

Japan's Initiative for Fintech Innovation

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Svensk sammanfattning

Japans satsningar på innovationer inom fintech

Investeringar i fintech (finansiell teknologi) ökar i Japan precis som på många andra marknader. År 2016 kommer bli ett rekordår vad gäller nystartade företag och investeringar inom denna relativt nya sektor. Ett antal företagsacceleratorer fokuserar nu på fintech och flera av Japans större företag letar globalt efter strategiska investeringar inom området. Drivande aktörer är de inhemska största bankerna och IT-företagen som har dessa banker som kunder för sina finansiella IT-system. Bankerna ser framför sig att kunna erbjuda nya tjänster för sina kunder.

Den japanska regeringen ser fintechindustrin som språngbräda dels för ökad tillväxt, dels som ett sätt att vitalisera och öka innovationsgraden i landets finansiella sektor. Det finns pågående initiativ för lagändringar som ska möjliggöra att bankerna kan dra nytta av nya teknologier för transaktioner, utlåning, identifiering, virtuella valutor med mera. En viktig lagändring gör det möjligt för banker att investera direkt i fintechföretag för att dra nytta av de nya teknologierna. Landets lagstiftning för bland annat vilka IT-system som tillåts användas av finansiella aktörer har bedömts som alltför restriktiv och har hämmat innovation.

1 Japan's Initiative for Fintech Innovation

Companies relating to financial technology or “fintech” have momentum in the global market. According to Accenture, the value of global fintech investment in 2015 grew by 75 percent to USD 22.3 billion (SEK 199.5 billion), and global investment in fintech venture companies in the first quarter of 2016 reached USD 5.3 billion (SEK 47.4 billion), a 67 percent increase over the same period last year.¹ This growing global trend has been promoted by fintech-oriented deal-flow across continental Europe and Asia-Pacific. Worldwide, more than USD 50 billion (SEK 447 billion) has been invested in almost 2,500 companies since 2010, the Accenture report says.

In line with this global trend, Japan is experiencing a fintech boom. The investment in fintech companies in the country rose to USD 65 million (SEK 581 million) in 2015, a 20 percent increase from the previous year,² and the year of 2016 will see a record amount of investment in fintech companies in the nation. Megabanks and other financial institutions are on the move towards collaborating with and funding fintech startups (see Section 3.1). Many startup accelerators' programs have been run by private companies to support fintech startups (see Section 3.2).

Although the number of fintech companies in Japan is still small (currently about 130) from an international perspective, a growing number of fintech venture companies in the country have now been delivering new financial products and services, by combining various information technologies (e.g., smartphones, cloud-computing, AI, big data analysis, blockchain, biometric authentication, open APIs or application programming interfaces, etc). Based on the development of fintech in this respect, those companies are providing various services for storing, saving, borrowing, transferring, paying and protecting money (see Section 3.3).

Behind this fintech momentum, the Japanese government has now recognized that the fintech industry is an important springboard for economic growth in the country, as shown in several governmental strategies, including Japan Revitalization Strategy 2016.³ Based on this recognition, the Japanese government has taken initiative in revising old-fashioned regulations not conducive to fintech innovation, setting out new research and development themes, and creating new industry structures for several specific fintech business areas (see Section 2).

1.1 Fintech promotion initiatives in the public sector

To boost the development of fintech business and industry in Japan, several significant initiatives have been taken in the public sector of the country.

New regulation 1: To free up the flow of capital from banks into fintech ventures

¹ Accenture, 2016, *Fintech and the evolving landscape: landing points for the industry*. Available: <https://newsroom.accenture.com/news/global-fintech-investment-growth-continues-in-2016-driven-by-europe-and-asia-accenture-study-finds.htm>.

² Accenture, 2016, *The booming fintech market: suggestions for Japan* (Japanese language only). Available: https://www.accenture.com/jp-ja/~/_media/Accenture/jp-ja/Documents/DotCom/Accenture-Fintech-Evolving-Landscape-jp.pdf.

