

ITU Workshop on Fintech Security

(Geneva, Swiss, 26 Aug 2019)

Fintech Security Practices in KOREA

**Youngguk Kang,
ismskyg@kisca.co.kr**

Overview

- What is Fintech?
- The status of Fintech services in Korea
- Fintech Business in Korea
- Innovation of Fintech
- 2019 Fintech Adoption Index
- Regulations & Coordination among Financial Authorities

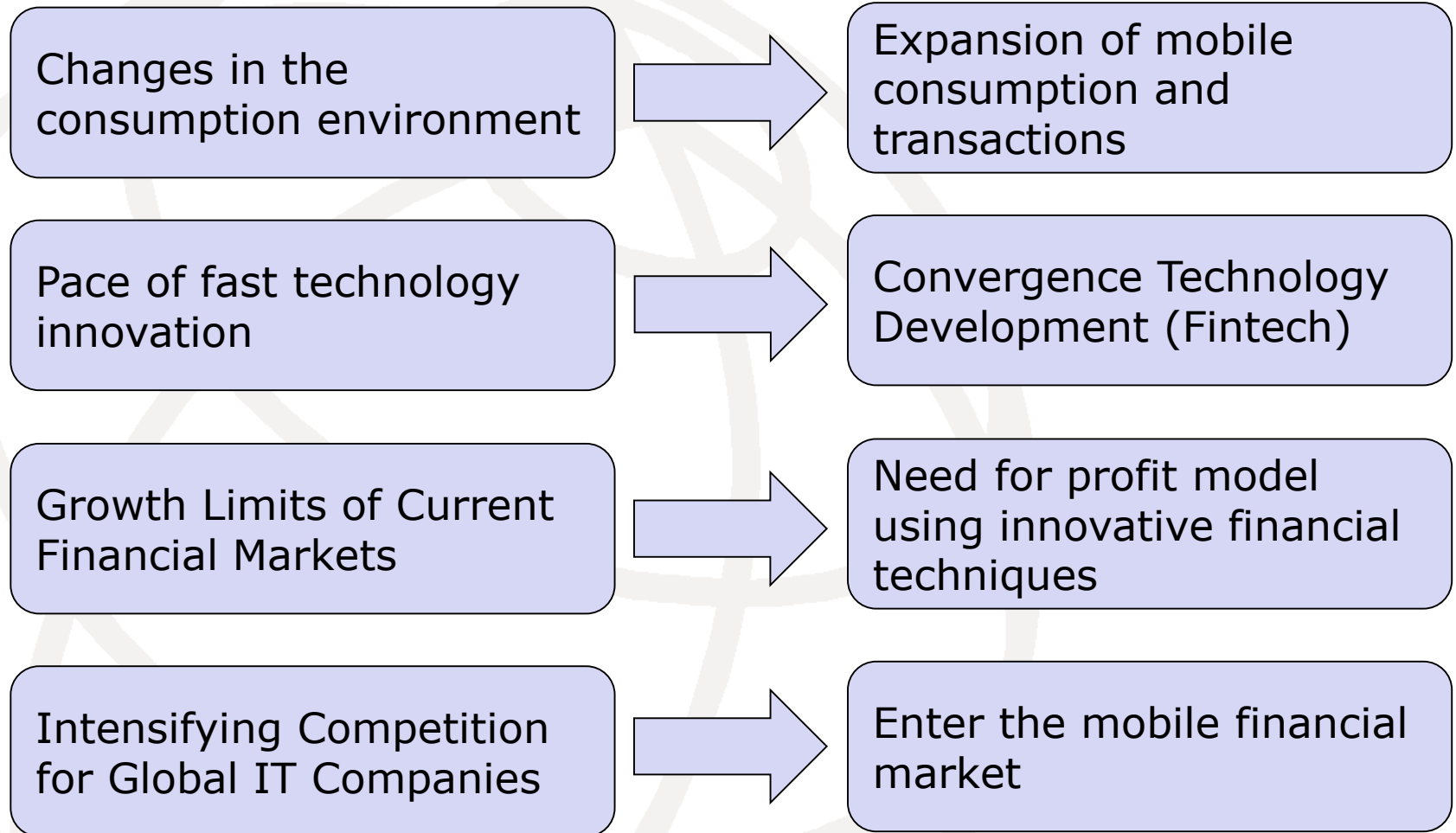


What is Fintech?

