
36th ASEAN+3 Bond Market (ABMF) Meeting
Asian Development Bank Headquarters, Philippines
1-2 February 2023

ADB

ASIAN BOND MARKETS INTIATIVE
ASEAN+3 Bond Market Forum (ABMF)

36th ASEAN+3 Bond Market Forum (ABMF) Meeting

Hybrid Event
1-2 February 2023 | Asian Development Bank Headquarters, Manila, Philippines

AGENDA

09:00 – 09:05	**Welcome Remark** by Mr. Satoru Yamadera, Advisor, Asian Development Bank (ADB)
09:05 – 09:10	**Opening Remark** by Mr. Seung Kwon Lee, SF2 Chair
09:10 – 09:50	**Session 6: Update by Swift: ISO2002 and new initiatives on securities post-trade transformation** by Ms. Whikie Liu, Strategy Director, Capital Markets and Ms. Cindy Foo, Senior Standards Specialist - Update on ISO2002 standards development - Share the insights observed by Swift on industry settlement efficiency - Swift's strategy and new initiatives including digital asset, UTI adoption and corporate action smart contract, etc.
09:50 – 10:30	**Session 7: Regional standardization update 2: Legal Entity Identifier** by Mr. Hiroshi Nakatake, Managing Director, GLEIF Japan LEI Growth Areas and Use Cases - cross-border payments, Supply chain, Trade Finance - KYC, KYS, AML/CFT - Environmental,social, and corporate governance (ESG) - Identity Management and Digital Idenity (Digital Certificates and vLEI)
10:30 – 11:10	**Session 8: Lesson learned from digitalization and T+1 initiatives** by The Depository Trust & Clearing Corporation (DTCC) - **Digitalization presentation** by Ms. Jennifer O'Rourke, Executive Director, Innovation Strategy (20 mins) - **T+1 presentation** by Ms. Nellie Dagdag, Managing Director, Marketing and Communications (15 mins)
11:10 – 11:25	*Coffee Break (Auditorium Gallery)*

AGENDA

11:25 – 12:10	**Session 9: FX regulatory reporting standardization** by ADB - Objectives - Assumptions - Data mapping and Findings - Collaborations and Next Steps - **ISO 20022 Registration Management Group (RMG) Update**: *Message Standardization and Taking Stock of the ASEAN+3 experience* by Masayuki (Mike) Tagai, IS0 20022 RMG, Convenor
12:10 – 13:30	*Lunch, Private Dinning Room (PDR) 2-4, 2nd Floor*
13:30 – 15:00	**Session 10: Digitalization and market developments** **Case 1: The Application of DLT in critical financial markets infrastructure use cases and impact to ecosystem** by Mr. Willy Lim, Solutions Architect and Global Advisory Lead – Digital Currencies and Capital Markets, R3 **Case 2: Functional Traceable Token- Case for Aid Coin** by Mr. Shingo Fujimoto, Fujitsu
15:00 – 15:20	*Coffee Break (Auditorium Gallery)*
15:20 – 16:00	**Session 11: Financial Digitalization and Its Implications for ASEAN+3 Financial Stability** by Prof. Shinobu Nakagawa, Saitama University
16:00 – 17:00	**Session 12: Cross-border collateral as a new business opportunity** - **Local Currency Collateral for Cross-Border Financial Transactions** by Mr. Lelark Park, ADB Consultant - **Liquidity bridge for cross-border payment** by Mr. Jaekwang Roh, Bank of Korea - definition and function - benefits and challenges
17:00 – 17:15	**Wrap-up**

ADB

SESSION 6

Update by Swift: ISO2002 and new initiatives on securities post-trade transformation

Update by Swift

ISO 20022 Securities Updates

New initiatives on securities post-trade transformation

Cindy Foo
Standards, Swift

Whikie Liu
Strategy, Swift

Presentation to 36th
ABMF Meeting
February 2023

Swift

ISO 20022 Securities Updates

Cindy Foo
Standards, Swift
February 2023

Confidentiality: **Restricted**

ISO 20022 Maintenance Change Request for Securities (2022 – 2023)

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Corporate Actions: MCR 210

- 2 CR of ISO 15022
- 4 CR of ISO 20022

Settlement and Reconciliation: MCR 212

- 4 CR of ISO 15022 S&R
- 1 CR of ISO 15022 Common

Post Trade Matching Maintenance: MCR 209

- 1 CR

General Meeting SecuritiesBlockingPeriodEndDate Update of Data Type to align with CA: MCR 205 (Fast Track)

- 1 CR

Status of ISO 20022 submissions | ISO20022

Swift

ISO 20022 and APIs

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ISO 20022 and APIs

(1) An ISO standard for web-based APIs in financial services
(2) Standardisation is the top API technology challenge
(3) ISO 20022 repository (including message components and elements) are re-used in building APIs
(4) It is now possible to register API resources at the ISO level
(5) The ISO 20022 API working group will fine tune the framework and process for a standardised API ecosystem

SWIFT and ISO 20022 Securities Messages

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ISO 20022 migration

(1) Swift has conducted community surveys to assess market appetite for migration to ISO 20022
(2) There is no industry appetite for migration to ISO 20022 in securities markets. Hence, Swift will not set a mandatory date for the migration of securities from ISO 15022 to ISO
(3) FINPlus deployment of ISO 20022 for all key business areas since November 2021 and growing, including payments and securities messages

- Regulatory Reporting
- Settlement & Reconciliation
- Corporate Actions
- Collateral Management
- Funds

Swift

Tokenised Assets and Standards

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Tokenised Assets and Standards

(1) Swift has collaborated with some key industry players on an experiment on tokenised assets
(2) Among the key findings: Consistent messaging and standards are vital to support the scaling of the tokenised asset market
(3) Reusing securities settlement messages in ISO 20022 and ISO 15022: limited custom codes were needed
(4) Key base standards improvements are already implemented: e.g. blockchain addresses and wallet id, adding extra letter option for financial instrument quantity with longer decimal value
(5) Other complexities to discuss for market practice and extra standard updates:
    - E.g. adding parties like an automated market maker
    - Market practice to simplify specific flows
(6) As next step, Swift would like to invite the community's feedback on further related experiments

Swift

ISO 20022 and Market Practice

Importance and Status of National Market Practice Groups in APAC

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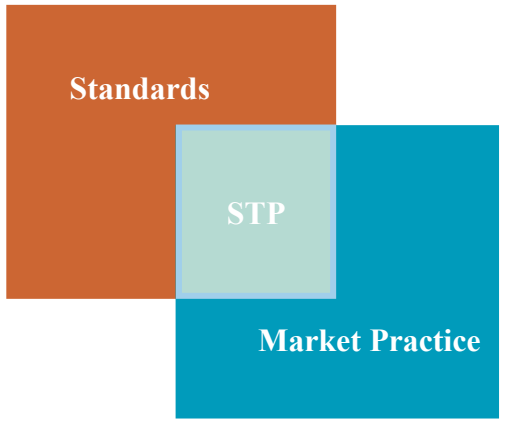
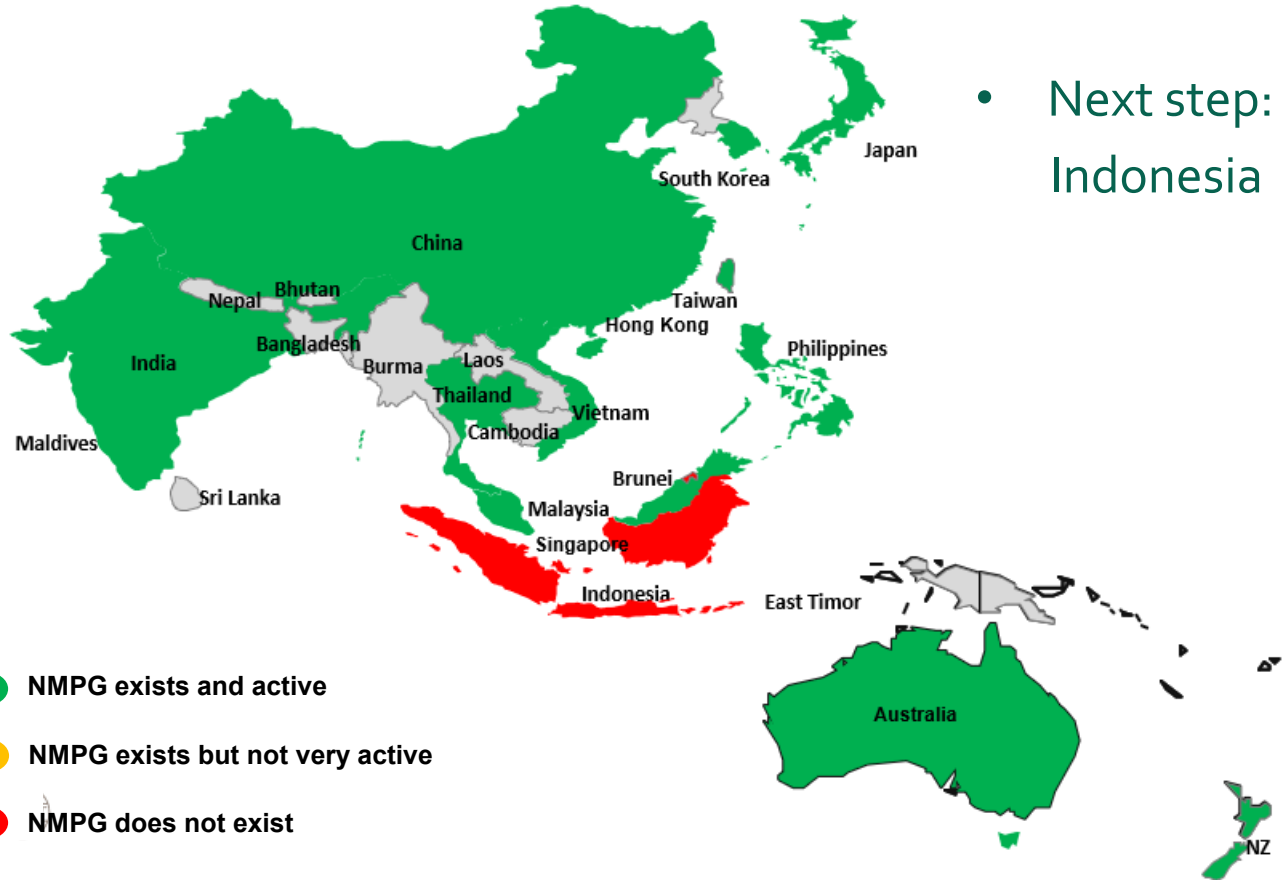
Why Market Practice



SECURITIES MARKET PRACTICE GROUP SMPG

MyStandards

Status of NMPGs in APAC



- Next step: Indonesia

Swift

New initiatives on securities post-trade transformation

Whikie Liu
Strategy, Swift
February 2023

Confidentiality: **Restricted**

Swift

Swift update: our core securities activity facilitates securities clearing and settlement

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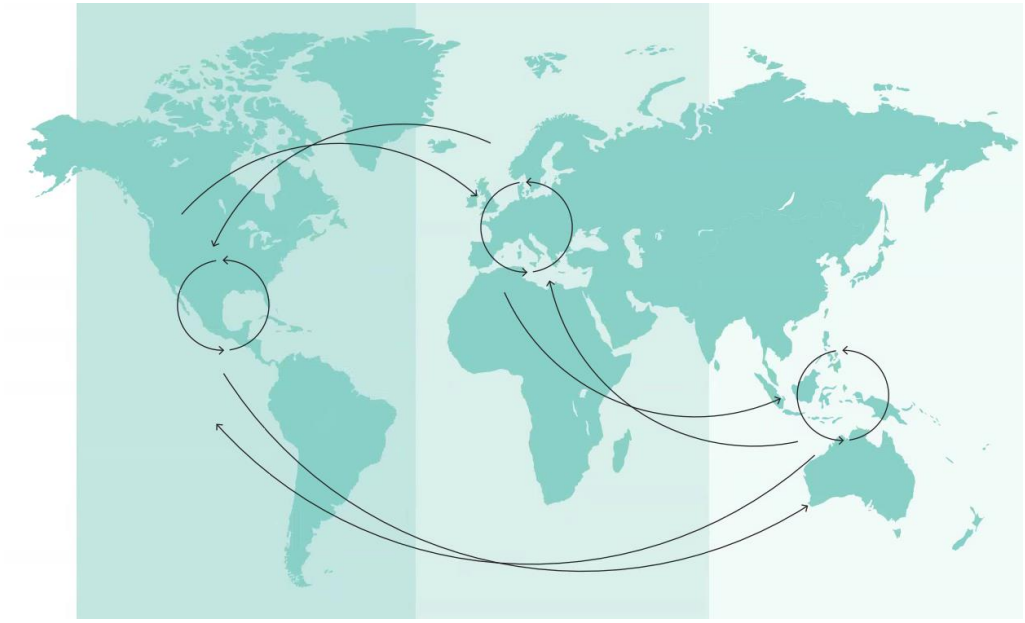
Swift strategy

