Digital Banking Adoption Intention Model in Malaysia: A Pilot Study

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Abstract: Digital banking is a form of self-service for consumers to obtain information and complete banking transactions via electronic banking. The transactions that are carried out will be conducted independently, eliminating the need to visit bank locations physically. Therefore, the objective of this study is to investigate the reflective measurement model of the adoption intention model for digital banking among individuals who already have bank accounts. In the course of this research, a pilot study was carried out in the Klang Valley, and it involved 55 people who had bank accounts. The data collected were then analyzed using Structural Equation Modelling with Partial Least Square (PLS) for the reflective measurement model. A total of 34 items are used to measure the six different dimensions, which are referred to as performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, and price value, respectively. The measurement of adoption intention then consists of 6 items. The finding showed that an assessment of factor loading, composite reliability, average variance extracted, and discriminant validity was carried out to validate the reliability and validity of the measuring items. This study is one of many that have been done to determine the factors that influence a person’s desire to embrace a new technology or practice; however, this study looks at the topic from the user’s point of view.

Keywords: Adoption Intention, Digital Banking, Performance Expectancy, Effort Expectancy, Facilitating Condition, Hedonic Motivation, Price Value, Social Influence.

1. Introduction and Background

Digital banking refers to the use of banking applications that may be accessed online or through mobile phones (Anggraeni et al., 2021). These applications give customers the ability to handle all of their transactions by themselves. The vast majority of banks nowadays let their customers access their money wherever they have an internet connection (Manoharan et al., 2022). Digital banking provides account holders with several useful variety of financial services that the customer can get if they go to the physical bank branch (Egala et al., 2021; Jolly, 2016).

According to Kaur (2021), almost 50% of the population in Malaysia prefer to do financial activities using online banking as it shows there is an acceptance of online banking. In addition, some customers have a negative experience when they are in a physical bank branch which makes them prefer to do the financial transaction through online banking (PwC, 2019). Digital banks, however, even though many customers prefer to use online banking there is still a challenge to attract more customers to adopt digital banking (Peng, 2022). Since most people still don’t fully grasp the notion, many people still confuse the difference between digital banking with traditional banking which provides online banking. There are still customers out there who would rather deal with a physical branch of a bank, and digital banks need to find ways to attract more people to adopt digital banking (Peng, 2022). The banking industry in Malaysia is not capitalizing on the need for digital banking services (Barquin et al., 2021). People who are not up-to-date on new technology in the banking industry can assume that the industry does not need any innovations (Abrahão et al., 2016). It is important to identify and analyze the factors that may influence consumers’ decisions to make the transition to digital banking.

For Malaysia’s digital banks to achieve financial success, they must first demonstrate an awareness of the requirements posed by the customer demographics they cater to. The future of digital banking in Malaysia may improve if the variables that have led to its success thus far in its innovation process are better understood (Tiong, 2020). Malaysian customers are enthusiastic about the potential advantages of digital banking as more people have shown a willingness to adopt digital banking services (Kaur, 2021). Consumer adoption intentions are a representation of the possibility or probability that an individual will make use of a particular kind of technology (Khan, 2022). This study may help to attract more people to use the digital
banking platform as best as possible (Yan et al., 2021). Therefore, this study aims to determine factors that influence the consumer to adopt digital banking among existing bank account holders in Malaysia. This study employs the Extended Unified Theory of Acceptance and Use of Technology (UTAUT2) to study the factors that may influence the adoption of digital banking.

2. Literature Review

Digital Banking in Malaysia: In digital banking, customers can directly access without the help of a bank staff member while using the banking services through online banking platforms (Filotto et al., 2021). As a result, there is no longer a need for the physical appearance of the customer in the physical bank (Windasari et al., 2022). Customers in Malaysia are optimistic about the future of digital banking (Kaur, 2021) as they expect to maintain or increase their use of online banking channels. Despite this, many customers still have questions or do not have a complete understanding of the notion of digital banking. If a customer plans to start using digital banking, it is critical to have a solid understanding of the elements that are most important to them.

