





#### 28<sup>th</sup> ASEAN+3 Bond Market Forum (ABMF) Meeting And relevant meetings

18-21 June 2018 / Seinan Gakuin University, Fukuoka City, Japan

#### DAY 1 - 18 JUNE 2018

VENUE: MULTI-PURPOSE HALL, 1<sup>st</sup> Floor, Centennial Hall

#### How financial innovation can link and integrate Asia?

Emerging financial innovation to support intraregional trade and investments: business application in Japan and Asia

Jointly Hosted by

APEC Business Advisory Council/Asia Pacific Financial Forum, Kyushu University, and ADB

TIME	PROGRAM			
08:30 - 09:00	Registration			
09:00 – 09:15	Welcome Remarks by Mr. Yutaka Aso, Chairperson of Fukuoka Directive Council, Chairperson of Kyushu Economic Federation / Chairman of ASO Cement Co., Ltd.			
09:30 – 09:50	Keynote Address: How can Fintech be harnessed by regulators? by Mr. Motonobu Matsuo, Deputy Director-General, FSA			
09:50 – 10:20	Session 1: Fintech and financial service in global context by Mr. Chikahisa Sumi, Director, Regional Office for Asia and the Pacific, IMF - How technology is changing financial landscape? - How technology can support developments?			
10:20 – 10:50	Session 2: How financial innovation can link and integrate Asia? by Mr. Satoru Yamadera, Principal Financial Sector Specialist, ADB - Asia is moving from manufacturing base to consumer markets - Dynamics of convergence and divergence in the region - How financial innovation can help integrating Asia?			
10:50 – 11:05	Coffee Break			
11:05 – 12:10	Session 3: Crypto-currency: How real? How useful? Crypto-currency and Exchange (30 min): - What is its function? What went wrong? What has improved? by Mr. So Saito, Representative Lawyer, So Law Office and Legal Advisor to Blockchain Association Can central bank issue a crypto-currency? (30 min) - Distributed Ledger technology (DLT) to support issuance by Mr. Kazumasa Miyazawa, COO, Soramitsu Q&A moderated by ADB (10 min)			

12:10 – 12:45	Session 4: Fintech and Trade and Supply Chain Finance - DLT to support trade finance by Dr. Julius Caesar Parreñas, Coordinator, Asia-Pacific Financial Forum (APFF) and Senior Advisor, Mizuho Bank Ltd. Mr. Thomas Olsen, Partner, Bain & Company Mr. Boon-Hiong Chan, Director, Head of Business Control Unit & Market Advocacy, APAC, Deutsche Bank
12:45 – 14:00	Lunch (Reception Hall, Seinan Community Center)
14:00 – 14:40	Session 5: Finance without collateral: building trust with technology Auto finance without collateral: case study in the Philippines by Mr. Kazumasa Nakashima, Executive Officer, Global Mobility Service Inc.
14:40 – 15:20	Session 6: Open Application Programing Interface to improve banking service - Case studies in Japan and possible cross-border application - Financial service and application of artificial Intelligence By Mr. Junichi Kanda, Executive Officer, Money Forward Inc.
15:20 – 15:40	Coffee Break
15:40 – 16:50	<ul> <li>Session 7: Panel Discussion: Technologies beyond borders. How we can harness new technologies to integrate Asia?</li> <li>Changes in financial landscape: impact of Fintech and Artificial Intelligence</li> <li>Technologies beyond borders: impact on Asia and challenges</li> <li>What is necessary to harness the technologies? What is the role of regulators?</li> <li>What is the role of standardization?</li> <li>Practical implementation challenges in emerging markets</li> <li>Panelist:</li> <li>Ms. Karla McKenna. Chair of ISO/TC 68 Financial Services, International Organization for Standardization (ISO)</li> <li>Mr. John Turner, CEO, XBRL International</li> <li>Mr. J. C. Parenas, APEC Business Advisory Council/Asia-Pacific Financial Forum</li> <li>Mr. Kazumasa Nakashima, Global Mobility Service Inc.</li> <li>Mr. Junichi Kanda, Money Forward</li> <li>Ms. Julia Walker, Head of Market Development, Risk and Regtech, Asia-Pacific, Thomson Reuters</li> <li>Moderator: ADB</li> <li>Q&amp;A</li> </ul>
16:50 – 17:00	Closing Remarks by ADB

## **Japanese Fintech Policy**

## -promote innovation and consumer protection

June, 18 2018

### Motonobu Matsuo

Deputy Director-General Planning and Coordination Bureau Financial Services Agency (FSA) of Japan



\* Views are the speaker's and not necessarily identical to those of the FSA.

### 1. Nature of ongoing changes?



- What are your thoughts on the likelihood of such a transition?

- What other changes are occurring, or are likely to occur?

### 2. Shared value created with FinTech?

One-size-fits-all products driven by supply-side logic *B2C BUSINESS MODELS* 



Creating shared values based on customer information *C2B BUSINESS MODELS* 

- Offer only limited financial products
- Rely on entry-point analysis and, due to moral hazard and information asymmetry, serve narrower range of customers at higher interest/premium/fees
- No advice or incentive provided to attain better customer lifestyle/business operation.

- Offer combination of financial and nonfinancial services
- Rely on ongoing monitoring, attain more accurate assessments of customer conditions and serve wider range of customers at lower interest/premium/fees
- Provide advice and incentives for better lifestyle/business operation

- What do you think about the possibilities of creating values with FinTech?
- What other values can FinTech create?

### 3. Key players – Would infrastructure continue to protect incumbents ?



### 4. Future shape of financial network?



- What are your expectations on the future shape of financial networks?

- What will be the factors determining the direction of change in the networks?

### 5. What should regulators aim for?

Regulators should be guided by their ultimate goal of best promoting national welfare by contributing to the sustainable growth of the national economy and wealth



What are your thoughts on the above elements?What other perspectives should be considered?

Based on the growth of FinTech innovation, regulatory framework is partially amended to adapt underlying Fintech environment, while consumer protection is properly ensured.



- Amended the Banking Act and Payment Services Act, etc. (May 2016)
  - Enable and facilitate financial group firms to <u>invest in finance-related IT</u> <u>start-up companies</u>
  - Establish a registration requirement for <u>virtual currency</u> <u>exchangers</u>
- The Act to partially amend the Banking Act (May 2017)
  - Facilitate <u>open innovation</u> between financial institutions and FinTech firms by utilizing <u>open API</u> architecture, while user protection is properly ensured.

#### Overview of the Financial System Council report

#### from the "Working Group on the advancement of settlement services, etc." (Virtual currency-related)

International key component for countermeasures against money laundering and terrorism financing

- **G7 Elmau Summit Leaders' Declaration (June 8, 2015)** "We will take further actions to ensure greater transparency of all financial flows, including through an appropriate regulation of virtual currencies and other new payment methods."
- FATF (Financial Action Task Force) Guidance (June 26, 2015) "Countries should impose a registration or license system on exchanges that exchange virtual currency and legal currency, as well as imposing money laundering and terrorism financing regulations such as identity verification of the customers "

### Occurrences of bankruptcy incidents at exchanges

- Excessive liabilities
- The held funds or bitcoins are far less than the deposited funds and bitcoins by users
- In addition, generally, potential risks of damages to users due to lack of information, and leakage of user information

Regarding exchanges which exchange, etc.. virtual currencies for legal currencies, it is believed an institutional framework should be established from the viewpoint of regulating money laundering and the funding of terrorism, and the protection of users.

#### Institutional framework proposed by the report

### Money laundering, terrorism funding regulations

- User Identity verification obligation (when opening an account, etc.)
- Production and storage of user identity verification and transaction records
- Reporting of suspicious transactions to the authorities
- System establishment (establishment of company regulations, implementation of training, appointment of supervisors)

#### Regulations for user protection

- Introduction of registration system
- Measures for user protection (information provision, internal management, etc..)
- Separate management of cash & virtua currency
- Financial regulations
- External audit (separate management, 
   financial statements)
- Information safety management (security measures, etc..)
- Production and storage of books and documents, provision of business reports
  - Supervisory measures (requirement of reports, inspections, business improvement / stop orders, registration revocation)
- Development of financial ADR systems
  - Development of systems concerning voluntary regulations,

Measures taken for Virtual Currencies (VC)

Introduced registration system for VC exchangers that exchange VCs and fiat currencies

### > AML/CFT perspective

- Customer identification/verification
- Creation and preservation of customer verification and transaction records
- Reporting of suspicious transactions to the competent authorities etc.

### Protection of customer confidence

- Explanation and provision of information to customers (characteristics of VCs, their services, etc.)
- Capital requirements (minimum capital, minimum net assets)
- Segregation of their funds/VCs and those of their customers, etc.