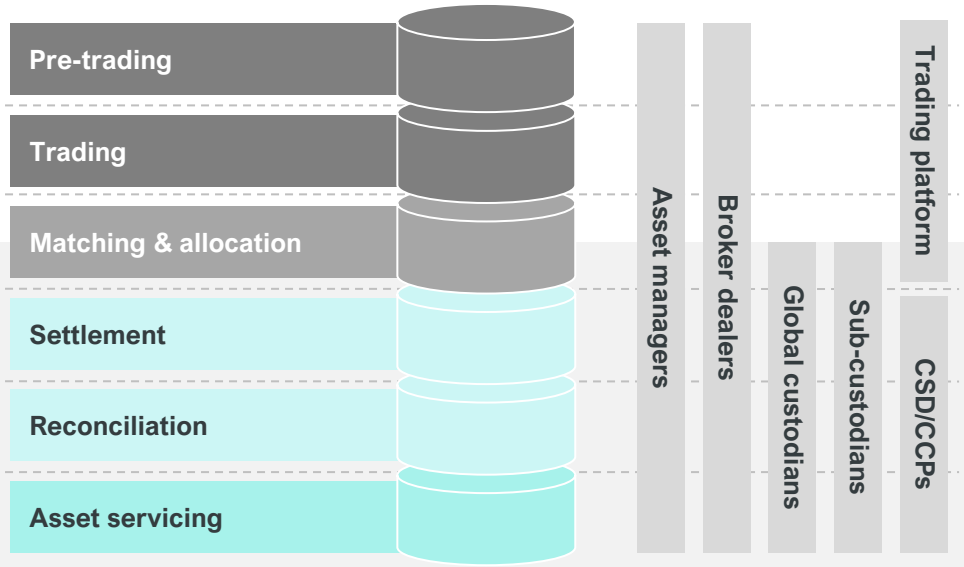
Our strategy is laying the groundwork for instant, frictionless, and interoperable end-to-end international transactions.



Settlement is the core securities flows facilitated by Swift

As a % of securities FIN traffic (FIN & InterAct)

- **Securities traffic -** Represents ~ 50%+ of total traffic
- **> 90% of** SWIFT securities FIN traffic is **for securities settlement**



SWIFT's primary value proposition for securities centers on these three core components, supplemented by offerings for **funds** and **collateral management**

More speed, less friction : This is where SWIFT comes in

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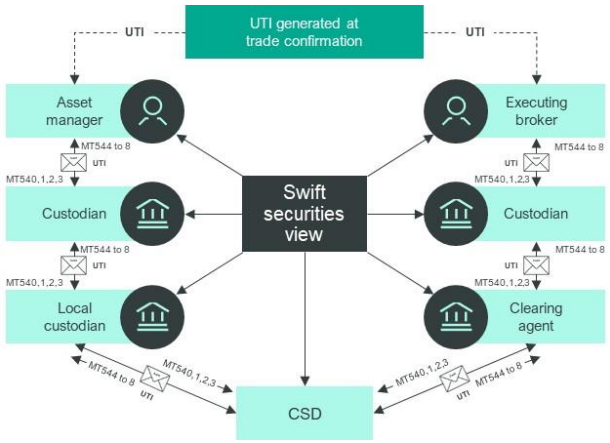
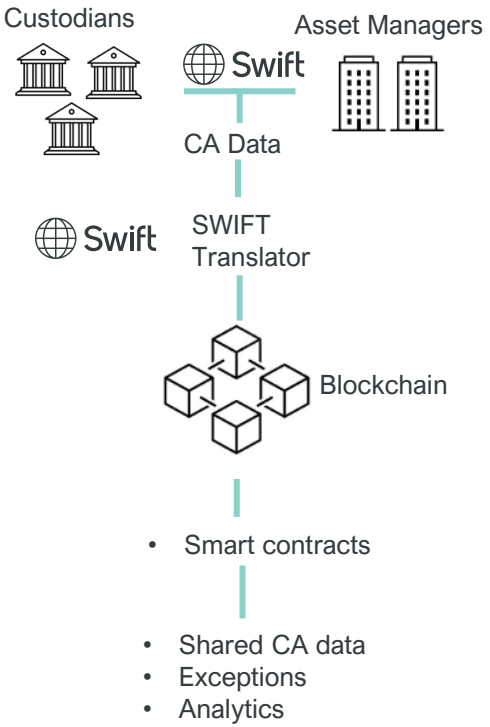
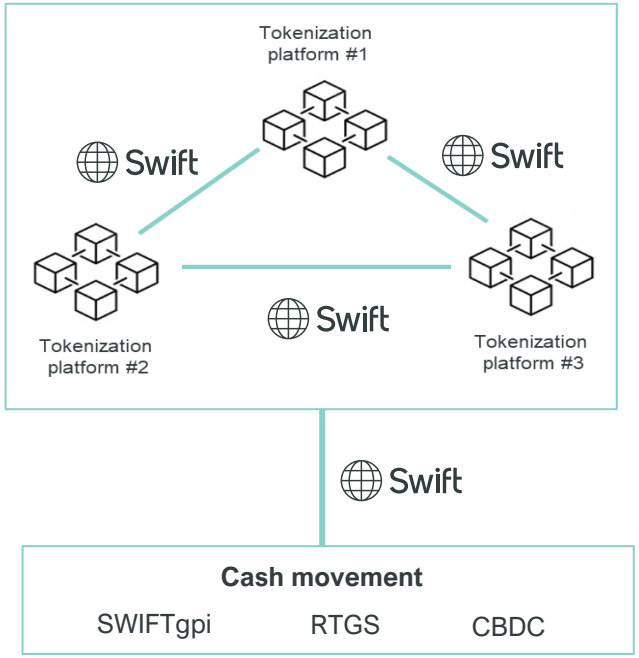
Innovated solutions can be built on top of the performant and reliable infrastructure to drive efficiency in end-to-end securities flows



Emerging technology to enable solving old problems in new ways and create new value for the business



Interoperability to bridge emerging and mature platforms to deliver frictionless experience



Securities post-trade settlement suffers from various inefficiencies & costs

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The current process

The market problem

Of every 100 securities transactions sent for settlement

Pre-settlement

4%
of settlement instructions are cancelled before/on settlement date

Post-settlement

1%
of settlement instructions are cancelled **after** settlement date

5%
of settlements are completed **after** the settlement date

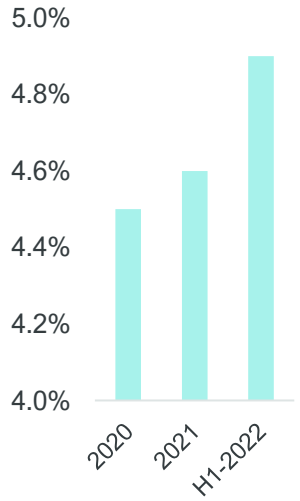
Only ~ 90% of transactions being settled as planned

1. Instruction Cancellation Rate: measured by MT 540- MT 543 instruction messages with CANC vs. total # of instruction messages sent , data as of H1-2022
2. Late Settlement Rate: measured by MT545-547 confirmation messages which confirm settlement done before or on settlement date vs. total # of confirmation messages sent , data as of H1-2022

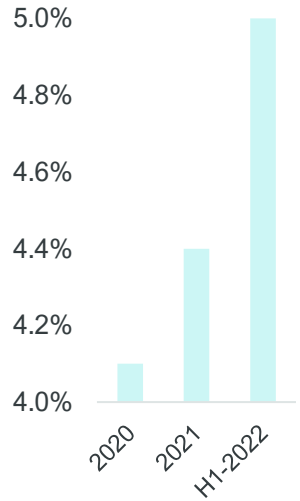
Source: SWIFT Watch

Market volatility has made the problem worse

+ 9%
(H1-22 vs.20)
Instruction Cancellation Rate



+ 22%
(H1-22 vs.20)
Late settlement Rate



Global equities settlement cycles: Most large markets at T+2, but things are moving

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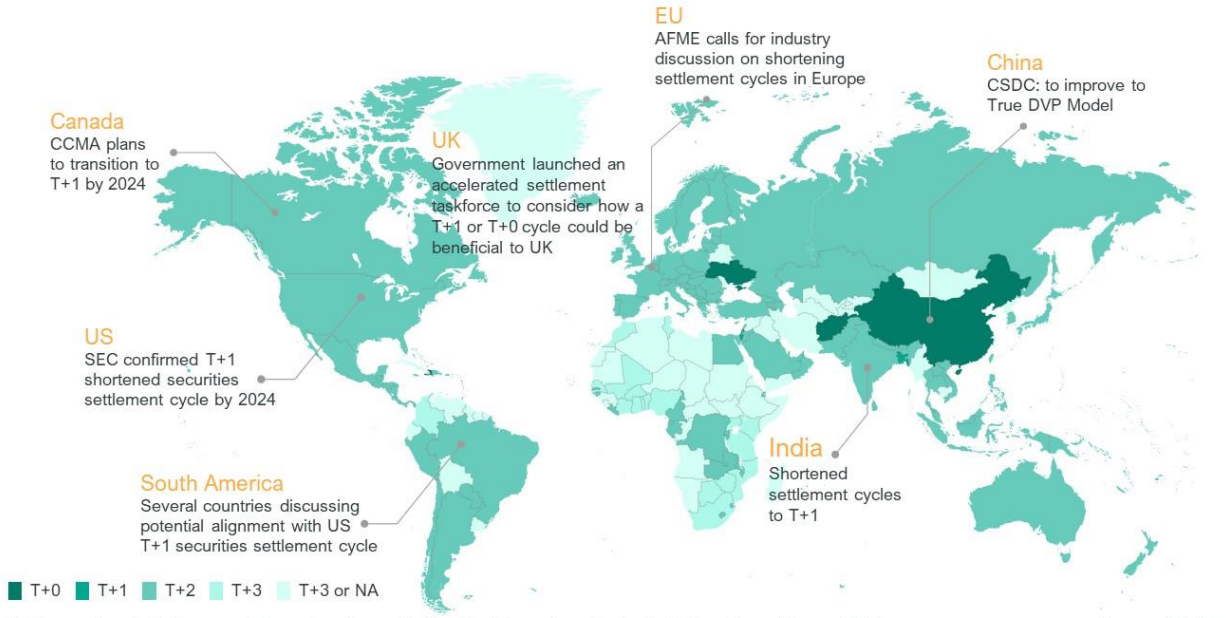
Major equity markets are exploring feasibility of accelerated settlement

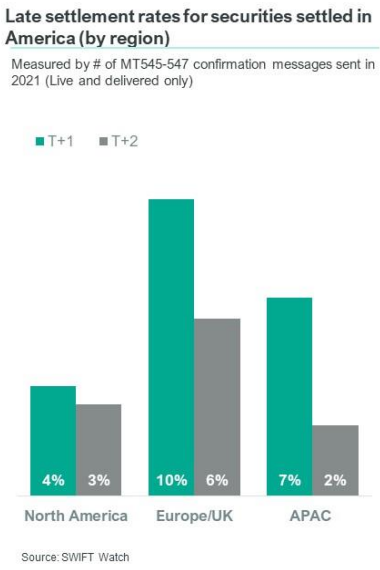


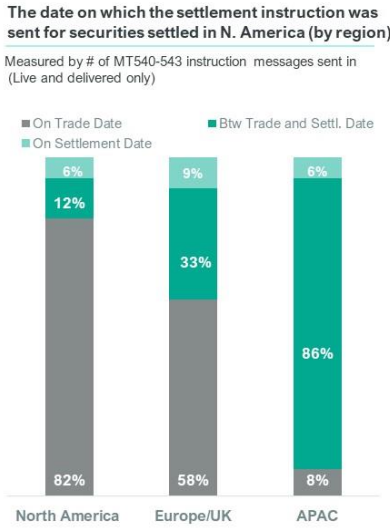
Settlement cycle in the map is based on the majority of settlement cycles indicated on the settlement Date in DVP/RVP settlement instruction and confirmation messages.