What is Fintech?

- Fintech = Finance + Technology
- Mobile payment, Remittance, Asset management ETC...
- In Korea, it is difficult to enter the fintech market due to government regulations, but interest in fintech is on the rise

Background of Fintech market





The status of Fintech services in Korea

The status of Fintech services in Korea

- Digital wallet banking service
 - ▶ Various operators including telecommunication companies and financial companies, IT platforms and distribution companies participate in domestic mobile payment market
- Advent of payment service on the IT platform
 - ▶ Kakao Pay, a simple payment service, achieved 1 million members in on month
 - ▶ Increased expectations for Fintech activation
- Mobile NFC simple payment service
 - ▶ Mobile payment service using NFC
 - ▶ Use smartphone as a card reader for online card payment : Simplify billing process



Fintech Business in Korea

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Fintech Business in Korea

- Electronic commerce

- Market leadership shifts from large malls to simple payment service companies
- E-Commerce's Absolute Size Increase: Vitalization of Domestic Economy
- Easy for Internet companies to enter the open market
- Reducing boundary between businesses and entering into infinite competition
- Mitigation of business boundaries and entering infinite competition

Fintech Business in Korea

- Distribution industry

- Offline distribution department such as department store shopping mall
 - Fintech's benefits (O2O, Online to offline transactions) increase as e-commerce expands
- Home Shopping Division
 - Increased share of mobile use in home shopping payment methods (60%)
- New trends
 - Expanding showrooming: Searching and purchasing Internet / mobile items instead of showrooms

Fintech Business in Korea

- IT industry (software)

- Expansion of big data and security industry as fintech infrastructure industry
 - Credit analysis technology such as credit scoring system
 - Spread of fraud detection system: Spread to financial sites-> payment sites such as shopping malls
- Development of bio certifications to replace authorized certification
- Activation of cryptocurrency such as Bitcoin
 - Points, Miles, Prepaid Coupons, etc.
 - Electronic Money Management Software
- Proliferation of mobile credit card and check card modules
 - Mobile encryption module, security module, identity module, financial institution linked encryption module

Fintech Business in Korea - IT industry(hardware)

- Expansion of mobile identity chipset market
 - ➔ Contactless recognition module such as iris, 3d fingerprint, fc, Bluetooth
- Personal information cloud service system activation
- Activation of wireless hacking prevention system
- Personal information db distribution and supplementation related system



Innovation to Fintech

Innovation to Fintech

- The innovation of fintech means the improvement in a level of finance service (elaboration · simplification · commercialization) to utilize a variety of new technologies of fintech (AI, big data, block chain)
- Innovative finance entrepreneurs are chosen as per the enforcement of 「Special Act on Financial Innovation Support」 on April 1 in 2019 and then it is predicted that fintech innovation will rapidly spread

Innovation to Fintech - Banking Sector

- **(Status quo)** Fintech for expansion of untact channel sales ability is positively embraced
- **(Service)** Asset management and information provision on a real estate are applied to fintech by focusing on the mobile payment service such as simple payment · remittance

Innovation to Fintech - Banking Sector

- **(Marketing & Operation)** Tablet branch and smart ATM including Introduction of chatbot and robo-advisor is made progress
- **(Security & Authentication)** Expansion of smart ATM and mobile banking make introduction of new authentication means such as biometric authentication through iris · fingerprint · FaceID and mobile OTP activated