#### After implementation (amendment)



• Develop and publish a rule of sharing responsibility between both parties if customers incur losses

**Open API:** Publicly available application programming interface, creating an environment in which a wide range of FinTech companies can connect to financial institutions' systems while ensuring the information security of customers

#### Changes in the circumstances surrounding the financial system

- > Development of information technology (IT) has encouraged unbundling of financial services and rebundling of multiple services
- > Shadow banking—credit intermediation involving entities and activities outside the regular banking system—is globally on the rise
- As the financial landscape changes, many financial institutions are working to reconstruct their business models—should regulations exist which may have the unintended consequences of impeding reasonable efforts, such regulations will need to be modified
- > The emergence of digital currencies and their practical use in the future may bring about a drastic change to the financial system

#### Current financial regulations—features and issues

- 1. Most financial regulations have been based on types of entities (i.e. banking, securities and insurance sectors). If the sectors of the entities in question are different, applicable regulations will be different even if the functions and risks associated with their activities are similar.
  - This could undermine the provision of new services spanning several sectors
  - This could allow entities to circumvent financial regulations (regulatory arbitrage)
- 2. Common fundamental concepts and rules in the financial field are not fully established
  - When a basic concept such as "money" changes, respective sector-specific regulations need to be modified
- 3. Respective sector-specific regulations could contain provisions not reflecting changes including the development of IT
  - This could impede streamlining of the financial businesses taking advantage of the development of IT

#### Points to consider

- **1.** Apply the same regulations to the activities with the same functions and risks
  - Financial functions could be categorized into "Payment and Settlement," "Lending," "Investment," "Risk transfer," etc. and regulations should apply according to the functions and risks associated with the activities

### **2.** Adopt cross-sectoral common fundamental concepts and rules in the financial field

- Common definitions in the financial regulations should be adopted
- **3.** Consider cross-sectoral review of the financial regulations to accommodate changes in the circumstances surrounding the financial system

## **Supporting innovation**

- "FinTech Support Desk" (established in Dec 2015)
- Works as a one-stop contact channel for FinTech businesses
- Answers FinTech startups' inquiries within 5 working days on average
- Received 222 inquiries since its inception till end-June 2017,
   12 inquiries per month on average

"FinTech Support Desk" (consultation desk) (established in Dec. 2015)

- Work as a one-stop contact channel for FinTech businesses
- Answer FinTech startups' queries within 5 working days (on average)
- Received 222 inquiries since its inception till end-June 2017 (12 inquiries per month on average)

"FinTech PoC Hub" (innovation hub) [established in Sep. 2017]

- Aim to support innovative projects that lead to user convenience and/or productivity of companies in Japan.
- For each selected proof-of-concept (PoC) project the FSA will set up a special working team, in cooperation with relevant authorities as necessary.
- A special working team will continually support a project by giving advice on issues related to compliance and supervision etc., that participants of a PoC project would like to clarify.



### FinTech and Financial Service in Global Context



## **Outline of Presentation**

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- **1**. FinTech for Sustainable and Inclusive Growth
- **2.** Risks Associated with FinTech
- **3**. Conclusions and Policy Messages

# FinTech for Sustainable and Inclusive Growth

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## How FinTech could Change the World – Potential Benefits



Blog by Managing Director Christine Lagarde "An Even-handed Approach to Crypto-Assets" (April 16, 2018)

Fast, Inexpensive Financial Transactions

- Crypto-assets enable fast and inexpensive financial transactions, while offering some of the convenience of cash
- DLT could help financial markets function more efficiently

#### A Better Balance and Diversification

- A better balance between centralized and de-centralized service providers
- Diversification of the financial landscape
- A financial ecosystem that is more efficient and potentially more robust in resisting threats

## IMF's Role in FinTech

- "It is our job to monitor the economies and financial systems of our 189 members, help them build institutional capacity, and offer advice on improving policies and regulatory structures."
- "We must guard against emerging risks without stifling innovation...

...We shouldn't put off action until the answers become completely clear. Instead, we must begin to consider the regulatory framework of the future."



### Financial Inclusion is Progressing Rapidly and Globally







Source: 'Financial Inclusion in Asia-Pacific' (IMF, 2018: Forthcoming)

## **Technology Supports Inclusion**



## **FinTech's Broader Implications for Payments**

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### Current

#### Account-based

• Involve the transfer of a claim on balances recorded in an account maintained with an intermediary

### Future? *Token- or Value- based*

• Involve the transfer of a payments object



#### The two-systems differ in:

Identification requirements (counterparty vs. object) Verification mechanism (centralized vs. decentralized)

## Payment Optimization through the Usage of DLT

(12)»

	Current International Payment (e.g. Japan →US )	New Payment (e.g. Ripple)	USD 6	per Pa \$5.56	yment
Time	3-5 days	Instant, On-Demand	5		-60%
Transmission Fee	20-65 USD per transmission	?	3 —		
FX Margin	0.7-2.5 percent	?	2 —	Pa	\$2.21
Relationship with Correspondent Bank	Fixed	Optimized	1	Tr	easury concilation
Text/Information Accompanied with the Transfer	SWIFT	API-based messaging module	0	Today	ceivin <mark>g Fees</mark> Ripple







Note: Original data from Gartner 'Forecast: Enterprise IT Spending by Vertical Industry Market, Worldwide, 2014-2020, 1Q16 Update', April 2016 Source: Accenture

## **Introduction of Central Bank Digital Currencies**

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#### **Outstanding Issues**

- Balance of benefits and costs is still being analyzed
- Resolving coordination problems between private networks
- Reducing the risk of single point of failures
- Retaining control of monetary policy

# Risks Associated with FinTech... and Ways to Mitigate the Risks

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## How FinTech could Change the World – Potential Risks

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Blog by Managing Director Christine Lagarde "Addressing the Dark Side of the Crypto-World" (March 13, 2018)

New Vehicle for Money Laundering and the Financing of Terrorism

- Crypto-asset transactions are given an element of anonymity
- e.g. At AlphaBay, the largest online criminal marketplace, more than \$1 billion had been exchanged through crypto-assets before the site was taken offline

#### New Vulnerabilities

- The extreme volatility in the crypto-assets' traded prices
- The crypto-assets' ill-defined connections to the traditional world

## How could FinTech Reshape the Landscape?

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#### Three Distributed Ledger Technology(DLT)-based scenarios

#### **Back-end processes**

- Efficiency gains from payments tracking, accounts reconciliation, and liquidity optimization
- Small impact

#### Compliance

- Large savings from compliance costs with information sharing (Know-Your-Customer utilities and digital identities
- Some impact with new entrants

### Means of payment (Crypto-Assets)

- New networks enables faster, traceable, and low-cost payments
- Central Bank Digital Currencies bring trust, stable FX rates, and interoperability
- Significant impact

#### **Potential Disruption**



## **Crypto-Assets as Money**

## Legal perspectives

- > The power of the state to regulate the monetary system
- > The concept of "legal tender"
- The legal status reinforces or reduces the network effect of incumbent currencies
- > But the law cannot be divorced from the economics

## • Economic perspectives

- Store of value; medium of exchange; unit of account
- What determines the value: investor/user "beliefs" or "expectations"
- Track record helps anchor such beliefs: gold, or wellestablished fiat currencies
#### **Questions to Address**

**1**. Will crypto-assets play fuller functions of money?

- **2**. What are the implications for payments and the creation of money?
- **3**. Will monetary policy remain effective in a world populated with crypto-assets?
- 4. How should central banks respond?

#### **Traded Volume by Fiat Currency**







#### Will Valuation Become More Stable?

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- Academic research\* shows that over time, the exchange rates of crypto-assets may become less sensitive to the impact of shocks to speculators' beliefs
- "Stable coins" are being created
  - > Valuation pegged to existing well-established fiat currencies
- "Algorithmic central banking" coins are also being designed
  - Solution Structure Stru

Note: e.g. Bolt and van Oordt 2016

#### **Risk-Adjusted Returns (Sharpe Ratio)**

Annualized Sharpe Ratio of the Selected Asset Classes







#### **Implications of FinTech**

- Regulators may need to complement their focus on entities with increasing attention to activities
- Need for greater international harmonization between regulatory frameworks
- Governance needs to be strengthened
- Policy options to support open networks could be considered
- Legal principles need to be modernized





### **Policy Messages**

- FinTech should be included as part of financial inclusion strategies with focus on closing digital/inclusion divides
- Need right balance for FinTech regulations between innovation and stability
- Synergies between technology infrastructure and financial inclusion are important
- Encourage "social experiment" in pursuing financial inclusion
- Better and broader data on financial inclusion, including FinTech activities, should be build

## How financial innovation can link and integrate Asia?

Satoru Yamadera Principal Financial Sector Specialist, ERCD, ADB

ABMF Conference: How financial innovation can link and integrate Asia? 18 June 2018 in Fukuoka, Japan  Asia: from Production Base to Consumer Markets

- How financial innovation can link and integrate Asia?
- Outline of the conference



## Asia: from Production Base to Consumer markets



## Asia in Global trade

## The share of Asia is more than 1/3, larger than US and Euro Area



Note: Weights are based on gross national income in current US dollars, Atlas method. Source: ADB. 2017. *Asian Development Outlook 2017*. Manila

# From a factory of the world to consumer markets of the world

Though interregional trades of East Asia has been comparable with EU, most of final goods had been exported to the US and Europe. But now the No.1 destination of consumption goods is Asia.



-ASEAN+3 -US -EU

資料:ADB

#### **ASEAN' Major Trading partners**

The shares of China and ASEAN are increasing while the share of Japan is declining



### Increasing growth of China and ASEAN

GDP at PPPs (in constant 2016) \$Bn



Source: PWC. 2017. The long view: how will the global economic order change by 2050?



