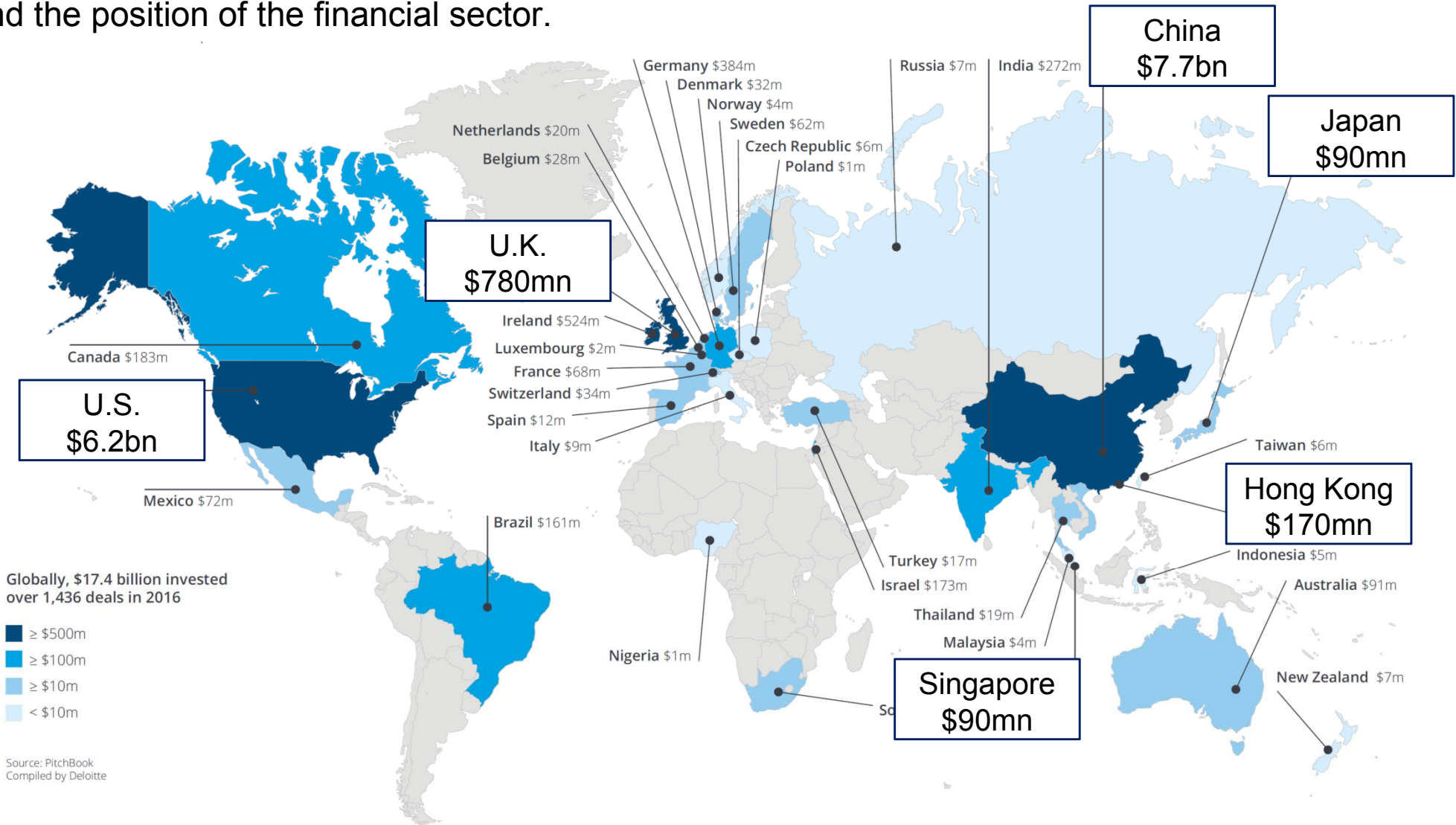




Japanese Fintech in the Global Context

1. Fintech investments worldwide

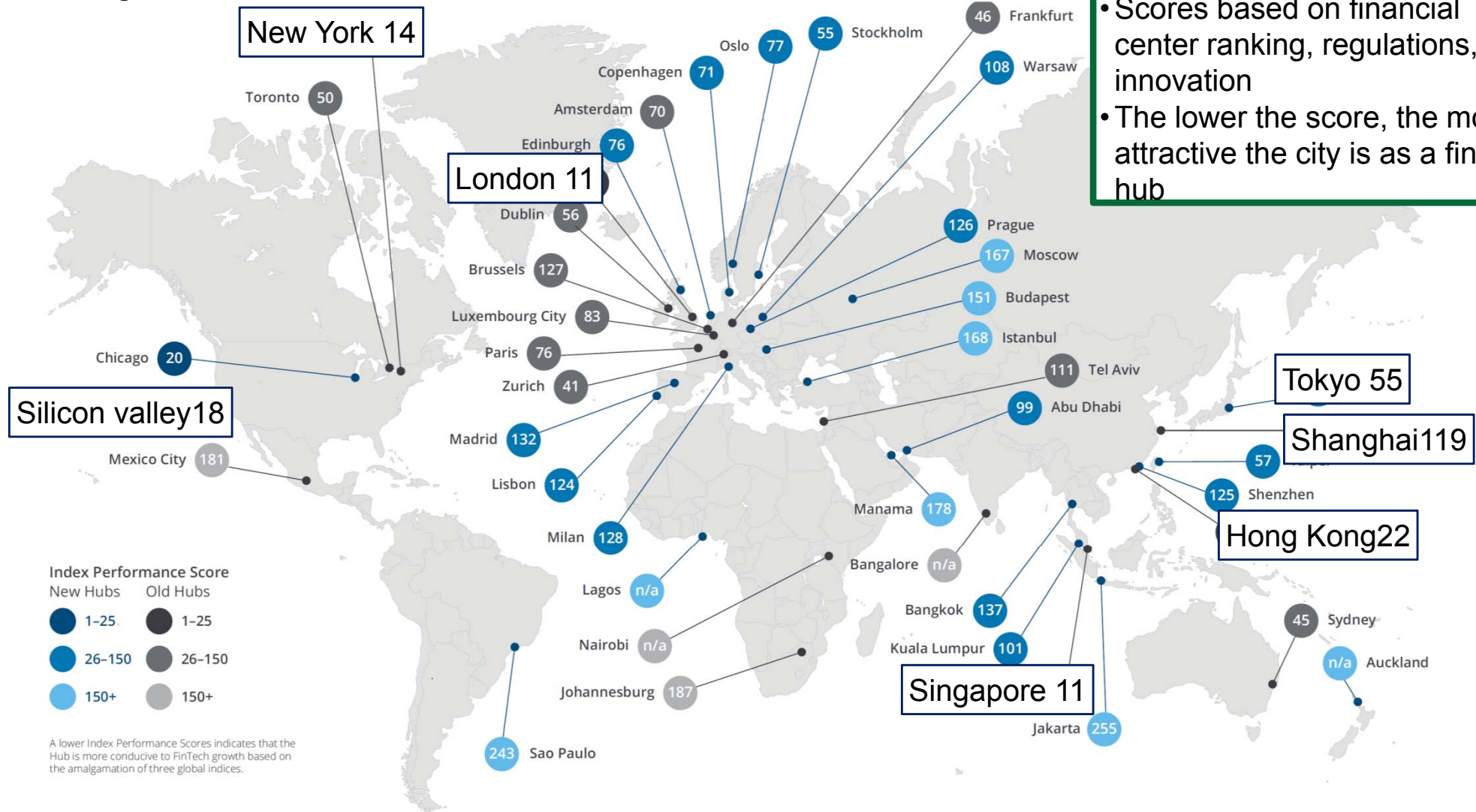
Venture capital firms' fintech investments have been concentrated in China, the U.S., and the U.K.. The differences in investment amounts largely reflect the scale and challenges for the B2C business and the position of the financial sector.



