

Legal Issues Arising from the Use of Mobile Devices in Electronic Commerce

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I. Introduction

Technological development of mobile devices and electronic commerce has enabled mobile devices to be used for financial transaction purposes. Mobile finance comprising both mobile banking and mobile payment may be a natural evolution of electronic commerce. Furthermore, constantly increasing rate of mobile subscription worldwide has made mobile devices an efficient tool to offer safe and convenient financial services to subscribers. Especially as mobile finance solutions allow customers to perform various financial transactions while on the move, mobile finance in micro-transactions may fully replace computer-based financial transactions in the near future by offering application integrating both mobile banking and mobile payment solutions.

Mobile finance has created huge business opportunities for merchants, mobile network operators, mobile device manufacturers, financial Institutions and software providers. Those mobile finance participants have added new financial transaction forms to make their services available through mobile devices. Mobile finance business has been fairly successful especially in South Korea, Japan and other Asian countries.

The continuous growth of mobile finance depends on not only user-friendliness of services but also legal framework for mobile finance. To some extent, the traditional legal framework of financial transaction could be applied to the mobile finance as well. But distinctive features of mobile finance, especially the fact that mobile finance is performed in a non-facing and automated manner without any direct contact, require creation of a new legal environment complying with various needs from those participants.

In order to better acquaint readers with development of mobile finance, chapter 2 of this article will outline the technologies and solutions of mobile finance.

The legal issues arising from mobile finance will then be discussed in chapter 3. Legal issues relating to mobile banking, mobile credit card, mobile electronic money and direct mobile billing service will be considered and South Korea's legal framework will be looked at. Finally, some evaluations and suggestions will be given as concluding remarks in chapter 4.

II. Development of Mobile Finance

A. Technologies for Mobile Finance

1. SMS-based Application

This is a Short Message Service (SMS) that mainly provides information about the status of bank account. Short messages containing information about the bank account are transmitted to customer's mobile phone by SMS center server of mobile network operator which is connected to the mobile banking server of bank. As SMS-based application uses insecure encryption, SMS banking is not intended to be used for high-risk transactions.

SMS-based banking service is operated using both push and pull messages. Push messages are those that banks choose to send out to a customer's mobile phone without the customer's request for the information. Typically push messages could be either mobile marketing messages or messages alerting an event which happens in the customer's bank account. Pull messages are those that are initiated by customers using a mobile phone to obtain information about the bank account. Examples of pull messages include an account balance inquiry, currency exchange rates and deposit interest rates.

2. WAP Browser-based Application

Wireless Application Protocol (WAP) browser and Mobile Explorer (ME) browser are commonly used standard web browser for mobile devices which allow conversational data exchange between the client and the server. Similar to a PC requiring an internet browser installed in order to access content online, a mobile device requires a WAP browser installed in order to access information on WAP sites.

By adopting WAP browser, mobile network operators and banks could offer not only information-based banking service but also transaction-based banking service including payments, deposits, withdrawals and transfers. The disadvantage of WAP browser is that WAP browser implementation is not consistent across mobile devices manufacturers.

3. IC Chip-based Application

Integrated Circuit (IC) Chip is a miniaturized electronic circuit that has been manufactured in the surface of a thin substrate of semiconductor material. Mobile network operators partnered with banks to launch IC Chip-based mobile banking service. Customers could get access to mobile banking service by inserting IC Chip, which is controlled by banks, into a mobile device.¹

Furthermore, mobile network operators collaborated with credit card companies to operate IC Chip-based credit card service. A SIM-sized credit card certified by credit card companies can be inserted into a mobile device to enable credit card payments. However, because each IC Chip should be issued by each bank or credit card company, customers have to change IC Chip whenever they use IC Chip from a different issuer.

4. USIM-based Application

A Universal Subscriber Identity Module (USIM) is an application running on a UICC (Universal Integrated Circuit Card) smartcard which is inserted in a WCDMA 3G mobile phone. The equivalent of USIM on GSM 2G mobile network is SIM. Like SIM, USIM stores subscriber information, authentication information and provides storage space. Furthermore USIM enables its subscribers to download various mobile banking applications, credit card applications and public transportation applications onto USIM through OTA (over the air) technology. Customers do not need to change chips each time they use different applications.²

¹ In South Korea, the third-largest mobile network provider LG Telecom with the largest bank Kookmin Bank launched the first IC-Chip based mobile banking service in 2003. IC-Chips were issued and controlled by Kookmin Bank and LG Telecom provided the mobile network service. Available from http://www.lguplus.com/lguplus/en/jsp/info/corporate_data.jsp

² In South Korea, the largest mobile network provider SK Telecom launched USIM and OTA based

5. NFC-based Application

Near Field Communication (NFC) is the most recently developed technology for mobile finance. NFC is a short-range high-frequency wireless communication technology which enables the exchange of data between devices over about 10cm distance by combining the interface of a smartcard and a reader into a single device. NFC device is also compatible with existing contactless infrastructure already in use for public transportation and payment.

