

## The Adoption of Mobile Payment Services for “Fintech”

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### Abstract

This paper examined the acceptance of payment-type Fintech services of users by utilizing the Elaboration Likelihood Model by Petty and Cacioppo [1] and by applying variables associated with the Technology Acceptance Model. In addition, it analyzed the causal relationship between concern for information privacy and self-efficacy by adopting them as moderating variables. Results suggested that usefulness, ease of use and credibility had an effect on intention to use, and self-efficacy was found to have an moderating effect on independent and dependent variables. Further, concern for information privacy was found to be a factor obstructing the path to intention to use. The implications of this study are that in the promotion of payment-type Fintech services, convenience and usefulness are the most critical and influential variables in terms of usage, while government deregulation and stronger security are called for from an institutional aspect.

**Keywords:** Elaboration Likelihood Model, Fintech, K Pay, Mobile Payment Service.

### Introduction

The proliferation of the mobile payment market led by easy payment services is the fastest growing among Fintech services. The creation of “Apple Pay” by Apple triggered the shaping of the mobile easy payment market. The fastest-growing Korean equivalent is “K Pay”. These mobile-based financial services are spreading at great speed as they allow users to bypass security concerns by simply inputting their password or without having to install Active-X. However, there is a relative shortage of studies on which factors induce the acceptance or denial of Fintech services.

The objective of this research is to identify the factors that compel users of “K Pay” to accept Fintech services. In order to achieve this goal, this study aimed to develop a model on Fintech service acceptance by utilizing the Elaboration Likelihood Model (ELM) proposed by Petty and Cacioppo [1] and selecting variables of the Technical Acceptance Model (TAM) proposed by Davis [2] and several other variables. In addition, it adopted Concern for Information Privacy (CFIP), an increasingly aggravating problem in Korea’s financial industry, and self-efficacy as moderating variables to examine their impact on intention to use.

### Literature Review

#### Fintech

Fintech is a service sector which uses mobile-centered IT technology to enhance the efficiency of the financial system. As a term, it is a compound of “finance” and “technology”, and collectively refers to industrial changes forged from the convergence of financial services and IT. It is an innovative service which provides differentiated financial services using new technologies, such as mobile, social media, and IoT (Internet of Things). A recent example is the mobile-based payment and settlement system, which is the most representative service of its kind in Korea. In terms of industry, it refers to the phenomenon where a non-financial business uses innovative technology to provide services, such as remittance, payment and settlement, and investment, without working with a financial company. Major examples are Apple Pay and AliPay [3].

#### Elaboration Likelihood Model

The Elaboration Likelihood Model (ELM) developed by Petty and Cacioppo [1] is a dual process theory describing how humans accept and process information. This explains how a message aiming to change behavior can influence an individual’s acceptance of information and technology. ELM is formed based on the results of information processing via the following two paths according to the attitude of users: a message recipient using the central path thoroughly examines new information, and assesses its advantages and disadvantages, and implications, while in contrast, a person using the peripheral path chooses to swiftly accept or deny a service without active thinking. Receivers using the peripheral path conduct broad cognitive thinking, but they are always affected by the peripheral cue, which enable them to make speedy decisions.

#### Hypothesis Development

In a research conducted by Schierz et al. [4] on the acceptance intention of people in Germany who were capable of using mobile devices, mobility had a positive impact on acceptance intention. Further, a research by Joo et al. [5] also found that mobility affected the acceptance intention regarding mobile services.

H1: Personal mobility of payment-type Fintech services has a positive (+) effect on intention to use.

Perceived usefulness may be defined as the level of utility a certain product or service has for a user. Thus, in this study, the subjective level of utility of using payment-type Fintech in daily life or task may be defined as “perceived usefulness”. In studies by Bhattacharjee and Sanford [6] and Kim et al. [7], it was found that when a user feels “usefulness” through various factors, this has a high impact on “intention to use”.

H2: Perceived usefulness of payment-type Fintech services has a positive (+) effect on intention to use.

Perceived ease of use may be defined by the amount of effort a user dedicates to using an information technology. But because time is a constraint condition on users, it refers to when a user feels it is easier to use a certain technology compared to others after time is controlled. In terms of mobile banking, the study by Lee and Shin [8] claimed that technology readiness and specialized knowledge affected ease of use, which in turn had an impact on intention to use.

H3: Perceived ease of use of payment-type Fintech services has a positive (+) effect on intention to use.