The Extended Unified Theory of Acceptance and Use of Technology (UTAUT2): The UTAUT2 was developed by Venkatesh et al. (2012) and it is only centered on the consumer perspective besides possessing a much greater aptitude for prediction. Digital banking is still relatively new in Malaysia, therefore it is quite important to study from the consumer’s perspective what factors are taken into consideration by consumers to use the digital banking platform (Jin et al., 2019). According to Vairetti et al. (2019), the intention of a person is the most crucial factor in anticipating whether they would adopt new technology. It plays a crucial role in the adoption of new technology since it reflects actual user conduct (Irani et al., 2009). In recent years, research on the dissemination of cutting-edge technologies has started putting a greater focus on performance expectancy. In line with the findings of a study conducted by Saif Almuraqab (2020), which found that customers will interact with new technology if they are certain it will be to their advantage.

H1: Performance expectancy has a positive significant relationship with adoption intention.

The ease with which a system can be utilized by its end-users is just as important as the system’s functional value in determining the user’s intent behavior (Davis, 1989). Individual consumers will be more likely to adopt and embrace this technology if digital banking is simple to use with less effort (Venkatesh et al., 2012). In addition, they anticipate that the increased availability of this service will improve the possibility that customers will make use of the service.

H2: Effort expectancy has a positive significant relationship with adoption intention.

According to Adapa et al. (2018), the impact of social influence is highly crucial, particularly for new technologies that are still in the initial phases of the development process. According to Alalwan et al. (2015), consumers’ understanding of technology and their intention to use it may be driven by the insights and inspiration offered to them by individuals who are close to them. Social impact is one of the potential factors that leads to the adoption of new technologies (Farah et al., 2018).

H3: Social influence has a positive significant relationship with adoption intention.

For individuals to effectively adopt new technology, facilitating conditions must be in place where there is enough guidance to use that particular new technology (Chatterjee et al., 2020). Internet connection, devices that can connect to the internet (such as tablets or laptops), the appropriate software, and the expertise to use the system effectively are all prerequisites for digital banking (Sharma et al., 2020).

H4: Facilitating condition has a positive significant relationship with adoption intention.

Hedonic motivation refers to the positive emotions one experiences when considering adopting new technologies (Khan, 2022). Developers of digital banking platforms are under pressure to incorporate elements that are user-friendly to the customers (Dwivedi et al., 2016). It will motivate more people to adopt digital banking if the platform is easy to use and provides a positive ambiance while using it.

H5: Hedonic motivation has a positive significant relationship with adoption intention.

If customers perceive digital banking as more valuable than the time and money spent traveling to a physical
branch, they are more likely to adopt the technology (Merhi et al., 2019). Digital banking still has costs, but if they are lower than the costs associated with visiting a physical bank office, more consumers may switch to digital banking (Thaker et al., 2022). **H6**: Price value has a positive significant relationship with adoption intention.

3. Research Methodology

The pilot test was carried out on 55 existing bank account holders of commercial banks and Islamic banks in Klang Valley using a convenience sample method. The participation was voluntary and the respondents were required to complete the survey via Google Form. The survey was designed in the form of self-administered close-ended questions that comprise Section A which comprised of questions on the perception of respondents on performance expectancy, effort expectancy, facilitating condition, hedonic motivation, social influence, and price value. Next, Section B asked the respondents about adoption intention while Section C on the demographics of the respondents. There are a total of 34 items that are used to measure the six different dimensions, which are performance expectancy, effort expectancy, social influence, facilitating condition, hedonic motivation, and price value. The adoption intention item measurement then consists of 6 items. The item measurements for UTAUT2’s dimensions were adapted from Duarte and Pinho (2019). Likert scales from 1 (strongly disagree) to 7 (strongly agree) were utilized for all questions. Only participants over the age of 18 were included in the analysis. Structural Equation Modelling with Partial Least Square (PLS) was then used to analyze the gathered data on the reflective measurement model. Results demonstrated evaluation of the reflective measurement model’s factor loading, composite reliability, average variance extracted, and discriminant validity.

4. Results

In this section, sets of results relevant to the reflective measurement model are presented to analyze the model’s convergent validity as well as its discriminant validity. Before any further analysis, measurement errors must be minimized to the greatest extent possible.

**Convergent Validity**: According to Hair et al. (2017), the concept of convergent validity refers to the extent to which one measure correlates favorably with multiple measures of a particular construct. To evaluate the convergent validity of the reflective measurement model, this pilot study utilized factor loadings, composite reliability (CR), and average variance extracted (AVE) (Hair & Anderson, 2010). It is recommended that the values of the loadings be larger than 0.5, the CR be greater than 0.7, and the AVE more than 0.5. As illustrated in Table 1, 38 items represented adoption intention, effort expectancy, facilitating condition, hedonic motivation, performance expectancy, price value and social influence. The items EE2 and PV1 were deleted due to lower factor loading of less than 0.5, while the rest of the items have greater than 0.5 factor loadings.

