

The Future of Virtual Banking in Malaysia

Shahrul Nizam Salahudin^{1,*} & Che Fong Joo¹

¹Department of Management and Technology, Faculty of Technology Management and Business, Universiti Tun Hussein Onn Malaysia, 86400 Batu Pahat, Johor, MALAYSIA

*Corresponding Author

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Abstract: Virtual bank is the digitization of all traditional banking operations and services that were previously available to consumers when they visited a bank branch. Virtual banks are more complex and sophisticated because every banking activity, process, and stage of providing banking products and services will involve technology. This research aims to identify the issues, challenges and trends of virtual banking in Malaysia and to study the future scenario of virtual banking in Malaysia. This study uses the STEEPV analysis to identify the issue, trends and challenges of virtual banking in Malaysia. The questionnaire will be used as the research instrument by distributing the questionnaire to the Gen Y online banking user in Malaysia. The sample size is 384 respondents with the response rate of 31.25%. The findings will be analysed by using SPSS software. Impact-uncertainty analysis and scenario analysis are used to study the future scenario of virtual banking in Malaysia. The result of top two issues, challenges and trends are efficient and effective services and ensure data privacy and security. The four scenarios building that has been constructed from the top two issues, challenges and trends. The best scenario of this research is emergence of new bank. This research will help the virtual banking user and developer have better understanding and outlook toward the virtual banking.

Keywords: Virtual banking, Banking industry, Digitalization

1. Introduction

The development of information technology helps the financial industry rapidly grow, especially the banking industry, because it efficiently helps bank companies serve their customers (Ananda *et al.*, 2020). The root of banking in Malaysia can be traced back to the existence of the British merchant communities in Penang and Singapore dating back to the 19th century. In the era of today's computers, we take 24-hour banking for granted but the seeds of computerisation of banking services began in Malaysia as early as the 1960s. Since then, rapid advances in technology and automation have rapidly expanded banking services beyond our shores (ABM, 2021). Based on the survey conducted by the Malaysian Communications and Multimedia Commission (MCMC) show that 88.7% of the population

are internet users in 2020, and those who conduct financial transactions online have increased from 54.2% in 2018 to 63.8% in 2020 (MCMC,2020).

Virtual banks, also known as digital banks, are the digitization of all traditional banking services and services that consumers can use when visiting bank branches. (CompareHero,2020). The virtual bank does not rely on any form of physical presence or branch offices to resume operation. However, the virtual bank offers similar services as a traditional bank but still have some keys differences that differentiate the two and make one more attractive than the other (Fintech,2018). Virtual banks will operate with lower expenditure costs on workforce and rent than traditional banks because virtual banks utilise information technology such as artificial intelligence and the cloud system (Pui Yan, 2021).

The traditional bank can provide real-time services to the customer during the normal working hour, but after the bank working hour, the customer cannot process important services such as loans and finance consult with the bank staff. However, the virtual bank's service hour is a 24/7 digital operation and can process the services at the virtual bank's website. The virtual bank customers can use the virtual bank apps to proceed with any services instead of visiting the physical bank, and it can let the customer save much time and cost they do not have to enter a branch for transactions anymore. (J. P., 2021).

Therefore, to achieve the research objectives the issues, challenges and trends of virtual banking in Malaysia are determined. Consequently, the future scenarios of virtual banking in Malaysia is predicted.

This foresight study was conducted out with a 10-year time frame in mind, from 2021 to 2031. This research is focusing on the virtual bank. This research is study on the resource and information linked to the trend of the virtual bank. The information and data related to the virtual bank were collected from numerous resources such as journal article, conference proceedings, government-related articles, the internet, and other research material corresponding to virtual banking. The respondent of this research will consist of Gen Y, the age between 23 to 40 years old online banking users in Malaysia. The method used in this research study is STEEPV and questionnaire.

This study will be significant in its knowledge, method and practical. In terms of knowledge, it helps provide information related to the factors of employing virtual banking in Malaysia from the previous researchers. This information will provide future scenarios of virtual banking in Malaysia. Next, the use of STEEPV analysis help the researchers to extract the issues, trends and challenges from the academic journal. The issues, challenges and trends are to develop a questionnaire that can influence the impact-uncertainty on the virtual bank in Malaysia. The highest degree of impact-uncertainty will help researchers to develop the future of virtual banks in Malaysia. Last but not least, in terms of practical, it will be significant for the banking industry to launch a future service that benefits its customer. It provides better and more convenient services to the customer as it helps to save a lot of time and cost, making sense for the community in Malaysia to accept this technology. Hence, it will increase the banking industry's demand and help improve Malaysia's economy.