There are three specific features for NFC: NFC device behaves like an existing contactless card (Card emulation), NFC device is active and reads a passive RFID tag (Reader mode) and two NFC devices are communicating together and exchanging information (P2P mode). These features of NFC make mobile devices even more suitable for financial transaction purpose.

Standardization of NFC has been achieved mainly by GSMA (GSM Association) and Mobey Forum, and Both GSMA and Mobey Forum have recently emphasized the important role of Trusted Service Manager (TSM).³ TSM works behind the scenes to make the entire process of downloading mobile finance applications onto mobile device efficient and secure. As TSM clearly understands security systems of both banks and mobile network operators, TSM could bridge multiple banks and operators ensuring complete security of customer information.⁴

B. Solutions of Mobile Finance

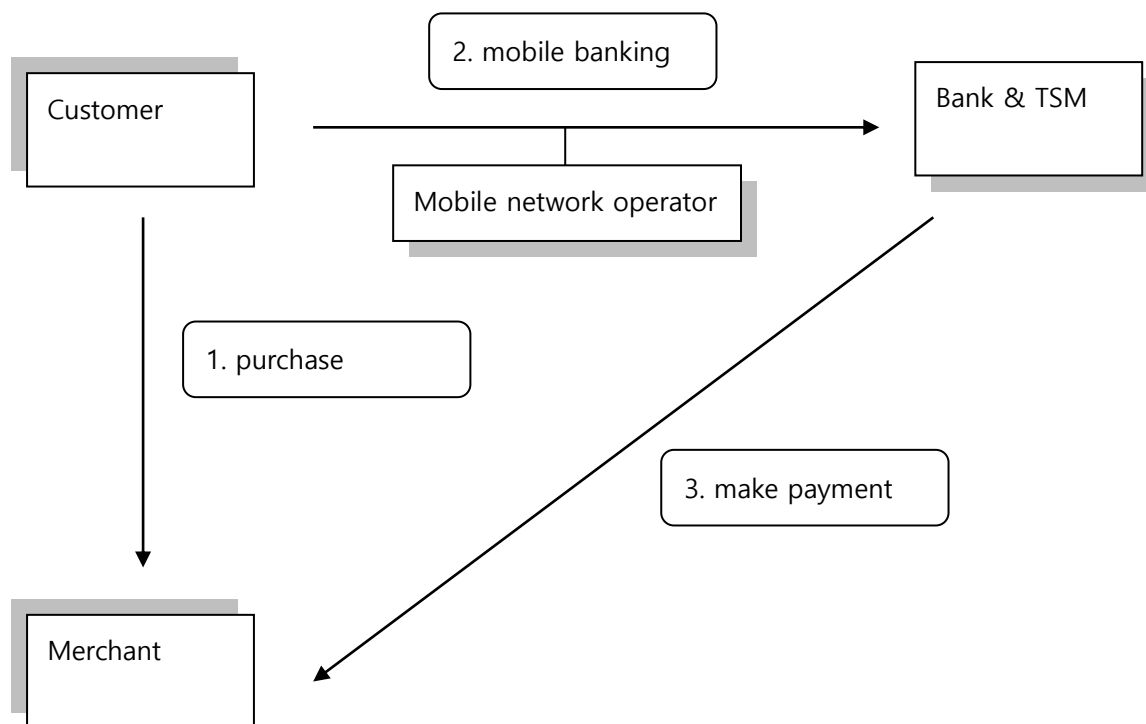
1. Mobile Banking

mobile finance service in 2007 which enabled its subscribers to download various mobile banking service applications, credit card applications and public transportation applications over the air onto a USIM card. Available from <http://www.sktelecom.com/>

³ Available from <http://www.mobeyforum.org/Press-Documents/Press-Releases/Research-Lays-Groundwork-for-Global-Mobile-Financial-Services-Standards/Introducing-the-Mobey-Forum-White-Paper-Best-Practices-for-Mobile-Financial-Services-Enrolment-Business-Model-Analysis>

⁴ In South Korea, mobile network operators, mobile device manufacturers, banks and credit card companies have been collaborating to launch NFC-based application in 2010. Available from <http://www.nfctimes.com/news/korean-telco-plans-nfc-commercial-launch-2010>

Mobile banking service is performing balance checks, account transactions, payments, credit applications etc. through mobile devices. The earliest mobile banking service was based on SMS and limited to information-based service. Since the introduction of WAP browser, banks started to offer transaction-based mobile banking services to their customers such as payments, deposits, withdrawals, transfers and investments.

