

# Performance and Participation Expectancy if Voluntary Insurance Becomes a Policy of Digital-Banking Service-Market in Economy Country-wise: Statistical Analysis of Buying Intentions for Insurance in Bangladesh

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## Abstract

This study assessed e-banking users or customers' perceptions of using Voluntary Insurance (VI) for marginalizing psychological risk-factors for enhancing the growth-trend of digital-transactions. The survey collected the data from 250 randomly selected digital-banking-users of Premier Bank customers in Gulshan Branch, Dhaka, Bangladesh using an online, five-point Likert Scale questionnaire. Hierarchical multiple linear regression modelling (HLM) was adopted to evaluate the effects of insurance performance expectancy (IPE) and user's effort expectancy (UEE) on insurance buying intention (IPI) in digital-banking services, after controlling for the effects of age and education. The results revealed that digital-banking users' IBIs were significantly influenced by IPE ( $p < 0.01$ ) and UEE ( $p < 0.01$ ). The study concluded that young and educated user consumers were more likely to buy insurance i.e., the group of e-banking users represented higher IBI, if the Voluntary Insurance (VI) is in place as a new product in digital-banking services. Obviously, it ensures to be effective, productive, and useful, and the process requires little effort of users in economy country-wise such as Bangladesh. These findings offer the bank-management & policymakers' guidelines and for motivational efforts adopting the VI as a new product in digital-banking services in economy country-wise such as Bangladesh. And, once the VI becomes an official product, the bank itself or in a joint effort with an insurance company, can promote and sell it to customers in multi-faucets.

**Key Words:** Insurance performance expectancy (IPE); Digital-banking user's effort expectancy UEE; Insurance buying intention (IBI); Voluntary insurance (VI) as a new product in E-banking services; Akim's model

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## 1. Introduction

In the 21st Century business world, services are conducted in multifaceted competitive and rational manner in most cases. In other words, it is a business-driven world where many factors are often unpredictable. Despite these limitations, digital banking services are important products in financial sector of economy country-wise where Bangladesh financial sector is no different.

However, today's bank-led digital-banking faces serious pitfalls being its riskiness including psychological-risk. Customers compete for time-saving options. Banks compete to marginalize its operating costs and then enhance revenues. Most cases, customers do not read or skim terms & conditions of e-banking services. They do not save contract-copy, and even do not exactly remember number of transactions or transaction-amount in his/her account. These weaknesses cause abuses. In addition to these, a customer faces perceived-risk-factors such as hidden charges, extra fees, account hacked. Besides this, the psychological risk factor significantly undermines probable customers' decision using digital-banking services. Over all these dilemmas have resulted slow growth-trends of digital-transactions in digital-banking service-market in economy country-wise where Bangladesh is no exception. Addressing the issues, Voluntary Insurance (VI) as a new product in digital-banking service-market has been proposed by Akim Rahman [1] in literature. The proposal is also known as Akim's Model in multifaceted literatures. However, no bank-management and policymakers in economy country-wise has yet been attracted or motivated to introduce the proposed policy, which could have facilitated VI as a new product in digital particularly bank-led digital banking services.

Thus, this study assesses the influence of performance and effort-expectancy on intentions of buying the Voluntary Insurance (VI) in digital-banking services in Bangladesh-economy. So that the bank management and policymakers become motivated introducing the VI policy in bank-led digital-banking service-market in economy. The expected findings can also be an example to policymakers in other economy(s) country-wise for addressing the dilemma of today's bank-led digital-banking services.

## 2. Literature Review

In today's digital world, banking services have been modernized. But it faces pitfalls being riskiness. Many factors are unpredictable in e-banking, particularly bank-led digital-banking services. Here customers do not exactly remember the number of transactions or the total amount she/he has used for digital transaction in account. These perceived risk-factors have been undermining the growth trends of users, which has been weakening the prospects of cashless-society in world-economy country-wise such as Bangladesh.

Bauer first introduced the influence of perceived risk in literature [2]. It was considered as an influence, which led the overall perceived value of purchasing behavior in any market system. With this progression in literature, the Technology Acceptance Model (TAM) was introduced in literature [3], which revealed three components of perceived risk. They are i) perceived usefulness ii) perceived ease of use and iii) system usages." Chau [4] further simplified it by using four perceived risk-factors. They are a) perceived ease of use b) perceived long-term usefulness c) perceived short-term usefulness and d) behavioral intention to use. While these developments were taking place in literature, Il Im et al. [5] identified four potential variables

when it comes to using technology-adoption. These variables are a) perceived-risk b) technology-type c) user-experience and d) gender. Their findings show that perceived-risk, technology type and gender to be significant.

