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The Factors Affecting Usage of Internet Banking Services in East Java

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Abstract
T The background of this research is the dramatic development of Internet Banking in Indonesia. It is so obvious because Internet Banking service has provided an unhampered practical financial transaction through cellular phone such that the user is capable to operate online banking transaction at any times and places. Internet Banking can be used to access whole online banking transaction including ATM (Automatic Teller Machine), except the cash withdrawal facility. This research is focused on the acceptance and the use of information technology in Internet Banking, and therefore, the customer of Internet Banking is categorized as the user. Based on some researches, system usage becomes the main instrument to accept technology. Indeed, this research considers Internet Banking users as the instrument of Internet Banking acceptance. This research attempts to explore the variables affecting the use of Internet Banking such as the perception of security, perception of new product adoption, perception of IT knowledge, perception of the internet connecting quality, and quality of Internet Banking service. The attitude of the user toward Internet Banking becomes a subjective criterion of how to like the user to the system. The analysis tool is Structural Equation Modeling (SEM). Based on the direct effect between variables, it seems that of seven hypotheses proposed, six hypotheses have a significant effect.

Keywords*: Internet Banking, Security, New Product Adoption, IT Knowledge, Internet Connection Quality, Service Quality*

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I. Introduction

For users of Internet Banking, Internet Banking through a lot of benefits because at the time the user wants to perform banking transactions quickly users can directly use it wherever the user is through cell phones without having to visit the bank office or ATM (Automatic Teller Machine) and the consumer or user transactions even when it is received directly online to all customers. So by having the user's Internet Banking customers like for having a personal ATM online for 24 hours. The development of cellular technology and the mobile nature of society (to move) is also one of the distribution channels that have the potential to meet our customers' needs. Teknologi SMS and WAP on mobile phones also seem to be the infrastructure that could potentially be used in conducting certain transactions. To accomplish this, the transaction mechanism through mobile phones is now becoming a reality is through Internet Banking. One application of the system of banking online is Internet Banking. Internet Banking is a blend of sophistication of information technology, telecommunications, and banking system, thus forming cellular telecommunications-based banking services [1]. Internet Banking is the latest solutions in banking transactions via mobile phones, therefore, cooperation between the banking service providers and network service provider (network) and the SIM toolkit provider gateway must be able to strive for banking software systems are available in the hardware that is 32 kilobytes and the card system available in dual-band mobile phone should be able to walk according to the procedure and has been considered thoroughly about the security of customer data or the user's Internet Banking. Internet Banking is a new alternative in banking transactions; therefore the users of both bank customers and the customers' mobile operators are still hesitant to try the electronic banking services via mobile phones. Doubt the reason for through the Internet Banking users, due to user error occurs concerned in the transaction because of an error in the use of (human error), as it also customers of data security reasons. But for some people who care about the development of technology and the development of new products, users tend to adopt a new product with goal-oriented tasks (task-oriented outcomes) in which information technology to help users achieve the goals and tasks that are interconnected such as efficiency and effectiveness of the task. Also, Internet Banking services are relatively safe because of using a layered security system, the provider of cellular telecommunications, and banking systems of the network in question. So that customers do not need to worry

about their use. Those are some factors that make Internet Banking services growing so rapidly, rivaling another e-Banking service, and will become an alternative banking service in the future.