Innovation to Fintech - Life Insurance Sector

- **(Status quo)** AI·big data analysis technology in a marketing aspect such as product recommendation and customer counseling are utilized.
- **(Marketing)** AI(Chatbot) is included for coping with customers' reactions and big data platform is established for analyzing demands of insurance policy loans
- **(Service)** Insurtech such as electronic subscription and blanket check of insured information and guarantee analysis is offered by affiliating with fintech firms

Innovation to Fintech

- Indemnity Insurance Sector

- **(Status quo)** contractors' convenience improvements through introduction of fintech such as UBI insurance and automation of insurance claim and simple payment for premium to consider driving habits are pursued
- **(Insurtech)** Risks of accidents are differentiated and premium discounts are offered, based on user data such as health records and driving habits of smart watches
- **(Simple payment&Biometric authentication)** Simple payments such as Kakao Pay and Naver Pay are included to pay for small premiums such as auto insurance and travel insurance while the biometric authentication is also applied

Innovation to Fintech

- Stock Sector

- **(Status quo)** Introduction of fintech is progressing by focusing on the robo-advisor field and biometric authentication field such as stock item and fund recommendation
- Different customers' transaction tendencies and stock item preferences through Deep learning and big data analysis are analyzed and customized investment information is also provided

Innovation to Fintech

- Joint Open Platform for Banking

- **Operation** : Financial security institute, Center of Reliable Financial Payment Service
 - ➔ <https://www.open-platform.or.kr/main>
- **(Scope)** Joint open platform for banking is an infrastructure that provides financial services of banks in a standardized form so that fintech companies can easily develop financial services. It consists of an open API and a testbed
 - ➔ Open API(Application Programming Interface) : It is an open program tool for fintech companies to develop their own applications and services. Five service APIs and authentication / management APIs are provided
- **(expected effect)** User organizations will be able to enter the financial sector with fresh ideas and technologies and provide various fintech services

Innovation to Fintech

- Operational Status Quo of Financial Companies' Fintech Labs

- **(Concept)** Fintech labs are called organizations which play supportive roles in reviews on business values and law counseling and financing via the one-stop service until innovative ideas for fintech companies are commercialized
- **(Purpose)** As each company finds promising fintech companies and cooperates with them, synergies of both companies are created and the fintech industry and ecosystem are activated
- **(Status quo)** financial holding firms(Three firms) and banking firms(Four firms) and insurance firm(One firm) are operating fintech labs for fintech startup supports at the end of April in 2019

Innovation to Fintech

- Restriction Innovation for activating Fintech

- Private and public joint T/F for finding and improving restrictions related to every financial institution and authority to block the financial innovation such as fintech is composed (October, 2018)
- 44 tasks among acceptance tasks(150 tasks) have already been taken measures and 96 tasks such as law revision and authoritative interpretation will be made progress during the second half of 2019
 - Sandbox's operational situations are checked and fundamental regulation revision is scheduled to be progressed about tasks(10 tasks) to permit tests through sandbox on financial restrictions
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Innovation to Fintech

- Restriction Innovation cases for activating Fintech

■ **Revision of regulations(23 tasks)**

- Utilization of robo-advisor and relaxation of investment consulting capital
- Permission for venture capitalism

■ **Guidelines(07 tasks)**

- Email is also accepted as a notification of financial transaction information
- Overwriting of investor information confirmation is improved when the investment discretionary contract

■ **ETC(14 tasks)**

- Simplifying designated representative process
- Security support for financial open API use organization



2019 Fintech Adoption Index

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2019 Fintech Adoption Index

- Korea's fintech Adoption index rises to 67% in 2019(32% in 2017) (19.06.08, Financial Services Commission)
- Korea's research objects rises to 67% in 2019. This figure doubles, compared to 32% in 2017 and is equal to that of Singapore and Hong Kong. This figure is similar to 71% of England