In today's tech-driven world, since many factors are unpredictable, it is palatable claiming that strict laws and its application can marginalize the magnitudes of this "perceived-risk" [6,7]. On this matter, today developed countries are doing better. But it does not guarantee absolute risk-free e-banking even in developed countries. On risk issues, developing countries are vulnerable. It might have led a slower growth of bank-led e-banking in many countries such as Bangladesh where mobile-led payment (bKash) dominates the trend [1,8]. Addressing the perceived-risk in e-banking services, Akim Rahman [1] proposed Voluntary Insurance (VI) in literature. Here banks will introduce VI as a new product in digital-banking services where digital-banking users i.e., customers are only authority to decide buying it or not buying it. The proposal has not yet been challenged in literature.

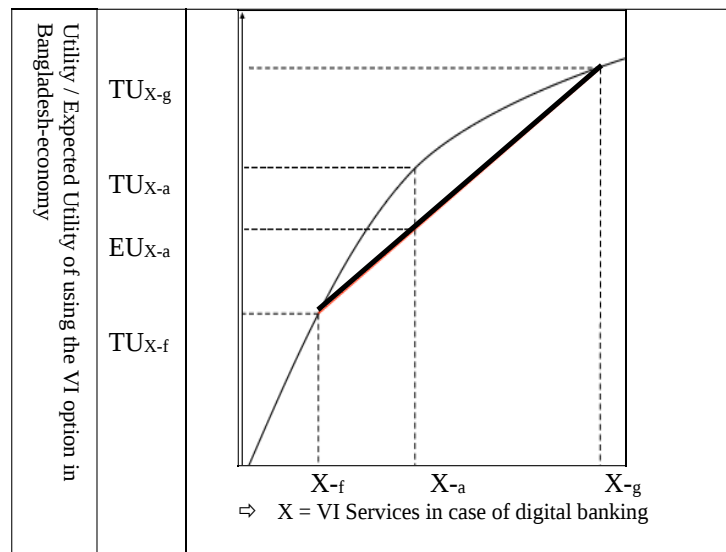
Later, in a statistical analysis, Akim Rahman [9] scrutinized the issue in multi-facets including how the customers feel about it in economy country-wise such as Bangladesh. The referred statistical analysis reveals that "age-group" and "occupation-group" of customers have different preferences on the proposed product. It also ratifies that demographic factors impact customers' preferences for the new product. It can attract more users by improving customer satisfaction, customer-based, banks benefits including reduction of operational-cost. It can be a win-win-win for the parties involved.

Based on this development in literature, this study examines the performance and participation expectancy if VI becomes a policy in digital-banking services. Accordingly, this study carries out statistical analysis of e-banking users' intentions of buying or purchasing insurance in digital-banking service-market in Bangladesh. Particularly by using the hierarchical multiple linear regression modelling (HLM) [10], this study examines the performance and participation expectancy if VI becomes a policy in digital-banking services. The expected findings can be a guidance to policymakers and bank-management in financial sector for addressing the issue of "perceived risk" and "trust" by crafting or enacting e-banking provision in practice in world-economy country-wise. This study advances with the goal where Bangladesh is chosen as a case study, which can fill-up the gap in literature.

### **3. Theoretical Justification of Policy Option - VI Product: The Akim's Model**

It is clear now perceived-risk factor plays an influential role in setting the stage for the proposal, the VI Option in digital-banking service-market. It is palatable to assume that E-banking-customers are risk-averse, i.e., they prefer certainty to uncertainty when it comes to banking. Figure 1 illustrates the risk preferences of a risk-averse banking-customer.

In a world of uncertainty, a customer's actual utility that he receives from digital services will never fall on the TU (X) but rather on the chord (the bold line).  $X_g$  stands for a service outcome in which customer may use a certain level of service X while  $X_f$  stands for a negative outcome in which customer may use less of service X. If there is a level of uncertainty that a customer may not use  $X_g$  units of service X, the utility that this customer receives will lie somewhere on the chord (the bold line). The chord stands for the expected utility (EU) of using service X, which lies in the concavity of the curve because it is the average probability that the customer will use service X or not. As a result, an individual will never receive TU ( $X_a$ ) but rather EU ( $X_a$ ).