Compared to other e-Banking services, the development of Internet Banking calculated based on the results of a survey of the fastest international financial research institute. This development is due to the presence of Internet Banking services that respond to the needs of modern society that greatly emphasizes mobility. With one touch, Internet Banking to create ease of banking services in one hand. Because the study was conducted on the acceptance and use of information technology at the Internet Banking service, the customer or customers categorized as users of Internet Banking. Based on several studies [2][3] system usage is a major instrument in the acceptance of the technology. So in this study, by using the user's Internet Banking, Internet Banking, or use as an instrument of acceptance of Internet Banking. Attitude users of Internet Banking is a subjective criterion of how the user likes to use the system. The survey results reveal the research institute of international finance, 35% of all online activities performed at each home around the world will turn to the Internet Banking services. Predicted, the value of Internet Banking transactions will rise twice per year. Next will be a four-fold increase after 2011 [4]. In Indonesia, the last five years by the use of Internet Banking banking customers increased significantly with an average increase of 135.3% per year. In 2003 a new Internet Banking users around 315 thousand people, but four years later (2007) was to 8.2 million people. And in 2008 was estimated to increase by 50% to about 12.32 million people. Currently, almost all banks have to apply the Internet Banking service [4]. MARS Indonesia based on research published in the "Market Study & Internet Banking Customer Behaviour 2008/2008" of at least three main reasons for customers' banking needs Internet Banking services, namely (1) Practical because it does not need to come to the bank or ATM (46.5 %), (2) Transaction be faster (32.7%), and (3) Simplify to check balances via HP (17.8%) [4]. Based on research conducted by Pikkarainen, et al. [3] that examined the use of Internet Banking is based on several considerations regarding the predictive ability of TAM, as the addition of perceived enjoyment construct, the amount on information, security and privacy, and quality of internet connection or SMS connection, through the study quantitative while Mantel [5] tested the factor- factors affecting the adoption of Internet Banking electronically in which to test the safety variables, the adoption of new products, IT knowledge, perception of quality by conducting a qualitative study. Further research conducted by Al-Shaikh Shammot [6] examined the ease of use of Internet Banking Services via the web or the internet.

These studies underlying the thinking of researchers that want to develop a modified TAM to examine the use of Internet Banking in East Java related to Security, Adoption of New Products, IT Knowledge, Quality of Internet connection will affect the success of the transaction, speed of access and ease of getting information so would create a quality Internet Banking service which is to connect modification. Penelitian TAM through the study of user quantitative Internet Banking in East Java. To find out more about the Internet Banking service quality of the research, so this study is expected able to enrich the study of Management Science and Information Systems Marketing Science. This study examines the use of Internet Banking in East Java to know the quality of service in select Internet Banking. East Java as a place of research and represented by three cities, namely: Malang, Jember, Surabaya because of the banking business activities more done so as a representative of the study. Noting the results of research on Internet Banking, during which only examined the effect of the use of Internet Banking, the researcher wants to develop research through the modification of TAM by linking the study of the Marketing Science wanted to know **The Factors Affecting Usage of Internet Banking Services in East Java**

II. Materials And Methods

Basic theory in this study, consisting of a few things that will explain in detail the theories relating to the title and existing problems. Basic theory in this study starts from theories about the Internet Banking service in advance to understand the more detailed and in-depth definition of the Internet Banking service banking services transactions conducted through the medium of cellular telephones with internet technology and facilities for on-line banking transactions. Further theories about the concept of the use of Internet Banking and Internet Banking service quality variables are also described in this study.

Security

Banking on Mobile systems, encryption systems are set end-to-end encryption with a block encryption technique. So encryption is done on the Mobile Server, while the decryption carried out on the bank server. Mechanisms that do encryption system for each transaction will make the hackers who want to break into the pin and password the user will see an error much less trouble and do password 3 times the blocking will be done directly by the bank server.

Internet Banking facility safety or security feature that users want is secure communication, authentication, against fraudulent and no repudiation. Whereas in this study reflected in safety Internet Banking

password and pin availability, transaction network disruption, and the availability of documentation of the transaction record [8][10].

H1: Security in the use of Internet Banking significant effect on the Quality of Internet Banking Services

Adoption of New Products

Adoption of New Products is a behavior and user interests to use the new technology takes time to learn about a product, experimenting with new products and ultimately use the diffusion process is the process of macro deployment of new products/innovations from its source to a consuming society, while the adoption process is defined as the micro-stage process through which individual users on the decision of acceptance or rejection of new products.

Howcroft, Robert, and Paul [11] suggest that several variables influence the adoption of Internet Banking. Variables that strengthen the adoption rates are low cost or fee, an improved quality of service (improved service quality), it saves time (save time), and 24-hour service. While the variables that hinder the adoption of Internet Banking is security, crime rates, complicated, and the absence of face-to-face service. In this study, the variable New Product Adoption of Internet Banking consists of the use of technology that is easy to carry anywhere (portable), technology innovation with the latest facilities, technologies that are useful to help get the job done [5][12].

H2: Adoption of New Products in the use of Internet Banking significant effect on the Quality of Internet Banking Services.