2. Literature Review

The literature review section describes all relevant literature related to the research and critically discussed. This section can be structured based on the stated objectives and focus of the study or any logical order as deemed appropriate.

2.1 Research Design

This study will use both qualitative and quantitative approach to identify the issues, challenges and trends of virtual banking and the future scenarios of virtual banking in Malaysia. The STEEPV analysis

is being used as the qualitative method to identify the issues, challenges and trends on virtual banking in Malaysia. It uses the quantitative method to develop the future scenarios of virtual banking in Malaysia by analysing results based on the mean score obtained from the questionnaire. Additionally, it will use impact-uncertainty analysis to identify the main key issues, challenges and trends to develop the future scenario of this study.

2.2 Data Collection

Data collection is the process of collecting and measuring the information from all relevant sources that can answer the stated research questions and evaluate outcomes. There are two types of data collection method which is primary data and secondary data. According to (Hox & Boeije, 2004), primary data are collected for the specific problem by researcher. The questionnaire will be distributed to target respondents to collect the data about the understanding of respondents toward the virtual banking in Malaysia. Secondary data is the new data added to the existing store of social knowledge and other researcher is creating it for reuse by the general research community (Hox & Boeije, 2004). The material used in secondary data collection are newspaper, journals, articles, books and website database. The sources related to the virtual banking were collected to find the issues, challenges and trends of virtual banking in Malaysia.

2.3 Foresight Process

Foresight is a process that aimed to engage in wide range of future technologies. The findings show that experts' and organisers' instinct, insight, impulsiveness, and, at times, inexperience or irresponsibility influenced and dominated the selection of foresight methods (Popper, 2008). The foresight process is priority to the future 10 years focus by applying long-term thinking to support strategic decisions. The foresight process tools used in this research study is horizon scanning and STEEPV method to identify the issues, challenges and trends of virtual banking in Malaysia.

(a) *Horizon Scanning*

Horizon scanning is defined as a systematic examination of potential threats, risk and opportunities within a given context (Roy *et al.*, 2014). In this study, it is used to describe the process of identifying information of the issues, challenges and trends on the virtual bank to support decision making on virtual banking in Malaysia

(b) *Analysis of STEEPV*

STEPPV analysis is conducted to identify the key drivers, issues, trends, impacts of the virtual banking in Malaysia. In this study, article, journal, websites, and online database will use to collect the important keyword. STEPPV is an acronym for Social, Technology, Environment, Economic, Political and Value. The related research data will be identified and collected to make a comparison between two themes and decide the appropriate theme in this research study.

(c) *Issues, challenges and trends*

Issues, Challenges and Trends is the factor that will affect and change the future development. Issues, Challenges and Trends will be identified by using STEPPV method and using tools to identify ranking of drivers. For example, impact-uncertainty analysis, the s-curve, and the future wheel. The Issues, Challenges and Trends will identify the future scenario of virtual banking was studied with impact-uncertainty analysis.

2.4 Quantitative Methodology

Quantitative methodology refers to the standardized questionnaire management of individuals or families, usually through various forms of sampling to determine random sampling.

(a) Research instrument

Research instrument is a tool that use to get the information about the research topic. In this research, research instrument used is the questionnaire. The questionnaire is a research instrument that consists of a set of questions to collect the information from respondent. The questionnaire can use to find the issues, challenges and trends of the future of virtual banking in Malaysia. The questionnaire was distributed to the online banking users in Malaysia. There are four parts in this questionnaire which is A, B, C, and D.

(b) Pilot test

Pilot test is one of the necessary in the research report. It is conducted to identify the potential weakness on the research instrument. The number of respondents to carry out the pilot test is the first 30 respondents of the questionnaire. The result of the respondents will use as a medication of questionnaire.

(c) Population

A research population is a big group of individuals or people who are primarily focus in a scientific query. The target population must be clearly defined as its specific population area and time. Population might include people, organization, institutions and others. The target population in this study is consist of Gen Y, the age between 23 to 40 years old online banking users in Malaysia. According to the (Hirschmann, 2019), adults are classified as individuals above the age of 18 years. In 2019, there were approximately 21.82 million adults in Malaysia.