Jarvenpaa et al. [9] explained credibility as the major reason variable regarding acceptance. This study proposes the following hypothesis based on a research which adopted credibility as a factor for using mobile internet services [10].

H4: Credibility of payment-type Fintech services has a positive (+) effect on intention to use.

One of K Pay’s most salient strengths is its huge user base as a result of its domination of the market via a messenger platform. The messenger, which provides the K Pay service, is a social messenger service most widely used in Korea, and the K Pay function itself is embedded inside the application. This opens the way for users to easily approach K Pay and refer to the feedback from various users, which makes it highly susceptible to social influence. A study by Foon and Fah [11] stated that along with promotion conditions and credibility, social impact had a significant impact on intention to use in the acceptance of internet banking.

H5: Social influence of payment-type Fintech services has a positive (+) effect on intention to use.

Payment-type Fintech service can be defined as a service based on mobile banking, but the use of mobile banking raises concerns of leakage or illegal use of personal information. In a research investigating the relationship between CFIP and intention to use, Van Slyke et al. [12] found a causal relationship through a medium called ‘credibility’.

H6: Concern for information privacy of payment-type Fintech services has a negative (-) effect on Intention to use.

Bandura [13] defined self-efficacy as the confidence in one’s own capability to successfully carry out an assignment. Igbaria and Iivari [14] conducted an analysis on the effect of self-efficacy on use and ease of use in a study on the relationship between self-efficacy and use of a computer on computer users in Finland. A study on intention of use of messaging services carried out by Wu et al. [15] claimed that self-efficacy had an effect on attitude.

H7: Self-efficacy of payment-type Fintech services has a positive (+) effect on intention to use.

In a research on the relationship between privacy of a closed-type SNS and continuous intention to use, Lim & Kang [12] found that privacy concerns had a moderating effect on perceived psychological privacy, credibility and benefits. Perceived expectation and self-efficacy compel positive attitude in deciding a certain action, and in the end, have an impact on user satisfaction and intention to use.

Angst and Ararwal [16] conducted a study on the informed consent intention of Electronic Health Records and found that CFIP had a meaningful moderating effect on subject range, issue participation and attitude. In a study on the relationship between privacy and continued intention to use in closed-type SNS, Lim & Kang [17] stated that privacy concerns had a moderating effect on perceived psychological privacy, credibility and benefits.

H8: Concern for information privacy regarding payment-type Fintech services has a moderating effect on intention to use.

Murphy [18] claimed that expectations and self-efficacy in an individual’s cognitive state enabled him to have a positive attitude in deciding on a behavior, and as a result, they had an impact on user satisfaction and intention to use. Moreover, when using a certain system, a person with high self-efficacy will demonstrate high confidence in usage capability, enjoy asking questions and try to interpret information according to one’s own judgment. By contrast, a person with low self-efficacy will show low confidence in one’s capability to use the system and will be strongly inclined to accept a certain piece of information presented as is rather than question it.

H9: Self-efficacy of payment-type Fintech services has a moderating effect.

## Research Model

Based on the hypotheses established in this study, the following research model was developed as in [Fig. 1].

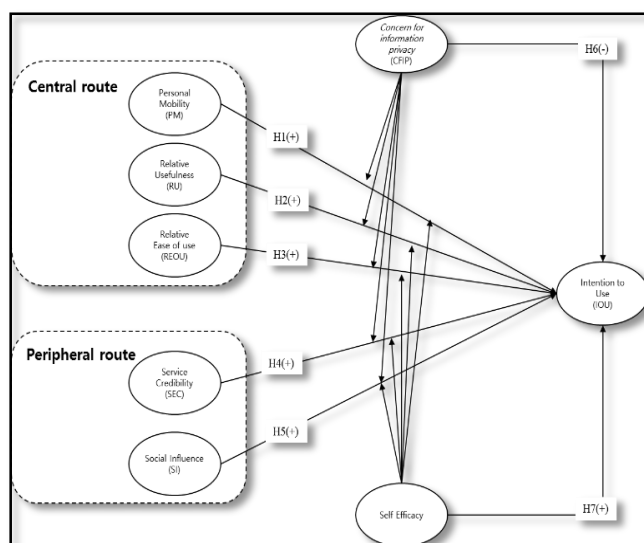


Figure 1: Research Model

## Results

The results of the path analysis of the hypotheses proposed in this study are as shown in [Table 1] below.