Knowledge of Information Technology (IT)

Knowledge of Information Technology (IT) is a necessary resource in the process of acceptance and utilization of Information Technology (IT). Knowledge and skills include the ability of end-users will Information Technology (IT). Abilities and skills acquired from education and training levels have been followed related to Information Technology (IT).

In this study Knowledge of Information Technology (IT) is reflected in the introduction of Internet Banking technologies, the introduction of hardware equipment and software Internet Banking, Internet Banking, and operational skills [13][14][15][5].

H3: IT knowledge in the use of Internet Banking significant effect on the Quality of Internet Banking Services

Quality Internet Connection

When I first heard the word Quality of Service is many who interpret it as the quality of the service. Actually, Quality of Service is very popular, and storing a lot of terms that are very often seen from a different perspective, namely in terms of the network (networking), application development (application development), and others.

In terms of networks or networking, Quality of Service refers to the ability to provide different services to network traffic with different classes. The final goal of the Quality of Service is to provide a better service network and planned with dedicated bandwidth, controlled jitter, and latency and improves loss characteristics. Quality of Service is the ability to guarantee delivery of critical data flow or in other words a collection of various performance criteria that determine the level of use of a service.

In this study, the quality of Internet connection is reflected in the network operator cellular broad signal, guarantees the success rate of transactions and network traffic system that quickly (real-time) [16][17].

H4: The quality of Internet connections in the use of Internet Banking significant effect on the Quality of Internet Banking Services.

Quality of Internet Banking Services

Service quality is measured from the evaluation conducted by the user through the experience of taking the quality of products/services. Quality is measured either from the user's personal needs, reliability, and the error rate of the products/services. Service quality is measured from the relativity of the quality of the price paid.

User behavior is an attitude or behavior that is shown or incurred in searching, buying, using, evaluating, and specify or select products, services, and ideas that they hope will satisfy their needs.

In this study, the Internet Banking Service Quality is reflected in the ease of access, a good reputation as one of electronic banking, as well as ease of control transaction [5] [18][8].

The Factors Affecting Usage of Internet Banking Services

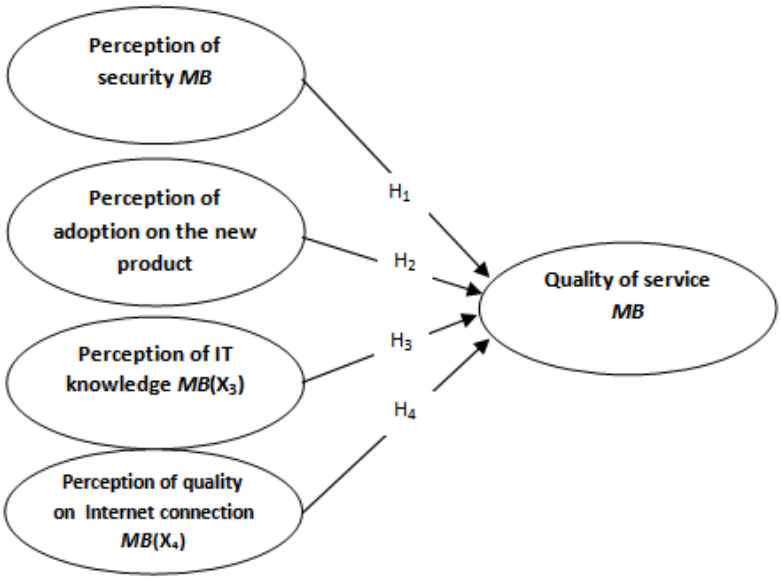

Figure 1 Research Hypothesis Model

Various studies that support it are as follow:

1. Mantel [5]
2. Mantel [5]
3. Shammot & Al-Shaikh [21]
4. Shammot & Al-Shaikh [21]; Tam Tsui Wa [18]

Operational Definition and Measurement of Variables Variable

Operational definition of each variable to be studied in detail can be seen in Table 1:

Table 1 Operationalization of Research Variables

Variable	Indicator	
Perception of security IB(X_1)	$X_{1.1}$ $X_{1.2}$ $X_{1.3}$	▪ Availibility of *pasword* and PIN ▪ Troublesome of transaction network ▪ Availibility of record on the transaction document
Perception of adoption on the new product IB(X_2)	$X_{2.1}$ $X_{2.2}$ $X_{2.3}$	▪ The understanding of operational on *Internet Banking* ▪ Having the sellular telephone with the new facility that supports internet ▪ Information Technology gives the ease in carrying out some activity in the modern life
Perception of IT Knowledge *IB*(X_3)	$X_{3.1}$ $X_{3.2}$ $X_{3.3}$	▪ Introducing the technology of *Internet Banking* ▪ Introducing *hardware* and *software of Internet Banking* ▪ Helping to carry out banking *online* transaction
Perception of quality on Internet Connection *IB*(X_4)	$X_{4.1}$ $X_{4.2}$ $X_{4.3}$	▪ The wide network of sellular operator signal ▪ The success of service transaction on *Internet Banking* ▪ Service content of *Internet Banking*
Service of *Internet Banking* (X_5)	$X_{5.1}$ $X_{5.2}$ $X_{5.3}$	▪ Use *Internet Banking* is easy to access to electronical banking ▪ Using *Internet Banking* is easy to carry out banking online transaction ▪ Using *Internet Banking* is easy to learn the available information

Type of research

By the purpose of research to be achieved, this study uses the pattern of explanations (explanatory) is the research that aims to explain the position of the studied variables and the relationship and influence of one variable with another variable [23]. Thus, this study will provide an explanation of the use of Internet Banking is comprised of a variable perception of security in the use of Internet Banking (X1), Perception of New Product Adoption in the use of Internet Banking (X2), perception of IT knowledge in the use of Internet Banking (X3), Perception The quality of Internet connections in the use of Internet Banking (X4), and the variable quality of service Internet Banking (X5),

Research Sites

The study was conducted on Internet Banking users who are in the area of East Java Province. Subjects of this study are the user or users of Internet Banking application. Internet Banking users are corporate customers banking providers and enterprise customers. Employees and the public could be the subject of study as long as they are the Internet Banking service users. In this study, the sample size is 130 respondents (5 times the indicators in this study, 26 X 5 = 130). Methods of data analysis of this research are Structural Equation Modeling (SEM).

III. Results And Discussion

Result of Research

Based on empirical models proposed in this study can be tested against the hypothesis testing through path coefficients in structural equation models. Table 2 is a test of the hypothesis by looking at the p-value if the p-value less than 0.05 then the relationship between significant variables. Test results are presented in the following table:

Table 2 Hypothesis Testing Results

HIP	Variabel Independent	Variabel Dependent	Direct Effect		
			Standardize	*p-value*	Note
H1	Testing Security Hypothesis of Perception MB	Quality of Internet Banking Services	0.360	0.000	Significant
H2	Adoption perception PB MB	Quality of Internet Banking Services	-0.325	0.000	Significant
H3	Perceptions of IT Knowledge MB	Quality of Internet Banking Services	0.281	0.002	Significant
H4	Perception Internet of connection quality MB	Quality of Internet Banking Services	0.448	0.000	Significant

From the overall model significant six-lane, one lane was not significant. The interpretation of Table 2 can be explained as follows:

a. Security perception using Internet Banking has a significant positive impact on the quality of service with the Internet Banking P = 0.000 <0.05 with a coefficient value of 0360, this coefficient indicates that if the perception of security guarantees that will either make the user more confident using the Internet Banking service, this is due because users have no qualms with the theft of data and find that the Internet Banking services of good quality.

b. Adoption of New Products Perception using Internet Banking has a significant negative impact on Quality of Service Internet Banking with P = 0.000 <0.05 with a coefficient value of -0325, this coefficient suggests that when more and more provider offers the perception of adoption of new products will make use of Internet Banking user the harder it is to use Internet Banking, this is because the user must learn the new applications offered.

c. Perceptions of IT knowledge to use Internet Banking has a significant positive effect on Quality of Internet Banking Services with P = 0.002 <0.05 with a coefficient value of 0281, this coefficient suggests that the perception of IT knowledge that will either make the user feel good Internet Banking service quality and this is because users have become accustomed uses of IT applications.

d. Perceptions of quality of Internet connection using Internet Banking has a significant positive effect on Quality of Internet Banking service with P = 0.000 <0.05 with a coefficient value of 0.448, this coefficient suggests that the better perception of the quality of Internet connection will make the user feel good Internet Banking service quality, this is because the user had to do Internet Banking transactions as well.