³ The Cabinet Office of the Japanese government, 2016, *Japan Revitalization Strategy 2016*. Available: http://www.kantei.go.jp/jp/singi/keizaisaisei/pdf/2016_zentaihombun_en.pdf.

In this respect, two newly created legal regulations, which passed the Diet in May 2016 and will come into force next year, are particularly important.

One is the new regulation created by revising the current Banking Law of Japan, which currently stipulates that banks can only own a maximum of 5 percent of total voting rights in a non-finance-related company in the country, while the law sets the cap in this respect at 15 percent for bank holding companies. Unfortunately, fintech venture companies are often considered to fall in this category of non-finance-related companies. Under the new regulation that passed the Diet in May 2016, banks and bank holding companies will be allowed, with the approval of the Financial Services Agency (FSA), a governmental agency under the Cabinet Office of the Japanese government, to buy stakes of up to 100 percent in fintech companies that provide innovative technologies to advance banks' operations or benefit bank customers. This revision will allow Japanese banks, some of which have already started investing in or partnering with fintech venture companies (see Section 3.1), to further invest in a wider array of fintech venture companies in the country. The Financial Services Agency (FSA) will formulate guidelines on which types of companies banks can actually buy into.

New regulation 2: The regulation regarding virtual currencies

The other new regulation is about the regulation of operators of virtual currency exchanges. Currently, there is no effective law regulating the definition, use or exchange of virtual currencies such as bitcoin in Japan. On the other hand, in line with the rapid development of the technology for blockchain (i.e., the shared record-keeping protocol central to virtual currencies), Japan now has seven virtual currency exchanges and an estimated 50,000 or so bitcoin users. More than 2,500 stores now take payment in bitcoin, including restaurants, dentists and nail salons. The popularity of virtual currencies also comes from the fact that users can send virtual currencies to others in foreign countries at extremely low costs. On the other hand, Mt. Gox, formerly the world's largest bitcoin exchange, was based in Japan until its bankruptcy in 2014, which wiped out 8.2 billion yen in customer deposits and eventually led to the arrest of its CEO. This incident sparked fears about the safety of virtual currencies and triggered calls for regulation of the virtual currency industry to protect users.

Under this circumstance, aiming at fostering virtual currency usage and blockchain development as well as at improving transparency and protecting consumers in virtual currency transactions, the Japanese government created a new virtual currency regulation that the government describes as “the first of its kind in the world.”⁴ The new regulation, which passed the Diet in May 2016, basically stipulates the following five points. First, it defines virtual currencies such as bitcoin to be a legal form of payment fulfilling the functions of currency. Second, the operators of virtual currency exchanges are to be registered with Japanese Financial Services Agency (FSA). And, FSA has the power to conduct on-site investigations and issue administrative orders. Third, the registered virtual currency operators or exchanges are to be brought under Japan's anti-money-laundering law, obligating them to verify the identities of those opening accounts, maintain and store transaction records, and report suspicious transactions to FSA. In other words, FSA requires those operators or exchanges to follow “know-your-customer (KYC)” practices.

⁴ According to Mr Junichi Kanda, Director at Credit System Office, Planning and Coordination Bureau, Financial Services Agency, the Government of Japan (confirmed in the interview with him as of 26th October 2016).

Forth, a minimum capital reserve requirement of JPY 10 million (SEK 800,000) is imposed on the operators, while they are obliged to manage their own assets separately from customers' assets to ensure clarity in case of bankruptcy. And, annual financial reports to FSA will be mandatory for the virtual currency operators or exchanges, urging those operators or exchanges with weak finances to shut down naturally as shortcomings come to light. Fifth, the virtual currency operators or exchanges will be responsible to use computer systems to protect users' personal information.

In addition, the Japanese government is now expecting to end sales-tax collection on purchases of virtual currencies in the spring of 2017. This is because, under the current condition, when individuals living in Japan buy bitcoins with yen through a domestic exchange, their purchase is subject to the 8 percent consumption tax rate, just as when they buy physical goods, which undermines people's willingness to use virtual currencies. In fact, Japan is the only country among the Group of Seven leading industrial economies that taxes the purchase of virtual currencies.