2019 Fintech Adoption Index

- Levels of each fintech sector's awareness and their usage rates

- Fintech's customer awareness levels are as follows. remittance and payment stand at 96% and insurances stand at 86% and investments stand at 78% and loans stand at 76%. Awareness levels in most of fields are high
- Especially, 96 percent of global customers are aware of remittance and payment fields. 3 in 4 people uses them and they are most activated among fintech fields
- Meanwhile, usage rates of the insurance field surge in 2019(8% in 2015 → 24% in 2017 → 48% in 2019)

2019 Fintech Adoption Index

- Customer Preference

- Customers thought it was because of the cheap commission(27%), the biggest reason that they used the fintech service
- Preference for Online(App) total view service and non-branch(untact) finance service
- Meanwhile, many customers also raise concerns over personal information security when they use fintech
- 68% of customers express their intentions to use the fintech service of non finance firms developing financial service products based on innovative technologies

2019 Fintech Adoption Index - Implications

- **(Financial industry)** Fintech has been developing itself along with efforts for policies and technology developments. Now, it becomes a trend of the financial industry
 - As fintech's innovation is accelerating, fintech becomes a new standard of the financial service
- **(Government policy)** Benefits for finance customers should be improved and full policy supports for the fintech scale-up such as the global fintech unicorn establishment should also be implemented beyond creation of the amicable environment of the fintech ecosystem
 - Relaxation of strategically customized restrictions and activation of fintech investments and support for expanding a fintech business overseas



Regulations & Coordination among Financial Authorities

Legal Position & Relationship of Financial Authorities

■ Financial Security Institute

- ▶ ISAC for the Financial Sector
 - Legal Basis : Act On The Protection of Information and Communications Infrastructure
- ▶ Computer Emergency Response Team (CERT)
 - Legal Basis : Regulation on Supervision of Electronic Financial Activities



■ Financial Services Commission in Korea

- ▶ Competent authority about financial security
- ▶ Support the establishment of policies by gathering opinions from financial companies
- ▶ Research legal development trends for reinforcement of financial security



■ Financial Supervisory Service in Korea

- ▶ Supervisory authority about financial companies



Korea Fintech security practices

ISAC for the Financial Sector

- Legal Basis : Act On The Protection of Information and Communications Infrastructure
- In the event of cyber terrorism and infringement accidents, we operate the Information Sharing & Analysis Center (ISAC) to prevent infringement accidents and establish a joint response system for major information and communication infrastructures in the field of information and communication.

■ Article 1 (Purpose)

The purpose of this Act is to operate critical information and communications infrastructure in a stable manner by formulating and implementing measures concerning the protection of such infrastructure, in preparation for intrusion by electronic means, thereby contributing to the safety of the nation and the stability of the life of people

■ Article 16 (Information Sharing and Analysis Center)

(1) Any person who intends to perform the following affairs to protect information and communications infrastructure by area, such as finance and communications, may establish and operate an information sharing and analysis center:

1. Provision of information concerning vulnerabilities, intrusion factors, and countermeasures;
2. Operation of the real-time alarm and analysis system, if intrusion incidents occur.

(2) and (3) Deleted. <by Act No. 13590, Dec. 22, 2015>

(4) The Government may encourage the establishment of an information sharing and analysis center which performs duties falling under each subparagraph of paragraph (1) and may provide financial and technological support thereto. <Amended by Act No. 13590, Dec. 22, 2015>

Korea Fintech security practices

Computer Emergency Response Team (CERT)

- Legal Basis : Regulation on Supervision of Electronic Financial Activities

- **Article 1 (Purpose)**

The purpose of this Regulation is to prescribe matters delegated to the Financial Services Commission pursuant to the Electronic Financial Transactions Act (hereinafter referred to as the "Act") and the Enforcement Decree thereof (hereinafter referred to as the "Enforcement Decree"), matters necessary for the enforcement thereof, and other matters required for securing the safety of the information technology sector of an institution subject to examination by the Financial Supervisory Service under other Acts and subordinate statutes.

