Factors influencing intention to use e-banking: An integrated model approach

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Abstract

The expansion of information technology presents significant challenges, making the development of technology-based banking services an inevitable trend in global economic integration. This study aims to develop and empirically evaluate a model to predict factors that influence customers' behavioral intentions when utilizing electronic banking (e-banking) services. The proposed conceptual model is based on an expansion of the Unified Theory of Acceptance and Use of Technology (UTAUT) through the integration of two additional factors: assurance and customer support. Data were collected via an online questionnaire administered to 379 e-banking customers. Partial Least Squares Structural Equation Modeling (PLS-SEM) and Importance-Performance Map Analysis (IPMA) were employed to assess the effects of various factors on the adoption and use of e-banking services in Albania. The findings of this study indicate that assurance and customer support are the most significant determinants of e-banking customers' continuance intention. Based on these findings, managers should prioritize electronic service quality, as it plays a substantial role in influencing the acceptance of e-banking.

Keywords: Customers, UTAUT, e-banking, Partial least squares structural equation modeling.

1. Introduction

E-banking represents a synergy between the foundational financial systems of national development and rapidly advancing technology. The development of technology that defines the twenty-first century is guiding banks to adopt a modern array of advanced methods. E-banking is among the technological innovations transforming the banking industry, driving changes that extend beyond traditional financial services [1]. The concept of e-banking encompasses multichannel banking, allowing customers to perform a broad range of financial and non-financial activities through the bank's website, such as paying electricity bills, transferring funds, applying to open a bank account, applying for a loan, and accessing

information about account balance [2]. The use of e-banking enables customers to significantly reduce waiting times at the bank and removes restrictions imposed by limited banking hours. Customers can access e-banking without requiring any additional software and without the need to back up data, as records of financial activities are stored on the bank's server [3]. Simultaneously, banks may also gain from lowered operational expenses including labour and service costs [4]. The advantages offered by e-banking are considerable, simplifying the use of financial services for both banks and customers.

E-banking appears to be among the most lucrative applications of online commerce [5]. The financial transactions industry saw experienced substantial growth over the past decade. The global digital transactions market was valued at USD 3885.57 billion in 2019 and is projected to reach USD8686.68 billion by 2025 [6].

Apart from its perceived benefits, e-banking has, in some cases, faced limitations due to a significant proportion of customers refraining from its use owing to concerns over security [7] as well as societal, cultural, and economic factors [8].

Developing countries may diverge significantly from developed countries in their use of e-banking [9]. Albania as a developing country continues to have an economy largely reliant on cash for transactions. In recent years, however, a positive upward trend has been observed in e-banking usage, with increases in both transaction volume and annual transaction count in the usage of e-banking [10]. Nevertheless, studies on the adoption and acceptance of e-banking in the context of a developing country such as Albania remains limited. Understanding the factors that drive the intention to adopt and the actual usage behaviour of e-banking in this context is critical for academia and the banking industry.

This study seeks to address this gap by constructing a novel framework grounded in the Unified Theory of Acceptance and Use of Technology. While the UTAUT model traditionally encompasses constructs such as Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Behavioural Intention (BI), and Use Behaviour (UB) [11] this research advances the model by integrating two additional constructs: Assurance (AS) and Customer Support (CS). Incorporating these elements strengthens the model's significance and enhances the predictability of the results [11, 12].

Using the PLS-SEM approach and combined with IPMA, this research provides insights and suggestions to support the banking industry in adopting and optimising e-services for customers. Furthermore, it contributes to advancements in the existing literature, especially in research focused on the effective implementation of e-banking.

To the best of the author's knowledge, this study represents the first attempt to expand the UTAUT framework by integrating assurance and customer support to examine the adoption of e-banking in Albania. This underscores the originality and relevance of the research, which seeks to fill a significant gap in the existing literature on e-banking adoption.

This study is guided by the following research questions:
1. What are the key factors influencing users' behavioral intention to adopt e-banking in Albania?
2. How do assurance and customer support contribute to the adoption of e-banking services within the extended UTAUT framework?

This research is organized as follows: Section 2: reviews the relevant literature. Section 3 outlines the research methodology. Section 4 presents the results. Section 5 provides discussion and implications, while section 6 concludes the study, highlighting its limitations.