2. Attractiveness of cities worldwide as fintech hubs

Tokyo ranks about average among cities worldwide as a fintech hub and ranks on the low side as a financial center. Uncertain regulations and difficulties for innovation are reasons for Tokyo's relatively low ranking as a financial center.

- Scores based on financial center ranking, regulations, and innovation
- The lower the score, the more attractive the city is as a fintech hub



3. Functionality of cities worldwide as fintech hubs

Tokyo ranks fairly high in terms of government support but not notably higher than other cities in terms of other indicators. No matter how much government support increases, the city's fundamental problems as a fintech hub are unlikely to be resolved.

- Assessment of fintech developments
- The higher the score, the more capable the city is of being a fintech hub

	Gov't support	Culture of innovation	Labor market	Consumer acceptance of FinTech	Entry by overseas startups	Regulations
Tokyo	4	3	3	3	3	3
Shanghai	4	4	4	5	3	3
Hong Kong	2	5	4	5	5	3
Singapore	5	4	5	4	4	5
London	5	4	5	5	3	5
New York	5	5	4	5	1	3
Silicon Valley	2	5	4	5	5	3

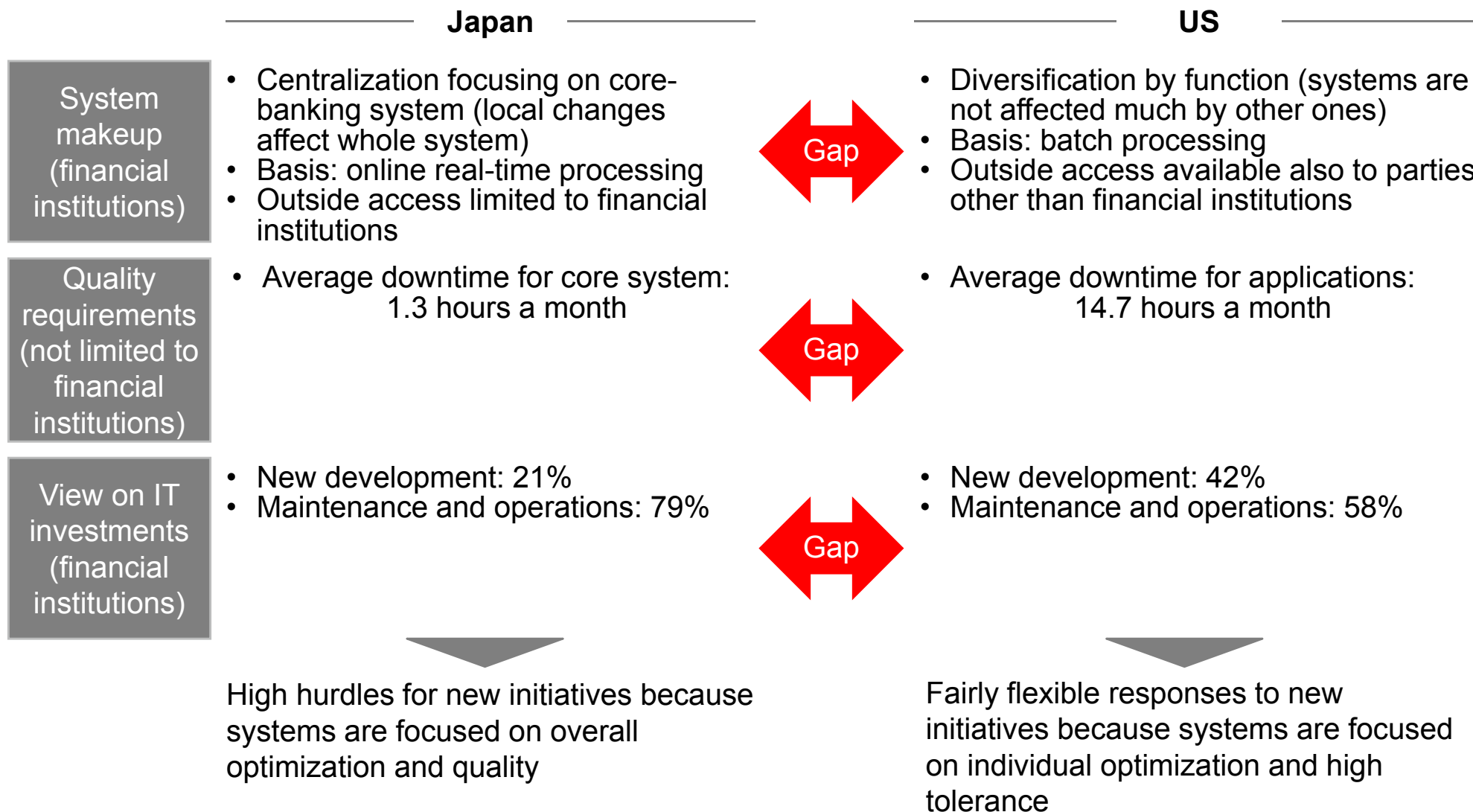
4. How developed U.S. banks' fintech is

Financial institutions that are at the forefront of fintech in the U.S. have developed and adopted fintech on their own and are thus at a stage of generating results much faster than Japanese financial institutions.

	US		
	JPMorgan Chase	Goldman Sachs	