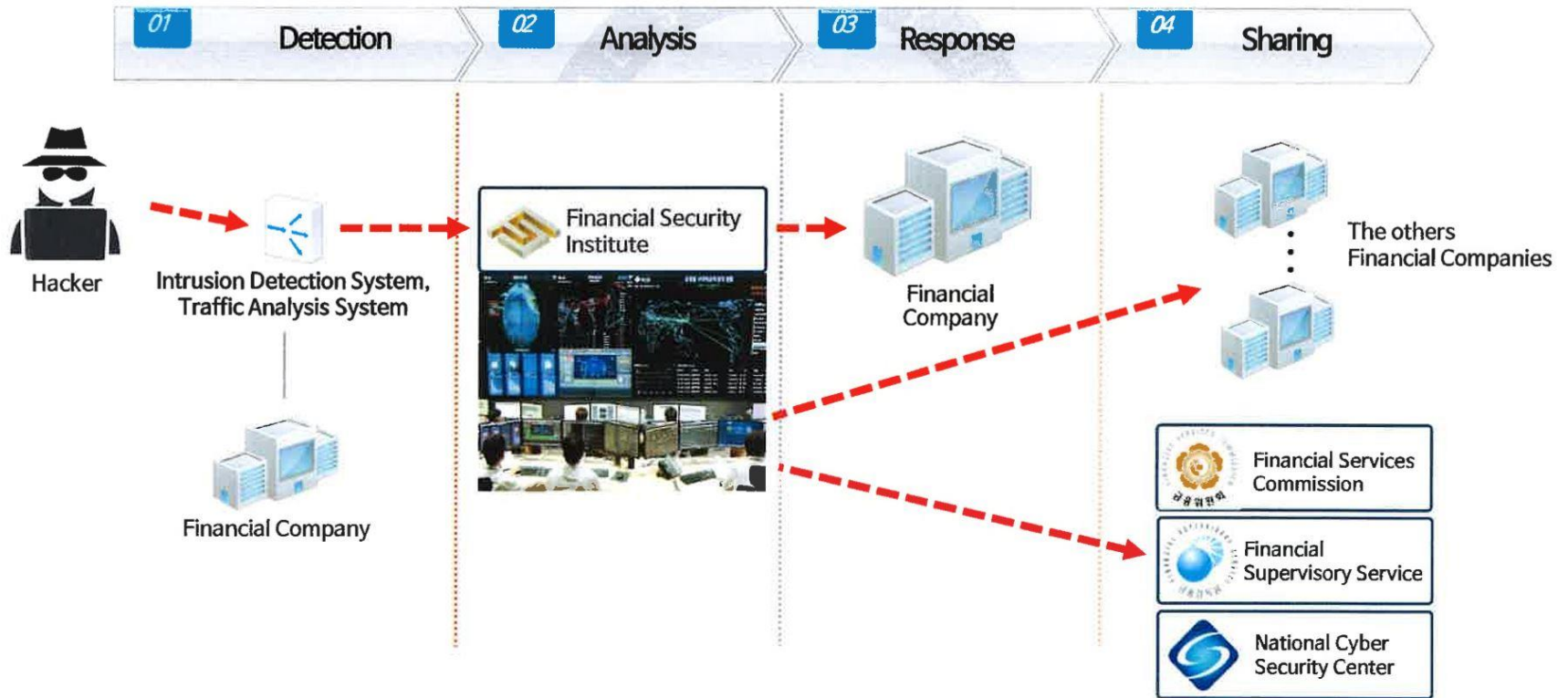
- **Article 23 (Establishment and Implementation of Emergency Measures, etc.)**

(1) Each financial company and electronic financial business operator shall formulate a plan to ensure business continuity in order to prevent his/her or its business from being suspended in emergency situations, such as system failures, disasters, strikes and terror, including the following