2. Literature Review

Considering the intricate and delicate aspects of e-banking, it is both necessary and challenging to identify the factors that influence its use and acceptance. Various models have been developed to explain the acceptance of new technology, including the Theory of Planned Behaviour [13] theory of reason action, social cognitive theory, PC utilization mode, and the Technology Acceptance Model (TAM) [14]. By integrating these models comprehensively, the Unified Theory of Acceptance and Use of Technology was proposed by Venkatesh, et al. [11].

The UTAUT model comprises the following constructs: Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Behavioural Intention, and Use Behaviour. This model was subsequently expanded to include three additional constructs—Hedonic Motivation (HM), Price, and Habit (HT)—resulting in the UTAUT2 framework [15].

Several studies have investigated the factors influencing customer behaviour regarding e-banking in various countries employing the Theory of Reasoned Action, the TAM, the UTAUT, and the UTAUT2 model.

Inder, et al. [16] designed and evaluated a theoretical framework that highlights important dimensions that impacting Indian customers' intentions and acceptance of internet banking. This proposed theoretical framework was based on an extended version of UTAUT2, incorporating the constructs of Trust, Perceived Website Effectiveness, Security, and Consistency. Their results indicated that PE, HM, HT, and Perceived Website Effectiveness, all significantly influence behavioural intention to adopt e-banking, whereas EE, SI, FC, and Trust were found to have no statistically significant effect on behavioural intention. Sankaran and Chakraborty [17] investigated mobile banking adoption and discovered that digital self-confidence, perceived monetary expense, assurance and perceived ease of use influence customers' intention to adopt m-banking in India. HB and PS were found to be the most important determinants of customers' behaviour.

Khan, et al. [18] examined the interaction between PE, EE, FC, SI, HM, HT and perceived security on behavioural intentions to use online banking. The findings indicated that customers' intentions are influenced by improvements in performance (PE), entertainment constructs, habitual activities, and perceptions of security (PE) and trust. HB and PS emerged as the most important determinants of customers' behaviour. The model explained accounted for 58% of the variation in behavioural intentions to use online banking.

PE within the banking sector denotes the extent to which a person perceives that using e-banking facilitates the accomplishment of banking tasks Martins, et al. [19]. Sharma, et al. [20] found that PE positively influences the

behavioural intentions towards e-banking services. This suggests that customers are more likely to adopt e-banking services if their performance improves as a result of using the online system. Furthermore, PE and its associated factors, such as perceived usefulness have been widely recognised as crucial determinants of behavioural intention towards e-banking [21, 22]. In light of the preceding statements, the following hypothesis can be derived:

H₁: PE positively impacts customers' behavioural intention to use e-banking services.

EE in the banking context refers to the ease of using e-banking services [11]. In this context, ease of use increases the likelihood of adopting internet banking [23]. Derived from research performed by Alalwan, et al. [24] on the determinants influencing the adoption and utilization of online banking systems in Jordan, effort expectancy has a positive impact on the use of this service. Other studies have demonstrated a significant influence of effort expectancy on internet banking users [25, 26]. Consequently, the following hypothesis is formulated:

H₂: EE positively impacts customers' behavioural intention BI to use e-banking services.

SI is defined as the level of societal pressure placed on an individual to adopt emerging technology [27]. Researchers have discovered a direct correlation between SI and the behavioural intention of individuals concerning the use of technology in both optional and compulsory contexts [28]. Within the framework of new technology, social influence has been identified as an important factor in the acceptance of e-banking [19, 29, 30]. Consistent with these findings, we propose the following hypothesis:

H₃: SI positively impacts customers' behavioural intention to use e-banking services.

The assurance factor encompasses the security and credibility that a company offers to its customers [31]. In the virtual environment assurance is a primary concern for customers [32]. This factor is considered fundamental on the intention to adopt e-banking [12, 33]. In this context, we propose the following hypothesis:

H₄: AS positively impacts customers' behavioural intention to use e-banking services.