FSA's FinTech Support Desk and BoJ's Fintech Center

While taking initiative in formulating the above-mentioned new regulations, since 2015, the Financial Services Agency (FSA) has run the FinTech Support Desk, which is a one-stop contact point where fintech-related companies can receive consultation on the legal issues involved with new fintech businesses in Japan.⁵ By the end of June of 2016, that function within FSA has received 91 inquiries in total from various fintech-related entities regarding the above-mentioned new regulations and so on.

Furthermore, while being aware of potential fintech-related risks such as cyber attacks, the Bank of Japan (BOJ), the central bank of Japan, is ready to lead research and analysis to promote fintech in Japan and may apply fintech to its operations in the future, given its growing influence on global payments, settlements and financial services, and given its potential impact on central banking.⁶ In fact, in April 2016, BOJ established the FinTech Center, an in-house research section which functions to serve as a point of contact between the BOJ and fintech-related companies and to explore how to support the private sector in promoting Japan's booming fintech market.⁷

Overall, the above-mentioned initiatives in the public sector have been favorably perceived by fintech businesses as a strong spur for fintech innovation in the country.

1.2 Fintech booms in the private sector

1.2.1 Venture capital funds for fintech

In line with the above-mentioned fintech promotion initiatives in the public sector in Japan, banks, including the three major megabank groups (i.e., Mitsubishi UFJ Financial Group, Sumitomo Mitsui Financial Group and Mizuho Financial Group) and other financial institutions in the country are quickly moving to capture the growth potential that fintech venture companies can offer by establishing venture capital funds targeting at fintech.

⁵ See the announcement as of 14th December 2015 on the website of FSA regarding the establishment of the FinTech Desk. Available: <http://www.fsa.go.jp/news/27/sonota/20151214-2.html> (Japanese language only).

⁶ See the remarks made by BOJ's Governor Haruhiko Kuroda on the FinTech Forum as of August 23, 2016. Available: https://www.boj.or.jp/en/announcements/press/koen_2016/ko160823a.htm/.

⁷ See the announcement as of 1st April 2016 on the website of BOJ regarding the establishment of the Fintech Center. Available: https://www.boj.or.jp/en/announcements/release_2016/re1160401a.htm/.

For example, Sumitomo Mitsui Asset Management,⁸ a member of Sumitomo Mitsui Financial Group, gathered more than JPY 70 billion yen (SEK 6 billion) and started Global AI Fund in September 2016, which will invest in companies all over the world developing AI (artificial intelligence) technology for financial and other applications. Mizuho Securities,⁹ a member of Mizuho Financial Group, now plans to put up to JPY two billion (SEK 170 million) into a Singapore-based fund working to discover promising fintech ventures in Asia. In November 2015, Rakuten,¹⁰ one of Japan's largest e-commerce companies, launched a USD 100 million (SEK 893 million) fund to invest in fintech companies, in particular European and North American startups developing technologies for payments and money transfers. In collaboration with regional banks and credit unions, SBI Holdings¹¹ has recently set up a fintech fund totaling JPY 30 billion (SEK 2.6 billion).

On the other hand, Mitsubishi UFJ Bank, a member of Mitsubishi UFJ Financial Group, which is Japan's largest bank group, built its own Innovation Lab division for fintech development, the first of its kind in Japan.¹² The Innovation Lab division, consisting of 15 employees in Tokyo and Silicon Valley, works with fintech venture companies, universities, and research organizations to develop new fintech technologies, while drawing on its existing resources such as its securities and trust-banking units. Mitsubishi UFJ is also considering adding a third location for the Innovation Lab division in a major city in Asia.

1.2.2 Acceleration programs and business model contests for fintech startups

In Japan, an increasing number of “accelerators” for ICT startup companies, including fintech startups, have appeared. They usually run a free-of-charge “acceleration program” for a fixed period of time to provide startups with various forms of early-stage support, including mentoring, workspace, in-house training, networking events, presentation opportunities at demo days, and legal and accountancy support.