(d) Sample size

Sample is a subset of the population that comprises some element selected from its population. The smaller the population of sample size, the bigger the sampling ratio must be for an accurate sample (Neuman, 2014). Calculating the sample size mathematically requires sophisticated assumptions, estimating population size and diversity on variable that are planning to examine. Based on the table of Krejcie and Morgan, it stated if the population number increases, the sample size increases and remain constant with more than 380 cases. When the population is 21.82 million, thus the sample size is 384 people (Krejcie & Morgan, 1970).

(e) Sampling method

Sampling is the proper sample that allows a researcher to decide for the sample size of target population. The sampling method is choosing the target of the respondent and collect the data as the research data. There are two types of samples which are random sample and non-random sample.

2.5 Descriptive Analysis

Descriptive analysis was considered to be a sensory evaluation tool of particular benefit to research and development (Stone *et al.*, 2008). The data is obtained using the Statistical Package for Social Science (SPSS) and will analysed the findings' results. Descriptive analysis helps to identify the characteristics of the findings in the study by stating the value of mean through SPSS. There are three level of mean value which is low, medium and high.

2.6 Impact-Uncertainty Analysis

Impact-Uncertainty is used to identify the highest degree of key issues, challenges and trends of this research study. The key issues, challenges and trends will be chosen based on the outcomes of the result of the questionnaire. The scenario analysis will be developed by select the highest impact- uncertainty level of two key issues, challenges and trends.

2.7 Scenario Building

The research study scenario was generated with the two highest levels of key issues, challenges and trends in impact-uncertainty analysis. Four future scenarios were generated to reflect the future outcome of events and the future scenario of virtual banking, regardless of whether the outcome was favourable or unfavourable.

3. Literature Review

3.1 Overview of Virtual Bank in Banking Industry

Virtual Bank is a bank which provide the banking service through the internet and other forms of electronic channels instead of physical branches. Most banking transactions are now conducted via the Internet rather than through branch offices. The retail service can easily deliver to the customer by using the internet (Özcan *et al.*, 2013).

The virtual bank has many benefits to the customer. The transaction cost of virtual bank is lower and the service is faster than the traditional bank. The virtual bank also provides the high saving on interest rate compare to the traditional bank and customer can access the banking service through the internet by using the bank application and website.

While virtual bank does provide convenience service to the customer, it also has various disadvantages as virtual bank. Virtual bank relies heavily on technology and cutting-edge practices such as big data, machine learning, and high levels of automation, leveraging cloud, analytics, and artificial intelligence (AI) to improve the customer experience beyond traditional credit and debit transactions. Without the technology, virtual bank cannot build up entirely because it highly dependent on technology and work with the ecosystem. The virtual bank server will go down or are temporarily unavailable due to scheduled site maintenance and it will affect the customer cannot use the service due to the system interruption.

3.2 STEEPV Analysis

STEPPV analysis is the basic idea to identify the issues and challenges on the factor of virtual banking. It was developed at Johnson Research Institute in the 1960s and was published in 1971. In STEPPV analysis to perform this analysis there are six areas are considered to collect the information which are social, technological, economic, environmental, political and values.

3.3 Merged Issues, Challenges and Trends

Table 1: Table with merged issues, challenges and trends

No.	Issues, Challenges and Trends
1	Awareness in the adoption of Virtual Bank
2	Efficient and effective services
3	Impact on the physical traditional bank
4	Ensure data privacy and security
5	Digitalisation banking services
6	Improve user experience

7	Cost-effective
8	Environmentally friendly
9	Flexibility business hour
10	Higher saving on interest rate

4. Data Analysis and Findings

The data collection results obtained through the distribution of questionnaires to the targeted respondents via Facebook, WhatsApp, and WeChat. The collected data were analysed using Statistical Packages for Social Science (SPSS) to obtain overall demographic information as well as the individual mean of the issues, challenges, and trends. It was arranged in descending order, and the top half of issues, challenges, and trends with the highest mean were built for impact-uncertainty analysis.

4.1 Pilot Test Result

Pilot study is one of the important things in research. Throughout this study, 30 respondents from Gen Y, between 23 to 40 years old online banking users in Malaysia, were involved in a pilot test. The data is being analysed by using the SPSS to check for the reliability of the questionnaire. From the first 30 respondents, the Cronbach’s Alpha for each part is 0.784 (Part B), 0.865 (Part C), and 0.928 (Part D). The value of Cronbach’s Alpha score above 0.7 is usually known as acceptable. When it is acceptable, the collected data for the actual study can proceed.