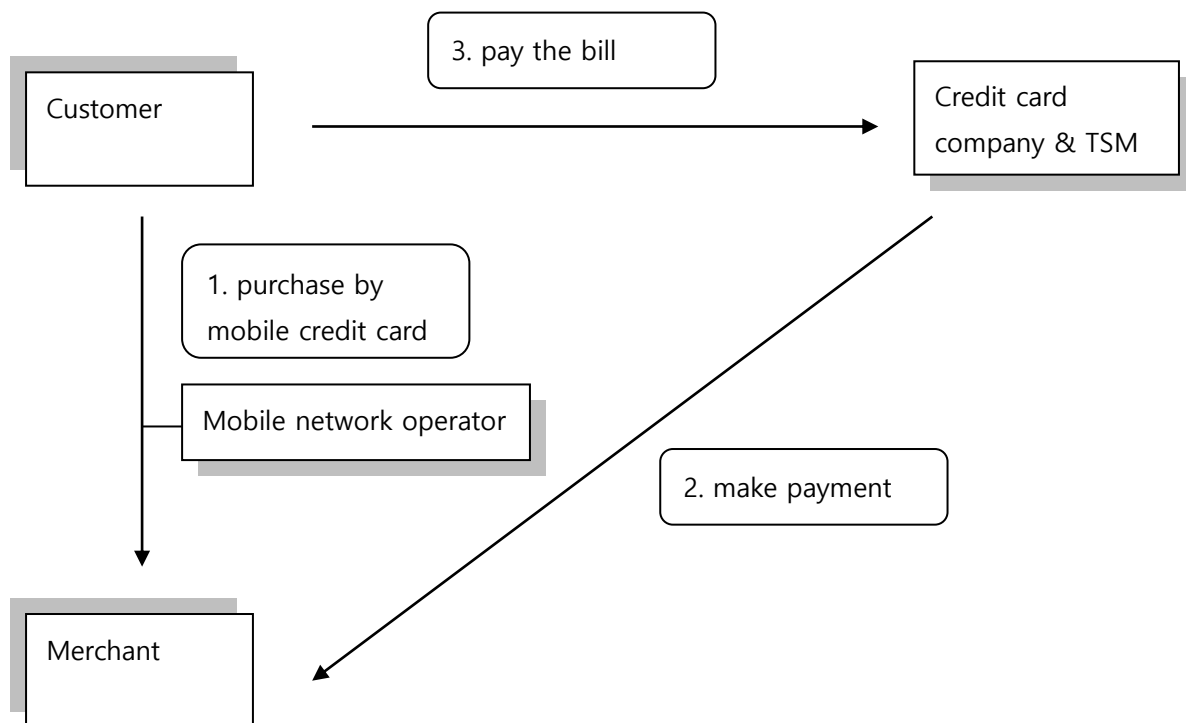


2. Mobile Payment

Mobile payment is a new and rapidly-adopting alternative payment method. Instead of paying with cash, check or credit cards, customers can use a mobile phone to pay for a wide range of services and digital or hard goods. Mobile payment solutions could be categorized in many ways according to the type of payment method or the technology adopted to implement the solution. There are three different categories for mobile payment solutions on the basis of payment method.