Data use	<ul style="list-style-type: none"> Partnership with Intuit, a leading accounting software company Accepts data access through APIs from outside of the bank 	<ul style="list-style-type: none"> Job reductions through the use of AI <ul style="list-style-type: none"> Reduced cash equity traders from 600 to 2 over this 17 years Internal use of Kensho (data analysis software) 	<ul style="list-style-type: none"> Financial institutions that are at the forefront of fintech in the U.S. have gone from trials to actual use.
Customer data	<ul style="list-style-type: none"> Partnership with OnDeck, an online lender Possible to examine 4 million companies for loans within 1 business day with its unique credit scoring 	<ul style="list-style-type: none"> Establishment of Goldman Sachs Bank <ul style="list-style-type: none"> The internet banking that accepts deposit of 1 dollar Investment on Symphony, a chat service provider among traders, and adoption by its own traders 	<ul style="list-style-type: none"> Japan trails in terms of pace of execution; many initiatives in Japan are still in the testing phase
Foundation for supporting FinTech	<ul style="list-style-type: none"> Systems engineers: 40,000 Development of its own blockchain platform (Quorum) 	<ul style="list-style-type: none"> Systems engineers: 9,000 (one third of all employees) Possession of blockchain development function 	<ul style="list-style-type: none"> U.S. financial institutions hire many system engineers so that they can work on their own development efforts. High-level technologies, ability to develop blockchain platforms

