FinTech Services and Network Economics: Mediating Effect of FinTech Adoption

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ABSTRACT

The rising adoption of financial technology is a vital catalyst for financial industries which are compound of systematic network economics. The precipitate growth of technology being employed in the financial industry is helping organisations in achieving a community of similar customers expanding their reach without any additional cost being incurred while the organisation is becoming gaining more influence on the economy. Fintech is disrupting financial industries with technology and innovation which is on the other hand catering materials for the organisations to capitalise on network economics. Financial institutions bank on financial technology to develop their services with respect to information technology which is the essential part of strengthening that network economy. Improved financial service sustaining data security convenience of use and promotion has greater potential to nudge customers' intention to fintech adoption. In addition, with customers being lean on fintech adoption financial institutions can experience a positive response in their network economics. Nevertheless, with fintech and its impact on network economics being a significant construct in the industry few studies have been undertaken to cover this subject. This paper has examined the impact of information security (IS), the convenience of use (CU) and FinTech promotion (FP) on network economics (NE) and explained the mediating effect of fintech adoption on the considered variables. The paper obtained data from 157 customers and analysed those using the Partial Least Square method. The findings of the paper prove a significant positive impact of IS and FP on network economics. Additionally, the impact of IS and FP on NE is mediated with the presence of FinTech Adoption (FA) by the organizations.

Keyword: *Security, Technology, Convenience, Promotion, FinTech Adoption and Network Economics*

1. INTRODUCTION

With the fintech innovation, financial industry is creating another domain of economy that is pervasive and appealing just like the traditional or to some extent more influential. The constant advancement of fintech is the delivery of improved financial services which has expanded the scope of the organisation to take advantage of their network economics (Stewart & Jürjens, 2018). Since information technology is the foundation of network economics, financial institutions have started to put in a substantial amount of revenue to improve their market performance and expand their networks making the best effort to sustain a considerable value through network economics (Carlson, 2015). Moreover, digital promotion through financial technology is appealing to customers and thus achieve a customer base across the globe at an expediting pace (Ryu,2018). For the promising opportunities, organisations are rapidly moving towards fintech to execute actions which were once subjugated by the traditional approach. However, to fully uptake the innovation of fintech, financial institutions in Bangladesh needs to launch more technology platform and engage the customer in order to explore and attain benefiting effects of network economics. Digital banking services prompted by fintech has broadened the scope of financial services which has branched out from online transaction to creative ideas involving video consultancy, credit brokerage, real-time customer support, online bill payment, digital lending, crowdfunding and many more. However, as there is an inherent vulnerability in this industry, the security shift makes customers retreat from getting fully involved with financial technology. Financial institutions are capable of larger returns through network economics by adding more customers to the network without spending additional expenses. Lack of cyber security, inconvenience to use and less promotion affect the trust of customers and minimize the chances of fintech adoption rates. Over 85 million people use MFSs on regular basis and the

number is expected to grow (Islam, 2022); Liaquat, 2021). However, despite the growing number of fintech users, the existing status of fintech adoption in the global area is far behind. The lack of data security is the most alarming factor that discourages users to keep on using fintech. Consequently, insufficient fintech adoption rate detriment organisations' potential to achieve growth of their network economics. Addressing this issue, organisations are initiating strategies to reform their financial services putting emphasis on data security, promotion, and convenience of use to eliminate barriers to fintech adoption. With all these factors in mind, this paper has carried forward twofold objectives. Firstly, the paper intends to learn about the impact of IS, CU and FP on NE and secondly, it aims to evaluate the mediating role of FA.

2. LITERATURE REVIEW, CONCEPTUAL FRAMEWORK, AND DEVELOPMENT OF HYPOTHESIS

Due to the several technological innovations, financial experiencing has seen structural transition and fintech is the reason. Fintech is an umbrella term which demonstrates technology innovation with respect to financial services (RBI Report, 2018). As per He et al. (2017), fintech is technology-based innovation that concerns financial services producing novel business model processes or applications, having a substantial impact on financial institutions, and supplying uninterrupted financial services. All the innovations created in the process to develop financial services hold the potential to deliver fundamental applications with efficiency, security, and convenience (Manyika et al., 2016). According to Saal et al. (2017), financial technology has a presence in omnichannel that helps the growth of the financial ecosystem of a country while formulating innovative application for the convenience of savings, risk management, consultation, and other types of financial transactions (Leong et al., 2017). With the changes in the industries through digital transformation, the growing demand for technology-based financial services is always expected by the customers and is helping the organisation meet those expectations.

Conversely, according to Laudon, (2016) network economics is a business model built within an IT network which helps organisations to gain a higher marginal output by adding more participants to the network. This model is the opposite of the traditional economic structure where conventional firms experience diminishing returns which means the more they invest to obtain a customer, the less gain they experience. The organisation in the network gains more by adding more subscribers because they incur almost no additional expenses in the process. Therefore, organisations based on financial technology are expected to achieve a greater level of revenue margin once they are able to create a strong customer base by including them in the network through fintech adoption.

2.1 Information Security (IS) and Network Economics (NE)

Information security is the most concerning issue that needs maximum attention for achieving technology related solutions. According to (Ernst and Young 2012), information technology should not be limited to technical or information officers only, but it must be prioritised at a broad level. (Boss et al, 2009; Kayworth & Whitten, 2010; Ma et al. 2009) spotted out that information security is highly significant in any organisational structure which requires specific information security management for facilitating reporting and communication efficiency, quick workflow, and others.