**Figure 1:** A scenario of risk aversion behavior [1].

## 4. The Objectives of the Study

- To examine the performance and participation expectancy if VI becomes a policy in digital-banking services. Accordingly, this study aims to use Hierarchical multiple linear regression analysis, not multiple linear regression analysis.
- To evaluate the effects of Insurance Performance Expectation (IPE), Digital-banking user's Expected Efforts (UEE) and Insurance Buying Intentions (IBI) in e-banking service-market.
- To assess the perceptions of e-banking-customers on whether the VI product should be added for overcoming perceived-risk issues.

## 5. Research Methods and Materials

A survey-based method statistical technique was used in gathering relevant data statistics. Then the collected data statistics were analyzed underpinning the objectives of this study. For measuring the variables numerically, statistical techniques, particularly regression analysis techniques, were utilized in this study. Here respondents were all users of digital-banking services, particularly bank-led digital-banking services. In this study, a simple random sampling method was used for participant selection in the survey. The data statistics were collected over the three months period from June to August of the year 2024.

Using Online questionnaire like in literature, the data were collected. Accordingly, a five-point Likert Scale questionnaire that ranges from strongly disagree equal to 1 point to strongly agree equal to 5 points, was created and coded in Google Forms.

A link was generated and sent through a private bank namely Premier Bank Ltd located in Gulshan Branch, Dhaka, Bangladesh for onward distribution to its customers through Email and WhatsApp. Upon completion of the digital survey by the participants, the responses were collected and stored in Google Sheets ready for cleaning and preliminary analysis.

Here Google form was chosen because it has a user-friendly graphical user interface, allowing deployment through a web browser on a computer, tablet, or mobile phone. So, it made the survey easier to complete across devices with different capacities and operating systems. After completion, the data cleaning & validation stages, invalid responses were removed. Accordingly, the final sample consisted of 250 valid responses (i.e., 85% response rate).

After controlling the effects of digital-banking user's age and education, hierarchical multiple linear regression analysis in SPSS was used to evaluate the effects of IPE and UEE on IBI.

Here hierarchical multiple linear regression was the preferred approach because it allows one to enter the variables in blocks. Block 1 was made up of the control variable Age. Block 2 was made up of control variables Age and Education jointly, while IPE and UEE were added in Block 3 during the modelling process. Based on the theoretical model suggested by Doan [11], the following equation was deduced to suite the current study:

IBI is the digital-banking user's intention to buy insurance from the respective bank or from a third-party providing insurance services. IPE is the digital-banking user's insurance performance expectancy and UEE is digital-banking user's effort expectancy. Here Age is a control variable dummy coded as 1 if the customer is between 18 and 35 and 0 if the customer is above 35 years. Edu is the customer's level of education, dummy coded as 1 if the customer holds at least a bachelor's degree and 0 for lower-level qualifications.

## 6. Results

Even though the study used previously validated questionnaire items, checking the internal consistency was necessary.

**Table 1:** *Cronbach's alpha coefficients.*

| Variable                         | Number of Item | Alpha Coefficient |
|----------------------------------|----------------|-------------------|
| Insurance buying intension       | 5              | 0.795             |
| Insurance performance expectancy | 5              | 0.754             |
| User's effort expectancy         | 5              | 0.877             |

Cronbach's alpha was determined for 3 variables namely IBI, IPE, and UEE. The alpha coefficients for IPE, UEE and IBI were 0.795, 0.753 and 0.875, respectively. As a rule of thumb, all the alpha coefficients were above 0.7 suggesting satisfactory internal consistency of the measures.

### 6.1. Correlation analysis

A correlation matrix was requested to investigate the magnitude, strength, and direction of any pair of variables' relationship. The results are shown in table 2 below.

The correlation matrix presented below (Table 2) serves two functions in this study. It was initially used to determine the nature and strength of the relationship that existed between the independent variables (IPE and UEE) and the dependent variable (IBI). A significant but comparatively stronger correlation was observed between IPE and UEE.

Accordingly, the chances are high that the two variables move in the same direction with regards to e-banking users' decisions for buying insurance under VI program, if and only if, the VI policy is in place ensuring secured digital-banking services.