Table 5.31. can be seen that there is a significant influence pathway and not significant. Thus the hypothesis:

H1: Perceptions of Security using Internet Banking influences the Quality of Internet Banking Services

H2: Perceptions of Adoption of New Products to use Internet Banking to influence the Quality of Internet Banking Services

H3: Perceptions of IT knowledge to use Internet Banking to influence the Quality of Internet Banking Services

H4: Perceptions of Quality of Internet connection using Internet Banking influences the Quality of Internet Banking Services

No empirical data supported and rejected.

IV. Findings

1. The originality of this study is enriching TAM models with variable use of Internet Banking merger in which the test variables Security Perceptions, Perceptions of New Product Adoption, Perception Knowledge of Information Technology (IT), Internet Connection Quality Perceptions of the Quality of Internet Banking

Services to study for Marketing Science the connection of User Experience. In this study merged research model to study the subject is Internet Banking users.

Limitations of Research

Several findings have been obtained from the results of this study, but there are also limitations in this study that can be used as input for further studies in the future. Limitations of this study can be stated as follows:

1. This study focused only limited to the user's Internet Banking users who perform banking transactions through a cellular telephone.
2. The study was limited to the areas of research that are conducted only in areas of East Java province in the three cities represented in Malang, Surabaya, Jember assuming more Internet Banking users there. Besides, the number of samples used only 130 respondents.
3. Another limitation of this study is the research that has a cross-section of data is the data obtained in only one period of time that is only when the retrieval of data through a questionnaire so that developments during the period of the unit of analysis cannot be obtained in this study.
4. Retrieval of data in this study only focused on the retrieval of data by using a questionnaire filled out by customers, to be processed and analyzed. Limitations on the results of data collection are difficult to be controlled by researchers as perfect data.
5. Further research to add variable trust and variable satisfaction loyalty.

V. Conclusions

1. Internet Banking Security has a significant and positive impact on the Quality of Internet Banking Services. These findings support the theory put forward by Davis (1986), Davis (1989); Davis (1992) which states that Security has a significant and positive impact on the Quality of Service.
2. Knowledge of Information Technology (IT) use Internet Banking has a significant and positive impact on the Quality of Internet Banking Services. These findings support the theory put forward by Davis (1986), Davis (1989); Davis (1992) which states that the knowledge of Information Technology (IT) has a significant and positive impact on the quality of service.
3. The quality of Internet connection using Internet Banking has significant influence and a positive impact on the Quality of Internet Banking Services. These results support the theory put forward by Davis (1986), Davis (1989) which states that the quality of Internet connection has a significant and positive impact on the quality of service.

4. Besides, there is 1 (one) who developed the hypothesis of existing theories. The hypothesis that the adoption of new products using Internet Banking has a significant negative impact on the Quality of Service and Internet Banking. These findings to develop a theory proposed by Davis (1986), Davis (1989); Davis (1992) which states that the adoption of new products has a significant and positive impact on the Quality of Internet Banking Services

Suggestion

1. Future studies may develop the concept of the use of Internet Banking from the perspective of users and non-users who would be more visible of the most dominant variable in the use of Internet Banking.
2. Future studies may examine more deeply about issues that are hot today that the security of customer data from the acts of irresponsible to be connected with the ethical use of Internet Banking and Internet Banking user behavior.
3. Competition in the banking business should be the basis for providing good service to the facility for faster and easier in the transaction and other facilities to materialize the expectations of Internet Banking users.
4. Internet Banking is a service that has more value or the value added to it needs to be equipped with learning and socialization efforts of customers or customer education to understand the customer so well that the use of the service members eases and convenience in the transaction through Internet Banking.
5. Provision and the provision of facilities to service users should be conducted professionally to further solidify position as a leading Internet Banking, reliable and modern, especially in the face of competition, especially with other providers of Internet Banking.
6. An increasingly rapid technological development in the banking sector requires socialization and learning to users to utilize the facilities provided by the regular and continuous as the use and develop services to conduct electronic transactions such as cash withdrawal transactions, transfers between accounts, bill payments and other credit card so, not only through Internet Banking but the m-Shared ATM, Phone Banking, SMS Banking, Mobile Banking, and E-Commerce.

7. Internet Banking is a service that is prone to crime and irresponsible behavior is therefore necessary to always develop a sustainable security system because the hackers can always improve its ability to study the security of the banking system.

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