#### **ASEAN is rapidly catching up** GDP(PPP) per Capita and Japan's Growth



Source : ASEAN-Japan Center. 2017. ASEAN Information Map

A

# Share of intra-regional baking is also increasing

## International claims on emerging Asia-Pacific USD bn



## **Growing but diversified Asia**

#### **Human Development Index**



Development Indicators(2017), http://hdr.undp.org/en/data

## **Asia: Opportunities and Challenges**

- East Asia is rapidly growing.
   Global economic center is shifting to Asia.
- The region needs to be more integrated to continue the growth.
  - TPP, RCEP, ASEAN Economic Community to expand the markets.
- However, Asia is heterogenous.
  - Different levels of economic development
  - Different currencies and economic policies
  - Languages
  - Culture and Religions
  - Social and legal frameworks



## How financial innovation can link and integrate Asia?



# Technologies to overcome the challenges

(Economic variance)

- Wider different level of economic developments
- Different currencies and economic policies
  - Technologies to change conventional ways of finance
  - More efficient payment systems
  - Better access to finance

(Social and cultural variance)

- Languages
- Social and legal frameworks
- Culture and Religions

Accepting the differences but making inter-operable environment with standardization

## Sources of working capital in developing Asia, by firm size



Source: ADB. 2015. Asian Development Outlook 2015. Philippines

## % of firms reporting that financing required collateral



LAC = Latin America and the Caribbean, MENA = Middle East and North Africa, SSA = Sub-Saharan Africa.



## Active E-Commerce and M-Commerce Penetration, 2017

% of Total population



Source: AJC compilation, based on We Are Social (2017), https://wearesocial.com/ 注:2017年1月現在 /Note: As of January 2017

Source: ASEAN-Japan Center. 2017. ASEAN Information Map

## **Mobile Cellular subscriptions**

High level of mobile phone usage can be a key.



Source: AJC compilation, based on World Bank, World Development Indicators (2017) http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators#

### What is Fintech?

Technologies to improve:

- functions of money
  - Cheaper, more convenient means of payment
- function of banking
  - More efficient matching between borrowers and lenders
  - Evaluating credit-worthiness by non-financial data
- Function of organized markets
  - Wider participants and much faster matching
  - transparency
- Efficiency of business operations
  - Robotic Process Automation
- Exponential growth of data and expansion of network
  - Physical form to digital data
- Advanced network and dynamic analysis
  - Much faster data analysis
  - Real-time analysis

## Technologies to overcome heterogeneous Asia

#### •Hello

- Magandang umaga po
- •Xin chào
- •您(你)好
- สวัสดีครับ
  ชำบายบ
- ជំរាបសួរ
- Selamat siang
- •こんにちは
- •안녕하십니까



- Technology to support inter-operability in different markets.
- Standardization to support communication

<name>Yamadera, Satoru</name><name>ヤマデラ サトル</name><name>山寺 智</name>

## Standardization as an soft infrastructure to integrate the economies



Source: http://5stardata.info/

Standardization needs to be considered as a basic infrastructure to be implemented along with economic developments.

## **Standardization in Asia**

• Standardization can be considered at global, regional and national level.





### ASEAN+3 regional cooperation and Asian Bond Markets Initiatives (ABMI)

- Lessons from the Asian Currency Crisis.
- ABMI to mitigate currency and maturity mismatch.
- Better utilization of Asian savings for Asian investments.
- Financial stability by creating multiple channels of financing.



#### Institutional Framework of ASAEN+3 financial cooperation



### **ASEAN+3 Bond Market Forum as an enabler of market integration**



 ABMF is the only regional platform to discuss various issues among Private and Public sector experts.
#### **Outline of the conference**



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### Emerging financial innovation to support intraregional trade and investments

Business application in Japan and Asia

- 1. Crypto-currency: How real? How useful?
- 2. Fintech and Trade and Supply Chain Finance
- 3. Finance without collateral: building trust with technology
- 4. Open Application Programing Interface to improve banking service
- 5. Panel discussion

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Thank you syamadera@adb.org



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### Role of Crypto-currency Exchange and Japanese VC Act

SO SAITO FOUNDER AND REPRESENTATIVE LAWYER SO LAW OFFICE JUNE 18, 2018

#### Speaker's biography

Admitted to the bar in Japan (1999-) and in the State of New York (2005-)

Founder and representative lawyer of So Law Office (2015-) Legal Advisor to Japan Blockchain Association (JBA) (2014-) Specialized in Crypto-related law since 2013

#### Today's lecture content

- -The role of the virtual currency (VC) exchanges
- -Japanese VC Act and regulations
- -Impact on regulations by the Coincheck incident
- Future of Regulation

#### I Role of Exchange

There are mainly two type exchanges

(i) Exchange-type exchange (It matchs sales and purchase order between users)

(ii) Shop-type exchange (It itself sells and purchases crypto)

#### Role of Exchange – Exchange-Type Exchange

Exchange type exchanges



#### Role of Exchange – Exchange-Type Exchange

#### **Exchange-Type exchange**

- (i) Keeping users' fiat and VC under custody
- (ii) Matching of buying and selling of VC between users
- (iii) Settlement of trading

#### Role of Exchange – Shop-Type Exchange

**Shop-Type Exchange** 



#### Role of Exchange – Shop-Type Exchange

#### Shop-Type Exchange

(i) shop itself becomes a counterparty and trades with users

(ii) Often keep users' fiat and VC in custody

#### Role of Exchange - Differences

**Differences between Two Types** 

(Exchange-Type)

- Matching
- Fee is cheaper / More volume

(Shop-Type)

- Direct sale
- More user-friendly (easier to use)
- More alt-coins in Japan

#### Role of Exchange – Outside of Blockchain

Exchanges are outside of blockchain

Hacking to exchange is not a fault of Bitcoin system

However, exchanges play an important role in crypto industry

- Most users use exchanges and keep their VC in exchanges
- Criminal use exchanges for money-laundering

#### Risk of Exchange

Hacking risk Money laundering risk

Regulators want to regulate exchanges

#### **I** Japanese Virtual Currency Act

The VC Act was enacted in April '16 and is enforced in April '17

Introducing "registration system"

#### Japanese Virtual Currency Act

VC exchanges are required to "register" with JFSA

Obligations:compliance officer, KYC/AML, cyber-security, segregation of exchange's asset and users' assets, internal audit, accounting audit, audit on segregation, explanation duty to users, etc.

6 months to 1 year

More than JPY100M cost?

#### Japanese Virtual Currency Act

16 companies have been registered including bitFlyer, Zaif, QUOINE, GMO Coin, DMM Bitcoin, SBI Virtual Currency

4 companies (including Coincheck) are operating under deemed registration (transitional measures)

More than 100 companies are applying

#### Market Entrants from Overseas

There are many applicants from overseas

They are from all over the world including the US, Europe, Russia and former Soviet Union, and China

#### Reasons for entry to Japan Market

- Stability of the law
- Large trading volume
- Bank accounts are relatively easier to open

However, it is in question if the said perceived advantages still remain

#### **Trading Volume of Japanese Exchanges**

#### 国内取引所(JPY-BTC)の総月間出来高(日本円換算、単位:億円)

※差金決済/先物取引を含む



https://jpbitcoin.com/market/volume

#### III Coincheck incident and afterwards

On January 26, '18, NEM equivalent of approximately JPY58 billion was hacked from Coincheck

Coinchek kept all NEM in hot wallet

#### Coincheck incident and afterwards

Coincheck has repaid all stolen loss to its users with JPY (1 NEM=JPY88.5, total 46 billion) from its own asset Many were surprised to find the scale of profitability of exchanges

Monex, a leading online security company, purchased Coincheck

#### Coincheck incident and afterwards

- The FSA's Examination after the Coincheck incident
  - On 1st February, all registered exchanges and deemed registered exchanges were ordered to report on system risks
  - On-site inspection is being conducted first on Coincheck, thereafter on each registered and deemed registered exchange
  - Business improvement order, business suspension order, refusal of registration were issued to exchanges

#### Virtual Currency Act – Review becomes Stricter

Original intention at the time of legislation in '16  $\rightarrow$  Enabling the startups to engage in VC business

Review became stricter in mid 2017 because of surge in VC prices and hardfolk of Bitcoin

•FSA's special monitoring team was formed

 Hundreds of questions are being asked when applying for registration

#### Virtual Currency Act – Review becomes Stricter

Review becomes far stricter after the Coincheck incidents

Security, Advertisement, Operation, Internal Management, Insider, Anti-money laundering, Market Maneuvering

There are no new exchanges nor new coins admitted since last December

#### Coincheck incident and afterwards

- JFSA Workshop on Virtual Currency Exchange Business (April 2018 -)
  - FSA's Research group of experts

Japan Virtual Currency Exchange Association (April 2018 -)

 Established as voluntary self-regulatory organization, but aiming to be legally-mandated SRO. 16 registered exchanges currently join. Scope of self-regulation is being discussed including, security, AML, market manipulation, etc.

#### **IV** ICO Regulation

ICO is abbrevation of "Initial Coin Offering" Fund-raising by selling so-called "coins" or "tokens"

Still remains global hot topics being followed with growing enthusiasm

#### **ICO Regulation**

In December `17 JFSA revealed its view to relevant parties that ICO tokens constitute, to the extent they have the probability of being listed later, "virtual currency"

#### **ICO Regulation**

"Registration of virtual currency exchange business" + "notification of coins" are required for ICO in Japan.

December `17 onwards no ICO was being launched as unequivocally in compliance of the laws.