CS is related to the customer's expectation to complete transactions correctly, deliver the product on time, and respond quickly to their messages [34]. Customer support has been shown to be an essential component of online services [35]. Prior studies have suggested that customer support has a significant positive effect on the intention to use e-banking [34] [36]. Therefore, the following hypothesis is suggested:

*H₅: CS positively impacts customers' behavioural intention to use e-banking services.*

FC, refers to the extent to which an individual believes that the technical and organizational infrastructure exists to support the use of a new system [11]. To access e-banking, one requires a computer or smartphone, internet access, and the necessary operational skills [29]. Previous literature has identified a positive and significant relationship between FC and both BI and UB [37, 38]. Accordingly, the following hypothesis is proposed:

H₆: FC positively impacts customers' behavioural intention (BI) to use e-banking services

Behavioural Intention is associated with an individual's intention to adopt a new technology in the future [39]. The theories of technology adoption clearly demonstrate that intention is the most powerful determinant of actual technology use, [13, 15, 40]. Accordingly, the following hypothesis is proposed:

H₇: Behavioral Intention positively impacts Use Behaviour toward e-banking

The relationships among the factors within the model are presented in Figure 1.
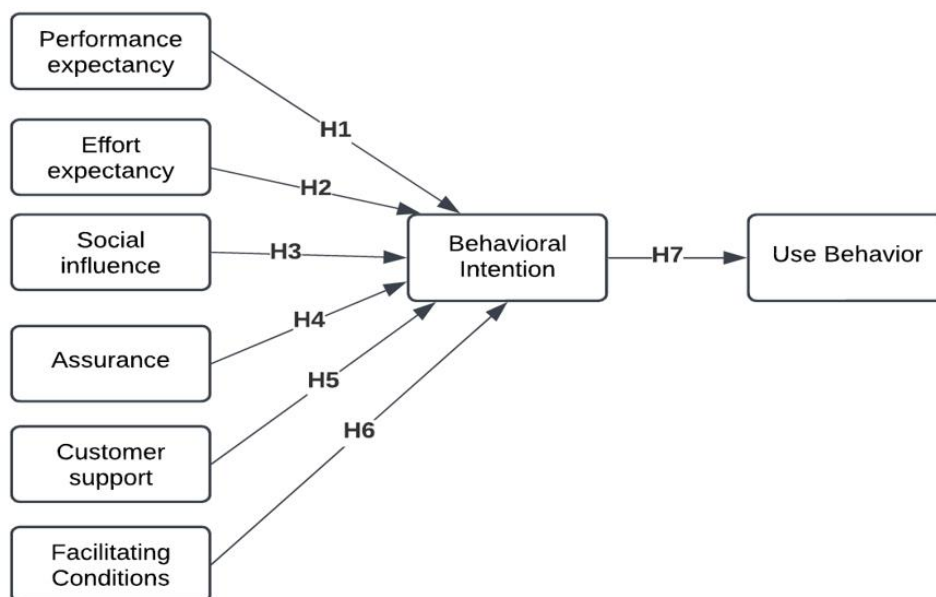
Figure 1.
The proposed conceptual model for e-banking.

3. Methodology

3.1. Sample and Data Collection

A self-conducted questionnaire was created in Albania in 2024. The questionnaire link was distributed via Gmail and Facebook. The survey included demographic questions (Table 1) and latent factors. The indicators used to measure the

latent factors were adapted from Venkatesh, et al. [15]; Venkatesh, et al. [11] and Ho and Lin [34]. The study involved a sample of 379 customers who had utilised e-banking services. The indicators were measured using 5-point Likert scales ranging from "strongly disagree" to "strongly agree". The conceptual model was evaluated using Smart PLS version 3.2.3.

Table 1.
Demographic data of the respondent.

Category	Subcategory	Percentage
Gender	Male	41.2
	Female	58.8
Age	Younger than 25 years old	57.1
	26- 35	22.5
	36-45	15.9
	46-55	3.5
	Over 55 years old	1
Education	Middle school	0.9
	High school	13.9
	Bachelor	52.5
	Master	32.8

3.2. Data Analysis

PLS-SEM technique was employed to test the hypotheses outlined in the research as the framework comprises multiple factors and indicators. PLS-SEM is a multivariate statistical modelling approach used to either explore or validate theoretical models [41]. PLS-SEM was conducted in two phases: the first phase involved the assessment of the measurement model while the second phase focused on the assessment of the structural model.