Pulkkinen, Naumenko, and Luostarinen (2007) suggested that if any type of decision in an organisation is taken based on information security management, the design will be improved to transmit any information even if confidential in nature in the business network. This literature focused on the importance of security in an organisation's contacts which are based on economic networks. On the other hand, Nangin et al., (2020) have considered information security to risk management procedure. The application of information security should not be considered sufficient to prevent information intervention while organisations need to focus on governance programs and policy of information security in order to sustain the growth of the network economy (Ezingeard & Bowen-Schrire, 2007). A survey conducted in the global context by Ernst and Young (2012) highlights that top management support is absent in securing information security in the complex economic network which is an obstacle to information security effectiveness. The author stressed that the adoption of information security needs to be conducted based on a holistic approach which will ensure the growth of organisations intertwined global business context. Kelly (1998) suggested that any additional user-generating advantage will be capitalised on by all the actors involved in the network economies which highlighted that the information security management at a higher level will have a greater impact on the network facilitating others without any cost. Exploring the relationship between information security and network economics, the following hypothesis has been established.

H1: Information Security (IS) positively impacts Network Economics (NE).

2.2 Information Security (IS) and Fintech Adoption (FA)

The development of financial technology is critical to the boost in modifying and shaping various conducts of financial services available to the customers. Guaranteed security such as confidentiality in the financial transaction motivates the customer to carry out various activities utilising technology (Nangin et al., 2020). Stewart & Jürjens, (2018) stated that data security is a vital component which should be installed along with technology development for the prevention of data theft. Widiastuti (2018) undertook a survey on the Indonesian Internet Service Providers Association (APJII) and discovered that 71% of the customers are concerned about data security when they use new technology, whereas 48% feel apprehensive about using new technology for the vulnerability to cyber fraud of the data transaction through internet. Information security is an essential part for the customers using new technology especially when it involves financial matters. Therefore, given hypothesis has been formulated –

H1a: Information Security (IS) positively impacts Fintech Adoption (FA).

2.3 The Convenience of Use (CU) and Network Economics (NE)

Davis (1989) proposed technology accepted models which were latest supported by Yang (2005) to study customers' perception or intention of using technology and what factors influence that intention. Davis et al., (1989) proposed a TAM model which highlighted the perceived ease of use of any technology influencing a customer's intention to use new technology. Here perceived ease of use is the degree to which a customer believes that they will be able to consume a product or specific technology without any effort. A study collected by Kvavik, (2019) surveyed over 4000 students at 13 higher education institutions and found out that convenience of use got the highest rank when the participants adopt the technology. Time is considered always the most valuable and limited resource for a customer and therefore, time given by a customer for purchasing or adopting new technology is perceived as an investment or an expense playing a significant part in their perception of the convenience of use of a product or service. Davis and Vollmann (1990) stated that waiting time is a quite influential factor for the evaluation of convenience by the customers and the more the waiting time is, the less interest customer show to purchase or use a product or service. Berry et al. (2002) pointed out a number of dimensions – accessibility, transaction, benefit, and post-benefit convenience for the customers which directly impact the stable growth of the internet economy. While Mueller-Veerse (2000) suggested seven characteristics of (availability, security, convenience, location, connectivity, and personalization) evaluated services that incorporate convenience in the service adoption in the context of the network economics. Overall, the convenience of use is an integral factor influencing customers' perception toward the adoption of any technology and economic network. Therefore, the following hypothesis has been established –

H2: Convenience of use (CU) positively impacts Network Economics (NE).

2.4 The Convenience of Use (CU) and Fintech Adoption (FA)

The advancement of technology has contributed to the uptake of fintech innovation providing the convenience of use and additional advances to the customers. According to Chau & Lai (2003) fintech has been growing very strong among customers due to its convenience of use. The author added that customers are propelled to put trust in the system which offers the convenience of use which means it is better known and easier to function. According to Widyastuti & Anggraeni, (2017), any function which is felt easier to customers than others will be highly embraced by customers giving competitive edge to the organisation. The author further stated that when the customers feel a system is difficult to function, it will be put away by the customers and its application will no longer be valid. Moreover, a technology that offer convenience in the first place will eventually get more flexible. So, this paper has formed the following hypothesis about the relationship between convenience of use and fintech adoption.

H2a: Convenience of use (CU) positively impacts Fintech Adoption (FA).

2.5 FinTech Promotion (FP) and Network Economics (NE)

According to Tariq (2014), the highly saturated fintech market is greatly affected by promotion strategy. The author added that promotions are the approach for any organisation to communicate with prospective customers by offering discounts, offers and advertising severely from various brands which are involved in the technology sector. Nangin et al. (2020) conducted a survey on 100 participants in Indonesia to understand the impact of promotion on the growth of technology or economic network. The study found out that there is a significant relationship between promotion and the growth of technology users. The study used trust as mediating effect between promotion and the growth of the fintech user base. According to Stewart and Jürjens, (2018), information-based promotion makes customers comfortable and confident to adopt any action through the

internet such as financial transaction, proposing that customers perceive to be secure utilising technology when there is accurate information involved in the promotion. Therefore, the following hypothesis has been established to understand the relation between fintech promotion and network economics

H3: FinTech promotion (FP) positively impacts Network Economics (NE).