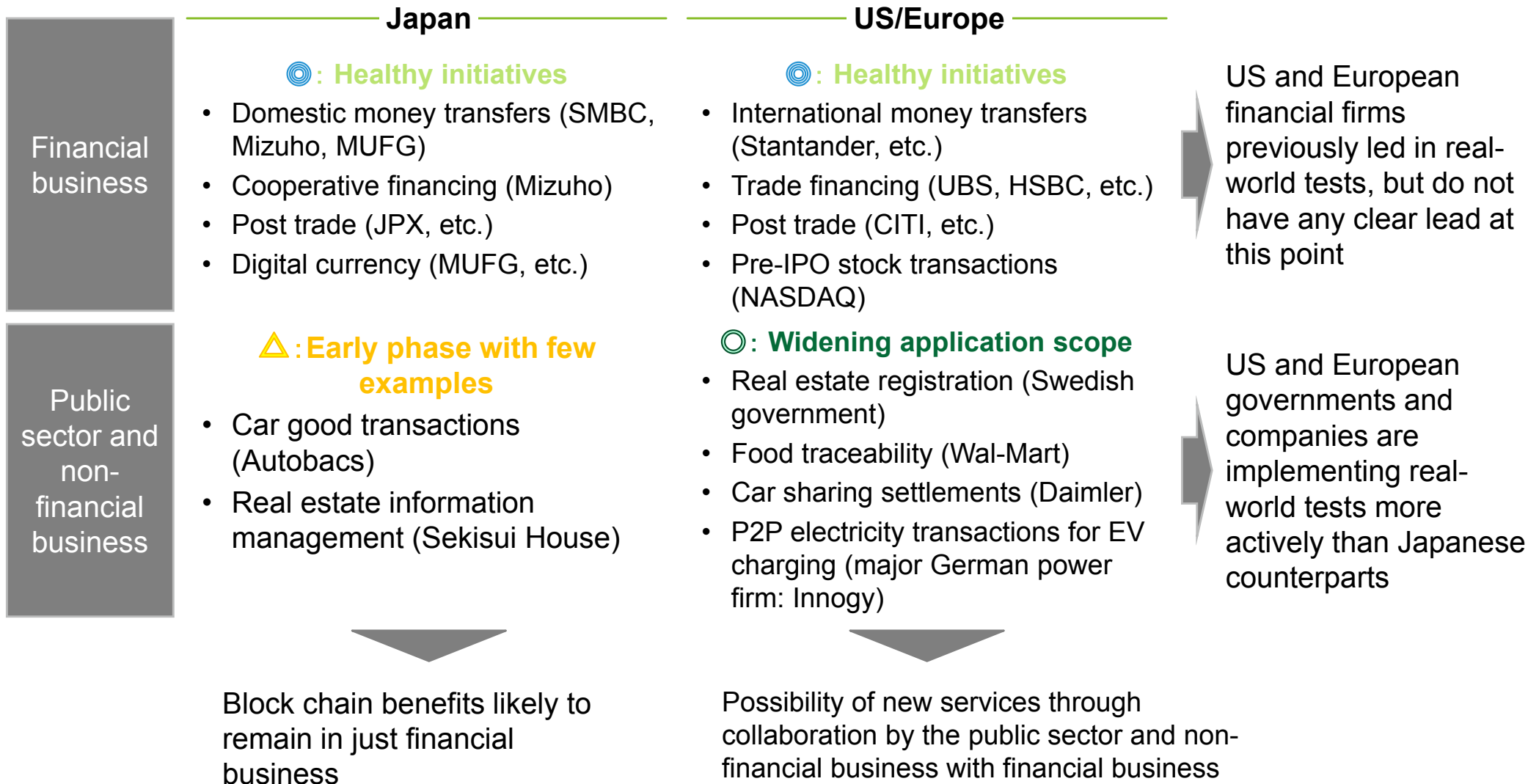
5. Differences in views on systems in Japan and the U.S.

Japanese systems have robust barriers because of high system requirements. As a result, response to fintech and other new initiatives (in terms of speed and costs) is weak.



6. Initiatives with block chain

In the US and Europe, utilization is proceeding in the public sector and among non-financial businesses and an environment favorable to formation of an eco-system, including financial businesses, is taking shape. Differences might emerge in eco-system initiatives in the future as a result.



7. Legal developments regarding APIs in various countries

Developments are under way overseas, particularly in Europe, on laws applicable to payment intermediaries. One reason is that the view that authority over personal data and its use lies with individuals is particularly strong in Europe.

US

- **There are no laws directly regulating payment intermediaries.**

- However, the Bank Service Company Act possibly applies to agents that has concluded a partnership agreement with a bank
 - The law stipulates that inspections and regulations equivalent to banks will be imposed on contractors that provide services to banks under contract.

Europe

- **Definition of new business classification, adoption of regulations on intermediaries**

- PISP (Payment Initiation Service Provider) and AISP (Account Information Service Provider) are defined under PSD2 (Revised Payment Services Directive).