## **VI** Future Japanese virtual currency exchange industry

The VC Act in Japan was perceived as advanced and forward-looking when published

A lot has happened in one year thus the act started to lag behind the fast-changing reality

### Future Japanese virtual currency exchange industry

As drafted, the law was meant to promote innovation, but as currently operated it is to further regulate the industry

Balance between innovation and regulation No conclusion yet, should discuss

# SORAMITSU <sub>yəsy</sub>

### Can central banks issue a cryptocurrency? Distributed ledger technology (DLT) to support issuance

Kazumasa Miyazawa, June 2018





### Who are we?



# HYPERLEDGER IROHA



## NATIONAL BANK **OF CAMBODIA**



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Creator of Hyperledger Iroha and an active member of the Linux Foundation's Hyperledger Project

We are creating a payment system based on Hyperledger Iroha for the central bank and regulator of the Kingdom of Cambodia

We are a proud member of the Japan **Blockchain Association** 



### Credentials

Founded in February 2016 Headquarters in Tokyo, Japan

Website: www.soramitsu.co.jp

2016



Accepted to final round in Sumitomo Mitsui Financial Group's *Mirai* Business Contest



Presented at the Bank of Japan about KYC and blockchain



Started work with Rakuten Securities on a KYC project using blockchain



Started work with Sompo Holdings on a project to manage weather derivatives on a blockchain



Presented at the Bank of Japan about blockchain



GLOCOM

Started work with the University of Tokyo, University of Aizu, and International University of Japan GLOCOM on a joint economics research project using blockchain



Accepted by the Ministry of Economy, Trade, and Industry to the 2016 Hiyaku venture support program

#### 2017



Started work with the National Bank of Cambodia to create a new payment infrastructure using the Hyperledger Iroha blockchain





Gave a talk about KYC, digital identity, and blockchain to the Institute of International Finance meeting in Tokyo



Presented to the Executives' Meeting of East Asia Pacific Central Banks about blockchain and the possibilities for central bank digital currencies



Accepted by the Ministry of Economy, Trade, and Industry to the 2017 Hiyaku venture support program



### Kazumasa Miyazawa



#### **EDUCATION**

(1980) MBA in Management Systems, Tokyo Institute of Technology

#### WORK EXPERIENCE

(2017 – Present) Soramitsu (Blockchain development company)

(2016 – Present)

(2006 – Present)

(2008 - 2009)

(2010 - 2016)

(2001 - 2009)**Executive Officer** 

(1980 - 2000)

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ISO TC307 Blockchain International Standardization Organization: Committee member

Tokyo Institute of Technology: Appointed Professor, Management Systems

Financial Service Agency (FSA): Financial Council member

Rakuten Edy Inc. (E-money development & operating company): CSO, Executive Officer

bitWallet Inc. (E-money development & operating company): Founder, Managing

Sony corporation: General Manager, IC card division, etc.



### Central Bank Digital Currency (CBDC)

In light of the emergence of new technologies like blockchain and DLT, some argue that a central bank should take advantage of these new technologies and issue central bank digital currency (CBDC) as a substitute for banknotes. Others suggest that a central bank should consider applying those technologies for central bank deposits.

Haruhiko Kuroda Governor of the Bank of Japan October 4, 2017 (emphasis added)

https://www.boj.or.jp/en/announcements/press/koen\_2017/ko171004a.htm/



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# Central Bank Digital Currency (CBDC)

**CBDC** means two ways: everyone has an account at the central bank; and tokens (crypto-asset) which can be circulated.



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### In April 2017, the National Bank of Cambodia and Soramitsu started to create a new payment infrastructure for the Kingdom of Cambodia using blockchain.



First case where overseas central banks adopt Japanese blockchain technology

### Evaluated speed of finality and throughput more than 300 times compared with Bitcoin





A street view of the National Bank of Cambodia headquarters in Phnom Penh. 🔿 Heng Chivoan

### NBC signs blockchain agreement

### Mon, 24 April 2017 Kali Kotoski

The National Bank of Cambodia (NBC) has signed an agreement with a Japanese firm to develop a blockchain-based payment system that could potentially allow for the regulated usage of a cryptocurrency, which would eliminate the use of formal financial institutions to send and receive money.

According to an announcement on Friday from the Japanese financial technology firm Soramitsu Co, the company signed a partnership agreement with the NBC to study the possible implementation of a blockchain-based open-development software known as Hyperledger Iroha, a product backed by the Linux Foundation, a US-based company that distributs the ledger technology program.



## Issuing a central bank digital currency

1. Distributed ledger technology (DLT) can support RTGS and crypto-currency issuance by central banks

2. A common Asian cryptocurrency concept for foreign exchange settlement among ASEAN+3 countries could create great advantages

3. Private or consortium blockchains are better than Public blockchains for the above purposes



## Public, consortium, and private blockchains

### **Classified blockchain types depending on type of system management**

Blockchain type	Public	Consortium	Private
Management entity	none	multiple	single
Participation of validation	Non-permissioned; Malicious actors may participate	Permise Only those permitt	sioned; ed can participate
Approver of transactions	All participants	Only permittee	d participants
		Only permitted actors can participate	agement entities

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Public, consortium, and private blockchains

### **Consortium, Private blockchains have advantages for finality and transaction speed**

Blockchain type	Public	Consortium Private
No. of server variations	Unlimited, huge	Limited, small
Consensus algorithm	PoW (Proof of Work), etc.	BFT (Byzantine Fault Tolerance), etc.
Transaction finality	No Finality	Finality
Transaction time	Long (10 minutes, etc.)	Short (Few seconds, etc.)
Example	Bitcoin, Ethereum, etc.	Hyperledger Iroha, Ripple, Miyabi, etc.

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## **Transaction finality in blockchains**

### Recently, the problem of double spending accompanied by the defect of finality has occurred, such as Monacoin, Bitcoin Gold, Verge.

## **PoW (Proof of Work)**

No limit on the number of participating servers, and each server competes to acquire the right to create blocks respectively.

It is **difficult to secure the finality** of transactions because blocks are generated stochastically and the ledger may temporarily branch.



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## **Byzantine Fault Tolerance**

### When number of Byzantine Fault servers is *f*

According to the latest paper, it is mathematically proved that **Finality** will be secured if 2*f* + 1 of them are agreed upon preparing 3f + 1 servers.



### 3*f*+1 servers required

Guarantees **finality**, if 2f + 1units form consensus



## Public vs. private blockchains for currencies

- Public blockchain does not fulfill the function of currency - Consortium, Private block chain may have both advantage of decentralized
- ledger technology and functionality of currency

Functionality of currency	Public blockchain (ex. Bitcoin)	Consortium, Private blockchain (ex. Hyperledger Iroha)
Medium of exchange	Less acceptance, High exchange cost	Government can manage acceptance and exchange cost
Measure of value	High volatility	Government can control money supply to suppress volatility
Standard of deferred payment	Less acceptance, No guarantee	Government can manage acceptance and provide trust
Store of value	Less acceptance, No guarantee	Government can manage acceptance and provide trust

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## Advantages of consortium and private blockchains for currencies

- Management rules and an upgrade plan can be decided by a government
- Transactions can not be seen without a user's consent or legal process
- In case of trouble, the government can support users

Blockchain type	Public blockchain (ex. Bitcoin)	Consortium, Private blockchain (ex. Hyperledger Iroha)
System Management	Fork rules are decided by a few people like miners and large holders	Rules can be decided by government, but with separation of the powers to avoid concentration of authority
Monetary policy	No Monetary policy, No backed asset	Monetary policy is effective Asset baked by credit creation by government Control Money supply
Transaction privacy	No privacy, sep anyone can access all transaction data	Privacy Protection by access control accessible data range are different by Auditor, Bank, individual
User Protection	Money is lost if key is lost	In case of losing key, account can be recovered by Central Bank
Account Protection	Account can NOT be frozen, in an emergency, e.g., losing cell phone or suspicious behavior	Account can be frozen, in an emergency, e.g., losing cell phone or suspicious behavior

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# **E** CBDC globally

	Approach to Blockchain	Consideration of CBDC
Japan	Financial infrastructure, application process, e-government, data, ID by DLT	"Not at the stage for considering CBDC yet" BOJ fintech center
China	Published "Blockchain Registration Open Platform" for ID, healthcare, food monitoring, etc.	Reported that China has done a PoC of a prototype for CBDC
Cambodia	Joint development project for blockchain and new payment infrastructure	
USA	PoC of voting system, real-estate registration, wealth transfer. Considering Energy, healthcare, logistics, etc.	Exploring the idea of CBDC
UK	One of the most actively involved country in blockchain, e.g., intellectual asset, financial benefit, database	Research and study of CBDC is ongoing, even though no plans to issue it
Estonia	Using Blockchain technologies to reference each other between each ministries, agencies and private sectors	Considering issue of Estcoin, fundraising globally by ICO
Sweden	Officially started registration of properties including real-estate by blockchain	Launched research to study CBDC
Netherland	Developing blockchain-based tax database, infrastructure of water and waste materials; researching legal services	Central bank made trial based digital currency which is internal use, to study crypto currency
Russia	Launched blockchain project of official documents control, voting control and others	Reported that Russian government decided to issue "Cryptoruble"
Dubai	Launched blockchain project for all over Dubai, in health care, ID, increasing liquidity of property, tourism and others	Developing common digital currency in UAE and Saudi Arabia
Uruguay		Launched test working of digital Uruguay Peso
Venezuela		Cryptocurrency, "Petro", backed by reserves of oil, gasoline, gold, and diamonds

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## How about a common Asian cryptocurrency for foreign exchange settlement?

### Advantages of common Asian cryptocurrency vs USD

### USD

Need to hold extra USD cash to settle in NY, due to time lag

Money supply control is difficult

Hedge cost of foreign exchange is expensive Countries with real demand principle can not over hedge

What is required from a technical point of view?

- Cryptocurrency based on a consortium blockchain
- A decentralized exchange platform
- Standardized protocol of interoperability which can connect to other blockchains (InterLedger), etc.