2.6 FinTech Promotion (FP) and FinTech Adoption (FA)

Promotion is considered the most impactful tool in marketing for communicating with the clients about a product being marketed (Tariq, 2014; Farida & Tarmiz, November 2016). The authors stated that greater publicity by a fintech company infused confidence in their production of services which generates higher adoption of their product by customers affecting customers' trust. Warjiyono et al. (2019) undertook an examination of fintech and found out that user switch to the application of fintech due to massive market and promotion and they feel confident in financial transaction. Nangin et al. (2020) suggested that promotion has a significant and positive impact on customer trust in fintech products and the more a company invests in promotion, the more it will make customers adapt their products and services. Here, a hypothesis has been constructed to learn the relation between FinTech promotion (FP) and FinTech Adoption (FA).

H3a: FinTech promotion (FP) positively impacts FinTech Adoption (FA).

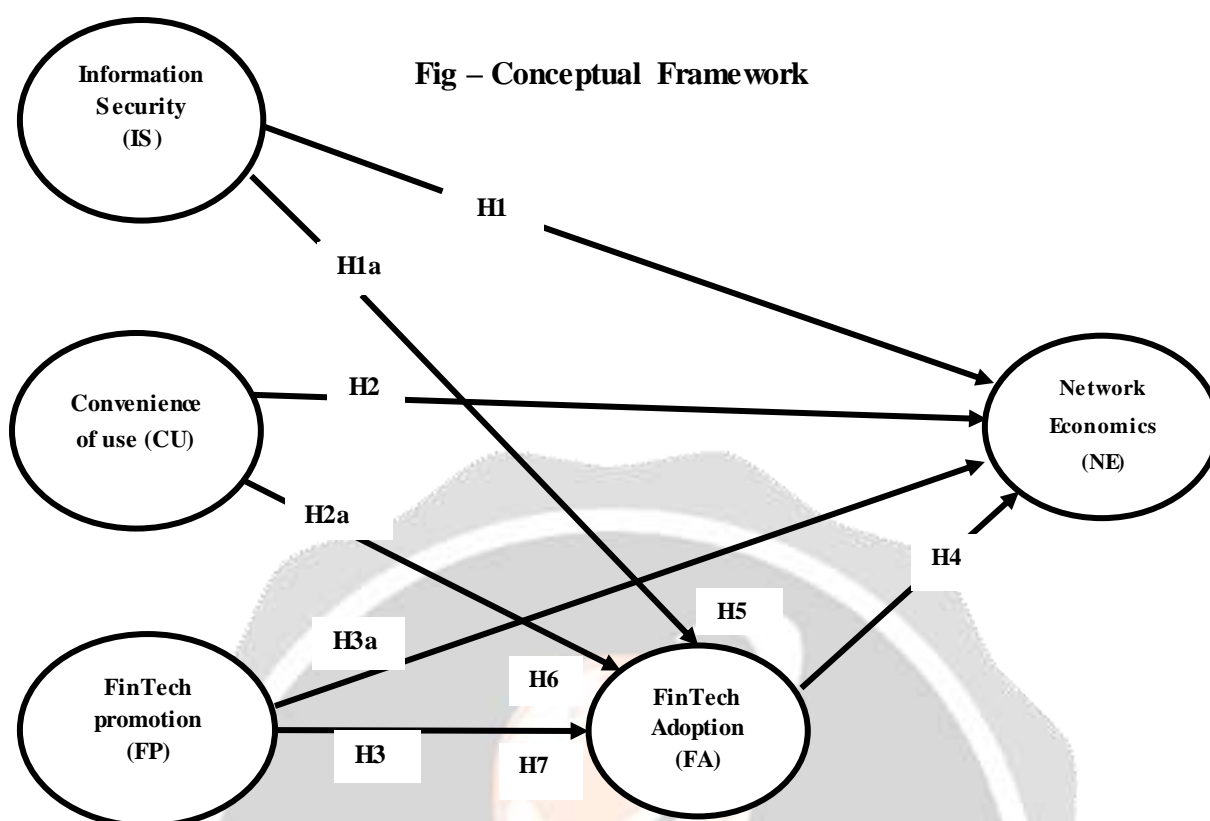### 2.7 FinTech Adoption (FA) and Network Economics (NE)

FinTech adoption is an umbrella term representing a broader range of financial services offered and existing via digital channels (He et al., 2017). Previous studies have been executed to learn about the fintech adoption and its determinants, however, there is a lack of literature on the impact of adoption on network economies. Network economics on the other hand are a broad concept that contains individual groups of countries as a whole and serves an economy through information technology (Kelly, 1999). Since the network of the economy is an economic order within the internet, fintech infuses growth which is shared with every actor in the network. Boyett & Boyett, (2001) pointed out an open system of the network economics removes any bar between organisations and their environment within, and a higher number of fintech increase the scale of benefits of the system. Financial technology in the financial industry increases the inclusion of customers in the economic network which augments the reach of financial services (Setiawan et al., 2021; Sa'diyah, 2021). Henceforth, following hypothesis has been created to evaluate if there is any relation between fintech adoption and network economics.

H4: FinTech Adoption (FA) positively impacts Network Economics (NE)

2.8 Mediating effect of FinTech Adoption (FA)

Information security based on data transmission, the convenience of use and promotion play a vital role in growing customers who rely on technology which indirectly scales up the network economy, stated by Luarn and Lin (2005); Clark (2002) and Lanford (2006). (Stewart & Jürjens, 2018) taking fintech adoption as a mediator found out that, customer data security, the convenience of use and promotion significantly affect customers' intention to use fintech products and service which help network economics expand.

