95	10	111
Total	12	29	138	38	217
Male					
Single	10	16	53	12	91
Married	0	18	72	6	96
Total	10	34	125	18	187
Total					
Single	22	39	96	40	197
Married	0	24	167	16	207
Total	22	63	263	56	404

4.1 Reliability and validity tests

4.1.1 Construct reliability and validity

Table 2 lists the results of the loading, composite reliability, and average variance extracted (AVE) assessments. Cronbach's alpha was used to determine the reliability of the scale. Normally, Cronbach's alpha reliability coefficient is between 0 and 1. According to *(Hair et al., 2014),* an excellent scale should have a value greater than or equal to 0.80, an acceptable scale should have a value of 0.70, and an experimental scale should have a value of 0.60. Cronbach's alpha values for ATMAU, PEOU, PI, PIN, PU, and SI are 0.744, 0.900, 0.816, 0.849, 0.838, and 0.871, respectively. As a result, these indicators meet the requirements. Factor loading should be greater than 0.3 to be relevant and representative of a particular factor. The requirements fulfilled all constructs.

Table 2

Measurement Model Quality Criteria

Latent variable	Factor loading	Compositive reliability	Average Variance extracted (AVE)
PU		0.888	0.666
PU1	0.800		
PU2	0.792		
PU3	0.847		
PU4	0.840		
PEOU		0.918	0.738
PEOU1	0.856		
PEOU2	0.871		
PEOU3	0.884		
PEOU4	0.897		
SI		0.875	0.589
SI1	0.807		
SI2	0.832		
SI3	0.846		
SI4	0.817		
SI5	0.761		
PI		0.871	0.576
PI1	0.736		
PI2	0.758		
PI3	0.750		
PI4	0.761		
PI5	0.795		
ATMAU		0.829	0.533
ATMAU1	0.385		
ATMAU2	0.920		
ATMAU3	0.882		
ATMAU4	0.879		
ATMAU5	0.362		
PIN		0.906	0.763
PIN1	0.879		
PIN2	0.878		
PIN3	0.873		

Composite reliability aids in explaining the scale dependability better; it is also advisable in the exploratory model that it should be more than 0.6 *(Chin, 1998; Hock–Ringle–Sarstedt, 2010);* in the confirmatory model, it should be more than 0.70 *(Henseler–Ringle–Sarstedt, 2015);* and in confirmatory research, it should be more than 0.80 *(Daskalakis–Mantas, 2008).* The composite reliability values of ATMAU (0.829), PEOU (0.918), PI (0.871), PIN (0.906), PU (0.888), and SI (0.875) revealed that all profound hypotheses had a higher degree of "internal consistency" dependability.

The AVE can be used to evaluate divergent and convergent validity. While evaluating the theoretical model, the AVE depicts the average communality of each latent component. AVE should be greater than 0.5 in an acceptable model *(Chin, 1998)* and greater than the cross-loadings, which indicates that variables should account for at least half of the variation in their respective indicators. AVE values less than 0.50 indicate that error variance exceeds explained variance. ATMAU (0.533), PEOU (0.738), PI (0.576), PIN (0.763), PU (0.666), and SI (0.589) had a higher degree of internal consistency dependability.

Table 3

Collinearity Statistics VIF (Inner VIF Values)

Constructs	ATMAU	PIN
ATMAU		**1.000**
PEOU	**1.006**	
PI	**1.193**	
PIN		
PU	**1.193**	
SI	**1.007**	

Multicollinearity arises in ordinary least squares regression when independent variables are significantly linked, which causes inflation in standard errors, making the test unreliable and preventing the researcher from establishing the relevance level among independent variables. A general guideline is that when the variance inflation factor (VIF) coefficient is greater than 4.0, serious multicollinearity may emerge (few agree at a more lenient cut-off of 5.0). SmartPLS prints the VIF coefficients for the structural model in the "Inner VIF Values" table displayed above. There were no issues with multicollinearity in the table summaries.