**Common Asian cryptocurrency** 

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No time lag and no need of extra USD reserves

Money supply become more easy

Hedge cost of foreign exchange becomes cheaper



## BUT, a common currency zone has little empirical support for contributing to GDP growth \* (so it is best to be careful about the concept of unified currency zones and maybe rely on markets for providing liquid exchange between currencies)

\* Bermejo Carbonell, J., & Werner, R. A. (2018). Does Foreign Direct Investment Generate Economic Growth? A New Empirical Approach Applied to Spain. *Economic Geography*, 1-32.





## Standardized QR code format

- Proposed standard QR code format to exchange assets among various platform
- Asset, sender, recipient, value and other information are embedded Into QR code using variable-length JSON format



	JSON (JavaScript	Object Notation)		
	Key	Value (e.g.)	Detail	Optional
1	"dlt"	{}	Identifier of "standard QR code for DLT"	No
2	"protocol"	"iroha1.0"	Protocol of DLT: ex. bitcoin, erc20, iroha1.0, etc.	No
3	"asset"	"YEN#money1.aizu.jp"	Asset location: "asset#domain1.domain2.domain3…"	No
4	"recipient"	"account1@bank.aizu.jp"	Address to recipient account (to whom)	Yes
5	"sender"	"account2@bank.aizu.jp"	Address to sender account (from whom)	Yes
6	"command"	"transfer"	Chain code or command of DLT (how)	Yes
7	"value"	"1000" or "ticket1"	Countable or uncountable value for chain code or command (what)	Yes
8	"recipient_name"	"Aizu Taro"	Name of recipient	Yes
9	"sender_name"	"Fukushima Jiro"	Name of sender	Yes
10	"description"	"Bill #00743"	Description of sending or billing information	Yes
11	"options"	{ }	For future use	Yes
		}	<pre>"dlt" : {</pre>	



### **Standard QR code format**



## Vision of the future for blockchain: the "trusted Internet"

### **Internet** :

- Can send "Information" all over the world
- but cannot send "value that cannot be tampered with"

## **Our vision :**

- Interconnect various blockchains like the Internet (interledger)
- Aim to realize a blockchain network that covers the world
- The blockchain becomes a "Trusted Internet" that can send value that cannot be tampered with



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## What do we do?

# HYPERLEDGER IROHA **Blockchain Platform**

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## Hyperledger Project

With well over **230+** member organizations from around the world, including Soramitsu, the Hyperledger Project is working towards creating standards for distributed ledger technology.

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				Gem	f GSX	GLOBAL BLOCKCHAIN Technologies Corp	♥♥ <sup>众享比特</sup> PeerSafe ●●●GI	GM FINANCI	AL
IBM	(intel)	J.P.Morga	n NE	Greenstrea	The Leader in New IT	G X S	33.cn Heatmane block		
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## **DLT Frameworks in Hyperledger**

### - The Hyperledger Frameworks currently has 5 projects, originally proposed by IBM, Intel, Soramitsu, Monax and Evernym/Sovrin Foundation.

Framework name	Original developer	Programming language	Status	Target Market
HYPERLEDGER FABRIC	IBM	Go	Active	B2B
HYPERLEDGER SAWTOOTH	Intel	Python	Active	IoT
HYPERLEDGER IROHA	Soramitsu	C++	Active	B2C
HYPERLEDGER BURROW	Monax	Go	Incubation	Eth users
HYPERLEDGER	Evernym Sovrin Foundation	Python	Incubation	Retail

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HYPERLEDGER

http://iroha.tech

# Hyperledger Iroha

Iroha was originally developed by Soramitsu and open sourced in September 2016. It was accepted into the Linux Foundation's Hyperledger Project as the Hyperledger Iroha framework in October 2016.



## Simple & Fast

Transaction finality achieved within seconds, with thousands of 3 transactions processed per second.

## **Mobile SDKs**

iOS, Android, and JavaScript SDKs are provided to ease development of end-user applications.

## **Asset Management Development partners:**

Assets such as currencies, points, tickets, securities can all be managed using core functionality in Iroha.

## **Use case partners:**







# Advantages of Hyperledger Iroha

## **Open source**

The internal logic is transparent, security evaluation is possible

## High performance

Transaction finality within 3 seconds, Several thousand transactions per second

## Privacy

Privacy protection by access control, accessible data range are different by role

## Security

Multi signature, client wallet, no private key in server, permission model

## Productivity

Command-driven architecture and robust SDKs, designed to increase developer productivity

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## Uses of Hyperledger Iroha

<b>Payments</b>	<ol> <li>National Bank of Cambe</li> <li>University of Tokyo, Aiz</li> <li>crypto-currency</li> </ol>
<b>Digital</b> <b>Identity</b>	3. Rakuten Securities: Poo 4. SORA app: Decentralize
Contracts	5. SOMPO: Contract hand
SCM	6. PAL: Inventory manage

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### odia: New payment infrastructure

### zu-Wakamatsu city: Regional currency,

### C of KYC system

### ed identity platform

### lling automation using smart contract

### ement, Traceability system of foods





### **Digital asset**

### **Digital identity**





- Payments and settlement
- Contract management
- Securities transactions
- Financial securities management
- Supply chain management
- Smart grid

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Supply chain



- Trade finance
- Know Your Customer (KYC)
- Notarization and time stamping
- Sharing economy services
- Medical
- IoT, etc.



# Technical advantage Case study of Hyperledger Iroha

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# **Command driven architecture**

- Without writing code, asset, identity & supply chain management can be done using prepared commands in the data model
- This eases development and increases reliability



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SetQuorum

GrantPermission **RevokePermission** 



# Decentralized permission model

- Decentralized RBAC \* permission model without single point failure
- Separation of three powers can be created to avoid concentration of authority
- Roles and permissions are set determined in the genesis block



\* RBAC=Role Base Access Control



## What do we do?

# Identity & Payments

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Sora is a mobile application to manage self-sovereign identity. The Hyperledger Iroha blockchain is used to store hashes of a user's information; a user's information is encrypted on their device and no data are shared without a user specifically choosing to share it.



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# Case study: Moeka





## Case study: event currency, Moeka

Working with the University of Tokyo, University of Aizu, and International University GLOCOM, we are doing basic economics research using Hyperledger Iroha. A field test of a prototype system for local currencies was field tested in November in Aizu-Wakamatsu City, in Fukushima Prefecture.



### http://www3.nhk.or.jp/news/

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## Creating a currency through social interaction





### 1) User shakes phone





### QR code is displayed (2)



### Other user scans QR code 3)



## Case study: event currency, Moeka



Unified currency zones often favor the municipal areas at the expense of the countryside (Jacobs, 1984). Local currencies can help to motivate efficient utilization of resources in localities.

Moeka was designed around the idea that community interaction has economic value and can be quantified.

To avoid any possible legal complications, Moeka only existed for the short period of the one day event. However, Moeka was not convertible to JPY, so there is a low legal risk if we were to continue the experiment.

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Jacobs, J. (1984) Cities and the Wealth of Nations, Principle of Economic Life. Random House.

# Case study: Byacco





# Case study: regional currency, Byacco

Soramitsu is working with the University of Aizu to create a campus currency, Byacco, that will be used by students in the on-campus store and cafeteria. The currency is completely based on mobile apps. In March a test of the digital currency was conducted and in the Summer the live system will launch.



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	<sup>3 day</sup> 1000円		C Charge
4月1日から「仮想通貨法」が施行されます。ビットコインなどの仮想通貨が正式にお済手段、つまり「お金」として認められるなとになります。さらに仮想通貨を大口で扱い業者は登録制となり、業者が破綻したり許が横行しないように利用者を保護する仕組みをもしていように利用者を保護する仕組みを増にないように利用者を保護する仕組みを増加するという通貨の実証実験を行っています。現金をアプリに事前にチャージしてなくことで、会計をQRコードを読みこむだいで済ますことができます。また「白虎」を作ろうとしており、お金を地域内だけで循環させることが地元の経済活性化につなれるといいます。また	4 day 100円 y   y   y		P Pay
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### http://www.tv-tokyo.co.jp/mv/wbs/market/post\_129389



## Store and end-user apps

http://www.tv-tokyo.co.jp/mv/wbs/market/post\_129389



### Cash register app for stores. Allows creation of new Byacco and receiving Byacco.

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	残高 3821円	
	食堂	1 hour 826円
-	食堂	556円
	食堂	297円
	食堂	453円
	売店	3000F
	売店	20F

### Mobile wallet for end-users.

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## Creating Byacco

http://www.tv-tokyo.co.jp/mv/wbs/market/post\_129389



Byacco is usable as Japanese yen (slightly more buying power than JPY at the school cafeteria, due to a discount), so it is created by exchanging JPY for Byacco at 1:1 at the University of Aizu campus store.



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30

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残高:21900円





OK 1000円チャージしました

ОК





### Spending Byacco is done via scanning QR codes.



http://www.tv-tokyo.co.jp/mv/wbs/market/post\_129389





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(1) Amount to pay is entered in the store's cash register app. The user then scans the QR code.

(2) The user's phone reads the store's address and amount to send and prepares the transaction to broadcast to the Hyperledger Iroha ledger. Digital signing of the transaction is done on the mobile device.