Fig – Conceptual Framework

Fintech adoption has been employed as a mediator to examine the progress of organisations within network economics (H Al-Dmour et al., 2020). A number of studies provided evaluated customers' perceptions of technology-based networks using the mediating effect of fintech adoption (Tat Huei et al., 2018; Setiawan et al., 2021; Sa'diyah, 2021). Therefore, following hypothesis has been formulated to understand to what extent fintech adoption mediates the relationship between the independent and dependents variables -

H5: FinTech Adoption (FA) mediates the relationship between Information Security (IS) and Network Economics (NE).

H6: FinTech Adoption (FA) mediates the relationship between Convenience of use (CU) and Network Economics (NE).

H7: FinTech Adoption (FA) mediates the relationship between FinTech promotion (FP) and Network Economics (NE).

3. RESEARCH METHODOLOGY

3.1 Data and Sampling:

This paper has selected a population that is a compound of fintech users in Bangladesh. A total of 157 customers who frequently use fintech are unidentified and surveyed using a close-ended questionnaire. The author contacted the respondents and achieved their consent before sending the questionnaire through email. The anonymity and confidentiality of the respondents have been retained during the survey. According to the sample sufficiency, 157 sample size is recognised adequate number for statistical analysing. The sample size of 150 is adequate to avoid type II error while using PLS-SEM (Kock & Hadaya, 2018). The data retrieved from the survey was examined through the modelling of the structural equation.

3.2 Measurement instrument

The research has adopted 5 point a Likert scale which ranges from strongly disagree to strongly agree. All the required data has been achieved by employing multi-items measurements of the variables. The dependent

variable has been constructed employing five items, measures suggested by Li et al. (2021). For the retention of convenience for the research execution, several items were changed in the process.

3.3 Data analysis technique

A partial least square method has been adopted considering the quantitative nature of the data and the hypothesised relationship has been tested. Statistical Package for Social Sciences (SPSS25) has been used for descriptive statistics production while SmartPLS3 has been employed to generate measurement' and structural models' results. As suggested by Hair et al., (2010) SEM presents the relationship between dependent and independent variables effectively. While PLS-SEM significantly models the constructed multivariate analysis.

4. DATA ANALYSIS

4.1 Demography analysis

Table 1 shows that a total of 157 respondents in urban areas in Bangladesh who avail themselves of financial technology on a regular basis were surveyed. The survey divulged that among 157 respondents 51(32.5%) were female and 106 (67.5%) were male while most of them fell under the 18 to 24 (71.3%) age bracket. Moreover, most of the respondents (72%) completed graduation. The table further presents that majority of the respondents were students (66.2%) and a larger section of them (26.1%) had over 2 to 3 years of experience.

Table 1 - Demographic Characteristics of the Respondents

		Frequency N=157	Per cent
Age Level	18-24	112	71.3
	25-34	43	27.4
	35-44	1	.6
	45-54	1	.6
Gender	Female	51	32.5
	Male	106	67.5
Level of Education	Graduation	113	72.0
	Post-Graduation	38	24.2
	Post-Graduation with other degrees (MPhil/PhD/CA/CMA etc.)	1	.6
	SSC/HSC/Below	5	3.2
Occupation	Business	4	2.5
	Job Holder	44	28.0
	Others	5	3.2
	Student	104	66.2
Experience	1-2 years	37	23.6
	2-3 years	41	26.1
	Less than 1 year	27	17.2
	More than 3 years	52	33.1

4.2 Measurement Model

4.2.1 Convergent validity

Table 2 shows the loading value of the measurement items, Cronbach's Alpha (CA), Composite Reliability (CR) and the Average Variance Extracted (AVE) of the constructs to test the Convergent validity. The Convergent validity measure the consistency of the items in relation to the constructs. Here, the table-2 shows that the loading value of the items of IS1, FP2 and FA3 delivered a lower AVE value, and the values were less than the cut-off point of 0.50, consequently those items had been removed as suggested by Hair et al. (2010) to achieve an AVE greater than 0.50. The PLS algorithm delivered a higher AVE score after deleting the items which means the latent variables had an adequate convergent validity (Hair et al., 2019; Henseler et al., 2014). Whereas the Cronbach's Alpha value of the variables were ranging between 0.706 to 0.860, higher than the threshold value of 0.6. This depicts that the constructs had significant reliability. On the other hand, the

composite reliability of the constructs was ranging between 0.820-0.900 which is over the required value of 0.70 suggested by (Hair et al., 2019). This means the constructs had a positive reliability rate to be measured further.