Source: Watch
Powered by SWIFT BI

Time Zone difference creates challenges for shorter settlement cycle

When settling securities in North America, 6-9% of offshore investors are releasing the settlement instructions on settlement data which poses a risk when US and Canada moves to T+1





Source: SWIFT Watch

Today versus Tomorrow

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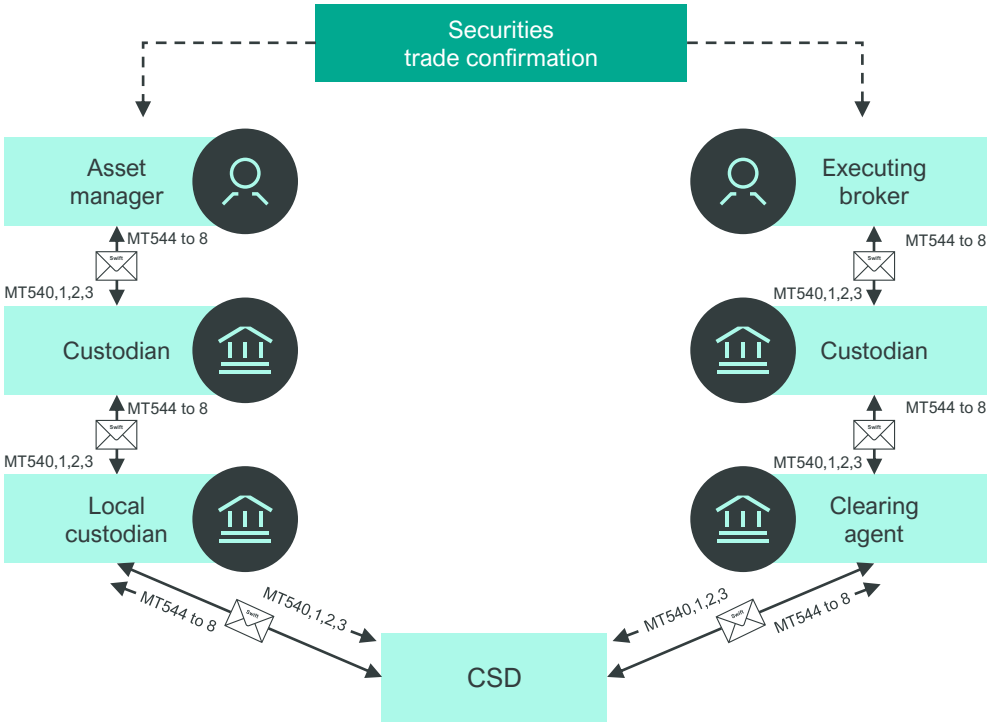
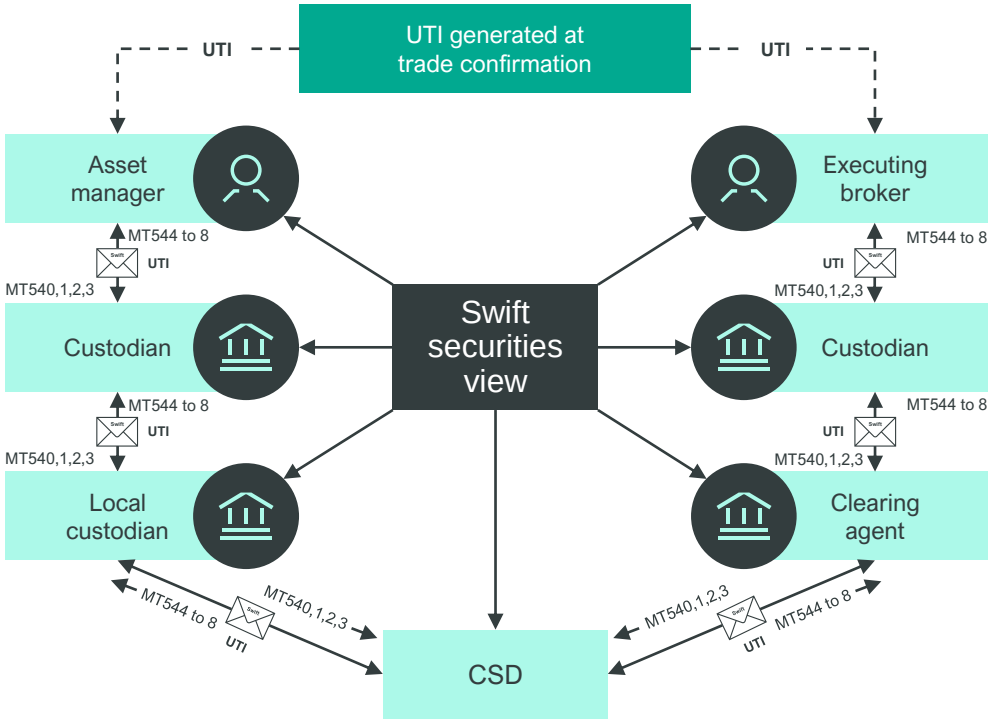


From isolated messaging



To transaction visibility

Leveraging a common trade reference
The unique transaction identifier or UTI

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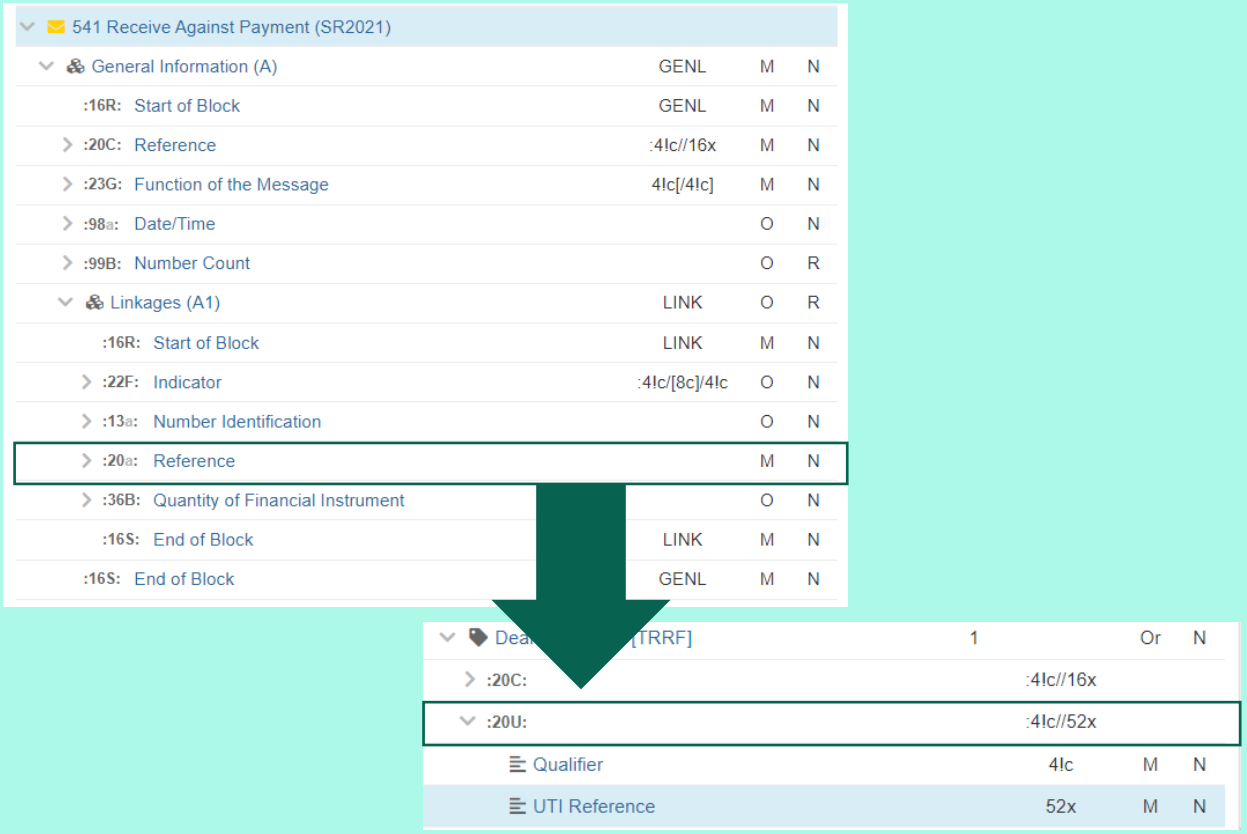
UTI: Unique Transaction Identifier

- Unique number/reference of a financial transaction to be allocated as agreed among the parties and/or within the initiative or regulatory system under which it is formed
- Scope of Message Types: **MT540 - 548**

Where to find an UTI in the MT54X?



Swift Securities View

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Real time progress information
on instruction, status and resolution

Compare & Alert service
highlighting discrepancies between own and counterparty instructions

Improved allegement reconciliation
thanks to visibility of own and counterparty instructions

Multiple channels
API, MT and GUI

Audit trail & linkage to other transactions
record of lifecycle history, root cause, claim management connection up & downstream, and associated transactions

Metrics and analytics
settlement and fail root cause analysis

enabling a harmonized securities lifecycle for the capital markets community

Removing a direct loss

of USD ~3 billion every year in the securities industry (ESCDA), expected to increase with CSDR penalty scheme

By preventing & addressing fails

while removing manual intervention and enhancing end-customer experience

Through an end-to-end two-sided, neutral transaction view

offering flexible formats, exception management, and integration with case resolution venues

Leveraging the UTI

on a global scale on a shared service platform

Swift

Current experimentation on tokenized assets

Completed in July 2022

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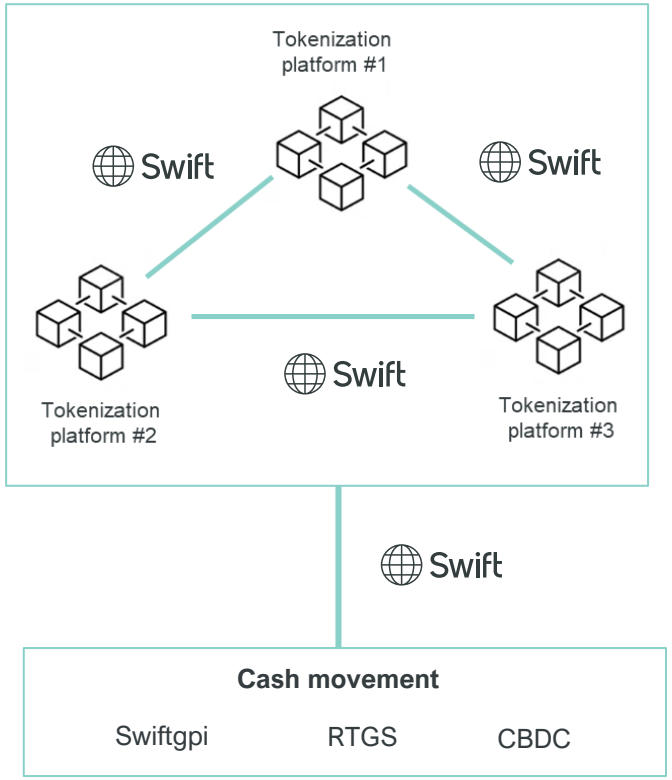
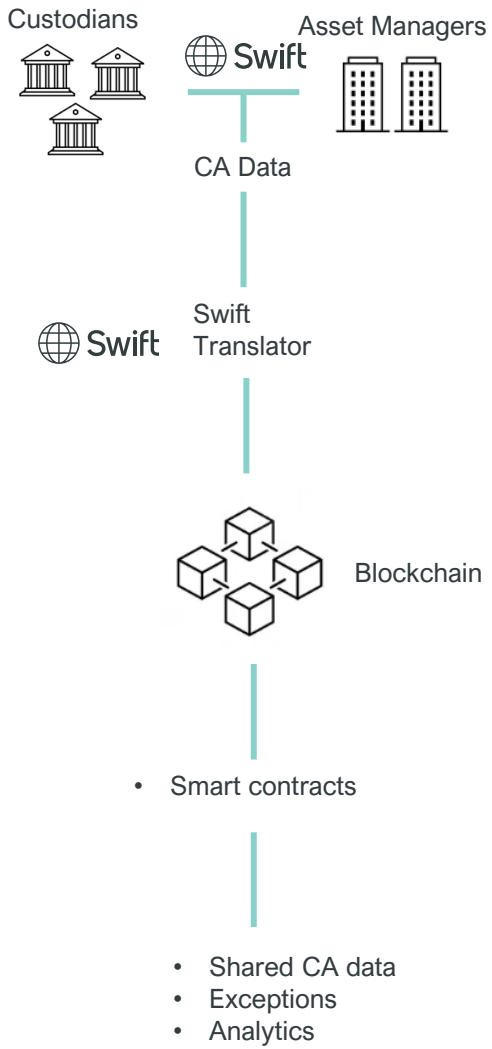


Context	Explore the **feasibility and benefits of Swift acting as an interconnector and 'combined access point, linking up multiple tokenisation platforms and various cash leg payment types** (gpi, RTGS and CBDC),
Scope	**Token issuance and secondary market transfers of both tokenised bonds and equities** using different cash settlement environments/methods (**RTGS, Swiftgpi and CBDCs**)
Objectives & results	1. Demonstrated the technical capabilities for the **creation, transfer, and redemption of tokens and update balances between multiple client wallets**. 2. Showed how interoperability between the "traditional" and "new" worlds or between different tokenization platforms can be achieved 3. Provided evidence about benefits of tokenised assets: atomic settlement, fractionalization, programmability, transparency and removal of reconciliation friction/cost
Use cases	**Seven (7) different use cases**: tokenization, detokenization and five (5) DVP settlement variations

Current experimentation on DLT focused on corporate actions

Completed in November 2022



Context

Asset managers and (global) custodians have their **securities scattered around multiple custodians** and for the same corporate action event they receive many notifications from each of these service providers.