(1) Mobile Credit Card

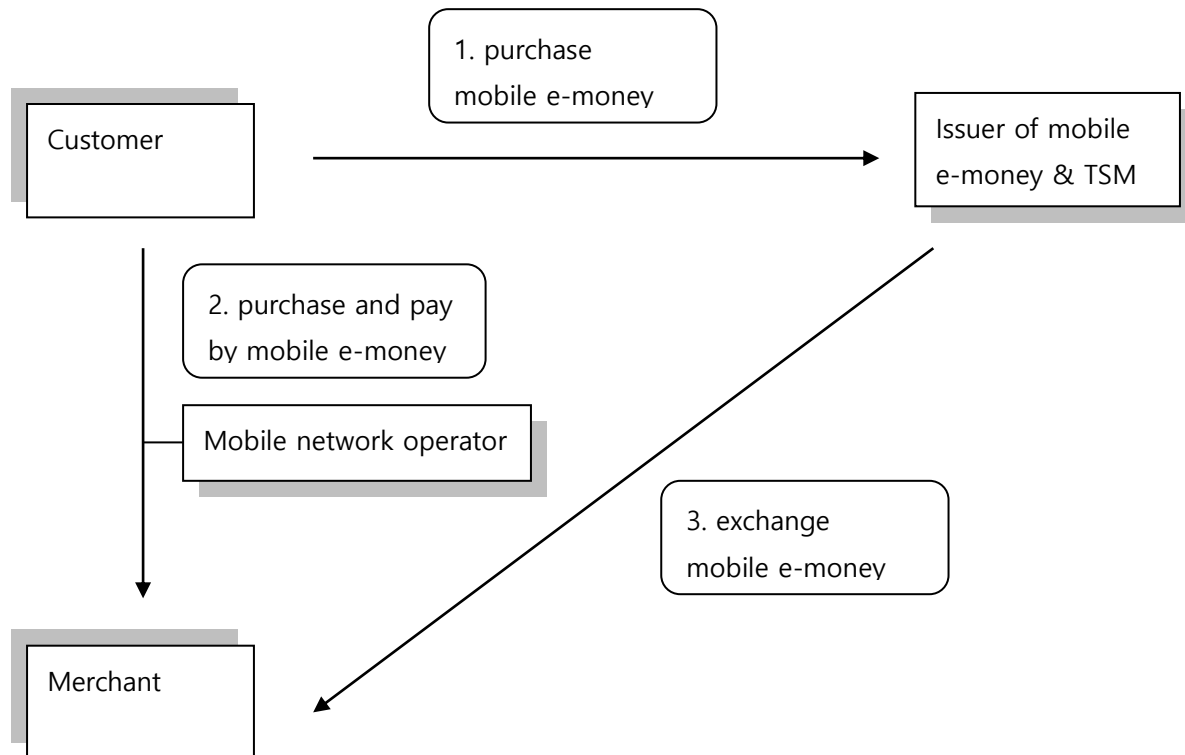
Since the appearance of IC Chip-based application, customers have been making payments with their SIM-sized credit card inserted in mobile phones or credit card downloaded over the air onto mobile phones. When the customer makes a payment transaction with a merchant (merchants can read credit card information through IrFM technology, RFID technology or NFC technology), the credit card is charged and the value is credited to the merchant account.



(2) Mobile Electronic Money

Mobile electronic money means any certificate of transferable monetary value issued and stored in electronic form and installed in mobile device. Issuers of mobile electronic money issue mobile electronic money in exchange for the same value of cash or deposit by downloading mobile electronic money over the air onto mobile devices and have duty to exchange mobile electronic money for cash or deposit. Mobile electronic money has been used mainly for the payment

of public transportation system and other micro-payment.⁵



(3) Direct Mobile Billing Service

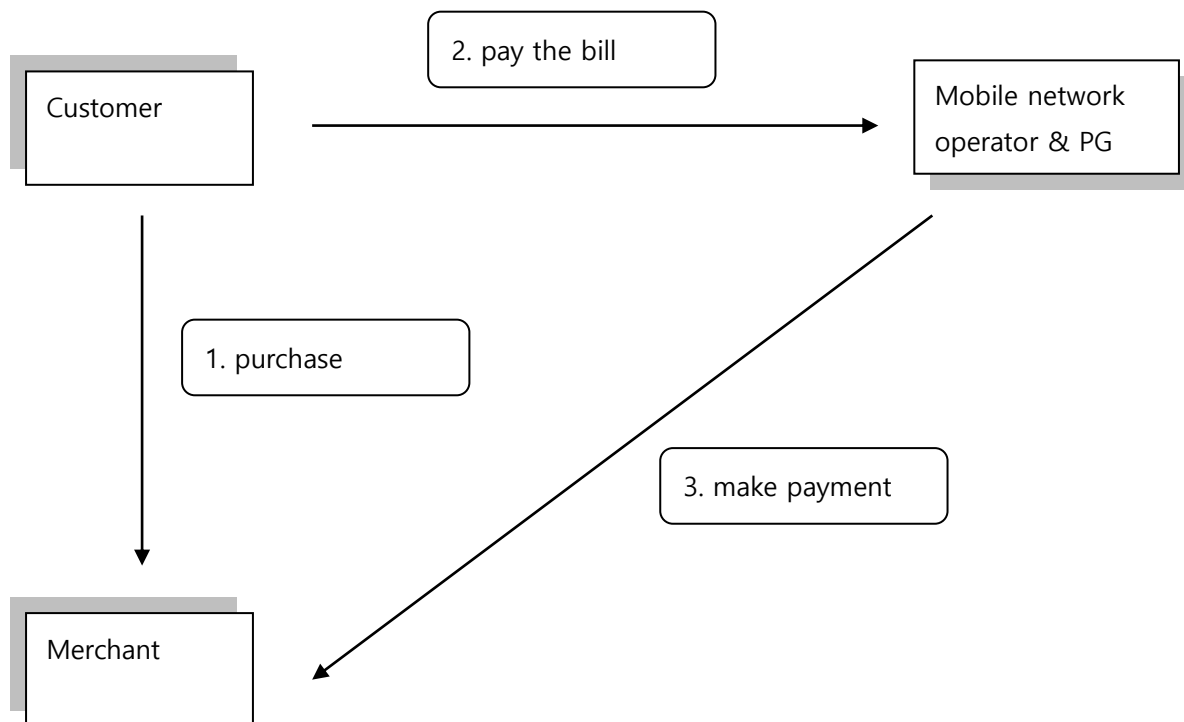
Direct mobile billing service allows customers to purchase goods and services online by charging their regular mobile phone bills. This does not require the use of credit/debit cards or pre-registration at an online payment solution. This service is suitable for online micro-payment.