### Phone: 03-5843-8914 info@soramitsu.co.jp Kazumasa Miyazawa | Makoto Takemiya



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APEC Business Advisory Council

### 28TH ASEAN+3 BOND MARKET FORUM (ABMF) MEETING

Seinan Gakuin University, 6-2-92 Nishijin, Sawara-ku Fukuoka 814-8511, Japan 18-21 June 2018

### SESSION 4 Fintech

### and Trade & Supply Chain Finance
## **PANELISTS**:



Thomas Olsen

Partner

**Bain & Company** 



Boon-Hiong Chan Director, Head of Business Control Unit & Market Advocacy, APAC Deutsche Bank

## **MODERATOR:**



Julius Caesar Parreñas

Coordinator

**Asia-Pacific Financial Forum** 

& Senior Advisor

**Mizuho Bank** 

## New technologies have emerged to enable digitalization of Trade

	Pre-transaction		Transaction processing			After transaction	
New technologies	Product selection	Data entry	Workflow management	Document check	Compliance check	Problem resolution	Info & client MI
Optical character recognition (OCR)		Text Recognition from trade docs to minimize data entry		Check for completeness of documents based on transaction/ product type	Scrape docs for AML keyword hit		
Artificial Intelligence (AI)	Intelligent & personalized marketing: Offer new	Populate fields with text extracted from documents (integrate OCR with txn process)		Validate/remediate data with cross- references, machine learning	<b>Contextual filtering:</b> Identify suspicious or unusual activity and	Intel'nt problem resolution: Track indiv. error rates & flag users in need of remediation	
Advanced analytics (AA)	product sales of client promotions based on insights on clients' needs and behaviors	Enhanced KYC (e.g. web scrape)	Efficient process & proc predictive analytics to d	Juctivity monitoring & indicators			Reports enable enhanced operations & strategic decisions
Robotic Process Automation (RPA)			Bridge data flow and of Integrate data from diffe	communication: erent systems into single in	nterface		
Internet of Things (IoT)			Ease of tracking good dynamic pricing & fina shipment events; autor release based on "Sma	s and documents; ancing triggered by nated payments art Contracts"		<b>Track document loca</b> Track goods (location, quality)	tions: volume,
Distributed Ledger Technology (DLT)		Replace document- ation, checks, data entry, validation, with single digital record	It- a Real time <b>verification &amp; reconciliation</b> ; workflow ex contract conditions; with ord Replace payment & funds transfer with cryptocurre		v executed as per smart rrency		

#### Create smart LC as 'Smart Contract' on DL – auto notifications

# DLT will shift trade volumes from Traditional Doc Trade, Open account and bring in new trade



Note: Chart not drawn to scale Source: Bain DLT industry business case model

## Adoption of DLT in Doc Trade Finance will be gradual

#### PHASES OF ADOPTION



**Adoption** 



- Established proof of technology
- Reached broad consensus on full potential benefits
- corporates and select corporate/industry/ Govt. led DLT platforms
- industries
- Adoption across multiple Corporate/ **Gvmt./ Industry led** platforms
- Potential consolidation of DLT platforms

## Doc Trade volumes are primarily from APAC

#### VOLUME EVOLUTION

## 70% of LCs issued in Asia Pacific

Volume of mt700 messages (2016)



## Import: top 15 countries issuing import LCs

Volume of import MT700 messages (K, 2015)



## Export: top 15 countries advising export LCs

Volume of export MT700 messages (K, 2015)



Countries included in Asia Pacific

Source: ICC Global Trade & Finance survey 2017; SWIFT Trade Traffic in Figures MT Category 7 Enhancements Overview (Jul 2016), SWIFT Update IIBLP - 2014 Annual Forum/Survey

# Driven by Asian demand, DLT in Doc Trade volumes expected to increase gradually over next 10 years

Doc Trade (Traditional & DLT) volume



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## Adoption of blockchain solutions can be accelerated by ecosystem drivers



#### regulators (of major trading hubs)

- Regulatory enforcement by major trading hubs to encourage DLT
  - E.g. regulations on digital signatures, digitization of ports, customs agencies etc.
- Favorable regulations on CAR, NSFR etc. for DLTenabled TF
- Commercialization of Govt.-led DLT initiatives
  - E.g. HK/SG introducing GTCP

Other new technologies



Maior trade banks

- Accelerate DLT investments to move from POCs to commercialization of major DLT consortia
- Quickly converge on ٠ set of standards
- Migrate volumes in major trading corridors to DLT, offering enhanced value proposition (forcing other
  - banks to switch)



providers Invest in •

- compatibility of current systems to DLT solutions, in their **product** roadmaps
- E.g. BankTrade, Surecomp, Misys etc. upgrading TF solutions for banks
- E.g. SAP, Oracle etc. upgrading ERP systems for corporates



Large corporates & shipping cos.

- Accelerate DLT investments to increase efficiency of supply chain, traceability etc.
  - \_ Driven by large **Commodity players** in O&G, M&M, Agri; Shipping majors like Maersk etc.
  - Invest in own platforms or partner with banks in bankled DLT initiatives
- Enforce adoption within supply chains & shipping channels



- Actively invest in interoperability, openness of solutions
- Accelerate efforts to add critical mass to core nucleus (e.q. banks, corporates, shipping cos etc.)
- Partnerships with value added service providers, E.g. doc digitizers, logistic companies

Emergence and adoption of other technologies that enhance benefits from DLT for all ecosystem participants, e.g., OCR, AI/ML, Advanced Analytics, RPA, IOT etc.

# **Governments**: Few key Governments are potentially ready for early DLT adoption

PRELIMINARY

## top 15 trading hubs make up ~64% of global trade

Source: WTO; World Economic Forum; Government websites

3



SG, HK, S. Korea, Netherlands and Dubai among hubs with favorable regulations for early DLT adoption

	Trading hub	Acceptance of eBL / e-certs	Extent of gvmt-led DLT trade initiatives	WEF index on quality of port infra.	Presence of single trade window
Asia	China	$\bigcirc$		4.6	$\bigcirc$
	Japan	$\bigcirc$		5.3	$\bigcirc$
	Hong Kong	$\bigcirc$		6.5	(v.,)
	S. Korea	$\bigcirc$	Conso with	rtium 5.2	$\bigcirc$
	Singapore	$\bigcirc$	l corpor resear	rch 6.7 tes to	$\bigcirc$
	India	$\bigotimes$	record shippii	I/track ng docs 4.6 Korea	
N America	USA	$\bigcirc$		5.8	$\bigcirc$
Europe	Germany	$\bigcirc$		5.5	$\bigcirc$
	Netherlands	$\bigcirc$		6.8	$\bigcirc$
	France	$\bigcirc$		5.1	$\bigcirc$
	UK	$\bigcirc$		5.5	
Mid. East	UAE	$\bigcirc$		6.2	$\bigcirc$
	Saudi Arabia	$\otimes$		4.7	$\bigcirc$
Africa	South Africa	$\bigotimes$		4.8	
Legend: Countri ease of		untries with high se of DLT adoption	Trade-related DLT $7 = \sqrt{6}$	Nell-developed, digitized & efficient	Single window present
			I rade-related POCs Non-trade initiatives Few or no initiatives	Extremely underdeveloped & nostly manual	In pilot phase/ not available at all ports/regions



# Ecosystem participants are actively experimenting and investing in DLT solutions to facilitate cross-border trade

#### Banks

- Banks lead DLT Trade Finance initiatives
  - Multi-bank JVs develop and test private DL networks
  - Large global/ regional trade banks conduct bilateral POCs
  - Bank consortiums mobilized by DL infrastructure providers (e.g. R3, IBM)



#### Source: Company websites

#### Corporates

- Trade platforms
  - Provide efficient posttransaction mgmt. solution for physical energy commodities trading
- Supply chain tracking solution
  - Provide ability to track movement of goods

#### Government

- Trade finance
  platforms
  - Major trading hubs develop DLT-based trade finance platforms to facilitate domestic and cross-border trade in specific corridors

#### **3rd Parties**

- Supply Chain Financing
  - Provide one-stop credit facilities with shipment booking
- Trade platforms
  - Launch end-to-end digital shipping information on platform

눩 🎡 Statoil

Formed a consortium with other trading houses and banks to manage **physical energy transactions** 

## **bhp**billiton

- Leverage DLT to record movements of wellbore rock and fluid sample
  - Ensure timely delivery





Provide end-to-end shipping information and automated trade paperwork services



- Easy access to capital without collateral
- Faster release of funds

# **3rd Parties**: Potential partnerships with 3rd party service providers and technology vendors



## DLT platforms likely to consolidate over time



• Major players begin to emerge, **buying up competitors** 

13

standards and formation of

alliances across top players

Source: Company websites

•

Different business / commercial models

yet to be tried out

## Revenue impact: Four key drivers

	Trade volumes	Fee income	Financing income
1	Traditional Doc Trade moving to DLT Trade	Net lower fee income - assumes lower <b>fees for DLT</b> driven by bank passing on lower costs	Gain in financing income from higher % of financed Doc Trade txns with DLT
(2)	Traditional Doc Trade moving to Open Account with DLT	Loss of Doc Trade fee income (net lower bank fees driven by lower fees of Open Account)	Loss of Doc Trade financing income, (net impact potentially offset by higher cost Open Acc financing in some cases)
3	Open Account moving to DLT DOC Trade	New fee income for DLT Doc Trade	Corporates ineligible for financing or financing at higher rates with Open Acc adopt DLT Doc Trade for risk mitigation and/or secure financing at attractive rates
4	New Trade volume adoption of DLT Doc Trade	New fee income driven by new volumes entering global Trade	<b>New financing income</b> driven by <b>new volumes</b> entering global Trade

# **Cost savings:** Automation through DLT estimated to generate ~80% cost savings

## ~80% Reduction In processing time with DLT automation

Processing time

(Current time to process = 100)						
100	100 Inform Customer Report Generation AML check	—Review and Release				
80	UCP & other condition checks	Will be driven by DLT <b>and</b> <b>other technologies</b> (OCR, AI/ML, IOT etc.);				
60	Create Transaction	~50-70% savings assumed for business case calculations				
40						
20	Receive and Validate Application	-UCP & other condition checks Review and Release 20				
0	Current	Create Transaction Receive/Validate App				
	Current	Future (with DLI)				

#### Six major drivers of processing time/cost savings

/IMPORT LC EXAMPLE

Processing step*	Time reduction	Reasons for improvement
Receive & Validate Application	70-90%	Electronic submission and validation of document through DLT
Create Transaction	50-60%	Auto creation of txn from data pulled from DLT (saving manual data entry)
AML checks	80-100%	Automate sanction checks, transaction monitoring & filtering
UCP checks	60-80%	Potential to automate with predefined data matching conditions
Report Generation	80-100%	Real-time and automated reporting
Inform Customer	80-100%	Instant notification to the customer

## Mobility Service : Create economical and environmental empowerment in the AESEAN countries

Global Mobility Service, Inc.



