

## Customer Demands of FinTech in Taiwan

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**Abstract**—In recent year, FinTech advances have been rapidly transforming every aspect of our daily life through financial services. Advancing technologies, evolving customer expectation, and changing regulatory frameworks are opening doors to disruptive innovation in financial services. In Taiwan, although the government has announced 2015 as the year of FinTech, the progress of FinTech development is still slow as compared to its neighboring countries, such as Hong Kong, Singapore and China. This study aims to identify the critical success factors for FinTech's development in Taiwan based on customers' acceptance of FinTechs and innovative financial services. A modified Delphi method was adopted in order to obtain the most reliable opinion consensus of a group of 28 experts by subjecting them to a series of questionnaires, which was designed to extract customers' FinTech acceptance with respect to the six core functions of financial services, namely, payments, insurance, deposits & lending, capital raising, investment management, and market provisioning. The results showed that FinTechs of payment are more accepted by the customers in Taiwan. The top four payment options are highly approved by the customers with scores higher than 4.0. These four payment options are very popular in China. Therefore, the experts all agree that they are promising in Taiwan.

**Keywords**- *fintech; modified Delphi method; taiwan fintech industry*

### I. INTRODUCTION

In the recent years, Financial Technology (FinTech) has become a popular term in a wide range of operations for enterprises or organizations thanks to the advances in technology and business innovation, as well as the growing market expectations, cost-saving requirement and customer demands. Most competitive financial firms are considering FinTech as one of their major investments [1]. The expanding of the scope of FinTech applications has resulted

in great challenges in adoptions and planning. Could higher economic growth happen? Will the new FinTechs make the institutions and markets more efficient and effective? In 2015, also known as the year of FinTech in Taiwan, the Financial Supervisory Commission in Taiwan (TFSB) proposed the "Creation of digitized financial environment 3.0" and it is started the year of FinTech in Taiwan. The Taiwanese government also setup a grand office of financial technology to promote the FinTech transforming action of the finance institutions, aiming to loosen restrictions on online banking and its applications [2][3]. However, the FinTech development is still slower as compared to its neighboring countries, such as Hong Kong, Singapore and China [4]. Recently, the Taiwanese government has been putting efforts to speed up the FinTech development. For example, securities investment consulting enterprises providing a Robo-Advisor service are allowed to execute automated "re-balance transactions" for their clients through their computer systems under specific conditions [5]. The regulations on electronic payment have been relaxed [6]. However, it is still long way to go to fulfill the goals of the blueprint of the Financial Supervisory Commission. It is an urgent task for the government, industry and academy to explore these factors and this leads to the motivation of this study.

The key factors to FinTech success are yet to be discovered and their influences on FinTech application need to be thoroughly understood. The goal of this study is to identify the critical success factors for FinTech's development in Taiwan based on customers' acceptance of FinTechs and innovative financial services. A modified Delphi method is adopted in order to obtain the most reliable opinion of experts in this field.

In the final report of the 2015 World Economic Forum about the future of the financial services, they have

structured a framework of six financial services, namely, Payments, Insurance, Market Provisioning, Deposits & Lending, Investment Management, and Capital Raising [7]. The Taiwanese Financial Supervisory Committee also includes the six financial functions in the strategic framework [6]. Therefore, this study aims to identify the critical key factors of FinTech based on these six functions, with the help of experts in finance.

A modified Delphi method was adopted in order to understand, from the point view of the experts, how the Fintechs are acceptable by the customers with respect to the six financial functions. The results include the key factors to FinTech success and the acceptability of the six financial functions, respectively.

## II. LITERATURE REVIEW

In Section 2, we defined what is “Financial technology (FinTech)” and the latest development status in Taiwan. In addition, modified Delphi Method is explained and described in detail.

### A. *FinTech*

Financial technology (FinTech) is defined as the new technology and innovation that aims to compete with traditional financial methods in the delivery of financial services [8]. FinTech has emerged in both the developed and developing world [9], and it has unleashed a new era of competition, innovation and job creating productivity in our economy, and very worthy of encouragement. However, in addition to established competitors, FinTech companies often face doubts from financial regulators like issuing banks and the governments [10]. Another concern is data security. The threats of hacking as well as the needs to protect sensitive consumer and corporate financial data are unavoidable issues. It poses challenges for regulators, as well as for market participants, in balancing the potential benefits of innovation with the possible risks.

FinTech companies and industries are leveraging new technology to create new and better financial services for both consumers and businesses, which operate in personal financial management, insurance, payment, asset management, etc. Thanks to the increasing popularity of digital wallet in online and In-App payment, as well as at brick-and-mortar stores, customers’ expectations are getting higher, that says, more technologies and applications are added to the financial services, such as payable on demand, smart assistant, virtual reality. Based on Ventures Scanner’s report [11], FinTech sector is organized 16 categories. They are, Banking Infrastructure, Business Lending, Consumer and Commercial Banking, Consumer Lending, Consumer Payments, Crowdfunding, Equity Financing, Financial Research and Data, Financial Transaction Security, Institutional Investing, International Money Transfer, Payments Backend and Infrastructure, Personal Finance, Point of Sale Payments, Retail Investing, and Small and Medium Business Tools.