For example, Japan's three major mobile telecommunication companies, namely NTT Docomo, KDDI and Softbank, run Docomo Innovation Village,¹³ KDDI Mugen Labo,¹⁴ and Softbank Innovation Program,¹⁵ respectively. All of those programs target at fintech ventures among others. Mitsubishi UFJ Bank runs a 4-month intensive acceleration program for fintech-oriented startup companies.¹⁶ Mitsubishi Estate, Dentsu and ISID co-sponsor fintech-focused acceleration program called FINOLAB.¹⁷

On the other hand, there are several fintech business model competitions in Japan. For example, since 2015, Mitsubishi UFJ Bank runs a fintech business competition on a yearly basis.¹⁸ NTT Data, a member of NTT Group and Japan's largest supplier of backbone IT

⁸ Sumitomo Mitsui Asset Management 2016 Homepage Available: <http://www.smam-jp.com/english/>.

⁹ Mizuho Securities 2016 Homepage Available: https://www.mizuhobank.com/mizuho_fintech/index.html.

¹⁰ Rakuten 2016 Homepage Available: <http://global.rakuten.com/corp/about/>.

¹¹ SBI Holdings 2016 Homepage Available: <http://www.sbigroup.co.jp/english/>.

¹² Mitsubishi UFJ Bank has recently been keen on introducing robot technology for its services. For example, the bank has been using IBM's artificial intelligence machine Watson to automate its call center operations and is now testing the humanoid robot NAQ, developed by Aldebaran SAS, in some of its branches.

¹³ Docomo Innovation Village 2016 Homepage Available: <https://www.nttdocomo-v.com/village/>.

¹⁴ KDDI Mugen Lab 2016 Homepage Available: <http://www.kddi.com/ventures/mugenlabo/>.

¹⁵ Softbank Innovation Program 2016 Homepage Available: <http://www.softbank.jp/biz/innovation/>.

¹⁶ MUFJ 2016 Fintech Accelerator Available: <http://www.bk.mufg.jp/innovation/accelerator/en/index.html>.

¹⁷ Finolab 2016 Available: <https://finolab.jp/aboutus/>.

¹⁸ MUFJ Fintech Challenge 2016 Available: <http://www.bk.mufg.jp/innovation/fintech2016/>.

systems for financial institutions and government agencies, plans to hold a business model contests in 2016 for startups, including fintech startups, in ten countries, including Canada, Singapore, Israel and China.¹⁹ This series of contests is part of the company's strategy for finding high-quality fintech ventures to be invested in or partnered with.

Another example of fund-raising opportunities for fintech ventures is Rising Expo, one of the largest fund-raising/business partnership events in Asia, which is yearly held by CyberAgent Ventures.²⁰ In this event, venture companies selected through pre-screening are given opportunities to network with and give presentations to leading international and domestic venture capitals, large enterprises and other parties that support the venture industry. Samurai Venture Summit, annually organized by Samurai Incubate, offers the same kind of fund-raising opportunities for a wide array of startups including fintech ventures.²¹

1.2.3 Examples of fintech areas that have attracted attention in Japan

Cloud-computing-based cash management services

One field of fintech business that has gained much attention in Japan is the cloud-computing-based services for cash management activities. A good example in this regard is the service provided by a rapidly growing fintech venture named Money Forward.²² Through this service, individual or corporate customers can gain access, based on the linkage between their own financial accounts (banks, credit cards, securities, etc.) and their Money Forward accounts, to the one-stop-shop online services that enable them not only to easily manage daily expenses, but also to do such things as accounting, payroll, payment collection, expense reporting, as well as to send invoices, see financial projections, and receive automatic asset management advice.

This Money Forward service is currently used by four million individuals and over 500,000 businesses in Japan. The company's free application for Android or iOS has been one of the most popular fintech service applications in the Google Play in the country. So far, the company has been capitalized at JPY 2.2 billion (SEK 190 million) by banks and various other fintech-business-related companies. Startups such as Freee²³ and Zaim²⁴ are also providing similar services.