Table 2: Item loading, convergent validity, and reliability

Constructs	Items	Loading Value	CA	rho_A	CR	AVE
Information Security (IS)	IS2 <- IS	0.692	0.767	0.764	0.851	0.589
	IS3 <- IS	0.794				
	IS4 <- IS	0.778				
	IS5 <- IS	0.801				
Convenience of use (CU)	CU1 <- CU	0.800	0.860	0.866	0.900	0.642
	CU2 <- CU	0.851				
	CU3 <- CU	0.743				
	CU4 <- CU	0.795				
	CU5 <- CU	0.815				
FinTech promotion (FP)	FP1 <- FP	0.626	0.706	0.716	0.820	0.535
	FP3 <- FP	0.810				
	FP4 <- FP	0.765				
	FP5 <- FP	0.712				
FinTech Adoption (FA)	FA1 <- FA	0.818	0.843	0.850	0.889	0.616
	FA2 <- FA_	0.819				
	FA4 <- FA	0.690				
	FA5 <- FA_	0.786				
	FA6 <- FA	0.805				
Network Economics (NE)	NE1 <- NE	0.756	0.825	0.829	0.873	0.536
	NE2 <- NE	0.760				
	NE3 <- NE	0.598				
	NE4 <- NE	0.778				
	NE5 <- NE	0.733				
	NE6 <- NE	0.754				

4.2.2 Discriminant Validity

The discriminant validity measurement evaluates to what extent a variable is discrete from others (Hair et al., 2010). The correlation coefficient of a variable with other variables needs to be less than the square root of the AVE of that variable (Fornell & Larcker, 1981; Chin,1998). In the table below, it is shown that the variables held values beneath the diagonal line have lesser values than the diagonal line which is the square root of AVE. The result proves that the variables had satisfactory discriminant validity (Hulland 1999). With that, it can be stated that each of the variables has discrete characteristics, and each variable shares no correlation with other variables.

Table 3: Correlations among the constructs (Fornell and Larcker Test)

	CU	FA_	FP	IS	NE
CU	**0.801**				
FA_	0.661	**0.785**			
FP	0.508	0.520	**0.732**		
IS	0.374	0.353	0.472	**0.768**	
NE	0.416	0.530	0.517	0.432	**0.732**

Heterotrait Monotrait (HTMT) Ratio is another measurement model for evaluating the discriminant validity of the variables (Henseler et al., 2014). As recommended by Hair et al. (2019) and Kline (2015), the cut of the value of the variables needs to be less than 0.85. Moreover, the 0.90 threshold value is also acceptable (Gold et al., 2001; Hair et al., 2019). Table 4 shows that the variable had values less than the required 0.85 which indicates that the variables had sufficient discriminant validity. For this reason, it can be affirmed that the variables held satisfactory reliability and validity value. Hence further measures of the structural model can be carried forward.

<div align="center">**Table 4: Heterotrait Monotrait (HTMT) Ratio**</div>

	CU	FA_	FP	IS	NE
CU					
FA_	0.777				
FP	0.657	0.667			
IS	0.450	0.429	0.630		
NE	0.482	0.629	0.671	0.532	

4.3 Structural Model:

A structural model is assessed to learn about the relationship that exists between the independent and dependent variables (Memon et al., 2017). When the value of the direct path coefficient between the independent and dependent variable is diminished and the indirect path is established through the mediator, it can be verified that the mediation exists in the model. Here in Table 5 path was gauged without mediator intervention, and the P value of IS, CU and FP is 0.024, 0.929 and 0.001 respectively before the meditation effect was estimated. Table 6 presents improved P values of relationship among independent and dependant variables that are 0.014, 0.061 and 0.000 after the intervention of the mediator proving the existence of mediation. The path coefficient of the values in table 6 are enhanced upon the introduction of the FA as a mediator.

In TABLE 6 β value, Standard Deviation, t-value, and p-values, the result of the hypothesis has been demonstrated. The β value determines the degree to which any changes in the independent variable will change the dependent variable. The P value here is measured to learn if the established hypothesis is accurate or not, which means the P value proves the hypothesis set by the authors earlier is accepted or rejected. The results of total effect (table-6) evidenced that Information Security (IS) to Network Economics (NE) (H1: IS →NE β=0.213, Standard Deviation (SD)= 0.086, t=2.474 and p=0.014) were positively significant, Convenience of use(CU) to Network Economics (NE) (H2: CU →NE β=0.167, Standard Deviation (SD)= 0.089, t=1.878 and p=0.061) were statistically significant at p<0.10, FinTech promotion (FP) to Network Economics (NE) (H3: FP →NE β=0.332, Standard Deviation (SD)=0.079, t=4.173 and p=0.000) were positively significant and FinTech Adoption (FA) to Network Economics (NE) (H4: FA →NE β=0.230, Standard Deviation (SD)= 0.089, t=2.599 and p=0.010) were positively significant.

<div align="center">**Table 5: Results of Direct Path Analysis**</div>

Hypothesis	Path	Beta	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
H1	IS -> NE	0.197	0.200	0.087	2.267	0.024
H2	CU -> NE	-0.008	-0.006	0.090	0.089	0.929
H3	FP -> NE	0.255	0.260	0.077	3.296	0.001
H4	FA -> NE	0.333	0.336	0.091	3.657	0.000
H1a	IS -> FA	0.048	0.050	0.063	0.754	0.451
H2a	CU -> FA	0.526	0.527	0.077	6.835	0.000
H3a	FP -> FA	0.230	0.232	0.089	2.599	0.010

Moreover, the direct relationships between the independent variables and the mediator FA are also estimated. Here, IS (H1a: IS →FA β=0.048, Standard Deviation SD) = 0.063, t=0.754 and p=0.451) is positively related to FA but not significant, CU (H2a: CU →FA β=0. 526, Standard Deviation (SD)= 0.077, t=6.835 and p=0.000) is significantly associated with FA. And FP (H3a: FP→FA β=0.230, Standard Deviation (SD)=0. 089, t=2.599and p=0.010) is positively and significantly connected to FA. Consequently, the outcomes have accepted all of the hypotheses proposed in this study except H2 and H1a as to the direct relationship between the variables. The research further tested the mediation effect of FinTech Adoption (FA) on the relationship between Information Security (IS), Convenience of use (CU) and FinTech promotion (FP) with Network Economics (NE). The significant existence of mediation can be recognised when the p ≤ 0.1 recommended by Stevens, (2009) or the confidence interval does not get equivalent to zero (0) and therefore the mediating effect of FA is among IS and NE (β=0.016 (SD)= 0.023, p=0.493, p >0.10) not significant ,and CU and NE (β=0.175, (SD)= 0.054 p=0.001,p< 0.10) significant, and FP and NE (β=0.077 (SD)= 0.039 p=0.047, p< 0.10) significant.