3.3. Measurement Model

The evaluation of the measurement model encompasses: - outer loadings, composite reliability (CR), average variance extracted (AVE), and heterotrait-monotrait ratio (HTMT). Loadings, depicting the relationships between the indicators and their corresponding latent variables, should exceed 0.7 to ensure adequate indicator reliability [41]. Factor reliability was estimated using CR, with a benchmark that CR values should exceed 0.7 [42]. The AVE show how much of the indicators' variance can be explained by the construct [43]. AVE values exceeding 0.5 indicate acceptable convergent validity [44]. The measure utilised for assessing discriminant validity is Heterotrait-Monotrait Ratio. To provide empirical evidence for discriminant validity, the values of the HTMT statistics must be less than 0.85 [45].

3.4. Structural Model

Once the evaluation of the measurement model is deemed acceptable, the next phase in assessing the PLS-SEM results involves examining the structural model. The evaluation of the structural model includes hypothesis testing. Accepted evaluation guidelines to be considered include path coefficients and their significance determined by p-values, the coefficient of determination (R^2), and effect sizes (f2) [43]. The evaluation of path coefficients in the structural equation model, which represent the relationships between the constructs, is grounded in a series of regression equations. The effect size (f^2) quantifies the impact of removing an independent factor on the R^2 value, with values of 0.35, 0.15, and 0.02 representing substantial, moderate, and small effect sizes, respectively [46].

3.5. The Importance-Performance Map Analysis (IPMA)

This study employs the IPMA, providing a crucial evaluation for research focused on technology acceptance [47]. The importance-performance map guides the prioritisation of critical managerial tasks that are of high importance but require performance improvements [48]. IPMA analysis for structural equation modelling involves assessing the importance and performance of various factors [48].

The importance of a factor in the context of predicting another factor in the structural model is derived from the total effect of the relationship between these two factors. The performance of factors is extracted by rescaling the factors values ranging from 0 for the lowest to 100 for the highest [48]. The research methodology flow developed in this study is presented in Figure 2.
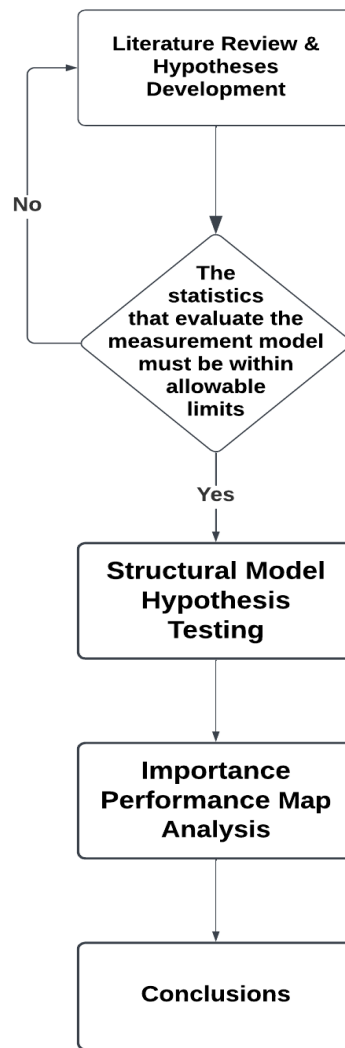
Figure 2.
The research methodology flow.

4. Results

Table 2 shows that the outer loadings and composite reliability, for each factor, exceed the recommended limit of 0.7. The standard for convergent validity has been achieved, as the average variance extracted (AVE) values are greater than 0.5.

Table 2.
Loadings, composite reliability, average variance extracted.

Factor and indicators	Loadings	CR	AVE
PE		0.898	0.687
PE1	0.813		
PE2	0.847		
PE3	0.822		
PE4	0.832		
EE		0.912	0.721
EE1	0.855		
EE2	0.877		
EE3	0.860		
EE4	0.802		
SI		0.913	0.776
SI1	0.885		
SI2	0.874		
SI3	0.885		
FC		0.855	0.662

Factor and indicators	Loadings	CR	AVE
FC1	0.831		
FC2	0.841		
AS		0.934	0.826
AS1	0.891		
AS2	0.898		
AS3	0.870		
CS		0.904	0.769
CS2	0.840		
CS3	0.890		
CS4	0.882		
BI		0.916	0.785
BI1	0.891		
BI2	0.898		
BI3	0.870		
UB		00.920	0.784
UB1	0.875		
UB2	0.883		
UB3	0.914		