In direct mobile billing service process, a payment gateway usually facilitates the transfer of information between an online merchant and a mobile network

⁵ In South Korea, T-money has been used for this purpose. It started with pre-paid RF smartcard embedded with CPU to enable self-calculation for the payment at public transportation such as bus, subway and taxi. T-money has enlarged its services to all parking fees, tunnel fees and payment at convenient stores and has also introduced new payment media enabling download T-money onto mobile phone. Available from <http://eng.t-money.co.kr/>

operator.⁶ If a customer purchase goods or uses services from a payment gateway-enabled merchant, the payment gateway transmits or receives transaction information in electronic form between the customer and the mobile network operator and then the mobile network operator charges the customer's mobile phone bill and executes the payment of the bill as proxy or mediate for the merchant.

Unlike the credit card company, the mobile network operator does not execute the payment for the merchant until the customer pays the mobile phone bill, and even if the customer does not pay the bill, the mobile network operator is not bound to pay the bill for the merchant.



⁶ South Korean company Danal Co., Ltd. is credited with being the first provider of direct mobile billing service globally. The amount of bill charged through the direct mobile billing service in South Korea in 2010 was about 2 billion USD. Danal has established a company named BilltoMobile in the US to offer customers the ability to safely charge online purchases to their mobile phone bill. BilltoMobile signed a contract for direct mobile billing service with Verizon Wireless in May 2009 and with AT&T in October 2010. Available from <http://www.danal.co.kr/>

III. Legal Issues Arising from Mobile Finance

A. Participants

Mobile finance has enabled companies from different industries to collaborate and has been provided by various participants. Customers, merchants, mobile network operators, financial institutions, issuers of mobile electronic money, payment gateways and TSMs are main participants in the process of mobile finance. As these participants have different interests, these participants may face conflicts each other that require legal solutions. Especially regulating liabilities of participants in case of unauthorized financial transaction is important.

Since the appearance of USIM-based application system, TSM has offered secure delivery and activation of the mobile banking and payment applications by establishing highly secure, encrypted connection between bank and TSM and between TSM and mobile network operator. Considering the important role of TSM, liability of TSM also needs to be discussed.

“Electronic Financial Transaction Act” entered into force in South Korea on January 1 2007. One of the main purposes of this Act is to ensure the reliability of electronic financial transactions by clarifying their legal relations.⁷

This Act defines “Electronic Financial Transaction” as any transaction whereby a financial institution or an electronic financial business operator provides financial products and services through electronic apparatuses and the users use them in a non-facing and automated manner without any direct contact with employees of the financial institution or electronic financial business operator,⁸ and it has been interpreted that the application of this Act could be extended to newly appeared mobile finance solutions as well.

This Act categorizes issuers of electronic money, electronic funds transfer agency and electronic payment settlement agency, that are not financial institutions, as “Electronic Financial Business Operator”⁹ and imposes almost

⁷ Electronic Financial Transaction Act of South Korea, article 1. South Korea also enacted “Information Technology Network Act” which provides details on direct mobile billing service.

⁸ *Ibid.*, article 2.1.

⁹ *Ibid.*, articles 2.4., 28.

the same liability of financial institution.

This Act categorizes any operator of a payment gateway system and any person who assists a financial institution or electronic financial business operator in conducting electronic financial transactions or performs as proxy part of such transactions for the sake of financial institutions or electronic financial business operator as “Subsidiary Electronic Financial Business Operator”¹⁰ and imposes indirect and exceptional liability.

B. Electronic Communications Used for Mobile Finance

Electronic communications made by means of data messages are used for electronic financial transactions as well. Definition, legal recognition, form, error, time and place of dispatch and receipt regarding electronic communications could be regulated by laws governing electronic communications. “UNCITRAL Convention on the Use of Electronic Communications in International Contracts”¹¹ and “UNCITRAL Model Law on Electronic Commerce”¹² are the most important international instruments covering those issues.

South Korea also enacted the Framework Act on Electronic Commerce on July 1 1999 implementing provisions of the UNCITRAL Model Law on Electronic commerce, and Electronic Financial Transaction Act of South Korea provides that relevant provisions of the Framework Act on Electronic Commerce shall apply to electronic communications used for electronic financial transactions.¹³

South Korea’s Electronic Financial Transaction Act also provides provisions on confirmation of transaction details and correction of errors.