Almost always, the details of an event (deadlines, election options, etc.) are different from one provider to the other.

Due to this conflicting/contradictory information coming from these different sources, **CA processing staff are spending hours working on manual data ta scrubbing**

Scope

We worked with Symbiont and 7 financial firms (Vanguard, Citi, Northern Trust, ACI Franklin and other custodians and asset managers) to solve this problem using an innovative approach:

- **Deploy a blockchain** network with multiple nodes that share corporate actions data
- A **selective and secure data sharing** environment that creates a shared view of an event.
- Use **smart contracts** compare shared data (in Swift messages) among participants and flag discrepancies, contradictions or inconsistencies across custodians
- **Plan to further test the value of a number of additional ideas** including how to use Swift data in a blockchain or Swift's AI capabilities to normalize the data

Objectives

To solve a very old problem with the following capabilities:

A no touch experience for CA processing teams
An easy and secure way to share corporate action data
A shared source market-wide scrubbed view of events and event choices
Automatic flagging of discrepancies / inconsistencies across custodians

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Questions

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Thank you

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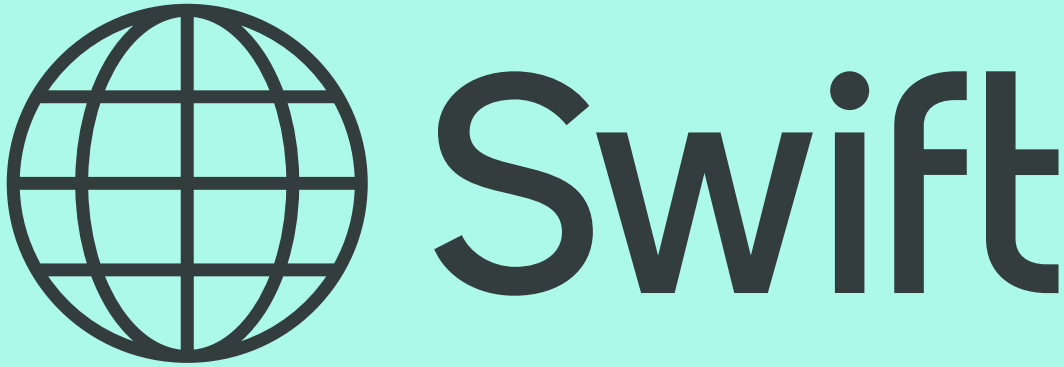
Swift

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SESSION 7

Regional Standardization Update 2: Legal Entity Identifier

Mr. Hiroshi Nakatake, Managing Director, GLEIF Japan

Legal Entity Identifier – the Global Identity behind every business

36th The ASEAN+3 Bond Market Forum

Asian Development Bank Headquarters, Manila, Philippines

2 February 2023

Hiroshi Nakatake, Managing Director, GLEIF

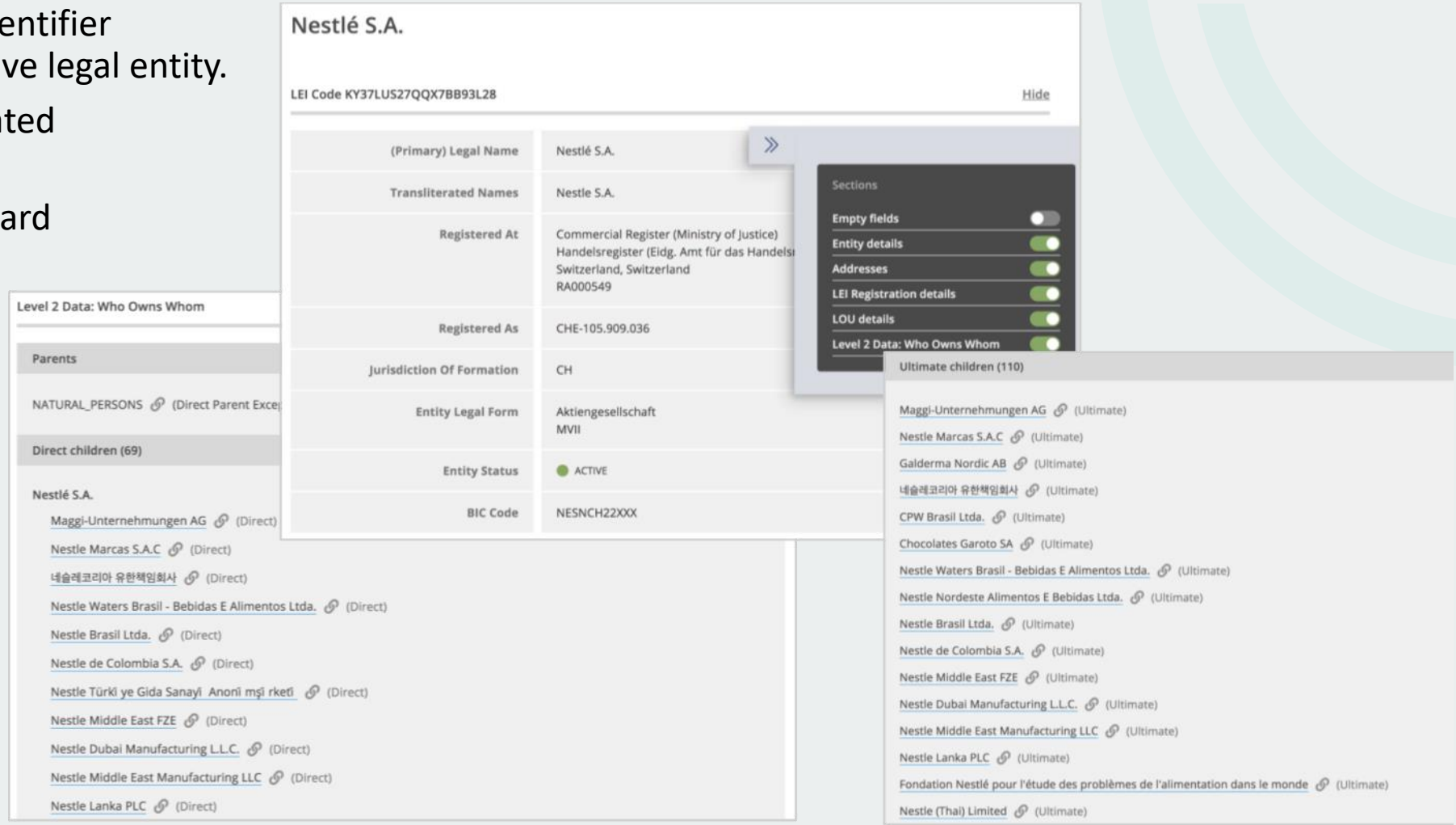
Who is Global Legal Entity Identifier Foundation (GLEIF)

- GLEIF is a not-for-profit Swiss foundation, founded by the Financial Stability Board (FSB).
- GLEIF is overseen by the Regulatory Oversight Committee (LEI ROC) with
  - **71 regulators** and
  - **19 observers**
  - from **50 countries**
- GLEIF Board has **18 independent directors**
- **39 accredited Partners** for LEI issuing (**LOUs**) and growing
- > **2,305,476 issued LEIs** to date*, available as open data without IP or copyright protection

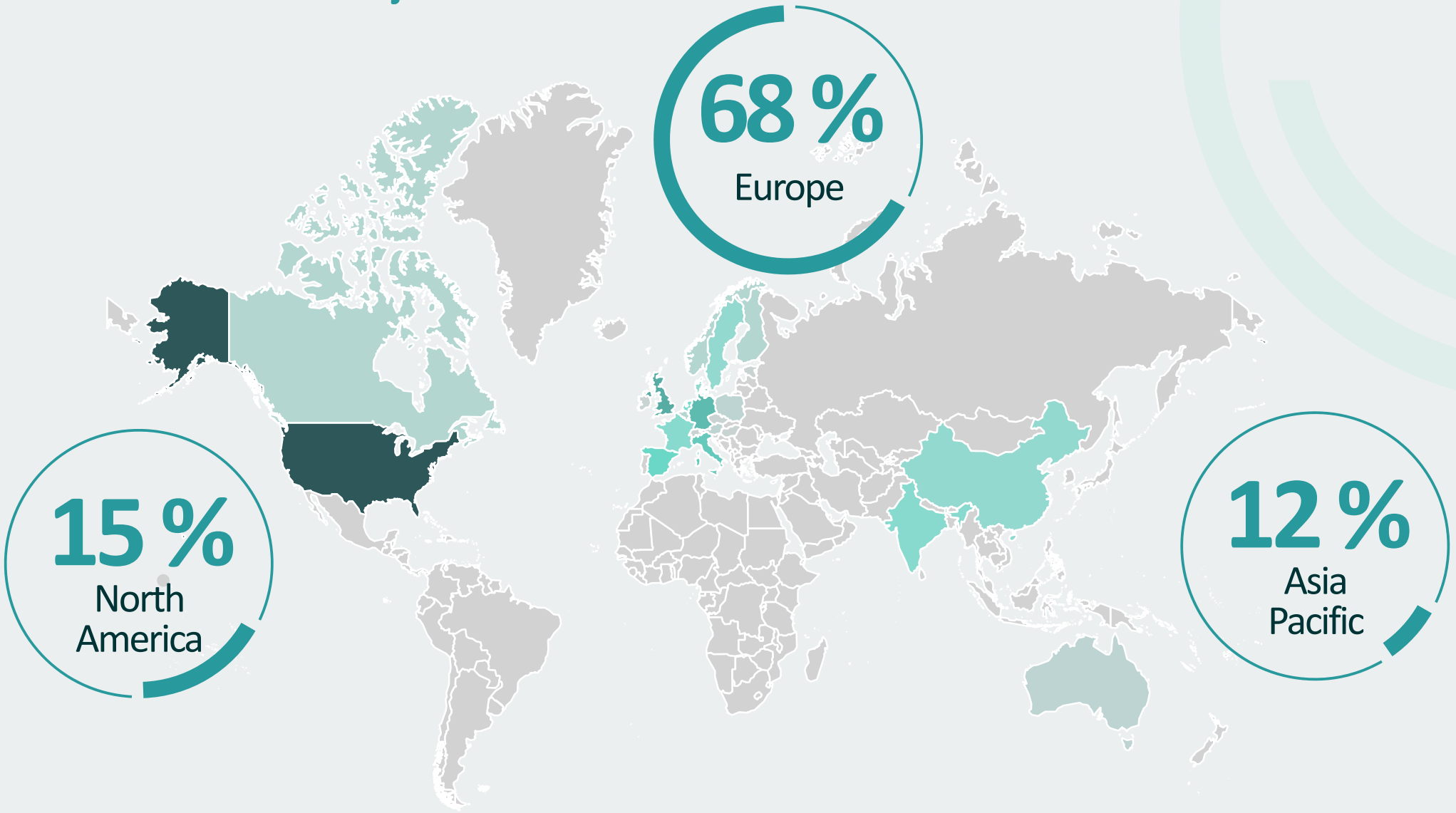
* As of 2023-01-25

The LEI

- The LEI is a life-long identifier **owned** by the respective legal entity.
- It points to the associated reference data.
- The LEI is an ISO standard ISO 17442



Distribution of the LEIs across jurisdictions

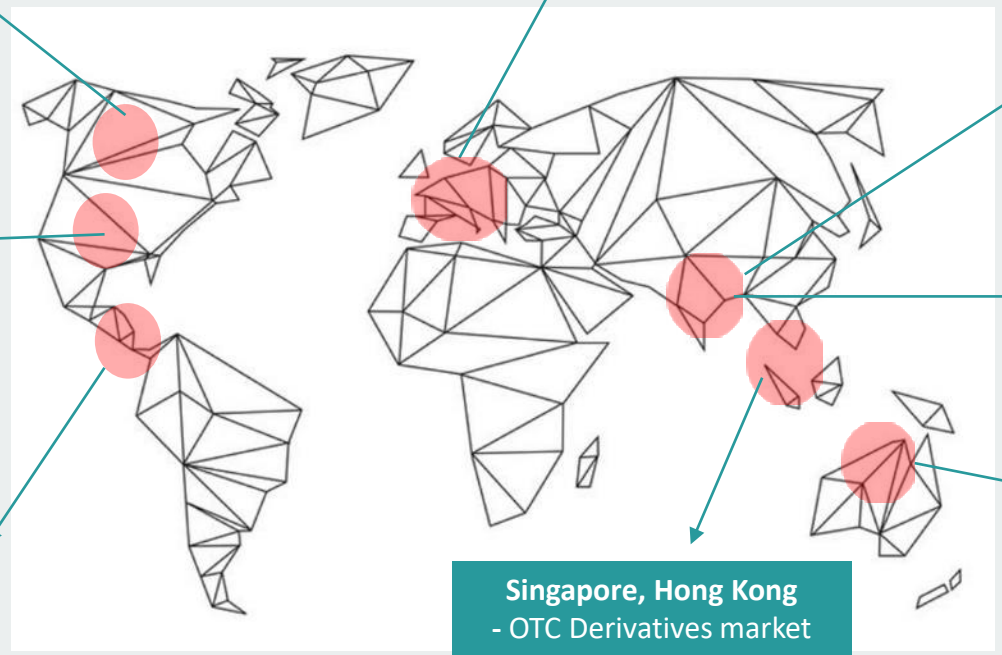


Global Regulatory Framework for the LEI

European Union
- MifID II, MMF Regulation, Solvency II, AIFMD, Market Abuse Regulation, CSD Regulation, Prospectus Regulation, Securitization Regulation,
- SFTR (starting from Apr. 2020)
- EBA Recommendation, Credit Rating Agencies Regulation

Canada
- Equity and debt securities reporting (starting from Oct. 2019)

China
- China Customs requires LEI for imports from 29 countries
- Roadmap for LEI adoption published by PBOC



United States
- Home Mortgage Disclosure reporting
- Repo Market participants
- Swap data reporting
- Funds and investment firms reporting

India
- OTC Derivatives market participants, corporate borrowers, non-derivative market and large-value payments participants

Australia
- OTC Derivatives market (starting from Sep. 2019)

Mexico
- OTC Derivatives and repo market participants

Singapore, Hong Kong
- OTC Derivatives market participants

Regulatory mandate for the LEI in capital market in Asia

China
Mandate from PBOC and CSRC on LEI issuance to entities involved in securities and bond markets.