**Table 1:** Result of Path Analysis

|           | Path   | Results  |       |
|-----------|--|----------|-------|
|           |  | Estimate | t     |
| <b>H1</b> | Personal Mobility → Intention of Use                 | 0.100    | 1.876 |
| <b>H2</b> | Usefulness → Intention of Use                        | 0.416    | 8.577 |
| <b>H3</b> | Ease of Use → Intention of Use                       | 0.316    | 4.966 |
| <b>H4</b> | Credibility → Intention of Use                       | 0.189    | 2.026 |
| <b>H5</b> | Social Influence → Intention of Use                  | 0.112    | 1.764 |
|           | (Moderator)  |          |       |
| <b>H6</b> | CFIP → Intention of Use                              | -0.285   | 2.400 |
| <b>H7</b> | Self-efficacy → Intention of Use                     | 0.086    | 2.236 |
|           | (Interaction)  |          |       |
| <b>H8</b> | Personal Mobility * CFIP → Intention of Use          | -0.086   | 0.643 |
|           | Usefulness * CFIP → Intention of Use                 | -0.124   | 1.793 |
|           | Ease of Use * CFIP → Intention of Use                | 0.086    | 0.517 |
|           | Credibility * CFIP → Intention of Use                | 0.165    | 0.299 |
|           | Social Influence * CFIP → Intention of Use           | 0.088    | 0.845 |
| <b>H9</b> | Personal Mobility * Self efficacy → Intention of Use | 0.137    | 1.696 |
|           | Usefulness * Self efficacy → Intention of Use        | 0.052    | 1.347 |
|           | Ease of Use * Self efficacy → Intention of Use       | 0.094    | 2.094 |
|           | Credibility * Self efficacy → Intention of Use       | 0.102    | 2.114 |
|           | Social Influence * Self efficacy → Intention of Use  | 0.102    | 2.087 |

Mobility is one of the most critical factors in mobile services. However, the fact that mobility did not have an impact on intention to use implies that it is not necessarily appealing to a user when carrying out a transaction [19]. The results produced an academic implication, which supports the research results of Petty and Cacioppo [1] and Bhattacharjee and Sanford [6].

The most critical factors in acceptance in this study were usefulness and ease of use, and they support the research by Venkatesh et al. [20]. Furthermore, it implies that swift registration, ease of use and a convenient UI/UX environment may act as the most significant factors in acceptance for potential users of payment-type Fintech services. That being the case, a simple usage procedure and improved convenience, along with improvements such as deregulation of financial services, will be imperative in promoting this kind of payment-type Fintech service.

In addition, self-efficacy has a significant effect on intention to use and, as a result of this study, it was also found to have a moderating effect. This suggests that the IT-savvy present generation may prefer Fintech. According to the results of the Millennials Disruption Index, a three-year study conducted by Scratch, media giant Viacom's creative consultancy division, in 2014 (73% of users had high expectations for financial services of

IT businesses, like Google), increasing convenience and efficacy in Fintech services were likely to meet the expectations of potential consumers.

Lastly, social influence and intention to use had a positive relationship. It is worth noting that the characteristics of the social influence variable are connected to that of a platform. This is because all services are influenced by network externalities. In other words, if the installed base increases, more users would adopt them. Considering this, a policy to resolutely connect different services and lower entry barriers is necessary.

## Conclusion

This study examined the relationship between the central and peripheral paths in the acceptance of new technology and service. It found the central path had a relatively higher impact compared to the peripheral path. In order to invigorate payment-type Fintech services, convenience and usability should be continuously improved [19]. This calls for the deregulation of diverse sectors, including financial services, communication, e-payment and e-banking.

This study presented a new approach to the acceptance of Fintech services using the existing ELM model and, to a certain extent, proposed practical suggestions. But the samples of the survey were limited to Seoul, the capital area, and certain age groups were predominantly represented, giving way to regional and age biases. Therefore, follow-up studies should analyze the impact on the acceptance of groups classified into more specific age groups, income and device through a multi-group model. Moreover, it would be meaningful to include 'service familiarity' in the questionnaire, based on which differences in the degree of acceptance can be analyzed.