**Table 2:** *The correlation matrix.*

|                                               |                                                           | IPE      | UEE      | IBI      |
|-----------------------------------------------|-----------------------------------------------------------|----------|----------|----------|
| IPE (Insurance performance expectation)       | Correlation coefficient                                   | 1        | 0.605 ** | 0.867 ** |
|                                               | Sig. (Two tailed)                                         |          | 0        | 0        |
|                                               | Number of populations                                     | 250      | 250      | 250      |
|                                               | Correlation coefficient                                   | 0.601 ** | 1        | 0.619**  |
| UEE User's (Digital banking) expected efforts | Sig. (Two tailed)                                         | 0        |          | 0        |
|                                               | Number of populations                                     | 250      | 250      | 250      |
|                                               | Correlation coefficient                                   | 0.867 ** | 0.684 ** | 1        |
|                                               | Sig. (Two tailed)                                         | 0        | 0        |          |
| IBI (Insurance buying intention)              | Number of populations                                     | 250      | 250      | 250      |
|                                               | Correlation is significant at the 0.01level (2 - tailed). |          |          |          |

Both IPE and UEE have a significant positive influence on IBI ( $p < 0.01$ ) and can be used in regression analysis to determine the respective slope coefficients. Secondly, the matrix was used to assess collinearity between the final model's two main independent variables. Since the correlation coefficient of 0.601 ( $p < 0.01$ ) was less than 0.8, the study observed that the two measures were independent. However, to clear the doubt, collinearity statistics were requested, and the results are shown in table 3 below.

**Table 3:** *Collinearity statistics.*

| Model                    |     | Collinearity statistics |       |
|--------------------------|-----|-------------------------|-------|
|                          |     | Tolerance               | VIF   |
| 1                        | Age | 1                       | 1     |
| 2                        | Age | 0.996                   | 1.04  |
|                          | Edu | 0.996                   | 1.04  |
| 3                        | Age | 0.963                   | 1.038 |
|                          | Edu | 0.98                    | 1.02  |
|                          | IPE | 0.595                   | 1.68  |
|                          | UEE | 0.616                   | 1.63  |
| Dependent variable à IBI |     |                         |       |

It is well recognized in literature that one can use either Tolerance or VIF [12] when commenting on the collinearity statistics. Collinearity is absent if the Tolerance  $< (1 - R^2)$ .

According to Leech et al. [12], when commenting on the collinearity statistics, one can use either Tolerance or VIF. Collinearity is absent if the Tolerance  $< (1 - R^2)$ .

In this study, the variables had tolerance levels above 0.101 ( $1 - 0.899$ ). So, collinearity was not an issue. Accordingly, all variables were used in the final model.

## 6.2. Results and interpretations on model fitting

In completion of this study, the method of analysis used in the IBM SPSS v 26, which allowed simultaneous determination of the slope coefficients for the requested variables. As suggested earlier, 3 blocks of models were run to observe changes in the R-Square and F-statistics. The overall model fit results are shown in table 4.

**Table 4:** *The summary of the model.*

| Change Statistics                             |       |          |                   |                           |                 |          |      |     |               |
|-----------------------------------------------|-------|----------|-------------------|---------------------------|-----------------|----------|------|-----|---------------|
| Model                                         | R     | R Square | Adjusted R Square | Std error of the estimate | R Square change | F Change | df 1 | df2 | Sig. F Change |
| 1                                             | 0.332 | 0.11     | 0.107             | 3.294                     | 0.11            | 30.773   | 1    | 248 | 0             |
| 2                                             | 0.354 | 0.126    | 0.119             | 3.373                     | 0.015           | 4.301    | 1    | 247 | 0.04          |
| 3                                             | 0.921 | 0.847    | 0.845             | 1.372                     | 0.722           | 579.776  | 2    | 245 | 0             |
| Predictors (Constant) Age                     |       |          |                   |                           |                 |          |      |     |               |
| Predictors (Constant) Age and Edu             |       |          |                   |                           |                 |          |      |     |               |
| Predictors (Constant) Age, Edu, IBI, IPE, UEE |       |          |                   |                           |                 |          |      |     |               |

The Table-4 contains three models. Model 1 has used Age as the predictor of IBI. Model 2 used Age and Edu as predictors. Finally, model 3 used Age, Edu together with IPE, UEE as predictors of IBI. The R-Square change for models 1 to 3, which suggests on how much of the R-Square changes when the new predictors are added in the subsequent steps while the F-change and the Sig of F-change shows if the change is statistically significant [12].