India
Reserve Bank of India Notification RBI/2016-17/314 FMRD.FMID No.14/ 11.01.007/2016-17 Introduction of LEI for OTC derivatives markets participants in a phased manner concluding in 2018.

Japan:
JFSA Regulation on Derivatives reporting will introduce LEI mandate for reporting entities and their counterparties in 2024.

Hong Kong:
HKMA & SFC joint consultation conclusions paper on enhancements to the OTC derivatives regime for Hong Kong to mandate the use of Legal Entity Identifiers for the reporting obligation in 2019.

Singapore
Monetary Authority of Singapore (MAS) OTC Derivatives Trade Reporting - Securities and Futures Act (Chapter 289) mandate LEI for reporting entities and their counterparties in 2014.

Increase adoption of the LEI
Asia Business Development

- GLEIF has been pursuing local engagement with below some key jurisdictions.
  (Active LEIs as of end of December 2022)

China Mainland & Hong Kong:
Close engagement with local authorities and stakeholders.
PBOC calls for cross-border LEI pilots, e.g. in Greater Bay Area (GBA) and Singapore.

Japan:
Local Managing Director leading the LEI promotion and engaging with local authorities and market participants, e.g. Meet the Market event and cross-border eSeal pilot.

India:
In process of establishing a GLEIF local office in Mumbai.
Local Business Development Manager hired (start from Dec).
Close engagement with RBI.

Singapore:
In process of establishing a GLEIF local branch.
Local representative Adrian Ng started from Aug.
LEI Forum in November.

*Approx. 63 million unincorporated SMEs in India.

LEI in cross-border payment

- **Financial Stability Board**'s Recommendation: **Options to Improve Adoption of The LEI, in Particular for Use in Cross-border Payments** (Jul 2022)

  The FSB recommends guidance on the use of the LEI for **sanctions lists** and as the primary means of identification for legal entity customers or beneficiaries, with specific reference to **customer due diligence and wire transfers**.

- **CPMI-BIS Report: Harmonization of ISO 20022: partnering with industry for faster, cheaper, and more transparent cross-border payments** (Sep 2022)

  CPMI and BIS recommends the usage of BIC, in combination with the LEI as structured data elements.
  Formal Consultation: December 2022

FSB recommendation and current adoption of LEI

FSB recommendation to FSB member jurisdictions

- Explore ways to promote LEI adoption
- Consider mapping the LEI to domestic identifier
- Consider using the LEI in routing message formats, including ISO20022 messages
- Consider adding the LEI in regulations, directives or legislations regarding cross-border payment
- Consider providing guidance on using the LEI in payment chain, including intermediaries.

LEI adoption in payment

- **Reserve Bank of India** mandated LEI in all payment transactions totaling 50 crore and more, undertaken by RTGS and NEFT.
- Reserve Bank of India mandated LEI in all cross-border transactions of 50 crore and more.
- **Bank of England** will introduce LEI into ISO 20022 standard CHAPS payment messages from February 2023 and mandate LEI usage later on for payment involving a transfer of funds between Financial Institutions.
- **China Interbank Payment System (CIPS)** is using LEI to identify transaction participating entities.

https://www.swift.com/swift-resource/251416/download

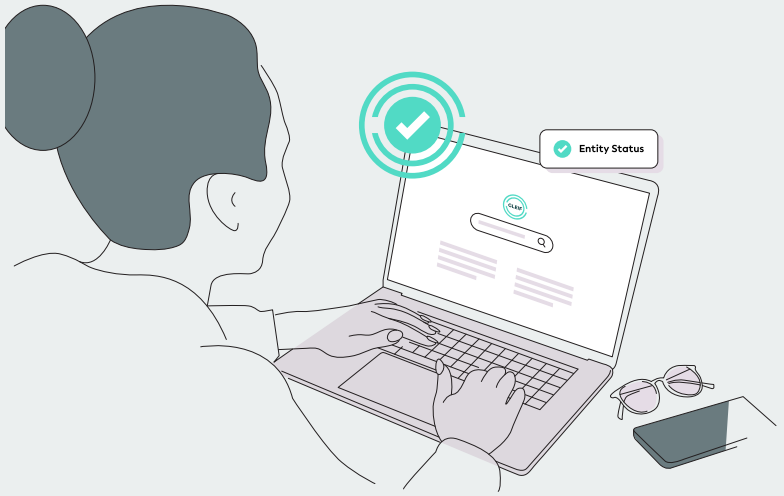
LEI in KYC and Customer Due Diligence

Ways to improve entity identification – The role of the Legal Entity Identifier (LEI)

- The LEI creates a bridge linking the multiple ID systems on a global scale
- Unique source of transparency and trust – advancing digitization via the vLEI
- Can be an “Esperanto” complementing & linking existing identification systems

Benefits of the LEI

- High data quality – annually renewed
- Global ISO standard
- Connected to other identifiers (BIC, ISIN)
- Provides the only global free source of data on entities



GLEIF proposal to incorporate financial institutions (Fis) into the Global LEI System

FI as Validation Agent partner of LEI issuers

FI as "Validation Agent" – Responsibilities

- Check if the client has a LEI (via GLEIF API)
- If not, verify and validate legal entity information
- Partner and interface with one or more LOUs to issue the LEI for the legal entity based on ISO 17742 standard

- GLEIF onboarded its first Validation Agent, J.P. Morgan in November 2020.

- Through end of 2022, 11 organizations have become validation agents and 9 are in process. This includes:
  - Financial institutions
  - Fintechs
  - Certificate authorities

Become a Validation Agent:
A Closer Look at the Process

LEI facilitates trade digitization

- World Trade Organization and World Economic Forum: Without a unique and globally harmonized identifier, finding information about a small business in a sea of metadata is difficult, if not impossible.

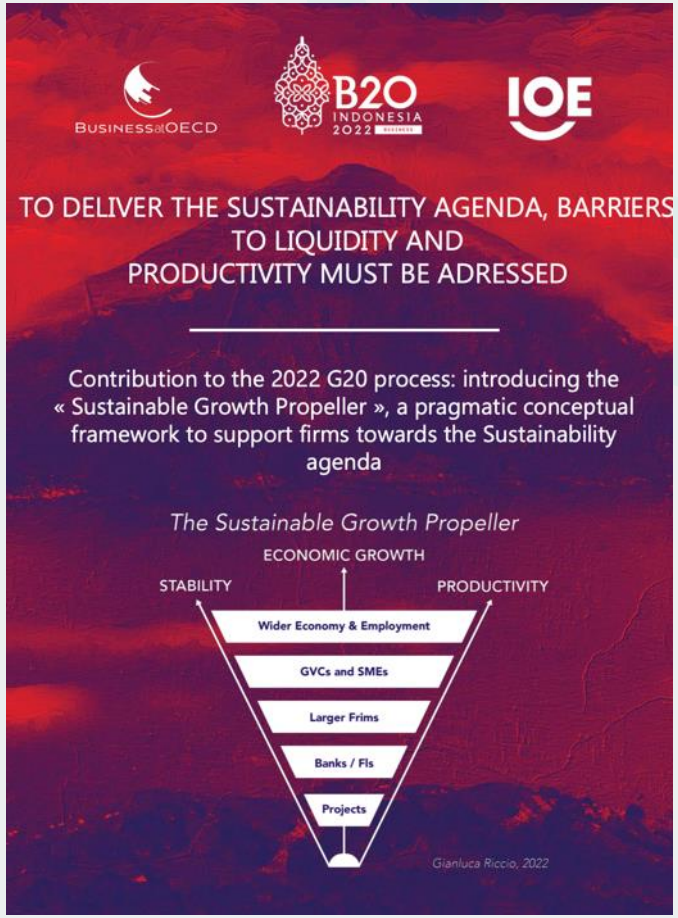
- ICC Identity Management Guide: Identification of legal entities that are interconnected (legally and digitally) in the supply chain.

- BAFT Trade Digitization Paper: The LEI can remove inefficiencies and increase the effectiveness of integration on identity.

B20, Business at OECD and IOE joint paper on Sustainability Agenda

LEI as a data connector

- B20, Business at OECD and IOE published a joint paper for G20 Sustainability 2030 Agenda.
- The report calls for an innovative and inclusive framework, "Sustainable Growth Propeller", that would enable delivery of environmental projects and maximize social sustainability.
- The LEI has been proposed
  - for investors to access both the data regarding the legal entities themselves and the specific relationship data
  - to act as a data connector allowing users to link and verify data across sources easily
  - if sustainability reporting is on a standalone document to a company's annual report, the use of the LEI permits to connect the separate documentation ensuring accessibility, connectivity, consistency and transparency.



International Trade

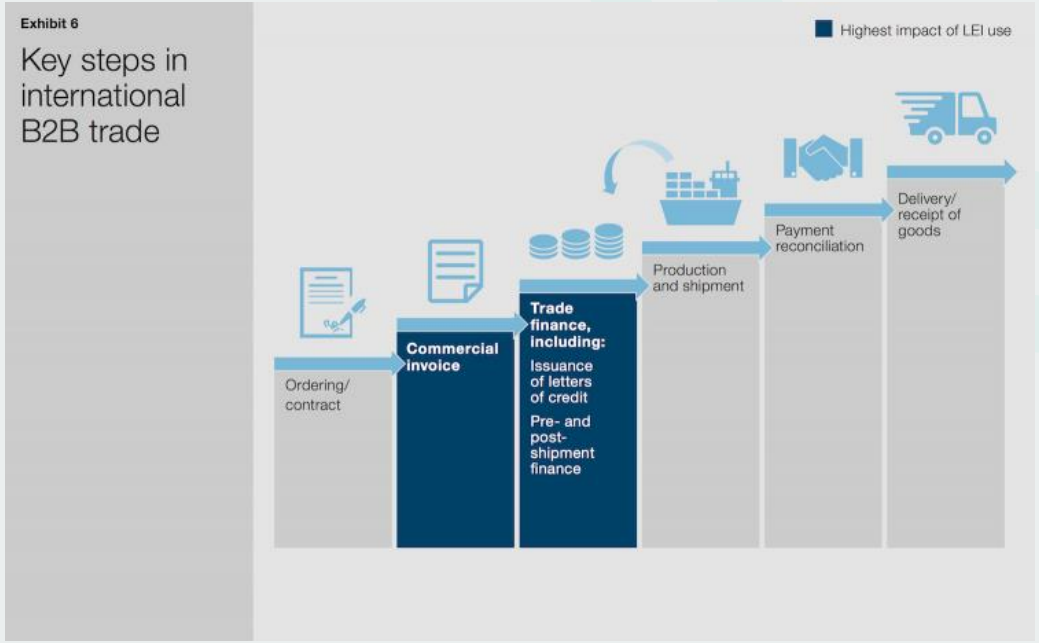
- International Chamber of Commerce (ICC) Digital Standards Initiative (DSI)
- GLEIF is participating in 2 working groups:
  - Key Data Elements for Trade
  - Trusted Technology Environment
- Recent recommendations to the banking community: Shutting fraudsters out of trade

LEI in Trade Finance

- Accordingly to the white paper released by McKinsey and GLEIF titled ‘The Legal Entity Identifier: The Value of the Unique Counterparty ID’, banks in trade financing could save up to U.S.$500 million per annum overall by using the LEI in the issuance of letters of credit.