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## References

- [1] R.Petty and J. T.Cacioppo, "Communication and Persuasion: Central and Peripheral Routes to Attitude Change", Springer-Verlag, 1986.
- [2] F. D.Davis, "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology", MIS quarterly, vol.13, no.3, pp.319-340, 1989.
- [3] Financial Service Commission, "Financial Terminology Dictionary", [http://fsc.go.kr/know/wrd\\_list.jsp](http://fsc.go.kr/know/wrd_list.jsp), 2015.
- [4] P. G.Schierz, O. Schilke, and B. W. Wirtz, "Understanding Consumer Acceptance of Mobile Payment Services: An Empirical Analysis", Electronic Commerce Research and Applications, vol.9, no.3, pp.209-216, 2010.
- [5] Y. J.Joo, A. K. Chung, and Y. J.Jung, "An Analysis of the Impact of Cyber University Students 'Mobile Self-efficacy, Mobility on Intention to Use in Mobile Learning Service Linked to E-learning'", Journal of Korean Association of Computer Education, vol.18, no.1, pp.55-68, 2015.

- [6] A.Bhattacharjee, and C.Sanford, "Influence Processes for Information Technology Acceptance: An Elaboration Likelihood Model", *MIS quarterly*, vol.30, no.4, pp. 805-825, 2006.
- [7] Y. H.Kim, B. M. Choi, and J. I. Choi, "A Study on the Successful Adoption of IOT Services: Focused on iBeacon and Nearby", *Korean Journal of Information Technology Services*, vol.14, no.3, pp. 217-236, 2015.
- [8] J. E.Lee and M. S.Shin, "Factors for the Adoption of Smartphone-based Mobile Banking: On User's Technology Readiness and Expertise", *Journal of Society for e-Business Studies*, vol.16, no.4, pp.155-172, 2011.
- [9] S. L.Jarvenpaa, J.Tractinsky, and M.Vitale, "Consumer Trust in an Internet Store", *Information Technology and Management*, vol.1, no.1/2, pp.45-71, 2000.
- [10] S. Y. Chung and C.Park, "Factors Influencing Acceptance of Mobile Service: Moderating Effects of Service Type", *Information Systems Review*, vol. 9, no. 1, pp.23-44, 2007.
- [11] Y. S.Foon, and B. C. Y.Fah, "Internet Banking Adoption in Kuala Lumpur: An Application of UTAUT Model", *International Journal of Business and Management*, vol. 6, no. 4, pp. 161, 2011.
- [12] C.Van Slyke, J. T.Shim, R.Johnson, and J. J.Jiang, "Concern for Information Privacy and Online Consumer Purchasing", *Journal of the Association for Information Systems*, vol.7, no.1, pp.415-444, 2006.
- [13] A.Bandura, "Self-Efficacy: The Exercise of Control. New", York: W. H. Freeman, 1997.
- [14] M. Igbaria and J. Iivari, "The Effects of Self-Efficacy on Computer Usage." *Omega*, vol.23, no.6, pp.587-605, 1995.
- [15] J. H.Wu, S. C. Wang, and L. M.Lin, "Mobile Computing Acceptance Factors in the Healthcare Industry: A Structural Equation Model", *International Journal of Medical Informatics*, vol.76, no.1, pp.66-77, 2007.
- [16] C. M.Angst and R.Agarwal, "Adoption of Electronic Health records in the Presence of Privacy Concerns: The Elaboration Likelihood Model and Individual Persuasion", *MIS quarterly*, vol. 33, no. 2, pp.339-370, 2009.
- [17] B. H.Lim and D. W.Kang, "A Study on Privacy Influencing the Continuous Intention to Use in Closed-type SNS: Focusing on BAND Users", *Information Systems Review*, vol.16, no.3, pp.191-214, 2014.
- [18] C. A.Murphy. "Assessment of Computer Self-efficacy: Instrument development and validation", ERIC Document (2nd Ed.), 1988.
- [19] Y. H. Kim, Y. J. Park, J. I. Choi, and J. I. Yeon, "An Empirical Study on the Adoption of "Fintech" Service: Focused on Mobile Payment Services", *Advanced Science and Technology Letters*, vol. 114 (Business 2015), pp. 136-140, The 8<sup>th</sup> 2015 International Interdisciplinary Workshop Series, Jeju, South Korea, 2015.
- [20] V.Venkatesh, M. G.Morris, G. B.Davis, and F. D.Davis, "User Acceptance of Information Technology toward a Unified View", *MIS Quarterly*, vol.27, no.3, pp.425-478, 2003.