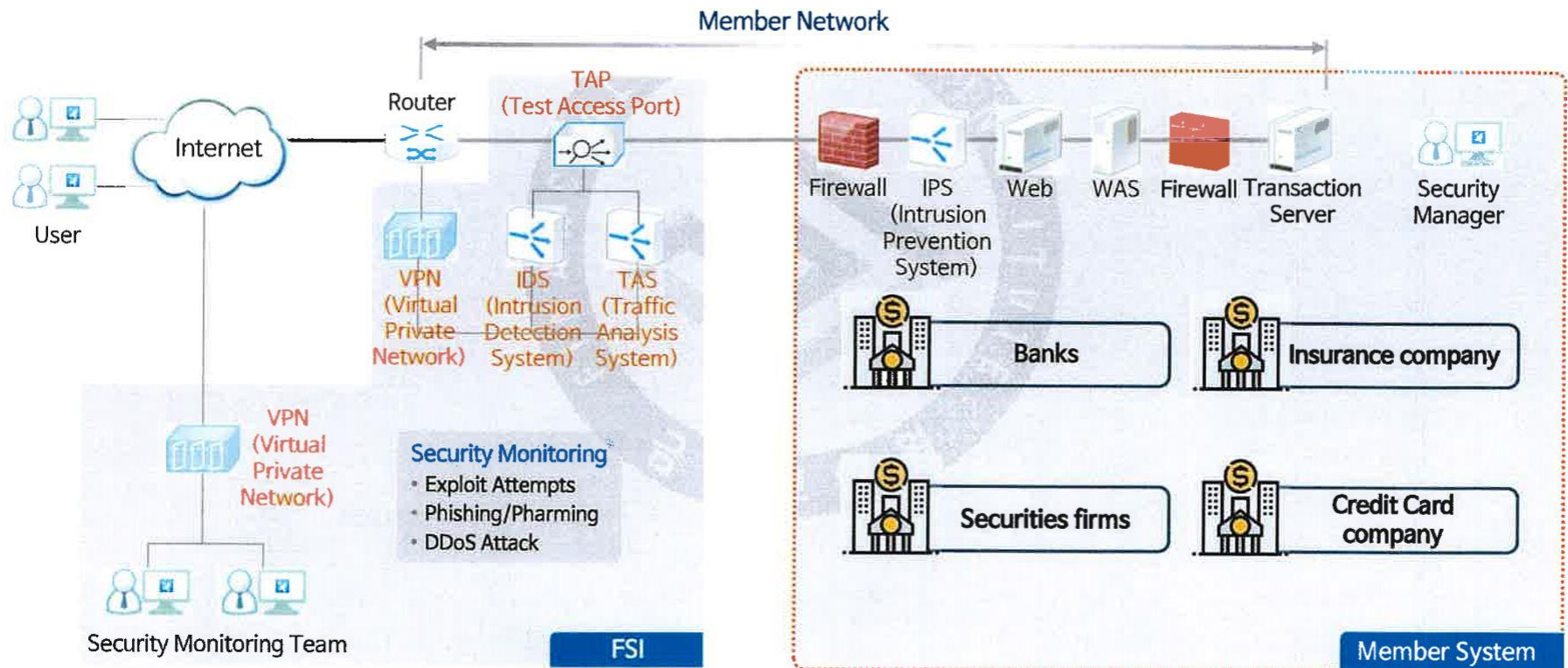
1. Procedures for response to each situation
2. Plan for recovery from disasters utilizing backups or the disaster recovery center
3. Composition and management of an emergency response organization
4. Conditions and procedures for input on his/her or its behalf, handwork, etc.
5. Conducting simulated training
6. Building an emergency liaison system with related institutions and enterprises
7. Scope of and procedures for reporting and external communication