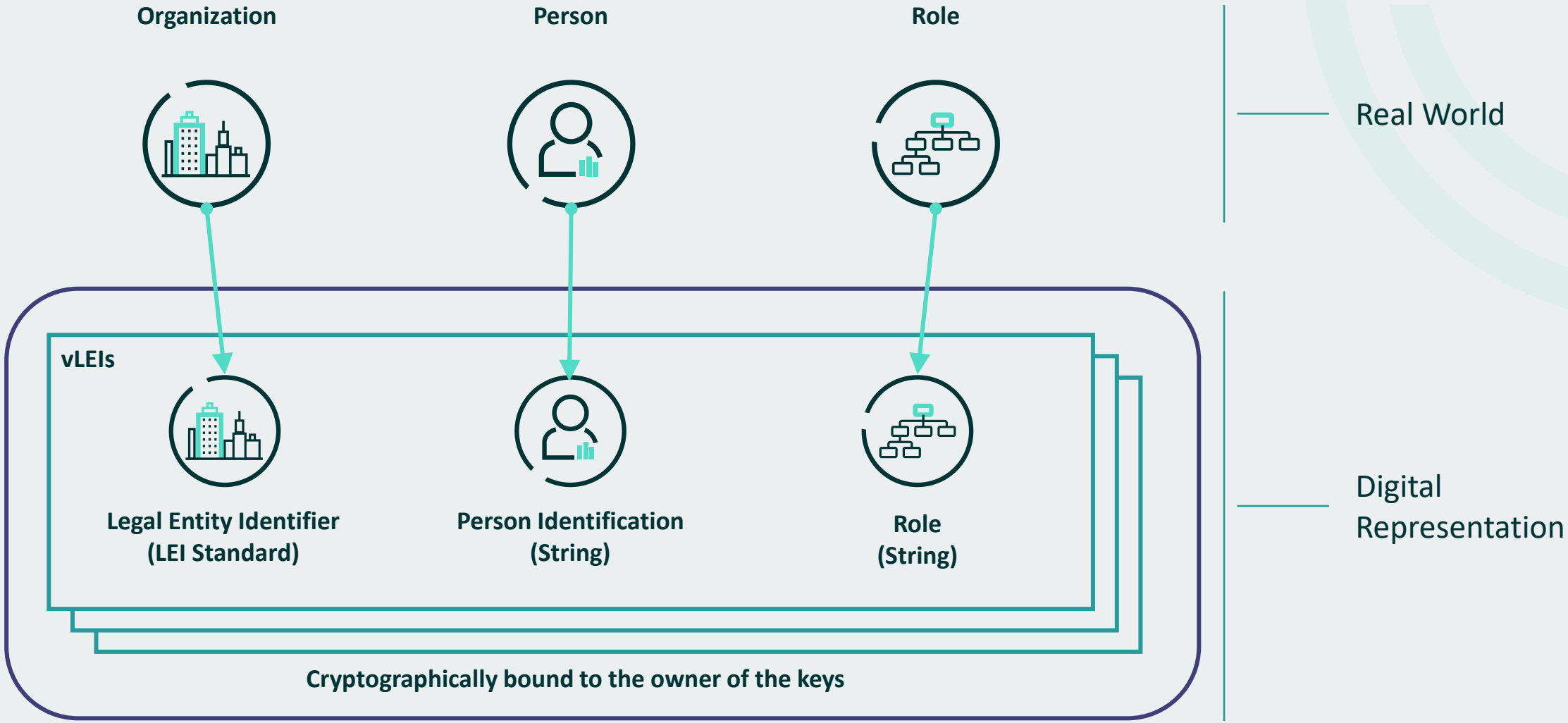
- **LEIs would enable the immediate, digitized identification of entities and would allow banks to dramatically curtail the time and resources spent on background checks and investigations.**

- **In addition to facilitating AML efforts, the use of the LEI can mitigate fraud risk, e.g. double financing.**



Representing Organizations, Persons and Roles

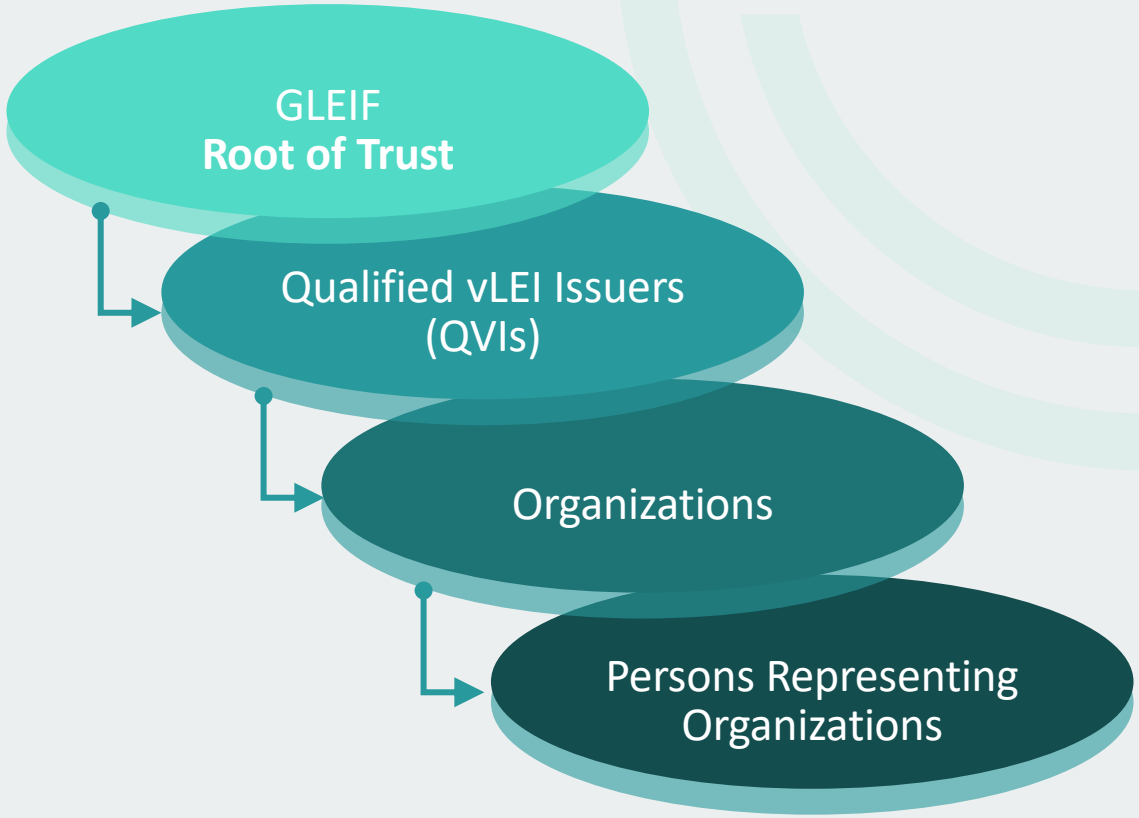
Securely, with certainty and end-verifiability



The verifiable LEI (vLEI) Ecosystem

The vLEI Trust Chain

- The Global Legal Entity Identifier Foundation (GLEIF), as manager of the Global LEI System, has created the verifiable LEI (vLEI) Ecosystem.
- Each vLEI requires an underlying LEI.
- GLEIF has established itself as the **Root of Trust** for the vLEI Ecosystem and chain of trust (using cryptographic Autonomic Identifiers).
- A trusted network of **Qualified vLEI Issuers** (**QVI**s) can issue vLEIs
  - to Organizations
  - to Persons who represent their organizations either in official or functional roles

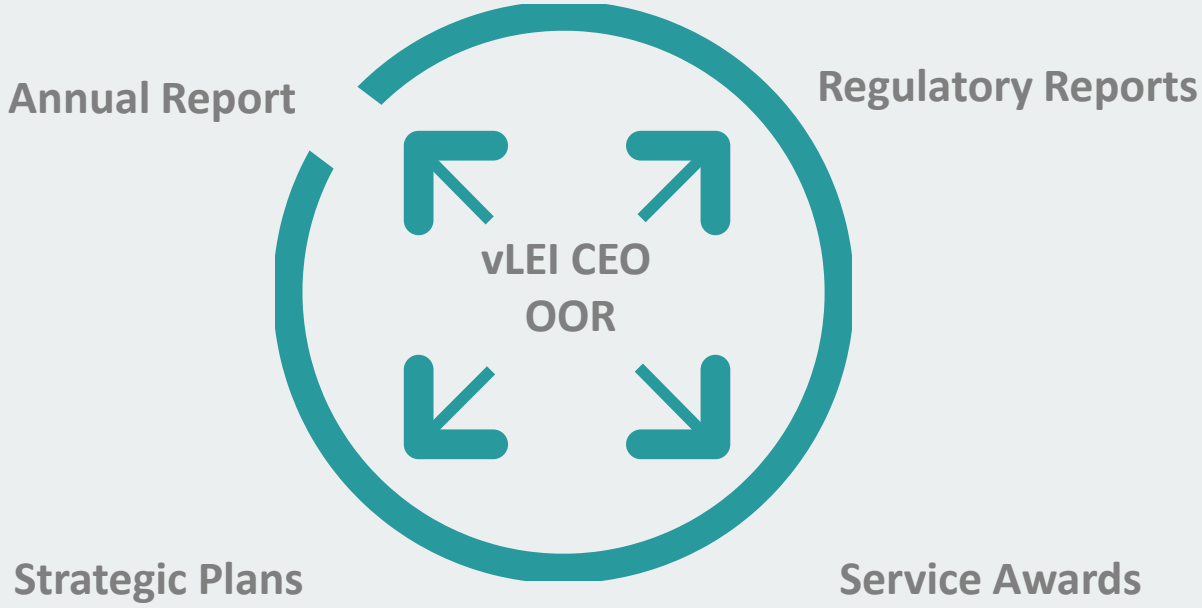


Using vLEI Credentials

Official Organizational Role (OOR) vLEI Credentials

- Organizations can authorize QVIs to issue vLEI credentials to persons who represent their organizations in official roles.
- Roles can be verified against one or more public sources or through documents provided by the organization, such as Board minutes or resolutions, statutes or articles, which would validate the name and the role of the OOR Person.
- Lists of Official Organization Roles have been standardized by the ISO 5009 standard.

- Example: vLEI Role Credential for a CEO
  - Can be used to:
    - carry out official duties and powers conferred legally or required by regulation, e.g., annual reports, regulatory reports
    - carry out internal policies, duties or tasks, e.g., approve strategic plans, sign employee service awards

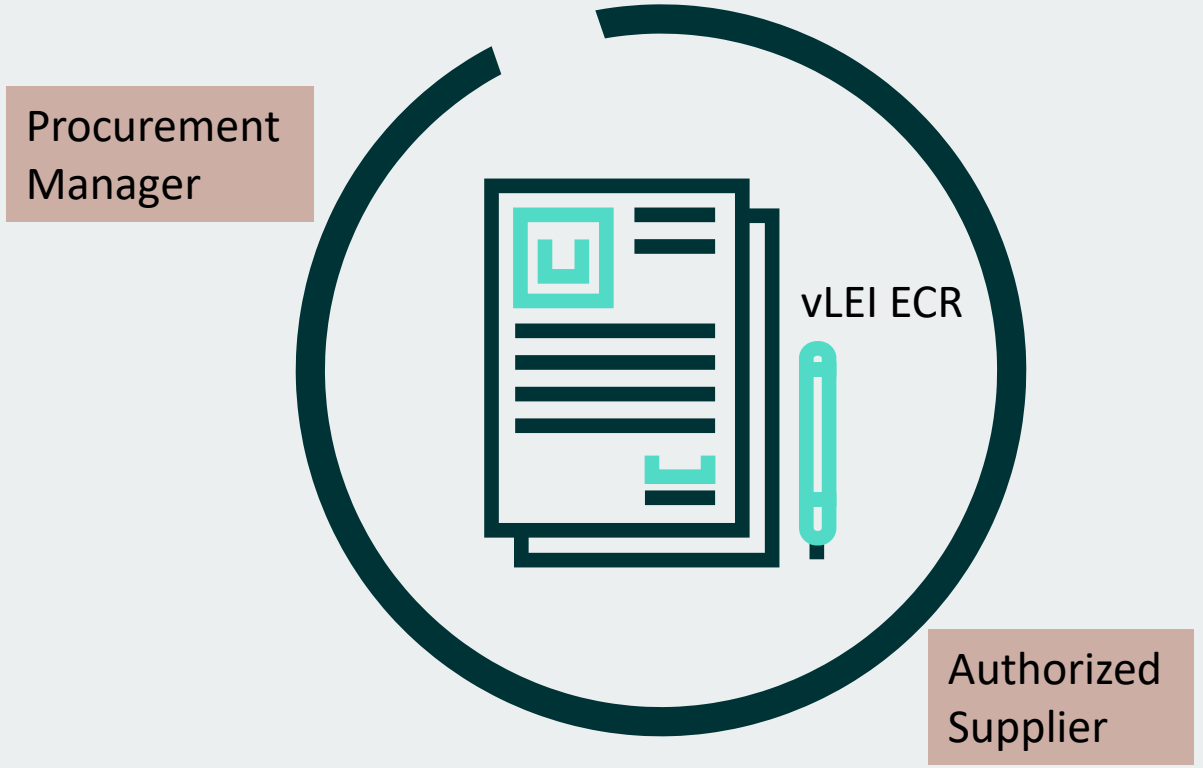


Using vLEI Credentials

Engagement Context Role (ECR) vLEI Credentials

- Organizations also can authorize the issuance of vLEI credentials to persons **in the context of the engagement** of those persons with an organization, which can be verified by the organization.