► *Any financial institution or electronic financial business operator shall ensure that a user can confirm the transaction details through an electronic apparatus used for electronic financial transactions.*¹⁴

¹⁰ *Ibid.*, article 2.5.

¹¹ Available from

http://www.uncitral.org/uncitral/en/uncitral_texts/electronic_commerce/2005Convention.html

¹² Available from

http://www.uncitral.org/uncitral/en/uncitral_texts/electronic_commerce/1996Model.html

¹³ Electronic Financial Transaction Act of South Korea, article 5.

¹⁴ *Ibid.*, article 7(1).

► *When a user recognizes the existence of any error in the electronic financial transaction, he/she may request the relevant financial institution or electronic financial business operator to correct such error.*¹⁵

C. Electronic Credit Transfer

Many types of electronic credit transfer, such as transfer from bank, credit card company, issuer of mobile electronic money or mobile network operator to merchant and transfer from customer to bank, credit card company, issuer of mobile electronic money or mobile network operator need to be executed to fulfill mobile financial transactions.

To facilitate electronic financial transaction, such legal issues as definition of electronic credit transfer, time to execute credit transfer, revocation and completion of credit transfer need to be discussed. “UNCITRAL Model Law on International Credit Transfers”¹⁶ covers these issues.

South Korea’s Electronic Financial Transaction Act provides provisions on making payment, time when payment takes effect and withdrawal of transaction request.

► *Any financial institution or electronic financial business operator shall ensure payment is made by transmitting the amount requested by a payer of payee on a transaction request to the payee or his/her financial institution or electronic financial business operator, pursuant to an agreement made with the payer or payee to facilitate electronic payment transaction.*¹⁷

► *Any financial institution or electronic financial business operator shall, when it is impossible to transmit the amount requested pursuant to previous paragraph, return to the payer the amount received for electronic payment transaction. In such cases, when the failure to transmit the amount is caused due to the negligence of the payer, the expenses disbursed for such transmission may be deducted.*¹⁸

► *In the case of making payment by means of an electronic payment instrument,*

¹⁵ *Ibid.*, article 8(1).

¹⁶ Available from

http://www.uncitral.org/uncitral/en/uncitral_texts/payments/1992Model_credit_transfers.html

¹⁷ Electronic Financial Transaction Act of South Korea, article 12(1).

¹⁸ *Ibid.*, article 12(2).

such payment shall take effect at the time set forth in any of the following subparagraphs:

- 1. For electronic funds transfer: When the information on the amount transferred on a transaction request is completely recorded on the ledger of the account of a financial institution or electronic financial business operator with which the payee's account is opened;*
- 2. For withdrawal of cash directly from an electronic apparatus: When the payee receives such cash;*
- 3. For payment made by electronic prepayment means or electronic currency: When the information on the amount requested on a transaction request gets to the electronic apparatus designated by the payee;*
- 4. For payment made by other electronic payment means: When the information on the amount requested on a transaction request is completely inputted in the electronic apparatus of a financial institution or electronic financial business operator with which the payee's account is opened.¹⁹*

► *Any user may withdraw his/her transaction request before the payment takes effect. Notwithstanding the provisions of previous paragraph, with respect to any batch transaction or reserved transaction, etc., a financial institution or an electronic financial business operator and a user may, pursuant to a prior agreement, determine differently the time when a transaction request is withdrawn.²⁰*

D. Unauthorized Financial Transaction

1. Liability Issues

Customers may suffer any loss as a result of an accident arising out of forgery or alteration of the information used to conclude a transaction in mobile finance or in the course of electronically transmitting or processing the conclusion of a transaction.

In this case, liability issues could be raised such as whether financial institutions should bear all the risk from the loss, whether financial institutions are still liable for the loss even in such cases where accidents were caused by the

¹⁹ *Ibid.*, article 13.

²⁰ *Ibid.*, article 14(1)(2).

intention or gross negligence of the customers, whether independent TSM, mobile network operator and issuers of mobile electronic money, that are not financial institutions, are liable for the loss.

2. Liability of Financial Institution

Considering the point that mobile financial transactions are concluded in a non-facing and automated manner, the point that it's almost impossible for customers to prove intention or negligence of financial institutions, and the point that financial institutions determine the authentication procedures they have prepared to implement, it would be desirable to make financial institutions bear all the risk of an unauthorized mobile financial transactions, except that financial institutions prove intention or gross negligence of customers.

3. Liability of Mobile Network Operator

As mobile financial transactions are concluded through mobile network installed by mobile network operator, in case of transaction errors arising in the course of electronically transmitting or processing the conclusion of a transaction, there may be cases where not financial institution but mobile network operator shall be liable for the loss.