In the current study, the R-Square changes were 1.5% (i.e., 0.015) and 77.1% (i.e., 0.772) from model 1 to 2 and model 2 to 3 respectively. As it is shown by the F-changes, (30.77,  $p < 0.01$ ; 4.302,  $p < 0.05$ ; and 579.77,  $p < 0.01$ ), adding more predictors to the hierarchy has improved model estimation power.

Based on this result, model 3 has been selected for analysis and discussion of the results. Now focusing on model 3 adjusted R-Square, it can be observed that about 84.5% (i.e., 0.845) of the variation in IBI was due to average changes in the predictor variables. Table 5 below presents the results of the ANOVA (Analysis of Variance).

## 6.3. Analysis of variance

Table 5 shows here the analysis of variance together with the overall F-statistic for all the models. The overall F-Statistics were 30.77 ( $p < 0.01$ ), 17.74 ( $p < 0.01$ ) and 340.33 ( $p < 0.01$ ) for models 1, 2 and 3 respectively.

As mentioned earlier, model 3 had the highest F-statistic and hence better statistical power.

**Table 5:** *The ANOVA results.*

| Model                                          |            | Sum of square | df  | Mean Square | F       | Sig. |
|------------------------------------------------|------------|---------------|-----|-------------|---------|------|
| 1                                              | Regression | 333.824       | 1   | 333.824     | 30.773  | 0    |
|                                                | Residual   | 2690.276      | 248 | 10.848      |         |      |
|                                                | Total      | 3024.1        | 249 |             |         |      |
| 2                                              | Regression | 379.872       | 2   | 189.936     | 17.743  | 0    |
|                                                | Residual   | 2644.228      | 247 | 10.705      |         |      |
|                                                | Total      | 3024.1        | 249 |             |         |      |
| 3                                              | Regression | 2562.86       | 1   | 640.715     | 340.333 | 0    |
|                                                | Residual   | 461.24        | 245 | 1.883       |         |      |
|                                                | Total      | 3024.1        | 249 |             |         |      |
| a. Dependent variable IBI                      |            |               |     |             |         |      |
| b. Predictors (constant) Age                   |            |               |     |             |         |      |
| c. Predictors (constant) Age and Edu           |            |               |     |             |         |      |
| d. Predictors (Constant) Age, Edu, IPE and UEE |            |               |     |             |         |      |

#### 6.4. Hierarchical multiple linear regression results

The regression coefficients for this research study are shown in Table 6. Since model 3 has been adopted, the coefficients for this model together with the significance levels are discussed in this section.

**Table 6:** *Estimated regression models and coefficients.*

| Model |          | Unstandardized Coefficient |           | Standardized Coefficient |        |       |
|-------|----------|----------------------------|-----------|--------------------------|--------|-------|
|       |          | B                          | Std Error | Beta                     | t      | Sig.  |
| 1     | Constant | 19.436                     | 0.278     |                          | 69.822 | 0     |
|       | Age      | 2.328                      | 0.42      | 0.332                    | 5.547  | 0     |
| 2     | Constant | 19.093                     | 0.322     |                          | 59.291 | 0     |
|       | Age      | 2.274                      | 0.418     | 0.325                    | 5.445  | 0     |
|       | Edu      | 0.871                      | 0.42      | 0.124                    | 2.074  | 0.039 |
| 3     | Constant | 2.998                      | 0.506     |                          | 5.928  | 0     |
|       | Age      | 1.23                       | 0.178     | 0.176                    | 6.905  | 0     |
|       | Edu      | 0.414                      | 0.178     | 0.059                    | 2.33   | 0.021 |
|       | IPE      | 0.66                       | 0.032     | 0.674                    | 20.836 | 0     |
|       | UEE      | 0.254                      | 0.03      | 0.268                    | 8.438  | 0     |

The standardized and unstandardized coefficients, t-statistics, and significance levels are all provided. Accordingly, the equation (1) can be reduced to equation (2) as follows using the unstandardized coefficients.

$$IBI = 2.99 + 1.23 \text{ Age} + 0.41 \text{ Edu} + 0.66 \text{ IPE} + 0.25 \text{ UEE} \quad (2)$$

Where,

IBI = Insurance buying intention in aim to have secured digital-banking services

Age = Digital banking user's age

Edu = Digital banking user's education

IPE = Insurance performance expectation of the digital-banking user

UEE = User's efforts expectation

Here the calculated relationships are shown by the slope coefficients, which are explained and discussed in discussion. Here in every case the hypotheses were either confirmed or rejected.