Table 6: Results of Total Path analysis

Hypothesis	Path	Beta	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values	Decision
H1	IS -> NE	0.213	0.217	0.086	2.474	0.014	Accepted
H1a	IS -> FA	0.048	0.050	0.063	0.754	0.451	Not Accepted
H2	CU -> NE	0.167	0.171	0.089	1.878	0.061	Accepted
H2a	CU -> FA	0.526	0.527	0.077	6.835	0.000	Accepted
H3	FP -> NE	0.332	0.338	0.079	4.173	0.000	Accepted
H3a	FP -> FA	0.230	0.232	0.089	2.599	0.010	Accepted
H4	FA-> NE	0.333	0.336	0.091	3.657	0.000	Accepted
H5	IS -> FA -> NE	0.016	0.017	0.023	0.686	0.493	Not Accepted
H6	CU -> FA -> NE	0.175	0.176	0.054	3.248	0.001	Accepted
H7	FP -> FA -> NE	0.077	0.078	0.039	1.988	0.047	Accepted

While R^2 of the variables were also assessed. R^2 value represents the predictive powers of the variables. The R^2 value - 0.75, 0.50, and 0.25 indicates significant, medium and insubstantial predictive power of independent variable to envisage dependent variables. The R^2 of variables was 0.391 representing a medium predictive power of independent to explain the dependent variable (NE)

5. DISCUSSION ON FINDINGS

The application of fintech has been growing among the masses especially the younger generation who are either students or just entered the job market. This study has unearthed the significant influence of Information Security (IS), convenience of use (CU), and FinTech promotion (FP) on Network economies (NE). The rising power of financial organisations in Bangladesh will help them grow and take advantage of their network economies. The study has shown that each of the variables has a direct impact on network economies except CU, which supports the study conducted by Sheng & Zolfagharian, (2014); Jin et al., 2019; Setiawan et al., (2021). On the other hand, it has also been shown in the paper that fintech adoption (FA) acts as a mediator in the relationship IS→NE and FP→NE. The result is consistent with the previous works (Stewart & Jürjens, 2018; Singh et al., 2020; Sa'diyah, 2021). The result implies that customers have become more aware of the advancement of financial technology innovation providing more opportunities to them in contrast to the traditional structures. While the customers are leaning toward fintech Innovation different financial organisations such as mobile financial services are offering them data security and convenience during financial transactions or other activities. On the other hand, frequent promotions conducted by companies such as increasing the number of mobile banking are directly hitting the perception of customers and compelling them to adopt financial technology. As more customers switch to financial technology adoption, the companies are achieving higher financial returns with no visible cost letting them bring in a great deal of innovation (Laudon, 2016).

However, there is a great deal of challenges to mass adoption of synthetic in Bangladesh such as insufficient financial literacy, regulation in the fintech industry, low rate of interoperability, poor infrastructure, lack of risk management etc are creating a wall before customers (Taher & Tsuji, 2022). Desperate all these drawbacks, people are optimistic about the synthetic industry in Bangladesh and its growth potential. Institutions need to enter customers' way to adoption and formulate customer-based strategies to make sync corruption more secure and easy for the customer since the higher rate of intake eruption directly their growth and revenue in the industry.

6. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This paper has several limitations. The first drawback of this paper is that it only covered responders from urban areas of Bangladesh indicating that a large section of people in the rural areas has been left out. That is why, this paper does not entirely represent how the customers in rural area uptake or view fintech adoption. Meanwhile, the sample size is quite insufficient in comparison to the population size. Therefore, this paper is unable to represent the entire population. On the other hand, the study has adopted convenience sampling method which produces a bias in selecting respondents. Moreover, this survey has been conducted based on a close -ended

questionnaire which cannot give sufficient scope to the responders to provide their opinion on this subject matter.

In future studies, researchers should include responses from rural people and increase the sample size in order to increase the credibility of the findings. Researchers can further improve this paper by adopting random sampling to select respondence. Moreover, in order to obtain in-depth information on this subject, researcher should survey the respondents with both open and close-ended questionnaires.

7. IMPLICATIONS AND CONCLUSION

This paper has demonstrated customers' comprehension of fintech adoption and what the factors of fintech adoption are and to what extent the growth in the adoption rate impacts network economics which is a highly ambitious business model for financial institutions. This paper has found out that information security, convenience use, and promotion are vital factors for increasing network economics and the adoption of financial technology work as a catalyst that facilitates the relationship between dependent and independent variable as a mediator. This paper will help researchers, financial organisations, and policymakers to put more focus on this sector to make it more resourceful. The incorporation of innovation in this industry will generate more customer base which can enhance the profitability of financial institutions by improving their network economies. Therefore, concerned authorities should nourish this area since the upward trend of fintech adoption and NE capitalisation will accelerate the advancement of our economy.