However, in reality, it's almost impossible for customers to clarify whether error was caused by financial institution or mobile network operator. It would be desirable to make financial institution compensate customer for damage caused by transaction errors arising in the course of electronically transmitting or processing the conclusion of a transaction, and then allow financial institution to exercise right of indemnify over the mobile network operator by proving the intention or negligence of the mobile network operator.

4. Liability of TSM

Independent TSM, that is not financial institution, may be perceived as performing finance-related business in accordance with the extent of involvement in mobile banking service and mobile credit card service. Even though it would not be proper to impose the same liability of financial institution to TSM, it would be desirable to categorize TSM as subsidiary mobile financial business operator and impose duty to indemnify to financial

institution for loss caused by intention or negligence of TSM, duty of good faith to ensure safe processing and duty to keep confidentiality.

5. In Case of Mobile Electronic Money and Direct Mobile Billing Service

Unlike mobile banking service or mobile credit card service where financial institutions mainly play a finance-related role, in case of mobile electronic money and direct mobile billing service, issuer of mobile electronic money and mobile network operator or payment gateway of direct mobile billing service are deeply involved in finance-related role by performing business relating to the settlement of accounts and execution of payments.

Considering deep involvement of issuer of mobile electronic money and mobile network operator or payment gateway of direct mobile billing service that are not financial institution, it would be desirable to categorize them as mobile financial business operator and impose them the same liability of financial institution in case of unauthorized transaction.

South Korea's Electronic Financial Transaction Act provides provisions on liability of financial institutions, liability of electronic financial business operator and status of subsidiary electronic financial business operator.

► *When a user suffers any loss as a result of an accident arising out of forgery or alteration of the means of access or in the course of electronically transmitting or processing the conclusion of a contract or a transaction request, the financial institution or electronic financial business operator concerned shall be liable for indemnifying him/her for the loss.*²¹

► *Notwithstanding the provisions of previous paragraph, any financial institution or electronic financial business operator may have the user bear the liability for any damage in whole or part in any case falling under any of the following subparagraphs:*

- 1. Where, with respect to any accident caused by the intention or gross negligence of the user, a prior agreement is made with the user to the effect that all or part of the loss may be borne by the user,*
- 2. Where the user, who is a juristic person, suffers any loss though the financial institution or electronic financial business operator fulfills the duty of due care reasonably requested to prevent accidents from*

²¹ *Ibid.*, article 9(1).

*occurring, such as the establishment and full observance of security procedures, etc.*²²

► *The intention or negligence of a subsidiary electronic financial business operator in relation to electronic financial transactions shall be deemed the intention or negligence of the financial institution or electronic financial business operator concerned.*²³

► *When any financial institution or electronic financial business operator compensates the user for any damage caused by the intention or negligence of its or his/her subsidiary electronic financial business operator, it or he/she may exercise the right of indemnity over the subsidiary electronic financial business operator.*²⁴

6. Loss or Theft

In case of loss or theft of mobile devices equipped with mobile finance solutions, it would be desirable to provide clearly when financial institutions become liable for loss incurred due to the use of such mobile finance solutions by a third party. And it would also be desirable to decide whether mobile electronic money needs to be treated separately.

South Korea's Electronic Financial Transaction Act provides provisions on notification to financial institution or electronic financial business operator and notification to subsidiary electronic financial business operator.

► *Any financial institution or electronic financial business operator shall, upon receipt of a user's notification of the loss or theft of the means of access, compensate the user for any loss he/she might incur due to the use of such means of access by a third party from the time when such notification is received: Provided, That the same shall not apply to any damage caused by the loss or theft of electronic prepayment means or electronic currency as prescribed by Presidential Decree.*²⁵

► *Any user may make various notifications to be given to a financial institution or an electronic financial business operator to its or his/her subsidiary*

²² *Ibid.*, article 9(2).

²³ *Ibid.*, article 11(1).

²⁴ *Ibid.*, article 11(2).

²⁵ *Ibid.*, article 10(1).

*electronic financial business operator pursuant to an agreement made with the financial institution or electronic financial business operator. In such cases, a notification made to the subsidiary electronic financial business operator shall be deemed to have given to the financial institution or electronic financial business operator concerned.*²⁶

E. Exchange of Mobile Electronic Money

In case of making payment by means of mobile electronic money, such payment may take effect when the information of transferable monetary value on the amount requested on a transaction gets to the electronic apparatus designated by the merchant. Since then, customer's duty to fulfill the payment is completed and issuer becomes bound to exchange such merchant's electronic money for cash.

South Korea's Electronic Financial Transaction Act provides provisions on fulfillment of payment by mobile electronic money and exchange of mobile electronic money.