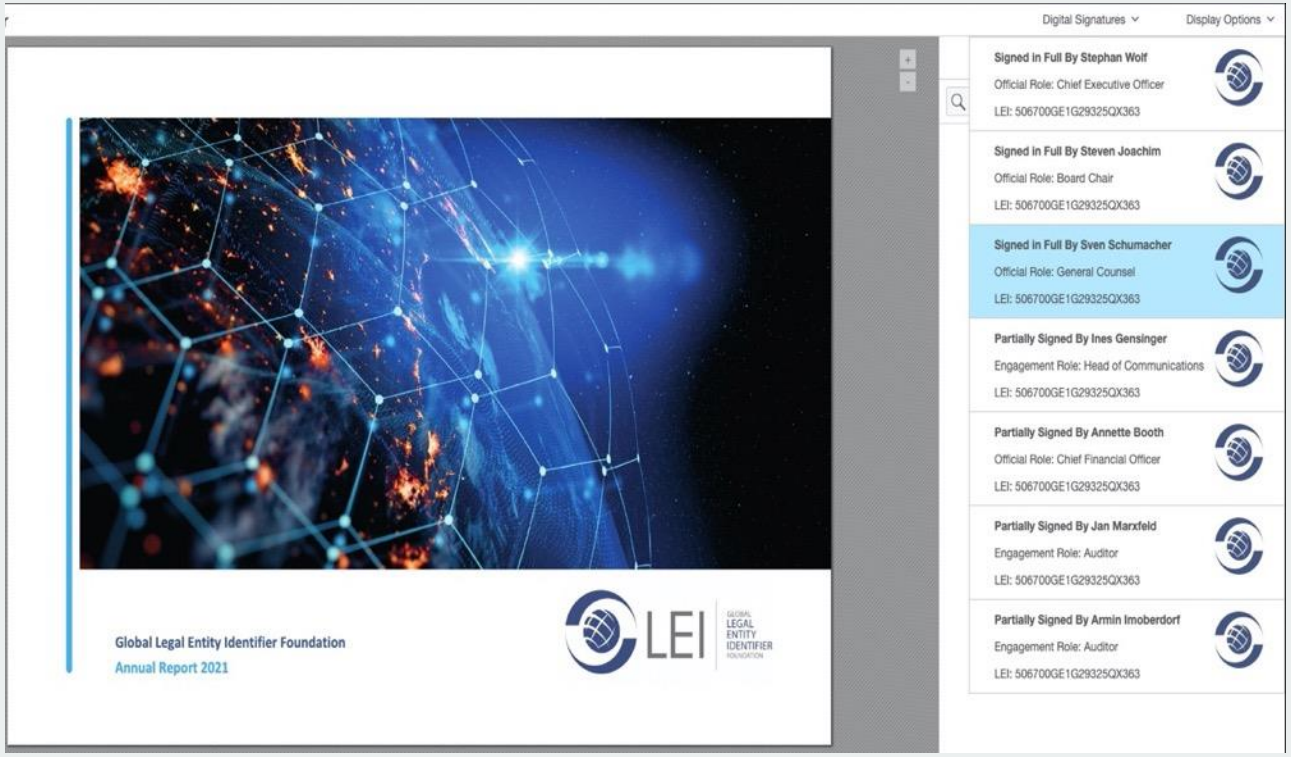
- Example:
  - vLEI Role Credentials issued by an organization to its authorized suppliers
  - Requirements for use defined by the organization
    - Could require authorized suppliers to submit invoices signed with their vLEI Role Credentials to eliminate presentation of fraudulent invoices



vLEIs in action

GLEIF Annual Report signed using vLEIs

- **vLEI Credentials issued**
  - OOR and ECR vLEI Credentials issued to certain officers and employees/managers of the organization.
- **Submission signed**
  - Specific sections/parts of a report, for example, can be signed by officers and employees/managers of the organization with their OOR and ECR vLEIs.
  - The same report also can be signed in its entirety by officers and employees/managers of the organization with their OOR and ECR vLEIs.
- **vLEI Credentials presented and signatures verified**
  - Status of the vLEI Credentials and the validity of the signatures on the submission are verified.



https://www.gleif.org/en/about/governance/annual-report (browser based, no plugin required)

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DTCC
ADVANCING FINANCIAL MARKETS. TOGETHER.™

SESSION 8: LESSONS LEARNED FROM DIGITALIZATION AND T+1 INITIATIVES

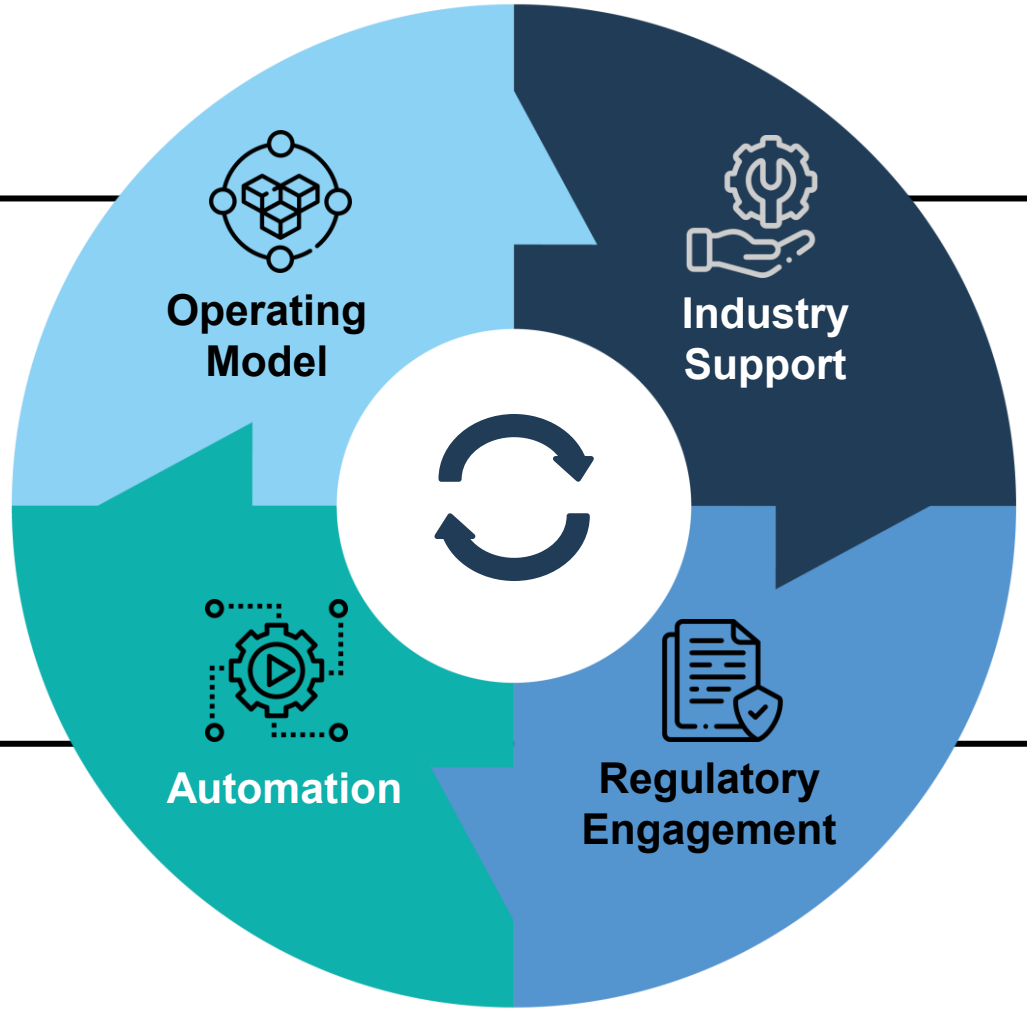
Jennifer O'Rourke, Executive Director, DTCC, Innovation Strategy

Nellie Dagdag, Managing Director, DTCC, APAC Marketing & Communications

February 2, 2023

T+1: What have we learned so far?

- Compressed timing
- Exception handling
- Funding & FX booking
- Corp action & SBL



- Data-driven business case
- Playbook; reasonable timeframe
- Education campaign

- Goodbye to manual
- STP, API, SSI
- No-touch workflow

- Early and continuous engagement
- Solid value prop
- Compliance

DTCC CS – Accelerated Settlement Service Offering

The change from T+2 to T+1 will bring significant challenges across the industry. DTCC CS has identified three Pillars of Engagement - a) Diagnostic of current state and gap analysis to playbook, b) Solution design and planning and c) Support for the delivery effort

DIAGNOSTIC

- **Autonomous benchmark analysis and impact assessment** tailored to each client to identify timing challenges and inform gap assessment. DTCC CS uses this data to drive **root-cause analysis** across the trade lifecycle to drive material and impactful change
- Scope of assessment is across **many front to back processing elements** *e.g. from onboarding, trading, to fail management*
- **Conduct health check on existing** programs, readiness assessment and analysis, the outcome of which will be an audit report highlighting any optimisation proposals of the existing program which should be addressed, along with proposed actions to address them

DESIGN

- **Definition of Target Operating Model** of accelerated settlement
- **Planning, costing** and **resourcing** for readiness to accelerated settlement

Key Questions that will drive design definition:

- *What **processes** could be automated or modified?*
- *Are the existing **controls** in place sufficient to remain effective with the increased Operational Risk for T+1?*
- *What needs to change in the current **technology stack**? e.g. new systems, upgrade, response time, fallback, 3rd party*
- *Is the current **MI and governance structure** good enough to measure settlement efficiency and drive revision of controls?*
- *What **team size and capacity** in which location to accommodate?*
- *What **client and counterparty outreach** is needed to ensure efficiency of the settlement chain?*

DELIVERY

- Support the **mobilisation of the Accelerated Settlement program**
- **Deliver BRDs** and **lead Change and IT governance**
- **Drive the implementation of new processes and control** framework enhancements inc. sign off by 3 Lines of Defence
- **Project management activities** across program and projects
- **Go live support and testing**

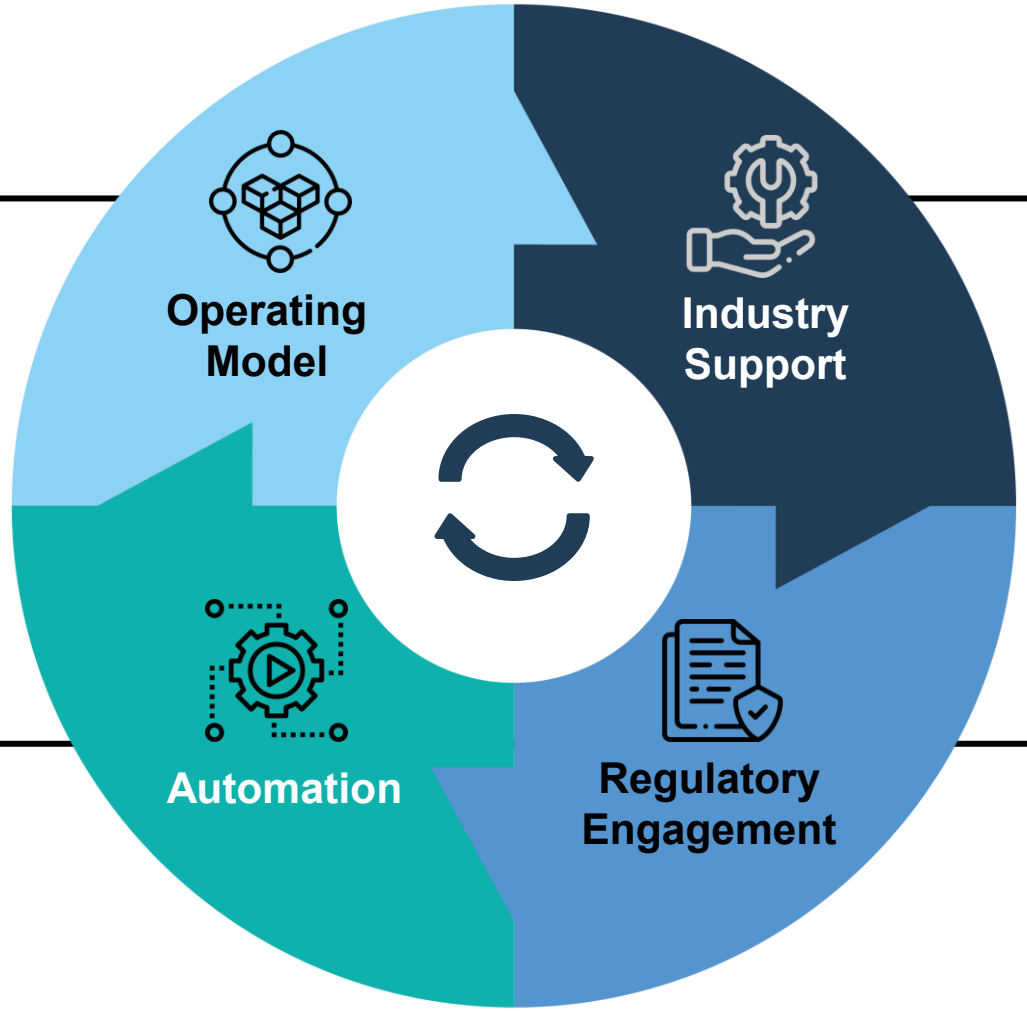
Example Themes to be the focus of change:

Allocation and Affirmation	Errors and Fails	Global Settlement & FX
Prime Brokerage	Securities Lending *(recall)*	Corporate Actions

Across these three phases of work, DTCC CS can provide multiple types of consultants that can fill those roles, including Securities process SME, PM, PMO, BA, Programme directors, access to industry working groups and governance

T+1: What have we learned so far?