Korea Financial Security Institute operation - Security Monitoring in FSI

▶ Security monitoring using FSI's system installed in financial companies

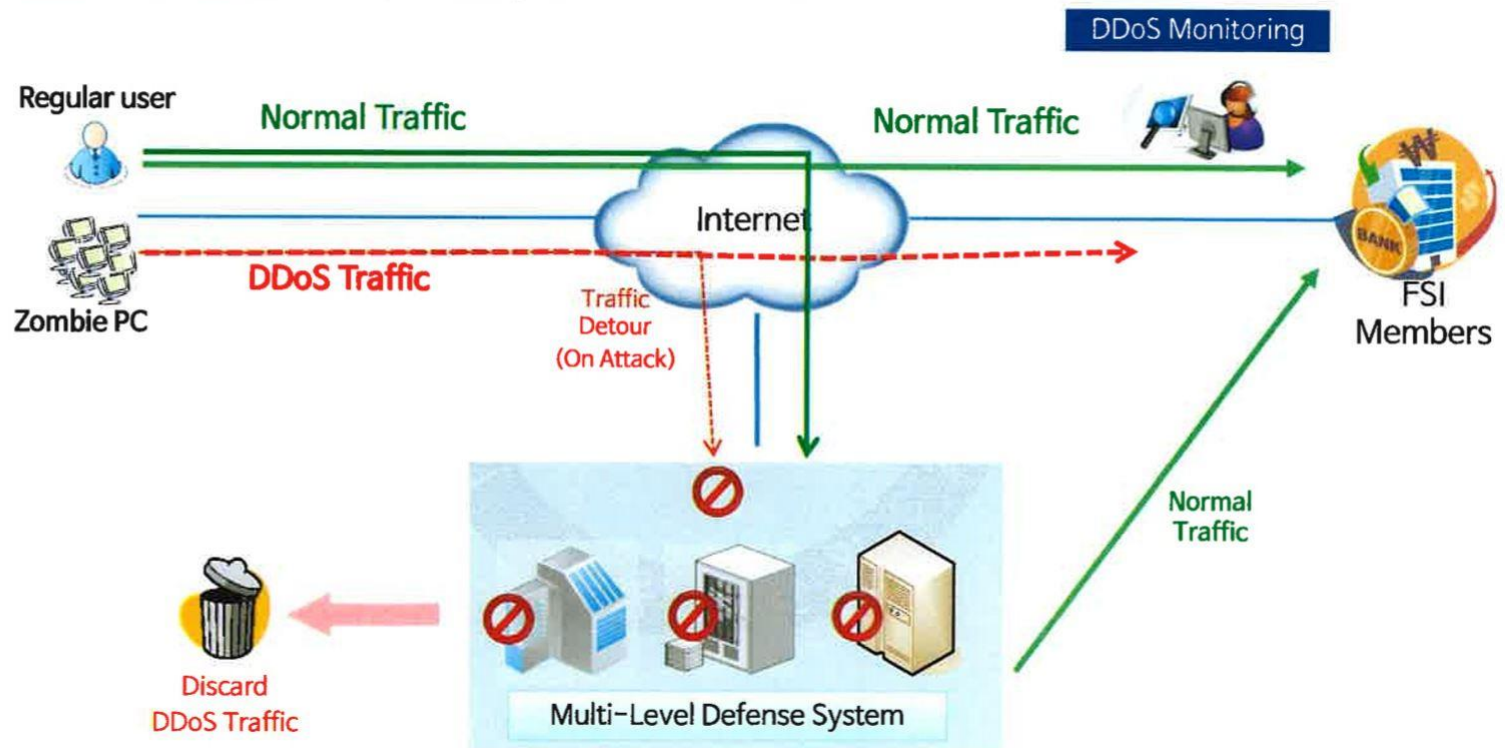


Korea Financial Security Institute operation - Security Monitoring System



Korea Financial Security Institute operation - DDoS Attack Monitoring

DDoS Attack Emergency Response Center



Korea Financial Security Institute operation - Phishing Site Monitoring

- Detection & Response to phishing/pharming sites impersonating financial companies
 - Using web crawlers
 - Monitoring IP addresses in malwares
 - Monitoring C&C servers



Korea Financial Security Institute operation - Financial Security Monitoring Center





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