## **Company Profile**

#### **Overview**

Name Global Mobility Service, Inc.

H.O. 4F Shiba Daimon Building II, 1-12-16, Shiba Daimon Minato-ku, Tokyo

Established 2013/11/25

- Capital 1,739Million yen (Capital Surplus Included)
- Branch Global Mobility Service Philippines, Inc.
- Business IoT Platform Service for Mobility

Second Inflection Service of Big Data

#### **Oraganizeation Shareholders**

Hiroshi Komiyama	Former Tokyo University President Director of Mitsubishi Research Institute		
Katsumori Matsushima	Former PWC Managing Director Previous Business Model Society's Chairperson		
Shozo Kurihara	Former Nissan Motor VP & Global CIO		
Soichiro Fukutake	Benesse HD Supreme Advisor		
Tokushi Nakashima	Representative Director		

Representative Director

FinTech × IoT global-mobility-service.com

#### **Our Engineer previous career (Picked)**

HITACHI	Panasonic	SONY	döcomo
YAHOO!	NEC	окі І	ะบุรีกรบ

## GMS Mobility × IoT × Fintech Technique

#### Investment Support from Top Cooperatives of Every Business Domain



## Average Age and Economic Growth



## Rejection Rate of Auto-Finance (including Potential)



# Registered Sales

However, Population without Chance of Auto-Finance is



Undeveloped Environment to Maximize the Potential



## **Innovation to Auto-Finance Service**

Provision of Auto-Finance to those who was REJECTED

Those Pass the Credit Investigation

Conventional Finance Target was only this layer

Those Rejected by Credit Investigation But Have an ability to pay

Huge Market Size of Unapproached Target

# **GMS Provides Solution**

Don't have ability to pay

## Solution by GMS IoT Device



Patent : PCT submitted

Mobility with MCCS Device



MCCS Device can Deactivate the Car

## Increase the Incentive of Payment

Conventionally, vehicle can be used even after delay of payment



No Internet Connection After Delay Payment ↓ Incentive toward Payment is HIGH

Can Utilize the Vehicle After Delay Payment ↓ Incentive toward Payment is LOW



### GMS Service model



## Default rate which changes the financial industry





## **GMS** Service



## **Business Development in the Philippines**



## Visualization of Various Mobility Record



## Creation of Value for USERS

The Utilization of Transaction Data for User Credit Information



## Wealthier life by providing new credit

Student loan for parents who want their children to go to study

## Those who cannot Attend at school



## Lending the happiness



## Through the provision of Mobility Service We Make People Happy







## **Fintech and Financial API**

Junichi KANDA Executive Officer, Money Forward, Inc. CEO, Money Forward Financial, Inc. June 18, 2018

## Junichi Kanda Profile

- Executive Officer, Money Forward, Inc.
- Representative Director, President and CEO, Money Forward Financial, Inc.
- Director, FINTECH ASSOCIATION OF JAPAN



■1994-2017 Bank of Japan

Mainly conducted monitoring, examination, credit and market risk management of banking

■2015-2017 Financial Services Agency Conducted the research and planning of payment reform and Fintech as a Director at Planning and Coordination Bureau

#### ■2017-Present Money Forward

Served as CEO at Money Forward Financial and in charge of government relations at Money Forward

#### Education

Tokyo University (BA of Faculty of Economics) in1994 Yale University (MA of International and Development Economics) in 2000

# 1. About us



# Money Forward. Move your life Forward.

We aim to solve money-related issues of all individuals and businesses through building an open and fair financial platform and providing essential services.
#### **Business Overview**

# We provide BtoC and BtoB services to solve problems related to "Money".

#### Personal Financial Management

Money Forward

We eliminate all money-related concerns of individuals to move their lives forward.



#### 6.5 million+ users

#### SaaS Accounting/ERP



We resolve businesses' managerial issues to move the Japanese economy forward.



#### 3,000+ accounting offices

#### IPO

## Listed on Tokyo Stock Exchange Mothers on Sep 29, 2017.



**Members** 

## Just turned 6 years old. Now work with more than 300 members.



New Initiatives with Cryptocurrency and Blockchain

## New Entity "Money Forward Financial, Inc."





Photo taken by Nikkei, Inc.

New Entity's Business

## 1. Media

# Cryptocurrency Exchange Payment Platform



\*Image taken from "Money Plus"





## **Risk Control and Tax Return**





## 2. Enhancement of Fintech

## 2-1. Building Ecosystem

Launch of Fintech Association of Japan (Oct. 2015)

- Starting from a meetup, the community grew to an association
- Supported development as representative from JFSA



Photo taken by GoodWay

#### Institutional Support

Incorporated Fintech in "Strategic Priorities", launched "Fintech Support Desk" in JFSA (Dec. 2015), supported launch of FINOLAB (Feb. 2016).



## FinTech Summit (Fin/Sum)

- 1<sup>st</sup> in Sep. 2016, 2nd in Sep. 2017

#### Themes

- Fintech in Asia
- Future of Blockchain
- Strategy for traditional financial institutions
- Role and potential challenges of public sector

#### Speakers

- Authorities (UK, Singapore, Luxembourg, Indonesia, etc.)
- Taro Aso, Minister of Finance
- Nobuchika Mori, Commissioner of the JFSA
- Founders from various global startups
- MIT media lab
- CEO and executives from Japanese representative banks









Photo taken by Fin/Sum organizer

\*Excerpt from the 1<sup>st</sup> Fin/Sum.

2-2. Collaboration with Foreign Authorities

#### **International MOU**



## **2-3. New Regulations**

Cryptocurrency Exchange (enforced in April 2017)

- 1. Registration to JFSA
- All the exchanges required JFSA registration **2. Operational Standards** (Ex.) KYC upon account opening, Segregation of client assets **3. Exemption from consumption tax (July 2017)**

Amid largest transaction volume globally, Coincheck hack changed regulatory climate Open API (enforcement in June 2018)

### 1. Europe

- Open Banking Standard UK
- PSD2 European Banking Association

### 2. Model Banks

- Credit Agricore Store Credit Agricore
- API Market BBVA
- API Platform for developers Fidor Bank

## 3. Open API in Japan

#### Before API-based Infrastructure

Asking customer credentials were obstacles towards Fintech services in utilizing data.



#### After API-based Infrastructure

## User can securely use Fintech service.



#### Criteria for Selecting Banks

- Distance to ATM and branches were long time priority
- Quality of online services not necessarily prioritized



Source: Created based on the survey conducted by Central council for financial services information \*Includes uncontinuous data

#### Future Scope of Customer Choice



#### JFSA's viewpoint

#### 1. Mass product (BtoC) to tailor made product (CtoB)

 IT, accumulation of lifelogs and big data processing, AI and deep learning will transform traditional BtoC into tailor made servicing (CtoB)

#### 2. Customer-focused business model

 Accumulation and utilization of customer data, customer centric business model, and trusted relationship will be key for the future

#### 3. New Image of Network



#### Where Financial Regulation is Heading

#### To facilitate unbundling and rebundling of functions

- -> From entity-based to function-based regulations?
  - What to protect? Deposits, payment and settlement, or credit creation?
  - Level playing field among different entities with similar functions?
  - Managing conflicts of interest within a group with diverse functions?
  - Shielding protected functions from unregulated functions?
  - How best to protect customer information?

To respond to changes in the shape of the financial network

- -> From banking style regulations to capital market style regulations?
- To achieve both innovation and customer protection

-> Regulatory sandbox and informed consent?

## 4. International Collaboration

#### International Cooperation on Policy

### 1. Introduction of Innovative Products and Services

- License Standardization
- Regulatory Sandbox
- 2. Client Protection beyond borders
  - Necessity of cryptocurrency and ICO regulation
  - Data ownership and portability
  - Market monitoring and cooperative RegTech advancements

### 3. Talent exchange

Deregulation of working in and residence permit

Constructing multi-country cooperation to develop the industry

#### Standardization Initiatives

### 1. Open API

- Data connection, authentication, data format, etc.
- Cooperation of banks and startups beyond borders

#### 2. Payment infrastructure

- Common network
- Payment information, settlement method
- 3. Guideline formulated by private parties
  - Cryptocurrency, crowdfunding, etc.