4.2 Actual Study Result

After achieved the credibility and reliability of the previous pilot test study, then the actual study was undertaken. From the first 120 respondents, the Cronbach’s Alpha for each part is 0.844 (Part B), 0.888 (Part C), and 0.925 (Part D). The result of the reliability test and the Cronbach’s Alpha values for each tested item indicated strong internal consistency for the actual study because the Cronbach’s Alpha is greater than 0.8.

4.3 Survey Return Rate

Table 2: Survey Return Rate

Section	Value
Sample Size	384
Questionnaire Distributed	384
Total Respondent	120
Percentage	31.25%

4.4 Descriptive Analysis of the Issues, Challenges and Trends

The discussion of the result for each issue, challenges and trends is based on three different aspects which is importance, level of impact and level of uncertainty. These three aspects will use to identify the top issues, challenges and trends with highest impact and level of uncertainty. Impact-uncertainty analysis was used to identify the top issues, challenges and trends which contributed significant impact and uncertain occurrence in future.

4.5 Impact-Uncertainty Analysis

Table 3: Mean of 5 Leading Issues, Challenges and Trends on Level of Uncertainty

and Impact

No.	Issues, Challenges and Trends	Mean	
		Uncertainty	Impact
D1.	Efficient and effective services	3.79	4.45
D2.	Ensure data privacy and security	4.02	4.26
D3.	Flexibility business hour	3.45	4.03
D4.	Improve user experience	3.55	4.03
D5.	Digitalisation banking services	3.43	3.94

The difference in mean in the two aspects before constructing the impact-uncertainty analysis was clearly shown in Table 4.14. The data in table 4.14 were used to form the impact-uncertainty analysis to find the issues, challenges and trends with the highest significance outcome on impact and uncertainty in the future prospect.

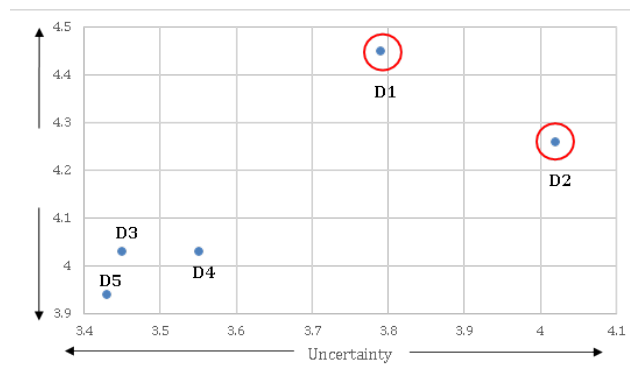


Figure 1: Impact-uncertainty analysis

After obtaining the data from merged mean value for top issues, challenges and trends of impact and uncertainty, the data use to form the impact-uncertainty graph to determine the highest impact and highest uncertainty. Figure 4.6 was presented the result of the analysis. The top two issues, challenges and trends will be chosen. Coordinate of D1 (3.79, 4.45) and D2 (4.02, 4.26) were choose as D1 is the highest level of impact and D2 is the highest level of uncertainty. It reflects the two issues, challenges and trends of “efficient and effective services” and “ensure data privacy and security”. These two issues, challenges, and trends were chosen as the top issues, challenges, and trends to be used in the next chapter's scenario building analysis.

5. Discussion and Conclusion

5.1 Discussion Based on the First Research Objective

The researcher had carried out the two research objectives throughout the process of this study. The first objectives were to identify the issues, challenges and trends of virtual banking in Malaysia

(a) *Efficient and effective services*

The first top issues, challenges and trends are efficient and effective services. This is the most uncertainty issues, challenges and trends and had gathered the highest votes and voted by online banking users. Uncertainty score is 3.79 out 5 and impact score is 4.45 out of 5. The need for the interrelation between the efficient and effective services is the impactful in the perspective of the respondents as virtual banking is the best choice for the interrelation as users are more concern about the efficient and effective services if they using the virtual banking services. The impact is related to the user’s motivation in adopting virtual bank. Communication channels are necessary, but they must also be efficient, competitive, competent, cost effective, and supportive of services (Omar Faruque, 2016).