Importantly, the services provided by Money Forward, Freee and Zaim are largely based on the "screen scraping" technology for the purpose of aggregating financial data from their customers' personal bank accounts. In order for this screen-scraping-based system to work, a customer needs to provide sensitive personal information such as login ID and password to those companies, which then use the provided personal information to log in to the customer's bank account in order to pull the most recent data from it. This "screen scraping" system can be vulnerable to cyber attacks if its cybersecurity mechanism is weak. On the other hand, if banks open up their application programming interfaces (APIs) for the services provided by Money Forward, Freee and Zaim, customers can use those companies' services under safer and more convenient environment without the need to give those companies their banks' login ID and password.

¹⁹ NTT Data Global Open Innovation Business Contest 2016 Available: <http://oi.nttdata.com/contest/about/>.

²⁰ Rising Expo 2016 Homepage Available: <http://www.rising-expo.com/ja/>.

²¹ Samurai Venture Summit 2016 Available: <http://samurai-venture-summit.asia/>.

²² Money Forward 2016 Homepage Available: <http://corp.moneyforward.com/>.

²³ Freee 2016 Homepage Available: <https://www.freee.co.jp/>.

²⁴ Zaim 2016 Homepage Available: <https://zaim.co.jp/>.

For this reason, while seeing the “screen scraping” technology as unsafe, several banks are now starting to open up their APIs. For example, in March 2016, SBI Sumishin Net Bank, a joint venture created by SBI and Sumitomo Trust Bank, which is a member of Sumitomo Mitsui Financial Group, started to offer new service connecting with Money Forward’s service via API.²⁵ With this API connection, customers can get information, while using the Money Forward’s services, about account balance and account activities in a safer and more convenient environment, without the need to give their bank’s login ID and password to Money Forward.

Furthermore, since April 2016, NTT Data, Japan’s largest IT service provider with the dominant share of the market with close to 70 percent of the country’s private bank transactional data, has promoted a pilot project to open its internet banking API to connect the services provided by Money Forward and Freee with Shizuoka Bank, one of Japan’s largest local banks.²⁶ NTT Data plans to expand this API link service to more fintech ventures to create various types of open-API-oriented business.

As bank data access continues to become more open, there will be more appealing options available to consumers that will encourage them to seriously consider fintech solutions as viable alternatives to traditional bank accounts.

Virtual-currency-based platforms for money exchange and transfer

In parallel with the growing popularity of virtual currencies such as bitcoin in Japan, several virtual currency exchange platforms have appeared in the country. Among them, Bitflyer is currently the largest bitcoin exchange in the country, having been capitalized at JPY 3.9 billion (SEK 340 million) so far.²⁷

Furthermore, several major financial institutions in Japan have paid great attention to the development of platforms for low-cost international money transfers by using virtual currencies such as bitcoin. What is behind this is the fact that, while wiring money internationally costs several thousand yen per transaction, users can send virtual currencies to others in foreign countries for much lower costs. This service program is especially targeted, among others, at an increasing number of foreign tourists to Japan in anticipation of the coming 2020 Tokyo Olympics.

In this regard, Mizuho Financial Group and the SBI Holdings group are jointly promoting a pilot project to develop an international money transfer platform using Ripple.²⁸ Ripple is the third largest virtual currency by market capitalization as of 2016, after bitcoin and ethereum.²⁹ The two companies are promoting this service via a blockchain-technology-

²⁵ SBI Sumishin Net Bank 2016 Announcement as of 25th March 2016 regarding the collaboration with Money Forward via API. Available: https://www.netbk.co.jp/wpl/NBGate/i900500CT/PD/corp_news_20160325 (Japanese language only).

²⁶ NTT Data 2016 Announcement as of 29th February 2016 regarding connecting the services provided by Money Forward and Freee with Shizuoka Bank via API. Available: <http://www.nttdata.com/jp/ja/news/release/2016/022900.html> (Japanese language only).