Also, as mentioned earlier, in the final report of the 2015 World Economic Forum about the future of the financial services, they have structured a framework of six financial

services, namely, Payments, Insurance, Market Provisioning, Deposits & Lending, Investment Management, and Capital Raising [7].

### B. *FinTech in Taiwan*

In Taiwan, the banking sector is highly supported yet tightly regulated by the government. In September 2015, Taiwan’s Financial Supervisory Commission (FSC) officially announced the establishment of its FinTech Office, a platform responsible for the planning and promotion of FinTech developments, which particularly focuses on topics including digitalization of the financial environment, mobile payment, third party payment, Internet financing (peer-to-peer lending), online investment, and the Internet-of-Things, among others [2][3]. The FSC declared 2015 as the year of FinTech. A series of actions were taken to promote FinTech development in Taiwan, such as requesting all domestic banks to offer online financial services, initiating big data application projects for the banking industry [12].

A FinTech Development Strategy White Paper released in 2016 by the FSC detailed the authority’s strategy for FinTech development. The white paper followed World Economic Forum and planned the major development dimensions of six financial services, namely, Payments, Insurance, Market Provisioning, Deposits & Lending, Investment Management, and Capital Raising [7]. Also, it noted a number of objectives for the years to come:

1. Double the ratio of e-payment within five years from the present ratio of 26% via public promotion and private sector participation;
2. Promote blockchain technology and the establishment of a special task force in the Bankers’ Association for research on applications of the technology;
3. Support finance innovation efforts of startups through the Financial Technology Development Fund and provide coaching;
4. Create a world-class incubation center for fintech innovations;
5. Allow financial institutions to invest in 100% shares of fintech companies through reinvestment
6. Encourage the use of tokenization technology for virtual and physical cards;
7. Raise the percentage of e-orders to 70% and promote e-service of securities firms and robo-advisors;
8. Encourage insurtech development;
9. Develop physical and virtual branches of financial institutions to achieve the diversification of service providers and multiple access points of their services, as well as improve the existing facilities of financial institutions;
10. Create an integrated, secure online ID verification mechanism.

### C. *Modified Delphi Method*

The modified Delphi method is a kind of expert prediction method, and the purpose is to integrate the knowledge and experience of experts in the field for a specific issue [13][14]. It makes the results to achieve consensus among many experts through specific procedures

and steps. In the past, the traditional Delphi method is often time-consuming and labor-intensive due to the multiple round-trips of the questionnaire. It causes the members to reduce motivation to finish the questionnaires and leads to low recovery rate of questionnaires. In summary, these reasons will make the results lose authenticity and get little significance. Therefore, the modified Delphi method, which captures the features and advantages of Delphi method has been developed [13][14]. It simplifies the process of complicated questionnaires. The common way is to omit the first round of open ended consultation questionnaire to acquire expert opinions. Then, formulate the questions based on the relevant research results or the experience of researchers. Then, the experts are asked to express their personal opinions according to the proposed project. This correction method can avoid the difficulty in answering the open questionnaire and reduce the influence of low questionnaire recovery rate [15][16].

### III. METHODOLOGY

In the beginning, we proposed some questions which are on the basis of existing literatures and domain experts' suggestions. The questionnaire is to ask the customers' acceptance of FinTechs and it includes six dimensions which are Payments, Insurance, Market Provisioning, Deposits & Lending, Investment Management, and Capital Raising. For example, "What do you think about that people accept the mobile Payment?", "What do you think about that people accept the third party Payment?", "What do you think about that people accept the online insurance?", etc. The key items of questionnaire are showed on the next section.

The first round of the traditional Delphi method is based on the experience of experts to answer open-ended questionnaires to provide information related to the research topics as the basis for the second round of questionnaire design. It is time-consuming and labor-intensive, therefore, the modified Delphi method is adopted to skip open-ended questionnaires provided by expert's experience and then replacing by relevant research reviews. In order to improve the efficiency of the research, the modified Delphi method is used in this paper. The modified Delphi method process is showed in Figure 1.