**Table 1: Convergent Validity Result**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Item Loading</th>
<th>Factor Loading</th>
<th>Construct</th>
<th>Item Loading</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoption Intention</td>
<td>CA11</td>
<td>0.964</td>
<td>Performance Expectancy</td>
<td>PE1</td>
<td>0.830</td>
</tr>
<tr>
<td></td>
<td>CA12</td>
<td>0.966</td>
<td></td>
<td>PE2</td>
<td>0.886</td>
</tr>
<tr>
<td></td>
<td>CA13</td>
<td>0.971</td>
<td></td>
<td>PE3</td>
<td>0.939</td>
</tr>
<tr>
<td></td>
<td>CA14</td>
<td>0.947</td>
<td></td>
<td>PE4</td>
<td>0.910</td>
</tr>
<tr>
<td></td>
<td>CA15</td>
<td>0.966</td>
<td></td>
<td>PE5</td>
<td>0.913</td>
</tr>
<tr>
<td></td>
<td>CA16</td>
<td>0.904</td>
<td></td>
<td>PE6</td>
<td>0.926</td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>EE1</td>
<td>0.923</td>
<td>Price Value</td>
<td>PV2</td>
<td>0.786</td>
</tr>
<tr>
<td></td>
<td>EE3</td>
<td>0.936</td>
<td></td>
<td>PV3</td>
<td>0.912</td>
</tr>
<tr>
<td></td>
<td>EE4</td>
<td>0.957</td>
<td></td>
<td>PV4</td>
<td>0.911</td>
</tr>
<tr>
<td></td>
<td>EE5</td>
<td>0.717</td>
<td></td>
<td>PV5</td>
<td>0.914</td>
</tr>
<tr>
<td>Facilitating Condition</td>
<td>FC1</td>
<td>0.919</td>
<td>Social Influence</td>
<td>SI1</td>
<td>0.901</td>
</tr>
</tbody>
</table>
Composite Reliability and Average Variance Extracted Analysis: After deleted items with low factor loading, the reliability was assessed using composite reliability (CR). As suggested by Hair et al. (2017), the recommended value of CR is greater than 0.7 while the average variance extracted (AVE) is more than 0.5 (Bagozzi & Yi, 1988). An appropriate level of convergence or internal consistency is indicated by CR values of 0.7 or higher (Gefen et al., 2000). As depicted in Table 2, the reflective constructs show their value of composite reliability above 0.7 as adoption intention (CR = 0.983), effort expectancy (CR = 0.937), facilitating condition (CR = 0.907), hedonic motivation (CR = 0.978), performance expectancy (CR = 0.963), price value (CR = 0.933) and social influence (CR = 0.957). The results are consistent with the previous study by Kwateng et al. (2019) and Hassan et al. (2022) who also used UTAUT2’s constructs. It can be concluded that all the items for each UTAUT2’s construct were reliable to the model as the values were greater than 0.7 and above. Furthermore, the values of AVE were greater than 0.5 for all the constructs as adoption intention (AVE = 0.908), effort expectancy (AVE = 0.790), facilitating condition (AVE = 0.624), hedonic motivation (AVE = 0.864), performance expectancy (AVE = 0.812), price value (CR = 0.779) and social influence (AVE = 0.818). The convergent validity of this study was upheld by these findings which are also consistent with the study done by Henrico et al. (2021).