8. REFERENCES

Boss, S. R., Kirsch, L. J., Angermeier, I., Shingler, R. A., & Boss, R. W. (2009). If someone is watching, I'll do what I'm asked: mandatoriness, control, and information security. *European Journal of Information Systems*, *18*(2), 151–164. https://doi.org/10.1057/ejis.2009.8

Berry, L.L., Seiders, K. and Grewal, D. (2002), "Understanding service convenience", Journal of Marketing, Vol. 66 No. 3, pp. 1-17.

Boyett, J. H., & Boyett, J. T. (2001). *The guru guide to the knowledge economy: the best ideas for operating profitably in a hyper-competitive world*. J. Wiley.

Carlson, J. W. (2015), "Testimony on behalf of the Fin. Servs. Information Sharing & Analysis Ctr. ("FS-ISAC") Before the U.S. House of Rep", Comm. on Fin. Servs.

Chau, K .P. Y., & Lai, K. V. S. (2003). An empirical investigation of the determinants of user acceptance of internet banking. Journal of Organizational Computing and Electronic Commerce, 13(2), 123-145.

Davis, F. D. (1989), "Perceived usefulness, perceived ease of use, and user acceptance of information technology".MIS Quarterly, 13, 319-339.

Davis, M. and Vollmann, T. (1990), "A framework for relating waiting time and customer satisfaction in a service operation", The Journal of Services Marketing, Vol. 4 No. 1, pp. 61-9.

Ezingeard, J.-N., & Bowen-Schrire, M. (2007). Triggers of Change in Information Security Management Practices. *Journal of General Management*, *32*(4), 53–72. https://doi.org/10.1177/030630700703200404

Financial Stability Board (2017), Financial Stability Implications from FinTech: Supervisory andRegulatory Issues that Merit Authorities' Attention, Basel, June, available at http://www.fsb.org/wp-content/uploads/R270617.pdf (accessed on 22 May 2018).

Farida, I., Tarmzi, A., & November, Y. (2016). Analysis of the effect of 7p marketing mixed on customer satisfaction online gojek user. Journal of Management and Business Research, 1(1), 31-40. ISSN: 2527-7502.

Fornell, C., & Larcker, D. F. (1981). Erratum: Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, *18*(1), 39–50. https://doi.org/10.2307/3151335

Frost, J. (2020). The Economic Forces Driving FinTech Adoption across Countries. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3515326

H Al-Dmour, H., Asfour, F., Al-Dmour, R., & Al-Dmour, A. (2020). The Effect of Marketing Knowledge Management on Bank Performance Through Fintech Innovations: A Survey Study of Jordanian Commercial Banks. *Interdisciplinary Journal of Information, Knowledge, and Management*, *15*, 203–225. https://doi.org/10.28945/4619

Hasan, R. (2021). custom: Factors Affecting Adoption of Fintech in Bangladesh. *Ijsab.com*, *5*(9). https://ijsab.com/volume-5-issue-9/4291

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/ebr-11-2018-0203

Hair, J., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: a global perspective*. Pearson Education, Cop.

Hair Jr, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated guidelines on which method to use. International Journal of Multivariate Data Analysis, 1(2), 107–123.

He, D., Leckow, R., Haksar, V., Mancini-Griffoli, T., Jenkinson, N., Kashima, M., Khiaonarong, T., Rochon, C., & Tourpe, H. (2017). *Fintech and Financial Services: Initial Considerations*. https://www.imf.org/~/media/Files/Publications/SDN/2017/sdn1705

Henseler, J., Ringle, C. M., & Sarstedt, M. (2014). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, *43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, *20*. https://doi.org/978-1-84855-469-6

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: a review of four recent studies. *Strategic Management Journal*, *20*(2), 195–204. https://doi.org/3.3.co;2-z">10.1002/(sici)1097-0266(199902)20:2<195::aid-smj13>3.3.co;2-z

Islam, J. (2022, January 10). *Seven key factors to fuel fintech innovation*. The Daily Star. https://www.thedailystar.net/business/news/seven-key-factors-fuel-fintech-innovation-2936416

Jin, C. C., Seong, L. C., & Khin, A. A. (2019). Factors Affecting the Consumer Acceptance towards Fintech Products and Services in Malaysia. *International Journal of Asian Social Science*, *9*(1), 59–65. https://doi.org/10.18488/journal.1.2019.91.59.65

Kakinuma, Y. (2022). Financial literacy and quality of life: a moderated mediation approach of fintech adoption and leisure. *International Journal of Social Economics*. https://doi.org/10.1108/ijse-10-2021-0633

Kelly, K. (1999). *New rules for the new economy: 10 ways the network economy is changing everything*. Fourth Estate, Cop.

Kock, Ned; Hadaya, Pierre (2016). *Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. Information Systems Journal, (), –.* doi:10.1111/isj.12131

Kvavik, R. (2019). *Convenience, Communications, and Control: How Students Use Technology*. Educause. https://www.educause.edu/research-and-publications/books/educating-net-generation/convenience-communications-and-control-how-students-use-technology

Laudon, K. C. (2016). *Management information systems: managing the digital firm (14th edition)*.