4.1.2 Discriminant validity

Table 4

Fornell–Larcker Criterion of Constructs

Constructs	ATMAU	PEOU	PI	PIN	PU	SI
ATMAU	**0.730**					
PEOU	0.067	**0.859**				
PI	0.587	0.019	**0.759**			
PIN	0.739	0.030	0.602	**0.874**		
PU	0.677	0.004	0.402	0.644	**0.816**	
SI	−0.078	−0.073	−0.035	0.023	−0.037	**0.768**

Note: In the diagonal, the AVE, below the diagonal, the squared correlation coefficients between constructs are shown. Discriminant validity was established as the top number, which is represented as the square root of AVE and is greater than the number below in the factor column.

Table 5

Heterotrait-Monotrait Ratio of Correlations

Constructs	ATMAU	PEOU	PI	PIN	PU	SI
ATMAU						
PEOU	**0.112**					
PI	**0.734**	**0.058**				
PIN	**0.789**	**0.031**	**0.721**			
PU	**0.732**	**0.044**	**0.483**	**0.753**		
SI	**0.077**	**0.089**	**0.050**	**0.064**	**0.050**	

To circumvent the limitations of cross-loadings and the Fornell–Larcker criteria, *(Henseler–Ringle–Sarstedt, 2015)* performed model simulations to demonstrate that the heterotrait-monotrait (HTMT) ratio is a more sensitive indicator of a lack of discriminant validity. The HTMT ratio should be less than one. As the table indicates, discriminant validity has been proven between the particular pair of reflective constructs developed above, also supported by *(Gold–Malhotra–Segars, 2001; Teo–Srivastava–Jiang, 2008)*.

Table 6

Model Fit

Measure	Saturated Model	Estimated model
SRMR	0.071	0.078

The model fit summary table explains the SRMR threshold (e.g. SRMR < 0.08), and table values establish a good fit of the model.

Table 7

Total Effect

Relationships	Original sample (O)	Sample Mean (M)	Standard deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
ATMAU → PIN	0.739	0.740	0.019	38.527	0.000
PEOU → ATMAU	0.054	0.058	0.036	1.503	0.133
PEOU → PIN	0.040	0.043	0.027	1.496	0.135
PI → ATMAU	0.374	0.372	0.034	11.139	0.000
PI → PIN	0.276	0.276	0.025	10.909	0.000
PU → ATMAU	0.525	0.524	0.033	15.874	0.000
PU → PIN	0.388	0.388	0.027	14.400	0.000
SI → ATMAU	−0.041	−0.035	0.046	0.890	0.374
SI → PIN	−0.030	−0.026	0.034	0.888	0.375

H1, H4, H5, H6(a), and H7(b) were accepted, and H2, H3, H6(b), and H7(a) were rejected. The direct effect showed that PI (0.374) and PU (0.525) directly affected ATMAU, whereas ATMAU (0.739) directly affected IP. Conversely, ATMAU had no indirect effect on the subjects, whereas PIN, PI (0.276), and PU (0.388) had indirect impacts.

Figure 2

Research Model with Results
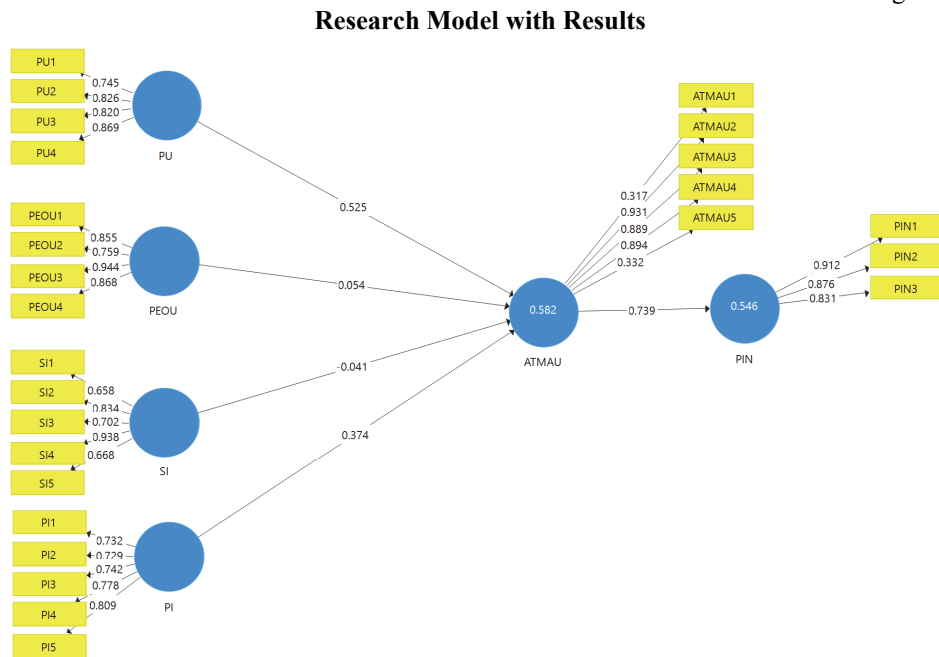
As it can be observed, PU had a larger indirect influence on PIN than the other factors. In comparison, the impact is less than that of PU, while there was no effect for SI or PEOU. This might be because PU plays a significant role in motivating available respondents who use mobile banking apps to make a purchase. Second, peer pressure encourages people to engage in such behaviour in the modern era of social media. Simultaneously, the social impact is marginal in the current sample.