	PISP	AISP
Service	Transmission of payment instruction by user's request	Provision of account information to users
License/Registration	License	Registration
Financial requirements	Capital € 50,000 or more	None

- **Enactment of rule apportioning intermediaries' and banks' losses, requirement that banks respond to intermediaries' connection requests**

Singapore

- **Moves to enact laws to cover various types of payment-related businesses**

- MAS announced the consultation paper including introduction of payment control framework in activity-base (August 2016).
- Considering the following businesses as subject to regulation
 1. Issuing and maintaining payment means
 2. Acquiring business of payment transaction
 3. Funds transfer
 4. Operation of payment platform
 5. Integration of information on bank accounts and payment means
 6. Operation of payment system
 7. Prepaid card business
- Current regulation is divided into payment system law and money exchange & remittance business law

8. Changes to Banking Act for formation of API ecosystem

Changes to the Banking Act to make it easier for financial institutions and fintech companies to offer services using APIs and to form an API ecosystem with an expanded arrangement for protecting customers using these; however, unlike in Europe, weak awareness of the use of customer data and sensitivity to risks are concerns

Back ground

■ Formation of an API ecosystem by banks and fintech companies a roadblock

- API is a data connection specification for enabling data exchange between internal and external systems. With using financial institution's data through API by FinTech companies and customers, both financial institutions and FinTech companies can create new value.
- On the other hand, when providing services using the API, there are many uncertainties such as legally vague roles and responsibilities of financial institutions and FinTech companies so that the ecosystem formation does not proceed.

■ Proliferation of services with insufficient security and consumer protections

- Services such as personal finance management (PFM) depend on screen scraping (keep ID / PW from customers and read the screen of financial institutions) because the legal positioning of services utilizing API is not clarified.
- Services are expanding while security and customer protection issues are not solved

■ Financial System Council's Working Group on the Financial System proposes legislation (December 2016)

- It is pointed out that institutional framework is needed to make it possible to proceed open innovation soundly and appropriately while seeking to protect users.

Major changes

■ Definition of electronic payment processors and adoption of registration system for electronic payment processors

- The following tasks are defined as the substitution business of electronic payment;
 - To transmit the instruction of payment transaction to the bank under the depositor's consignment
 - To transmit the account information from the bank to depositor

■ Development of regulations on electronic payment processors

- Measures concerning user protection / organizational control / security management
- Concluded a contract with banks on sharing of indemnity liability

■ Development of regulations on banks

- Creation and publication of standards concerning the conclusion of contracts with substitution agencies of electronic payment
- Prohibition of unfair discriminatory handling against substitution agencies of electronic payment

9. Changes to Payment Services Act to include regulations on virtual currencies

The Payment Services Act was amended to clarify the legal status of virtual currencies, for the first time in the world, and enact responses to virtual currency companies. A framework for protecting consumers was developed, and virtual currency transactions have been promoted. With further developments, growth in initial coin offerings using virtual currencies is likely to be sound.

Back ground

■ Insufficient protections for consumers

- As there is no regulation for the companies dealing with crypto currency, it was happened that the customer's assets were lost due to the collapse of the crypto currency exchange office such as Mt. Gox.

■ Money laundering risks

- Because identity verification is insufficient and there is no mechanism for the authorities to grasp suspicious transactions, the money laundering risk in crypto currency transactions is increasing
 - ⇒ The Financial Action Task Force (FATF) announced guidance for registration and licensing of crypto currency exchange offices as well as the identification of customers

Major changes (April 2016)

■ Definition of crypto currency

- Defined as a property value that can be used (settled) for purchasing goods or can be exchanged (purchased) to cash with an unspecified majority as a counterparty. A currency-dominated asset are excluded.
- It is different from a currency or an electronic money.

■ Regulations on crypto currency companies

- Registration is required as a virtual currency exchange companies
- The asset isolation and accounting audit are mandatory to manage customer information safely as well as protect customer properties

■ Designation of crypto currency companies as a specified business operator under the Act on Prevention of Transfer of Criminal Proceeds

- Same as the case of banks and money transfer companies, it specifies to take measures against money laundering such as identity verification and authority reporting of suspicious transactions based on Act on Prevention of Transfer of Criminal Proceeds.

■ Regulations on authorized payment service companies

- It is designated as “certified payment business association” that the industry group that provide guidance and recommendations to member companies.
 - ⇒ The Cabinet Office Ordinance stipulates that the certified payment business association determines crypto currencies which can be listed in crypto currency exchanges.

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