Table 2: Composite Reliability and Average Variance Extracted Analysis

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoption Intention</td>
<td>0.983</td>
<td>0.908</td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td>0.937</td>
<td>0.790</td>
</tr>
<tr>
<td>Facilitating Condition</td>
<td>0.907</td>
<td>0.624</td>
</tr>
<tr>
<td>Hedonic Motivation</td>
<td>0.978</td>
<td>0.864</td>
</tr>
<tr>
<td>Performance Expectancy</td>
<td>0.963</td>
<td>0.812</td>
</tr>
<tr>
<td>Price Value</td>
<td>0.933</td>
<td>0.779</td>
</tr>
<tr>
<td>Social Influence</td>
<td>0.957</td>
<td>0.818</td>
</tr>
</tbody>
</table>

Discriminant Validity: The between-trait correlations were divided by the within-trait correlations to generate the Heterotrait-Monotrait Ratio (HTMT) of the correlations (Hair et al., 2017). HTMT criteria were used to assess discriminant validity. This study used 0.90 as the threshold value (Franke & Sarstedt, 2019; Henseler et al., 2015) for the HTMT criterion. The result of the discriminant validity in Table 3 speaks in favor of the discriminant validity of the constructs. It is also possible to draw the conclusion which is consistent with Thaker et al. (2022) that the respondents were aware of the uniqueness of each of the seven constructs, as well as the fact that each measurement item is valid and reliable.
Table 3: Discriminant Validity: Heterotrait-Monotrait Ratio of Correlations (HTMT)

<table>
<thead>
<tr>
<th>Constructs</th>
<th>AI</th>
<th>EE</th>
<th>FC</th>
<th>HM</th>
<th>PE</th>
<th>PV</th>
<th>SI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adoption Intention</td>
<td>0.798</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effort Expectancy</td>
<td></td>
<td>0.847</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facilitating Condition</td>
<td>0.809</td>
<td>0.847</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedonic Motivation</td>
<td>0.803</td>
<td>0.878</td>
<td>0.744</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance Expectancy</td>
<td>0.887</td>
<td>0.840</td>
<td>0.793</td>
<td>0.847</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Value</td>
<td>0.615</td>
<td>0.717</td>
<td>0.818</td>
<td>0.764</td>
<td>0.635</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Influence</td>
<td>0.727</td>
<td>0.879</td>
<td>0.759</td>
<td>0.787</td>
<td>0.770</td>
<td>0.660</td>
<td></td>
</tr>
</tbody>
</table>

Discussion: The purpose of this research is to investigate the reflective measurement model of adoption intention for digital banking. A reflective measurement model is one in which the factor loadings of the items can be deleted if they do not satisfy the cut-off values of 0.5. In this model, the factor loadings are evaluated. The deleted items will remain to describe the underlying concept of the construct and will not affect its meaning. The study that demonstrates the causal relationship between the construct and the indicators comprises the composite reliability, average variance extracted, and discriminant validity measures.

The overall composite reliability value was greater than 0.7, ranging from 0.907 to 0.983. These findings therefore suggest that the reliability of the measurement model was adequate. Except for two items (EE2 and PV1), 38 items have loadings greater than 0.5, with values ranging from 0.588 to 0.971. Items with a reliability indication loading more than 0.5 have not been dropped, while items with a loading less than 0.5 have been. For all constructs, the average variance extracted (AVE) value is between 0.624 and 0.908. The AVE for every construct is more than 0.50. The Facilitating Condition had the lowest reported AVE (0.624), followed by the Price Value (0.779), the Effort Expectancy (0.790), the Performance Expectancy (0.812), the Social Influence (0.818), the Hedonic Motivation (0.864), and the Adoption Intention (0.908). This evidence has sufficient convergent validity.

Although the conservative HTMT threshold of 0.90 already lends support to discriminant validity, the results of the bootstrap confidence interval for the HTMT add weight to the idea that discriminant validity has been established. The findings demonstrated the reliability and validity of the measures to be acceptable. The results from the statistical measurement are sufficient to proceed to the structural measurement.

5. Managerial Implications and Recommendations

In summary, digital banking is a new technology in Malaysia’s banking industry that is still not fully understood and used by bank account holders. It is very important to understand what factors are prioritized by potential users to be more confident and confident in using digital banking to the fullest. When digital bank providers know which factors are prioritized by potential users, it will be very helpful to get more digital banking users. Many studies have been conducted to identify factors that influence adoption intention, but this study looks at it from the user’s perspective. The findings can be applied to other countries as well.

Conclusion: The objective of this paper was to examine the reliability of the items in the reflective measurement model. There are six constructs which are performance expectancy, effort expectancy, facilitating condition, hedonic motivation, price value and social influence were used to study the relationship towards adoption intention. To proceed with the structural model assessment, it is important to test the reliability and validity of the measurement model first. Composite reliability, factor loadings, average variance extracted, and discriminant validity are the analyses done to establish the reliability and validity of the items.
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