► *When the holder of electronic currency pays the prices of goods or services by electronic currency pursuant to an agreement with the payee, the duty to pay such prices shall be deemed to be fulfilled.*²⁷

► *The issuer of electronic currency shall, upon a request by its holder, have the duty to exchange such electronic currency for cash or deposits.*²⁸

F. Duty to Secure Safety and Keep Confidentiality

Ensuring the security and reliability of mobile financial transaction is one of the most important factors to achieve sound development of mobile finance. It would be desirable to consider imposing such duties to secure safety and keep confidentiality to financial institution, electronic financial business operator and subsidiary electronic financial business operator.

South Korea's Electronic Financial Transaction Act provides provisions on duty

²⁶ *Ibid.*, article 11(3).

²⁷ *Ibid.*, article 17.

²⁸ *Ibid.*, article 16(4).

to secure safety and keep confidentiality.

► *Any financial institution or electronic financial business operator and its or his/her subsidiary electronic financial operator shall fulfill the duty of good manager to ensure the safe processing of electronic financial transactions.*²⁹

► *A financial institution or electronic financial business operator and its or his/her subsidiary electronic financial operator shall abide by the standards set by the Financial Services Commission for the information technology fields of manpower, facilities, electronic apparatuses necessary for electronic transmission or processing and electronic financial business by type of electronic financial transactions to secure the safety and reliability of electronic financial transactions.*³⁰

► *A financial institution or electronic financial business operator and its or his/her subsidiary electronic financial operator shall create any records necessary to trace and search the details of electronic financial transactions or to verify or correct any error in such details and preserve them for the period determined by Presidential Decree within the limit of five years.*³¹

► *Any person who recognizes the existence of the matters falling under any of the following subparagraphs in the course of conducting the business affairs relating to electronic financial transactions shall neither provide or disclose such information to any third party nor use it for any purpose other than his/her business without consent of the user concerned.*

1. *The matters relating to the identity of the user;*
2. *The information or materials relating to the accounts, the means of access, and the details and results of electronic financial transactions of the user.*³²

G. Qualification and Supervision

Even though mobile network operator, issuer of mobile electronic money, payment gateway and TSM are not financial institutions, they play a role as a mobile financial business operator or subsidiary mobile financial business operator in some mobile finance solutions. As traditional regulations on financial institutions could not be applied to them, it's necessary to consider

²⁹ *Ibid.*, article 21(1).

³⁰ *Ibid.*, article 21(2).

³¹ *Ibid.*, article 22(1).

³² *Ibid.*, article 26.

setting up any qualification to start such business and supervision over their business.

South Korea's Electronic Financial Transaction Act provides provisions on qualification and supervision.

► *Any person who intends to perform the business of issuing and managing electronic currency shall obtain permission thereof from the Financial Services Commission.*³³

► *Any person who intends to perform the services referred to in each of the following subparagraphs shall register himself/herself with the Financial Services Commission:*

- 1. Electronic funds transfer services;*
- 2. Issuance and management of electronic debit payment means;*
- 3. Issuance and management of electronic prepayment means;*
- 4. Electronic payment settlement agency services;*
- 5. Other electronic financial services determined by Presidential Decree.*³⁴

► *The Financial Supervisory Service shall supervise whether financial institutions and electronic financial business operators abide by this Act or an order issued by this Act, under the direction of the Financial Services Commission.*³⁵

IV. Conclusion

Many mobile finance technologies and solutions had failed and discontinued and only in Asia especially in South Korea, Japan, Singapore and Hong Kong mobile finance has been fairly successful. This may have been the reason why until recently there had been little interest in unifying the laws regulating the mobile finance.

However the situation began to change when the USIM-based application came into service. Immense potential to serve as a platform for various financial transactions has enabled mobile devices to play an important role in the financial industry. Concurrently mobile finance solutions such as mobile

³³ *Ibid.*, article 28(1).

³⁴ *Ibid.*, article 28(2).

³⁵ *Ibid.*, article 39(1).

banking, mobile credit card, mobile electronic money and direct mobile billing service were beginning to appear in a number of countries and widely spread globally.

Since it's not clear whether the rules governing traditional financial transactions would be applied to mobile finance in whole or in part, it's right time for UNCITRAL to make effort to prepare the legal guide on mobile finance exploring all possible legal issues that would have to be faced in moving from traditional or computer-based financial transaction to mobile financial transaction.

Mobile finance is usually performed in a non-facing and automated manner without any direct contact, and this feature requires consideration on strengthening the liability of not only financial institutions such as banks or credit card companies but also mobile financial business operators or subsidiary mobile financial business operators such as mobile network operators, issuers of mobile electronic money, TSMs and payment gateways.

It's also necessary to set up a unified regulation on mobile finance defining the various solutions of mobile finance to clarify which regulatory framework applies to them. Furthermore, since mobile financial business operators or subsidiary mobile financial business operators are not regulated by traditional regimes applying to financial institutions, it's desirable to consider setting up provisions on qualification and supervision to treat them separately.