(b) Ensure data privacy and security

The second top issues, challenges and trends are ensured data privacy and security. This is the most impactful issues, challenges and trends and had gathered the highest votes and voted by online banking users. Uncertainty score is 4.02 out 5 and impact score is 4.26 out of 5. This issue, challenge and trend is the uncertain and difficult to predict in the future development of virtual banking in Malaysia. The virtual bank service can bring convenience for financial consumers but also improves the security level by utilising people’s biometric data to verify their identities (Lu, 2017). The level of uncertainty on customer’s privacy and security such as virtual banking service providers must ensure their customers are safe and secure to use the service because customer concerned about the privacy and security (TRAN, 2021).

5.2 Discussion Based on the Second Research Objective

The purpose of second research objective is to study the future scenario of virtual banking in Malaysia. It is to identify the scenario which acts as the pushing forces of virtual banking. The scenario is formed by scenario analysis on four different alternative scenarios based on the top two issues, challenges, and trends identified in the impact-uncertainty analysis

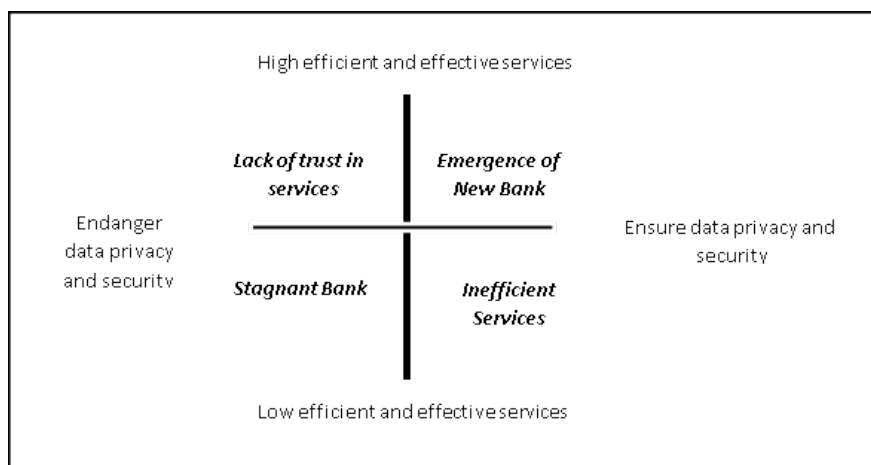


Figure 2: Development of four alternatives scenarios

(a) Scenario 1: Emergence of new bank

In first scenario, the emergence of new bank when the high efficient and effective services with ensure the data privacy and security. This scenario is the best scenario and basically it will increase the potential of adopting the virtual banking services. Emergence of New Banks means the new digital bank will appear and different of model compare to the traditional brick and mortar bank. The virtual banking industry is utilising more advanced technologies in the provision of financial products and services,

such as the Internet of things (IoT), artificial intelligence (AI), machine learning (ML), and others (TRAN, 2021).

When the service of bank is high efficiency and effective, the user will feel more convince to switch to use the virtual bank service. The AI-enabled technologies have replaced the existing traditional customer care procedures which can saving businesses time and energy (Malali & Gopalakrishnan, 2020).

Besides that, banking's new normal is shifting away from branch-driven, product-centric organisations with legacy technologies and cultures, and toward consumer-centric organisations with more personalised solutions that can be delivered seamlessly and effectively (CompareHero,2020). The virtual banking can help to reduce the poverty and increase the standard of living especially for the rural area and rural bank branches (Vong *et al.*, 2016). Hence, the virtual banking not only can contribute to GDP growth but also can reduce the poverty problem because the virtual banking is a cost-effective, time-efficient, and flexible way for a bank to provide banking services to the rural population (Ridhwan Aziz *et al.*, 2021).

Furthermore, the digital banking can increase transparency in services and make transactions completely secure through the use of complex encryption methods to prevent cybercrime and the issues of information leaking (GDS Modellica, 2020).

Lastly, the experience of virtual banking will be obvious compared to traditional bank when the complexity intensifies and will provide a new experience to new generations that are faster, more user friendly and more productive. This scenario is the best because it meets the customers' expectations of efficient and effective service and the need to ensure data privacy and security.

(b) Scenario 2: Stagnant bank

The second scenario is a stagnant bank and it occurred when there is low efficient and effective service and endanger the data privacy and security. This is the worst situation and shows that the users will not be convinced to use the virtual bank's services while the generation is not knowledgeable about the technology. After perceiving virtual banking to have a low usage, society lacks the resources and knowledge to innovate new technology to replace it in the financial sector. Thus, the banking sector in Malaysia will remain stagnant and constant in terms of technology used.