Liaquat, Z. B. (2021, June 27). *Bangladesh lags behind in fintech ecosystem globally*. Dhaka Tribune. https://archive.dhakatribune.com/business/2021/06/27/bangladesh-lags-behind-in-fintech-ecosystem-globally

Li, F., Lu, H., Hou, M., Cui, K., & Darbandi, M. (2021). Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality. *Technology in Society*, *64*, 101487. https://doi.org/10.1016/j.techsoc.2020.101487

Manyika, J., Lund, S., Singer, M., White, O. and Berry, C. (2016), "Digital finance for all: powering inclusive growth in emerging economies", McKinsey Report, available at: https://www.mckinsey.com/~/media/mckinsey/featured%20insights/Employment%20 and%20Growth/How%20digital%20finance%20could%20boost%20growth%20in%2 0emerging%20economies/MGI-Digital-Finance-For-All-Executive-summary-   September-2016.ashx

Ma, Q., Schmidt, M. B., & Pearson, J. M. (2009). An integrated framework for information   security management. Review of Business, 30(1), 58–69.

Mueller-Veerse, F. (2000), Mobile Commerce Report, Durlacher Research, London.

Leong, C., Tan, B., Xiao, X., Tan, F.T.C. and Sun, Y. (2017), "Nurturing a FinTech ecosystem: the case of a youth microloan startup in China", International Journal of Information   Management, Vol. 37 No. 2, pp. 92-97.

Nangin, M. A., Barus, I. R. G., & Wahyoedi, S. (2020). The Effects of Perceived Ease of Use, Security, and Promotion on Trust and Its Implications on Fintech Adoption. *Journal of Consumer Sciences*, *5*(2), 124–138. https://doi.org/10.29244/jcs.5.2.124-138

Pulkkinen, M., Naumenko, A., & Luostarinen, K. (2007). Managing information security in a business network of machinery maintenance services business – Enterprise architecture as a coordination tool. *Journal of Systems and Software*, *80*(10), 1607–1620. https://doi.org/10.1016/j.jss.2007.01.044

RBI Report (2018), FinTech and Digital Banking, 2017 (published in 2018), RBI, available at: www.rbi.org.in

Ryu, H.-S. Understanding Benefit and Risk Framework of Fintech Adoption: Comparison of   Early Adopters and Late Adopters. In Proceedings of the 51st Hawaii International   Conference   on   System Sciences, 3864–3873.

Sa'diyah, C. (2021). Analysis Of Factors Affecting Adoption Of Financial Technology Application. *SENTRALISASI*, *10*(1), 57. https://doi.org/10.33506/sl.v10i1.1208

Setiawan, B., Nugraha, D. P., Irawan, A., Nathan, R. J., & Zoltan, Z. (2021). User Innovativeness and Fintech Adoption in Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(3), 188. https://doi.org/10.3390/joitmc7030188

Sheng, X., & Zolfagharian, M. (2014). Consumer participation in online product recommendation services: augmenting the technology acceptance model. *Journal of Services Marketing*, *28*(6), 460–470. https://doi.org/10.1108/jsm-04-2013-0098

Singh, S., Sahni, M. M., & Kovid, R. K. (2020). What drives FinTech adoption? A multi-method evaluation using an adapted technology acceptance model. *Management Decision*, *58*(8), 1675–1697. https://doi.org/10.1108/md-09-2019-1318

Song, N., & Appiah-Otoo, I. (2022). The Impact of Fintech on Economic Growth: Evidence from China. *Sustainability*, *14*(10), 6211. https://doi.org/10.3390/su14106211

Soomro, Z. A., Shah, M. H., & Ahmed, J. (2016). Information security management needs more holistic approach: A literature review. *International Journal of Information Management*, *36*(2), 215–225. https://doi.org/10.1016/j.ijinfomgt.2015.11.009

Stewart, H., & Jürjens, J. (2018). Data security and consumer trust in FinTech innovation in Germany. *Information and Computer Security*, *26*(1), 109–128. https://doi.org/10.1108/ics-06-2017-0039

Taher, S. A., & Tsuji, M. (2022). *An Overview of FinTech in Bangladesh: Problems and Prospects*. FinTech Development for Financial Inclusiveness. https://www.igi-global.com/chapter/an-overview-of-fintech-in-bangladesh/291868

Tat Huei, C., Suet Cheng, L., Chee Seong, L., Aye Khin, A., & Ling Leh Bin, R. (2018). Preliminary Study on Consumer Attitude towards FinTech Products and Services in Malaysia. *International Journal of Engineering & Technology*, *7*(2.29), 166. https://doi.org/10.14419/ijet.v7i2.29.13310

Wijekoon, R., Sabri, M. F., Ahmad, N., & Abdul Rahim, H. (2022). The Mediating Role Technology Adoption in the Relationship Between Financial Factors and Economic Well-Being in Agricultural Context. *International Journal of Academic Research in Business and Social Sciences*, *12*(13). https://doi.org/10.6007/ijarbss/v12-i13/14147

Saal, M., Starnes, S.K. and Rehermann, T. (2017), Digital Financial Services: Challenges and Opportunitiesfor Emerging Market Banks, Vol. 42, EM Compass Note, World Bank Group,Washington, DC.

Tariq, K. M. (2014). The concept of marketing mix and its elements. International Journal of Information, Business and Management, 6(2), 95–107. ISSN 2076-9202.

Widiastuti, I. (2018). Principles of Bank Confidentiality on customer data in related financial technology,Justitia Jurnal Hukum, 2(2), 390-402. E-ISSN: 2579-6380

Yang, K.C. (2005), "Exploring factors affecting the adoption of mobile commerce in Singapore",Telematics and Informatics, 22, 257–277.