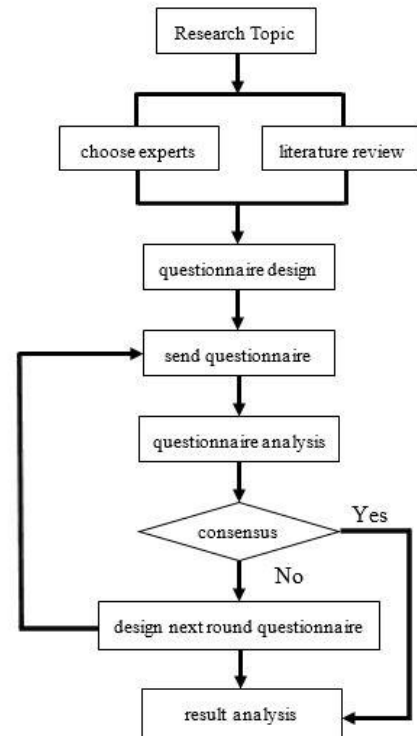


Figure 1. The modified Delphi method process

Delbecq et al. [17] indicate that ten to fifteen people could be sufficient if the background of the modified Delphi subjects is high homogeneous. In contrast, if various reference groups are involved in the modified Delphi method, we need to invite more people to join. If there are more than 13 experts in modified Delphi process, the reliability of result will be higher than 80% [18]. Based on the principles of expert selection, we invited four expert group which included 28 scholars and experts related to innovation in financial science and technology. The selected experts included senior financial experts, law & legal experts, senior corporate executives, scholars. After explaining the purpose of this study to the group of experts, they help fill out of the modified Delphi questionnaire.

### IV. QUESTIONNAIRE ANALYSIS

This research aims to explore the customer's acceptance of FinTech from financial experts' point of view by adopting a modified Delphi approach. The modified Delphi method is an appropriate method that allows gathering consensual subjective judgement from a group of experts [19]. For this study, a panel consists of 28 selected FinTech experts from four distinct categories, namely, senior executives in finance, legal experts, senior executives in general, and academic experts. The questionnaire is designed based on the six dimensions of Payments, Insurance, Market Provisioning, Deposits & Lending, Investment Management, and Capital Raising.

The modified Delphi study composes three rounds. During each round, the researchers clearly explained to the

experts one by one about the purpose of this study. Quartile Deviation is used to determine if the consensus of all of the 28 experts is reached.

The data were examined thematically and the themes were ranked by their frequencies. The results of the analysis are shown in Table I. The acceptance score is the average score of all experts and the ranking is the sorting according to acceptance score. One can see that the experts agree that in Taiwan, customers are mostly familiar to the FinTech applications with respect to payment. The most popular FinTech application is using cellphone for payment transfer. It makes sense since mobile transfer payment is one of the services provided by all of the banks in Taiwan. The number two application is WebATM, which is also a common service in Taiwan. Number three is mobile payment, such as App, QR code, digital wallet. Mobile payment is very popular in China, but it is still at the development stage in Taiwan. Thanks to its success in China, all experts are confident in its acceptance in Taiwan. Two FinTech applications tie at rank number four. They are third party payment and digital wallet, such as Apple Pay. All the results are shown in Table I.

TABLE I. RANKING OF THE CUSTOMER ACCEPTANCE OF FINTECH

No.	FinTech Application	Acceptance	Ranking
Payment			
1	Mobile Payment	4.1	3
2	Third Party Payment	4.0	4
3	Biometric Banking	3.9	5
4	Mobile Transfer	4.6	1
5	Virtual Card	4.0	4
6	Cashless Life	3.8	6
7	WebATM	4.3	2
8	Virtual Currency	2.9	12
Insurance			
1	Online insurance	3.6	8
2	P2P Friendsurance	3.4	10
Deposits & Lending,			
1	P2P Internet Lending	3.3	11
2	P2P Internet Exchange	3.6	8
3	VTM (Virtual Teller Machine)	3.6	8
4	Cloud Account	3.6	8
5	Self-ServiceBanking	3.5	9
6	Mobile loan	3.6	8
Capital Raising			
1	Online fundraising	3.3	11
Investment Management			
1	Online Invest Management	3.9	5
2	Robo-advisor	3.7	7
Market Provisioning			
1	Big Data and AI for Searching Market Information	3.9	5

V. DISCUSSION AND CONCLUSIONS

This study aimed to explore the FinTech acceptance of customers based on the opinions of domain experts. A three round modified Delphi approach was adopted with a panel of 28 FinTech experts from four different categories including senior executives in finance, legal experts, senior executives in general, and academic experts. The questionnaire is designed according to six FinTech dimensions of Payments, Insurance, Market Provisioning, Deposits & Lending, Investment Management, and Capital Raising.

The results showed that all the experts agreed that the top four of the most popular FinTech applications are mobile transfer, WebATM, mobile payment, third party payment and virtual card. All top four applications have acceptance scores greater than 4.0, which indicates high acceptance by the Taiwanese customers. The results reflect the current FinTech environment in Taiwan, which can be used for FinTech industry and the government to make strategy for FinTech development in Taiwan.

This study is still at tentative. In the future, more FinTech applications will be included, and more experts will be interviewed and inquired.

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