²⁷ Bitflyer 2016 Homepage Available: <https://bitflyer.jp/en/>.

²⁸ Ripple 2016 Announcement made as of July 18, 2016 on the website of Ripple regarding Mizuho’s pilot project for cross-border payments using Ripple. Available: <https://ripple.com/insights/mizuho-pilot-ripple-cross-border-payments/>.

²⁹ Ripple is a virtual currency system for real-time currency exchange and remittance managed by Ripple, a US fintech that uses blockchain technology for payments and settlement. Currently implemented by a growing number of global financial companies, including UniCredit, UBS or Santander, the Ripple protocol has been increasingly adopted by banks and payment networks over the world as reliable settlement infrastructure technology.

related corporate consortium, consisting of more than 70 of the world biggest financial institutions worldwide.³⁰ This joint project is expected to address the most common negative points in cross-border payments: high costs and settlement delay.

On the other hand, Mitsubishi UFJ Bank is working on a low-cost platform for virtual currency transfer at its own Innovation Lab division (see Section 3.1), building on the expertise of Coinbase, a U.S. virtual-currency brokerage for bitcoin and ethereum with roughly four million customers, with which Mitsubishi UFJ Bank became a partner in July 2016. This platform is to allow customers to convert virtual currencies into cash through their Mitsubishi UFJ bank accounts. Mitsubishi UFJ Bank also started a joint experiment with Hitachi for the use of block chain technology for digitalization of checks in Singapore in August 2016.³¹

Cashless and cardless payment systems based on biometric technology

New “cashless and cardless” payment systems, in which consumers are able to carry out transactions with nothing more than a touch or wave, are now appearing in Japan one after another. Examples of this kind of services include the biometric payment service provided by Liquid.³² Liquid is a fintech startup that was originally born out of the Docomo Venture Village (see Section 3.2) and has been financially supported by the I-Challenge program promoted by the Ministry of Internal Affairs and Communications.³³ When using the service provided by Liquid, all a customer needs to do to pay at shops or restaurants is to put his or her thumb on a small fingerprint sensor machine pre-installed in those places. Pre-registered biometric data, bank balances and other information are encrypted and stored securely in the cloud computing system, rather than at shops and restaurants. This Liquid payment system is gaining popularity in use at public bathhouses, beaches and other places where people are typically concerned about their wallets being stolen or lost.³⁴

On the other hand, JCB, one of Japan’s major credit card companies, is developing a new payment system using Fujitsu's palm vein authentication technology. This service will link vein patterns with credit card information, allowing customers to make fast and secure payments simply by waving their palms over a scanner.³⁵ Fujitsu has focused on palms because the networks of blood vessels are more complex than in the fingers, which helps to ensure stable authentication.³⁶

³⁰ This consortium is led by R3 (R3CEV LLC), which is a blockchain technology company in USA. See the homepage of R3: <https://r3cev.com/>.

³¹ MUFG 2016 Announcement made by MUFG and Hitachi as of August 22, 2016 regarding the blockchain-based test project for check digitalization in Singapore. Available: <http://www.bk.mufg.jp/global/newsroom/news2016/pdf/newse0822.pdf>.

³² Liquid 2016 Homepage <http://liquidinc.jp/>.

³³ Ministry of Internal Affairs and Communications regarding the basic framework of the I-Challenge program. Available: http://www.soumu.go.jp/menu_seisaku/ictseisaku/ictR-D/ichallenge/.

³⁴ Since October 2015, Liquid has promoted a test run at Huis Ten Bosch, a theme park in Sasebo, Nagasaki Prefecture of Japan, which draws a few million visitors a year, including plenty of foreign tourists. Visitors can register their biometric data at the entrance and other points. They can then use the Liquid Pay system at the park's restaurants and souvenir shops.

³⁵ In October 2015, JCB conducted a trial at the JCB World Conference in Indonesia. The event brought together representatives of JCB's partner companies and financial institutions around the globe; 500 attendees used the service. In the course of these tests, the company confirmed that factors such as skin color do not affect the system.