Interestingly, PEOU also did not affect PIN while mediating attitude, and there could be several reasons for this. People looking for ease-of-use factors may not have the capacity to buy online or may not be familiar with technology. There may also be a reason people do not trust online buying and do not want to share banking details with different apps. This can be explained by several factors.

5. Discussion

The results revealed no positive impact for hypotheses H2, H3, H6(b), and H7(a). The results of the hypotheses were not verified by *Veríssimo (2016).* It contains the reason behind digital apps versus mobile banking apps, whereas previous technology is used to conduct banking transactions online. The outcome of these hypotheses also differs from the results of *Rivera et al. (2015),* whose survey population consists of timeshare customers who, they claim, appear to have life-long commitments. This study is different because these dedicated clients will use an app irrespective of their PU.

Compared with the results of *Hernández et al. (2010),* this analysis shows that perceived usability has a significant effect on the perceived realistic impact on attitudes towards the use of mobile apps. This is because of the wide appeal of Hungarian clients. *Hsu and Lin (2008)* confirmed this observation, suggesting that only working conditions outside the limits of this analysis are considered useful. For H1, H4, H5, H6(a), and H7(b), this study follows *Veríssimo's* results *(2016),* which have shown that easy-to-use perceptions are a major factor in mobile banking accompanying others; H5 is supported by the results of a well-known study which explained and proved that user experience has a significant effect on the implementation intentions of online shopping *(Wang et al., 2021).* H6(a) is supported by the studies conducted on intention to purchase fresh food, where perceived utilitarian value (PU) significantly affects intention to buy *(Lin–Li–Guo, 2021).* According to *Hernández et al. (2010),* this result is consistent with the IT context.

This study shows similar results that, while acknowledged, the impact on mobile app use that is considered easy to use is poor. *Hsu and Lin (2008)* further checked the second assumption and observed that PEOU had an important impact on IT behaviour, but in the current study, which focused on those who already use mobile banking, the PEOU was not significant. Subsequently, problems with usage will build total IT resistance. In future studies, other users should be considered. In contrast to our results, *Hew et al. (2015)* indicated that external impact had a minimal beneficial effect on behavioural intent; that is, the basic act of using an app should be conducted in nature. Instead, the variance was the dependent variable. Specifically, their report *(Hew et al., 2015)* evaluated a behavioural aim that takes one step forward and then takes time to convert it into real behaviour. In fact, external control has proven to alter human behaviour; however one cannot alter one's behaviour. This study showed PI as a major factor in deciding the attitude towards use (H4), reflecting the results for undergraduate students in one study *(Carter–Yeo, 2016).* After segmenting the

samples into graduates, the analysis identified that the former position on app usage was influenced by peer control, whereas the latter depended less on external encouragement. Their views on smartphone apps were also not influenced by social impact.

According to research, individuals' ATMAU are influenced by PU but not by PEOU. However, our results indicate that practicality only had a significant effect on users' attitudes towards apps. Consequently, we recommend that software developers continue to enhance the usefulness of their products.