## 7. Discussion

In the findings, the insurance performance expectation (IPE) of e-banking users had a regression coefficient of 0.66 with  $p\text{-value} < 0.01$ . This finding shows that the insurance performance expectation (IPE) has a significant positive impact on insurance buying intention (IBI). Thus, the hypothesis cannot be rejected.

It is rational in this study to argue that digital-banking user who finds using digital-banking as a time-saver and reliable in meeting daily needs of his or her banking operation, it is more likely that the e-banking user will purchase insurance as a product under the VI policy if it is in practice. Since digital-banking, particularly, the bank-led digital-banking faces serious pitfalls being its riskiness including psychological-risk where customer's insurance buying decision can be more appealing [1].

Thus, after controlling for age and education, an increase in IPE by one unit would increase the average purchase intention by 0.66 units. The findings are consistent with those of other researchers. For example, Venkatesh found PE to have a positive impact on technology adoption. Sarfaraz [13] found PE to significantly influence consumers' mobile banking adoption.

It is the study's conclusion that e-banking users are likely to use or buy insurance product under the VI policy, which will be effective, productive and ensured absolute risk-free digital facilitations where there will be no psychological risk using e-banking services.

Here the UEE had a statistically significant regression coefficient of 0.25, with  $p\text{-value} < 0.01$ . The hypothesis that user's effort expectancy (UEE) has a significant positive impact on insurance buying intentions under the VI Policy could not be rejected.

After controlling for age and education, a unit change in UEE would increase the average purchase intention changing by 0.25 units. Therefore, it can be suggested that IBI is significantly influenced by UEE).

The findings of this statistical analysis further established that in Bangladesh, the youths (18 and 35 years) are more likely to buy insurance for ensuring secured digital-banking services than their older counterparts ( $p < 0.01$ ). It has additionally established that the insurance buying intentions of e-banking users hold at least bachelor's degree, which was significantly higher than holders of lower qualifications ( $p < 0.05$ ).

Resultantly, the hypothesis that insurance buying intentions (IBI) in e-banking service-market for those holding a bachelor's degrees and above are significantly higher than for those with lower qualifications could not be rejected. Learning to use and actual operation of digital banking using mobile phone should therefore be easy since this is likely to increase intentions of buying intentions.

Accordingly, banks or insurers should introduce new products such as a VI product or improve existing products to address the needs of this market segment composed of the youths. Furthermore, the insurer's marketing communication effort should not neglect the needs of the elderly though they may be slower adopters of IBI in the case of digital-banking services.

## 8. Recommendations

It is well recognized that a bank can actively introduce and apply modern marketing tools when promoting its products and services to win a new audience [14,15]. This is no different when it comes the proposed product VI in e-banking service market in economy country-wise such as Bangladesh. Also, a bank and an insurance company can decide to sell its product, in this case the VI in digital-banking service-market. Here the insurance company can sell the VI to the bank's digital-banking customers. Surely, here the insurance company can benefit from increased sales and a broader client base without having to expand its sales force [16-19].

There are few effective strategies of selling insurance under the VI policy, if it becomes a effective in e-banking service market for ensuring absolute risk-free, including psychological risk free services. The few recommendations are as follows:

- Bank or associated insurance company can revamp its websites for promoting VI product.
- Build an effective SEO strategy.
- Create a social media presence.
- Leverage e-banking customers reviews.
- Develop an enticing referral program.
- Use email marketing.
- Adopt offline insurance marketing strategies in digital banking services.

## 9. Conclusion

The study concluded that young and educated consumers were more likely to use or buy insurance in digital-banking services if they perceived that the VI policy is effective, productive, and useful, and the process requires little effort. These findings can offer the users absolute risk-free e-banking services, which can ensure a cashless society soon.

Accordingly, bank authority(s) and policymakers of Bangladesh can play effective-roles for better-ness of its modern-society when it come digital-banking services. Thus, this effort is to bring the findings of the Survey-Opinions to the attentions of bank-leadership and policymakers so that proposed product can be introduced in digital-banking in Bangladesh-economy, which can be example for other countries. And, once the VI becomes an official product, the bank itself or in a joint effort with an insurance company, can promote and sell it to customers in multi-faucets.

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