Table 3 illustrates the discriminant validity based on the HTMT criterion, which has been fulfilled by this research, as the obtained values are below the recommended threshold of 0.85. Having confirmed the satisfactory reliability and validity of the factors, the next phase is to assess the structural model to test the hypotheses.
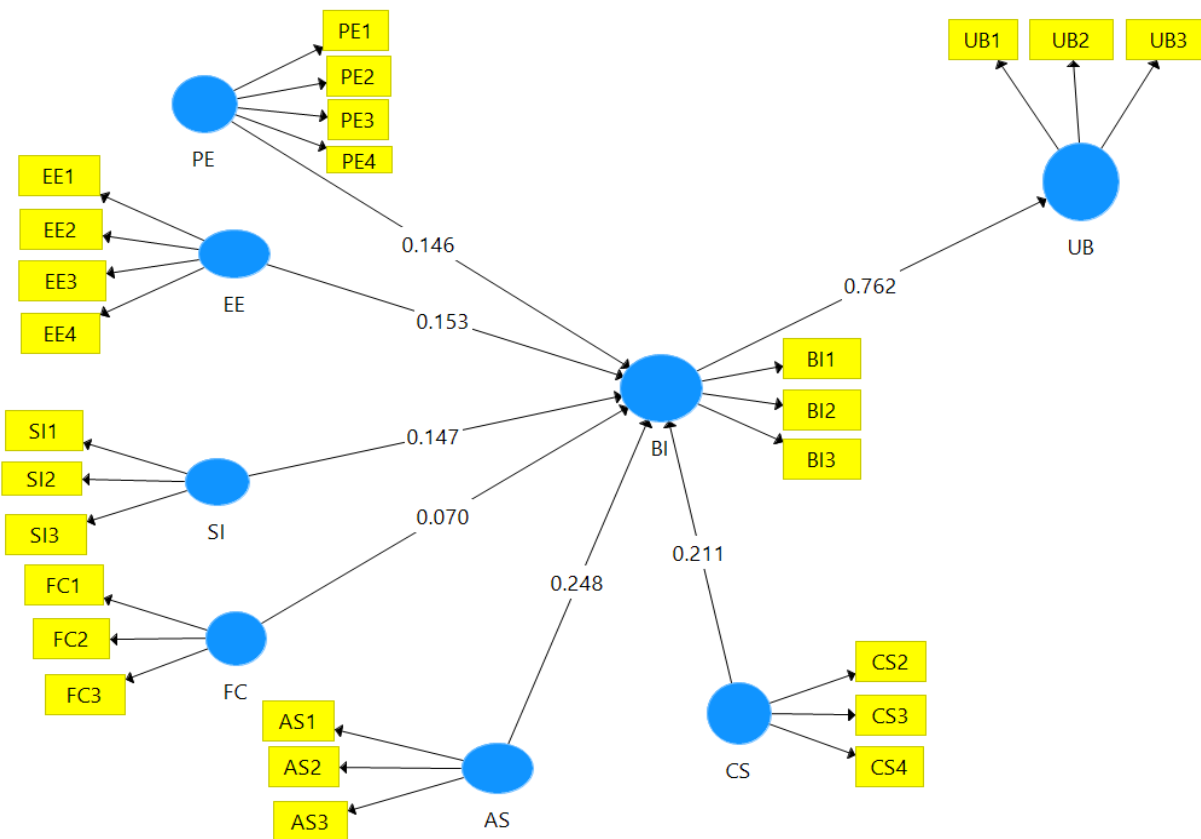
Table 3.
Heterotrait-monotrait (HTMT).

	AS	BI	CS	EE	FC	PE	SI	UB
AS								
BI	0.815							
CS	0.818	0.833						
EE	0.751	0.820	0.801					
FC	0.672	0.744	0.735	0.804				
PE	0.664	0.770	0.708	0.848	0.709			
SI	0.727	0.776	0.729	0.759	0.712	0.733		
UB	0.743	0.832	0.775	0.767	0.766	0.740	0.683	