#### Aim to create standards from Asia

#### International collaboration Public/Private

#### 1. Informational Exchange

- Future forecasts
- Cutting edge models
- Problems and solutions

### 2. Enhancement through Networking

- Sharing and brushing up ideas
- Talent interaction

### **3. English Information**

• Sharing each country's information in English to increase cross-border entry

#### Formulate Asian Fintech ecosystem

## Thank you!

Disclaimer

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This material is an excerpt translation of the original Japanese material and is only for reference purposes. In the event of any discrepancy between this translated material and the original Japanese material, the latter shall prevail.



### **Technology beyond Borders** How we can harness new technologies to integrate Asia?

RegTech and SupTech Panel

June 18th, 2018



#### Challenges Impacting Regulators and Thomson Reuters Solutions



#### **Thomson Reuters Open Platform**



## Thomson Reuters PermID

#### A Barcode for Information

#### PermIDs are:

- Complementary to the Reuters Instrument Code (RIC), International Security Identification Numbers (ISINs), Legal Entity Identifiers (LEIs), and other identifiers
- Comprehensive provides identification across a wide variety of organizations, instruments, funds, issuers and people
- Connected PermIDs connect all data sets in the Thomson Reuters information model, helping gain valuable insights
- Machine-readable a 64-bit number that operates beneath the surface to connect related information instantly and seamlessly
- Open Thomson Reuters open strategy is driving new opportunities, collaboration and innovation; we are Open Data Institute (ODI)-certified
- Permanent a never reused identifier is assigned to each information object; they don't change and allow you to trace object changes over time
- Precise points to each specific information object
- Scalable a vast number of PermIDs are available
- Unique each instance has its own PermID

#### PermIDs: Creating powerful connections at the center of the Thomson Reuters Information Model



### Develop platforms with PermID.org for easily searchable and better-connected data that returns the right connections to you



- Generate Alpha by tagging all your data and exposing powerful linkages for unique insights
- Link your cross-asset information to connect all of your non-streaming information for pricing and reference data needs

Power your systems:

Manage data with Intelligent Tagging to explore, clean, tag & catalog your assets for better structure

Manage risk with Org ID by gaining insight into business events and securely mapping the information to your own data

### For more information visit **permid.org**



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#### Find More Relevant Search Results Faster



Turning qualitative, unstructured text into quantitative and actionable insight....



#### **BOLD Solutions**

#### BIG

**Objective** - Provide a big data environment for clients to experience Thomson Reuters content. **TR Data Fusion** is a big data integration environment. It's leading-edge graph technology and data integration platform connects the dots of big data.

#### OPEN

**Objective - Open PermID** website (permid.org) enables anyone to start integrating PermIDs which are TR's permanent and unique identifiers to their solutions

#### LINKED

**Objective** - Help clients link unstructured & structured data to quickly deliver valuable insight. Thomson Reuters Intelligent Tagging (TRIT): Gives customers a fast, easy way to tag and connect to TR by tagging their textual content with organizations, people, topics and events.

#### DATA

**TR Knowledge Graph Feed:** Helps customers understand the nature of existing relationships around the key identities that they are invested in including organizations, instruments, supply chains, people, sanctions, and more

#### Objective - Derive insights from unstructured data available through TR.

USE	Advanced Search &	Alpha	Research	Sales 8
CASES	Navigation	Risk		Trading







### Big, Open, Linked Data – What Sets Us Apart

## More than 3,000

data experts globally managing Thomson Reuters' data





Over **30** years of expertise managing People data which now includes heightened risk individuals from the Worldcheck database

#### It takes **ONE Week** to deliver



insights and analytics with **Data Fusion** – vs. *18 months* which is typical time for self build solutions

## **5 Billion Triples**



are captured in our **Knowledge Graph** feed – and this number is constantly growing

Over 8 years of expertise building an information model and mastering our data around **PermID** 



## 20 minutes

to get up and running with **Data Fusion** software

We have been training Intelligent Tagging engine since 2007



**100** data scientists and developers working on TR's **BOLD Solutions** 



#### **BOLD Solutions – Origins**

#### **Reuters News:**

How does one quickly and consistently tag massive amounts of unstructured text?

### We can now link unstructured and structured data

... Doesn't it just make sense to connect it all?

#### TR Intelligent Tagging:

Natural Language / Unstructured Text Processing

#### PermID:

Unique and permanent identifier for every entity, all open source. Matching capabilities

#### Knowledge Graph:

Billions of relationships mapped precisely across millions of data points One out of Hundreds of Sources... How can we scale the solution? How do we disambiguate terms?
How do we combine this with our curated and structured data?

the answer company™

THOMSON REUTERS<sup>®</sup>


## TR Knowledge Graph – A Wealth of Knowledge





# **Advanced Analytics and Data Visualization**









### Digital Identity is Fundamental to the Digital World We Live In

Identity is a central tenant to the digital economy, the essence of how individuals, organizations and assets operate on a daily basis.

#### We leave digital attributes scattered everywhere, as they are needed to interact across every vertical of society



When combined with emerging technologies, digital identity will drive societal transformation:

- Consumer-driven economy
- Technology-driven economy
- Data-driven economy
- Integrated economy
- Innovation leads regulation
- Security
- Ethics & Privacy
- Interoperability

A necessity for

#### everyday

- transactions:
- Online purchases
- Access to services
- Government security
- Banking transactions KYC / Supplier Risk Assessment
  - Access to email, social media
  - Employee onboarding
    - · Access to utilities / transportation

#### But there are systemic challenges:

#### 41 days

Average length of time for firms to onboard high net worth clients

Increase in US Credit Card Fraud Percent of total Identity Theft complaints



## BlockOne

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- BlockOne IQ provides developers with access to Thomson Reuters market data for inclusion in blockchain / distributed ledger applications
- At the time of the Beta launch (June 2017), a limited subset of the wide market data universe is available via the Oracle which includes:
  - Corporate Actions
  - Historical Pricing (Equities and Foreign Exchange only)
  - Benchmark Data e.g. LIBOR
- Other content sets will be considered based on market demand
  - Parent IDs and Full Corporate Hierarchies Audited Data BlockOne IQ is currently compatible with: Ethereum Descriptive Data Intraday CORPORATE REFERENCE Industry Classifications Global Coverage ACTIONS Symbol/Cross Ref Historical Corda Historical ISO15022 Others considered based on demand DATASCOPE SELECT BlockOne IQ Evaluated Pricing Intraday Snapshot HISTORICAL End-of-Day Validatect End-of-Day May only be used for Proof of Concepts PRICING Equity Analytics Funds PRICING May not be used in production systems May not be used on public chains PRICING Evaluated Pricing Models SERVICES Cash Flows Analytics Performance Data

Global Instrument-Issuer linkage



### Unstructured Content

Content uploaded from news articles, blog postings, proprietary data, catalogs, social media, and more





Extract, classify and tag metadata Companies ACME Corp. Announces Big Expansion han, 1005-05-08 YEAT OLT (SLAMA MEMORIAL) - 🗛 maaarina 🛹 🐜 whether a state in the second state whether nike's' (ng. 19. 404000000) adalada "19907040" (18077" (ng. 16. 484667000) aad 30. "74 HEATTY Bog. No. 40440404401 in response delle articulational in Mathematica, 2011."IL People endbal<sup>4</sup> and carbola anhaldeshar of 201, "Across Corporation" in accord them entered into the Arkening significant transactions NA "WPER DOVERTENDERTS" has weld in Sil. "Status W?" inst. No. 400402 real activity respect by SIA. "WPEX [INVERTMENTS" at dotting of a logal plating the a total area. of 1427 mil and one ture-story beliefing. Total acretic some time much be accompliance with the bound of antichess accounted, the estillational of the antichese active in UR. "Modess' MP\* in UR. "APPENDENT e deze after the title is the real origin has been templered in 358 "Holms Wi - buntil Advan Budhamma and Camild Adva Work, how and road to 1981 ecrelies" the sights of claim of repreparati of the locar granted by each of them to 300. "A "AT SUPPORT 31 and surrounced, the dalars are and peak of the correct originaling second tifament by SA. "Acma Carporation" for the sanipuel-dalme is doe by 14 August 2000 Events chase online of BUR, DARDE, MD, Th and addigutions in respond of the propagation of the lass and purchase of the ade have been performed to fell as here, part of share, and, 'pransedian, of '858, "Across Remoration?" exhabilitation ad 19A "IVIEINAA MedilliCESP". 19A "Acros Corporation" condition that alary ands impossibles of subabilitative 👘 🗛 "APREC ATTACHETY" vo. 264., 27.02.044. (McCARCEP" - or a subvio sell here a positive impact on 260. "Anna Corp. Attach idly and linearchi performance. In particular, das 'n line transaction, it will reach in reduced annexed of old of 10.4 "Acce group and problems of sugging signing distributions. Herein being of 310. reasons and Elevabel Allian Wirdle learn numbered to 20A Acate Corporation\* the rights of data of represent of the loss practical by earth of them to 204 a survey within the survey 10. If each, Rettlement for DA "Arms Companying" for the particul cipling i ins, by W. Amenni 19834 na, "APER DOUTTAINTE" has propoid to Adl all of he shilpedans to DA 1998 and Arrange and Marine Constraints and the set in Substation of Sectoriality Stationary and a set of the S abiliare of 2014 "Across Compareillan". We bound housed 2014 "Across Compareillan " extend for feither a total Relationships dara mira of U.R. (MIDI. JP. The present eliteritory is remod of the presentant of the loss and produces of the ole hors, have not been all to full, arit of share, inder brannedline of 1021, "Armer Co and the **Constitution of Section 2** and the section of the data water between the section of individual and the section of the Locations

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