In the context of electronic commerce, trust receives the biggest attention since there is high risk and uncertainty in online transactions because security is the important key factors that can change customers' perceptions on virtual banking services adoption. (Massilamany & Nadarajan, 2017) Customer lack of trust on the banking services because there are few deficiencies in its security mechanism (Massilamany & Nadarajan, 2017)

Because of this, bankers need to lessen frauds and risks in online banking hence all bank users can increase their confidence and retention on adopting online banking services (Massilamany & Nadarajan, 2017). Virtual banking services must generate and induce the customer attention to banking services by the better marketing and advertisement strategies. Customers should be informed about its convenience features, advantages and benefits of using virtual banking services.

(c) Scenario 3: Lack of trust in services

The third scenario is lack of trust in services and it occurs when there is the high efficient and effective services while endanger data privacy and security. Due to the risks of leaking user information

and stealing intellectual property rights, the endanger data privacy and security issues will reduce trust in banking services.

The virtual banking has increased the efficiency and cost-effectiveness of technology-enabled service delivery processes, shifting managerial attention to improving the efficiency of digital channel operations in order to reduce operational costs. (Ridhwan Aziz *et al.*, 2021).

Next, the bankers should provide customers with reassurance and information about the trustworthiness of virtual banking activities, which will undoubtedly improve the application of security and privacy of virtual banking services (Pavithra & Geetha, 2021). To improve virtual banking services, bankers should assist customers by developing secure practices in digital banking and appropriately managing risk (Pavithra & Geetha, 2021).

Although efficient and effective of banking services is high but the consumers' data protection and privacy are low. Hence, consumers will have lack of trust in virtual bank services and the possibility of consumers to use the virtual banking will decrease.

(d) Scenario 4: Inefficient services

The last scenario is inefficient services and this was generated by the low efficient and effective services between ensure the data privacy and security of users. When the efficient and effective services is low, it will cause the user will unsatisfied with the services provided by bank because time is money and most of users will consider the quality of services because choose the bank.

The bank relation problem will decrease the efficiency and effective of services. In virtual banking, the bank relation is not one to one relationship with customers because compare to When a customer's financial status changes, traditional banking allows them to create one-on-one relationships with their bank because bank can use discretionary power to restructure customer's payment (Malali & Gopalakrishnan, 2020).

Furthermore, virtual banking has the tools, protocols and levels of security that make searches and transactions safe and secure which can increase user confidence toward the services. These protocols include everything from security certificates to stronger data encryption (Ridhwan Aziz *et al.*, 2021). If the level of confidence increase, the number of users will also increase because the customer will not worry about the issue of privacy and security of service.

Last but not least, this scenario shows the low efficiency and effective services will lead to inefficient services problem. Hence, the virtual banking simply unable to compete without the need and demand from the customer.

5.3 Limitation of Study

Although the research has reached its aims, there was some limitation presence during the period of research. The main limitation is the lack of source material because currently the virtual banks have not started yet in Malaysia. There have not been many studies or research conducted on virtual banking in Malaysia. Many of the data are based on virtual banking in general from other country. Previous research studies have helped researchers lay the foundation for understanding research problems. In addition, the presence of a research gap should be reduced in order to improve and limit the degree of inaccuracy in foresight studies and achieve appropriateness of research outcomes.

5.4 Recommendation

The current development of the virtual banking industry has the potential to drive and push forward the technology of the banking sector in the future. As a result, the study made recommendations for any

future research on the adoption of virtual banking in Malaysia. The different cultures among the state, society, and also the personal background should consider by the researcher for ensuring the result is more accurately to determine the views on the future prospect of the specified industry as what perceive by the of the population and even the Malaysian as whole. For the banking industry, the probability of four different scenarios on the two main challenges and trends of the future has produced positive and negative implications for the development of virtual banking that can happen in the future.

5.5 Conclusion

The creation of the virtual bank which might be carried in the future resulted in the realization of four different scenarios from two potential issues, challenges and trends that are efficiency and effective services and ensure data privacy and security and have both positive and negative implications for future development. Thus, the developer who wants to implement it should create a contingency plan and solution to address the negative impact based on the projections made in scenario building analyses to continuously develop and endorse this technology.

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