The hypotheses developed for this research were tested using a bootstrapping method with 5000 subsamples. The path coefficients, p-values of respective factors, effect size, and confidence intervals are presented in Table 5. The results indicate a significant positive effect of PE (b=0.144, $p < 0.05$), EE (b=0.159, $p < 0.05$), SI (b=0.147, $p < 0.05$), AS (b=0.245, $p < 0.05$), CS) (b=0.207, $p < 0.05$), on behavioural intention to use e-banking. Therefore, the hypotheses H1, H2, H3, H4, and H5 are confirmed. Conversely, H6 was rejected (b=0.07, p=0.169>0.05), indicating that facilitating conditions were not found to have a significant relationship with behavioural intention to use e-banking. Furthermore, e-banking behavioural intention had a significant positive effect (b=0.761, $p < 0.05$) on use behaviour. As illustrated in Table 4, EE, AS, CS, PE, and SI exhibit a small effect size on BI. The path coefficients of the model are illustrated in Figure 3.

Table 4.
Estimation of hypotheses.

Hypothesis	Path coefficients	P-Values	2.5%	97.5%	Effect size f^2
BI→UB	0.761	0.000	0.707	0.811	
EE→BI	0.159	0.000	0.042	0.269	0.023
AS →BI	0.245	0.000	0.155	0.345	0.077
CS →BI	0.207	0.002	0.082	0.331	0.053
PE → BI	0.144	0.004	0.048	0.258	0.027
FC → BI	0.070	0.169	-0.025	0.173	0.008
SI→ BI	0.147	0.004	0.040	0.253	0.030

Figure 3.
Path coefficients of the conceptual model.

The explanatory power of the model is evaluated using R^2. The R² values are presented in Table 5 with a value of 0.674 for behavioural intention to use e-banking, and 0.580 for e-banking usage. The variance in behavioural intentions to use e-banking is 67.4% ($R^2 = 0.648$) which is explained by performance expectancy, effort expectancy, social influence, assurance, and customer support.

Table 5.
R square.

Factor	R square
BI	0.674
UB	0.580

The current study highlighted customers' intention to adopt e-banking as a target construct. By applying IPMA the factors influencing this target construct are assessed for their relative importance. The importance and performance metrics presented in Table 6 indicate that customer assurance has the greatest importance in the IPMA and it has been identified as a critical dimension requiring managerial attention. Customer support is recognized as the second key factor influencing customers' intention to adopt e-banking. Among the other constructs, FC demonstrated the lowest importance values; in terms of performance, FC achieved the highest value. Figure 4 also shows the outcomes from Table 6.

Table 6.
IPMA for the target factor BI.

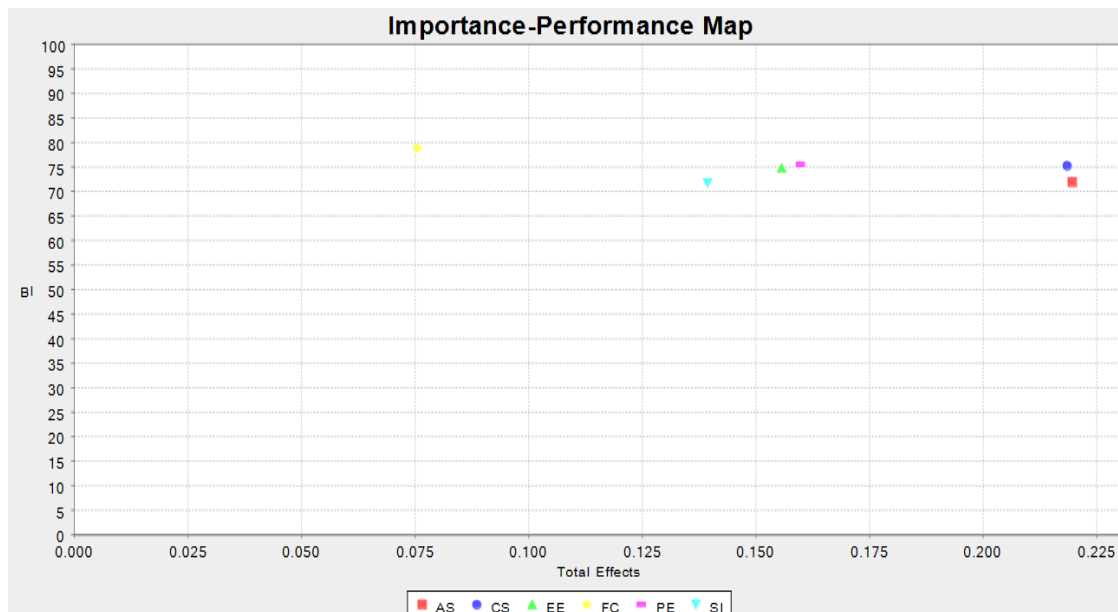| Factor	Importance	Performance
AS	0.220	71.898
CS	0.218	75.216
EE	0.156	74.729
FC	0.075	78.826
PE	0.160	75.513
SI	0.139	71.730