³⁶ Fujitsu 2015 According to Fujitsu, palm vein authentication was extremely accurate, with a false acceptance rate of less than 0.00008% and a false rejection rate of only 0.01%, resulting in highly reliable security. Available: <http://www.fujitsu.com/global/about/resources/news/press-releases/2015/1007-01.html>.

AI-based investment advisory services

Several companies have been offering investment advisory services based on the technology of artificial intelligence (AI). For example, since March 2016, Alpaca, a leading Japanese startup in the field of AI and fintech, has provided the world's first deep-learning-based application called Capitalico, which enables traders to build their customized trade notifications and automated trading algorithms through highlighting their winning entry patterns.³⁷ Capitalico is currently available as an iPhone application.

A fintech venture named Money Design provides a similar kind of “robo-advisor” or online-based advisory services named “THEO” for investment and asset management.³⁸ Based on its database of user information, THEO offers customers a diversified portfolio consisting of 30 to 40 ETFs or exchange-traded funds, which are securities that track indexes, such as the Nikkei 225 and NASDAQ 100.

1.3 Conclusion

In spite of the recent fintech boom, the risk-averse mindset of the general public that still show a strong preference to paying in cash over using credit cards, can be a large obstacle for the spread of disruptive fintech innovation in the country.³⁹

On the other hand, Japan has a long history of swiftly developing and introducing various kinds of IT-based services, whenever there is a strong demand for it from general consumers. This can clearly be seen in the widespread deployment in the country of the systems for cashless prepaid IC cards that allow a user to make electronic payments not only for using trains, buses or LRTs (light rail transits), but also for purchasing items at kiosks and thousands of card member shops. In fact, since early 2000s, more than two dozen train and bus operators across Japan have issued their own versions of IC cards.

The growing popularity of those IC cards among consumers has pushed the unification of those cards. That is to say, in March 2013, ten of the most popular IC cards in Japan, including Suica and Pasma,⁴⁰ became compatible with each other so that it is now possible, with just one of these cards, to travel on almost all trains, subways and buses as well as to purchase items at a large number of card member shops in most of Japan's largest cities. At the same time, Japanese people's strong demand for IC cards has also promoted the introduction of IC card systems into mobile phones, especially Android smartphones. From October 2016, iPhone 7 users in Japan as the first market can use Apple Pay to commute and pay for everyday items wherever Suica is accepted.⁴¹

The above-mentioned examples indicate that fintech-oriented services such as mentioned in in this report may have high potentiality of spreading throughout Japan, while drastically changing the risk-averse mindset of the general public and causing disruptive

³⁷ Alpaca 2016 Homepage Available: <http://www.alpaca.ai/>.

³⁸ Money Design 2016 Homepage Available <https://www.money-design.com/>.

³⁹ Japanese society is very conservative when it comes to finance. 52 percent of all personal financial assets in Japan are held in cash, because traditionally low inflation rates in the country have meant that holding on to cash was not a risk. However, this is likely to change since the Bank of Japan recently adopted negative interest rates. The hope is that citizens will be dissuaded from keeping large savings accounts and move their money into investments.

⁴⁰ Suica, which is the prepaid IC card JR trains, and Pasma which is the prepaid IC card for Tokyo's railway, subway and bus operators.

⁴¹ Apple 2016 Announcement made as of 7th September 2016 Available: <http://www.apple.com/newsroom/2016/09/apple-pay-coming-to-japan-with-iphone-7.html>.

innovation in financial activities of consumers in the country, if they can appropriately capture real consumer demands in this respect.

1.4 Interviews

Junichi Kanda (Director) and Kosuke Mizutani (Deputy Director), Credit System Office, Planning and Coordination Bureau, Financial Services Agency, the Government of Japan

Kotaro Zamma (Head) and Ken Fujiwara (Senior Specialist), Section of Open Innovation and Business Incubation, Business Strategy Department, NTT Data