In terms of mobile app architecture and navigation it is necessary to have the provision of simplicity, easy-to-follow guidance and tutorials for consumers *(Qin et al., 2011)*. In terms of TAM variables and user ATMAU, our results indicate that age, educational level, and marital status act as moderators in the relationship between usability and user attitude. As a result, advertisers can continue their efforts to increase PU by approaching young people and developing apps that meet their requirements. Notably, these results apply to both men and women. In addition, educated individuals are more likely to use mobile apps to make online purchases.

Given that PI has been shown to influence ATMAU, users can share their perspectives and practices on social media while using mobile apps with encouragement from developers. A compensation system can serve as a positive motivator for participants in this case *(Hsu–Lin, 2008)*. Additionally, advertisers are urged to use social media to inspire consumers to share their insights online or offline, thus increasing revenue *(Seitz–Aldebasi, 2016)*. Managers can also seek opinion-makers and culture creators to influence others' views regarding mobile app use in the long run, as now it is not useful concerning the sample. They should use word-of-mouth (WOM) marketing and mainstream advertisements as these two types of media amplify network effects and assist in achieving a sense of critical mass *(Hsu–Lu, 2004)*. Viral promotions, in which an advertisement is voluntarily rewritten and distributed by audiences, add another tool to influence peers if they engage emotions in people. With the rise of social media, people increasingly interact through digital platforms. As a result, viral marketing strategies have emerged as effective strategies for capturing and maintaining interest.

Managers may also use e-coupons or e-papers to encourage users of social networking sites to share knowledge regarding the smartphone apps they use to express their usefulness *(Tseng–Lee, 2013)*. Thus, marketers must cultivate hedonic perceptions to foster emotional value, constructive societal significance, and peer WOM associated with app usage. For instance, mobile app vendors may use peer-to-peer impact (e.g. the advantage of the recommender) to sway others' allegiance to mobile apps *(Chang, 2015)*. A marketer's primary aim is to produce

a high volume of revenue based on consumers' purchasing intent. This study contributes to industry learning and practice by highlighting consumers' ATMAU as a major predictor of buying motives. As a result, managers can encourage apps in the store using data relevant to the loyalty and regularity of consumers along with the point of purchase displays.

Thus, this study proposes that advertisers incentivise app consumers to transact or exchange information by incentivising them to enter a shop *(Taylor– Levin, 2014)*. Adding engaging components to mobile apps such as games is a vital approach to improving awareness and fostering healthy behaviour *(Seitz– Aldebasi, 2016)*, because fun and amusing modules persuade people to connect to apps for extended periods *(Seitz–Aldebasi, 2016; Kim–Yoon–Han, 2016)*. Additionally, advertisers should be mindful of the fact that PU and awareness contribute significantly to increased purchasing intent by enhancing overall consumer attitudes. This suggests that simple usage encourages users to make in-app transactions *(Amoroso–Ackaradejruangsri, 2017)*.

Additionally, the current study discovered that ATMAU completely mediates the relationship between PI, PU, and PIN. Advertising mobile apps can facilitate a strong marketing strategy to increase sales volume. Finally, this study demonstrates that advertisers should be conscious of the disparity in attitudes towards mobile app usage between older and younger generations. Thus, advancements in this area require careful consideration of age.

6. Conclusion

This study aims to examine how social factors and TAM influence consumer purchasing behaviour. The results suggest that PU and PI have a favourable effect on ATMAU; however, PEOU and SI have not yet had a significant effect on the Hungarian sample evaluated in this study. Individuals' ATMAU has influenced buying intentions favourably.

This study had some limitations. The data collection was conducted in Hungary. Generalisability is often a concern in consumer behaviour studies, and this analysis is not different. Future studies should examine to what extent the results can be generalised to other periods, contexts, and cultures. Future studies should validate this model in other service environments and countries. Second, this study did not explore any association between the frameworks of affective evaluation, that is, between consumer satisfaction, esteem, confidence, and

loyalty. Future studies should examine these connections to obtain a better understanding of the impact of service quality in a more difficult consumer context. Finally, a longitudinal analysis of consumer behaviour related to specific smartphone apps may be performed to elicit information regarding the evolving habits of consumers' wants and preferences.

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