Figure 4.
Importance -Performance Map (target factor BI)

5. Discussion

The recent study utilized a holistic model to determine the most significant factors influencing customers' behavioural intentions in using e-banking. The results show that AS has the strongest positive impact on intention to use e-banking. This suggests that customers attach great importance to feeling secure and safe when considering using e-banking services. These results are consistent with earlier studies in e-banking [16, 18, 49].

This study confirmed that CS has a positive effect on e-banking intention, indicating that e-banking customers prioritise the quality of customer service. Customers are probably more focused on achieving a satisfactory service experience, characterised by quick and helpful responses from customer support. These outcomes correspond with prior studies [25, 33].

The results further emphasized that PE is a predictor construct for e-banking intention. This means, that customers perceive significant usefulness in using e-banking to fulfil their financial tasks more quickly their intention to adopt the new technology is considerably heightened. The findings are in line with earlier studies [29, 37].

The findings suggest that EE has a positive effect on a customer's e-banking intention. Consequently, when a customer believes that e-banking is easy to use the likelihood of its acceptance increases significantly. Furthermore, this outcome is consistent with the findings of Oliveira, et al. [12].

The outcomes also reveal that SI positively affects customer's e-banking intention. Therefore, when innovative technologies are endorsed by important individuals, customers are more predisposed to accept them. Numerous researchers have provided evidence of the significant influence of SI on the intention to adopt e-banking [50-52].

Conversely, FC do not exert a significant effect on e-banking intention. This implies that the availability of timely assistance and the necessary infrastructure (resources) do not affect the intention of the customers regarding BI to use e-banking. These findings are consistent with earlier studies [52-54].

The hypothesis regarding BI toward e-banking was found to be positively linked with the use behaviour of e-banking. This implies that customers who exhibits a higher level of BI to use e-banking are more likely to engage in its actual use. These results are consistent with the findings of Khan, et al. [18] and Farzin, et al. [51].

6. Practical Implications

The findings emphasize the critical role of assurance and customer support in shaping customer intention and use of e-banking. Managers and decision-makers should focus on building trust by enhancing security protocols, ensuring transparent communication, and strengthening customer service. The IPMA analysis further underscores the need to prioritize resources on high-impact areas, particularly client assurance, to encourage broader adoption of e-banking. Practical strategies should also address performance and ease of use to create a seamless and trustworthy customer experience.

7. Conclusions

The primary goal of this study was to explore the critical factors that facilitate the adoption of e-banking services through the extension of the unified theory of acceptance and use of technology by incorporating assurance and customer support. The integration of the UTAUT model with assurance and customer support provides a more holistic understanding and may contribute significantly to theoretical advancements.

The findings reveal that AS, CS, PE, EE, and SI significantly impact customers' intention to accept and use e-banking. Furthermore, behavioural intention influences use behaviour toward e-banking, the most influential relationship being between AS and BI.

The PLS-SEM results indicated that performance expectancy, effort expectancy, social influence, assurance, and customer explained 67.4% of the variance in customer's intention to adopt e-banking. In contrast, the actual use of e-banking explained 58% of the variance. The IPMA framework indicates that managers and decision-makers should focus on enhancing client assurance to promote the trend of e-banking adoption.

8. Limitations

This research has several limitations that should be acknowledged. Firstly, the study is geographically limited as it was conducted in Albania. Consequently, the findings may not be generalizable to other nations due to cultural, economic, and contextual differences. Secondly, the study utilized a cross-sectional design, which involved collecting data from respondents at a single point in time. This approach limits the ability to observe changes or trends over time, potentially impacting the depth of insights. Lastly, the study did not account for potential moderating factors, such as gender and income level, which might influence the relationships studied. Including these moderators could have provided a more nuanced understanding of the findings.

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