- Compressed timing
- Exception handling
- Funding & FX booking
- Corp action & SBL



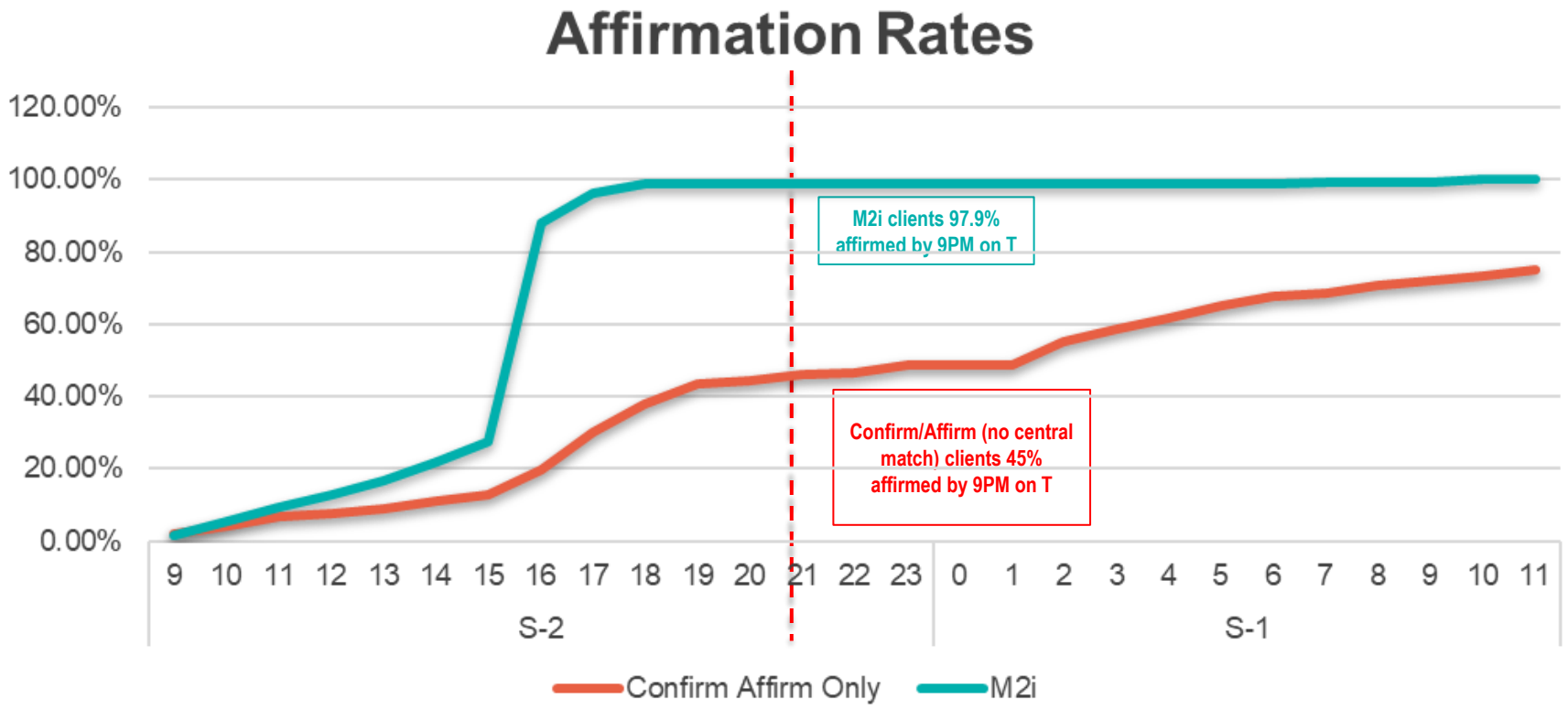
- Data-driven business case
- Playbook; reasonable timeframe
- Education campaign

- Goodbye to manual
- STP, API, SSI
- No-touch workflow

- Early and continuous engagement
- Solid value prop
- Compliance

ITP M2i and Same Day Affirmation – Closing the Gap

Proposed Exchange Act Rule 15c6-2 would effectively mandate same day affirmation (SDA). Additionally, the DTC is proposing a 9PM cutoff in order for affirmed confirms to be included in the night cycle on trade date. ITP data indicates that in the current T2 environment only about 45% of institutional trades affirmed via the confirm affirm model would achieve the 9pm cutoff, and less than 50% would comply with the SDA regulation. This is a significant gap to close in a relatively short period of time. Affirmation data for the M2i early adopters supports the ITP hypothesis that adoption of the M2i workflow is the most efficient means for closing that gap.



US T+1: Time Zone Implication for APAC Investors

KEY CUT-OFFS FOR INSTITUTIONAL TRADES	New York (Base time)	London (5 hrs ahead*)	India (9.5 hrs ahead*)	Sing/HK (12 hrs ahead*)	Japan/S.Korea (13 hrs ahead*)	Sydney (14 hrs ahead*)
US markets (NYSE) close	4:00pm	9:00pm	1:30am	4:00am	5:00am	6:00am
Proposed affirmation deadline under T+1	9:00pm	2:00am next day	6:30am	9:00am	10:00am	11:00am

** Hours ahead of NY with DST; add 1 hour without DST.*

Timing of post-trade activities (matching, allocation, confirmation, affirmation) for APAC investors, ex-India:	
• Intraday matching	Not possible. Already evening in APAC. Exception would be if the firm has an operating center working US shift.
• After close of US markets	YES, but need to do it first thing in APAC morning. Requires change in the prioritization of their daily activities and/or resource reallocation to fit into a tight window that coincides with the opening of the APAC markets.
• Pre-allocation (order and execution at the fund level), where allowed by fund mandate	Take out the allocation step from the critical path.

For Indian investors, the post-trade activities need to be done during US hours on T+0, either by staff located in India but working US hours or by an agent/intermediary sitting in the US. India, being an ID market, is used to pre-allocation.

www.dtcc.com/ust1

T+1 – INDUSTRY T+1: SHORTENING THE SETTLEMENT CYCLE (T+1)

ABOUT THE EFFORT

The Securities Industry and Financial Markets Association (SIFMA), the **Investment Company Institute** (ICI), and **The Depository Trust & Clearing Corporation** (DTCC) are collaborating on efforts to accelerate the U.S. securities settlement cycle from T+2 to T+1 in the first half of 2024.

Working closely with members and other key stakeholders, the organizations are outlining key steps to shorten the cycle for secondary market transactions, identifying priority issues that need to be addressed and conducting the necessary due diligence and resolution of these critical issues.

THANK YOU!

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SESSION 9

- **FX regulatory reporting standardization** by Roselle Dime, ADB
- **20022 Registration Management Group (RMG) Update:** Message Standardization and Taking Stock of the ASEAN+3 experience by Masayuki (Mike) Tagai, IS0 20022 RMG, Convenor

Session 9: FX Regulatory Reporting Standardization

36th ASEAN+3 Bond market Forum (ABMF) Meeting
1-2 February 2023

Global Initiatives

- ISO 20022 implementation by 2025

➢ SWIFT ISO migration for cross-border payments and reporting begins March 2023

➢ As a response to the migration, the Bank for International Settlements' Committee on Payments and Market Infrastructures (CPMI) is working on the harmonization of ISO 20022 to enhance cross-border payments in the G20

➢ ASEAN has adopted ISO20022 in the ASEAN Economic Community Blueprint 2025

These global discussions on payments are aimed to increase transparency and reduce cost. In Asia,

- A Memorandum of Understanding (MOU) on Cooperation in Regional Payment Connectivity (RPC) was signed in Bali, Indonesia, on the sidelines of the G20 Leaders' Summit which was held in November 2022
- ASEAN Banker's Association working on data interoperability

Why ABMF is doing FX Reporting Standardization

- Create real benefits
  - ABMF promotes the implementation of ISO20022 in ASEAN+3
  - ABMF also promotes the use of the Legal Entity Identifier (LEI)
  - The ABMF aims to use its work on regional standardization and harmonization to support effective and efficient regulatory reporting across other business processes (e.g. KYC and tax processing)
- FX Reporting as a conduit
  - FX reporting was selected because it collects transactions that are the result of underlying cross-border securities trades among other business types, and it exists in all markets.
  - FX reporting was selected because an FX transaction is the most standardized transaction and the FX reporting was expected to be fairly simple and similar across markets
- Asia should contribute to global discussion
  - FX reporting is the link to the larger discussion about cross-border securities transactions and their resulting data flows

Standardization efforts under ABMF

(Step 1): Identification of transaction flows of payment and market infrastructures in each ASEAN+3 market as well as cross-border transaction flows by drafting of the Bond Market Guides and SF2 Reports (2010-)

(Step 2): Promotion of international standards such as ISO 20022, LEI, BIC, and ISIN (2012)

- ASEAN Economic Community Blueprint 2025

- Collaboration with Cross-Border Settlement Infrastructure Forum

(Step 3): Account Structure Study to improve Know-Your-Customer Process for regulatory and tax reporting (2017-)

(Step 4): Identification of message items to be harmonized and standardized (2021-)

FX Reporting Objectives

- As part of its standardization and harmonization efforts, ABMF is currently looking into the regulatory practices pertaining to FX regulatory reporting

- AMBF is looking to make a well-founded case to propose to standardize or harmonize FX reporting in the region and, based on FX reporting requirements, propose a standardized FX transaction message that fully utilizes ISO20022 capabilities

Standardization and FX reporting data mapping exercise

- Along with the implementation of ISO 20022 by 2025, there is a possibility that existing foreign exchange reporting in ASEAN+3 must be standardized
- Not only reporting process can be streamlined and reporting burden would be reduced, but also the authorities may be able to have access to more data, hence, can gain more transparency in financial transactions
- Standardization can support improving and streamlining of regulatory and tax reporting as well as digital transformation (DX) by financial institutions
- LEI can be used for not only FX reporting but also other reporting including taxation

Collecting FX reporting items in ASEAN+3

Map the data

- Entity info
- KYC process
- Transaction info
- Reason for transaction
- Map against the existing message standards

Propose standardization

- Propose a revision of existing message or creation of new messages

FX Reporting Assumptions

- Market participants in all or selected markets need to report FX transactions as they occur, in formats specific to each market and set by central banks
- However, reporting items are expected to be similar
- The reporting is (said or perceived to be) onerous, highly repetitive, not necessarily aligned with instruction or transaction timing, and in proprietary format(s)
- A transaction-based, standard reporting triggered by available data in FX instruction or transaction and custodian static data with required key reporting items offers to streamline reporting
- In addition, FX reporting may be able to link with tax reporting for customer identification and categorization for taxation

Mapping exercise

Mapping Exercise

1. Map data elements of FX transaction reports across the region
2. Map data elements of FX transaction reports against a standard FX confirmation message (e.g. MT300)
3. Reporting formats in Korea and Thailand were first considered and have expanded to include the Philippine and Malaysian markets
4. Open correspondence with Central Bank representatives for any clarifications on the reporting formats and details on the data elements
5. Alongside the correspondence with Central Bank Representatives, dialogues with the private sector have commenced for a wider scope of understanding and for a more complete perspective

Mapping Exercise: Findings

1. Differences in the number of data elements and in the use of mandatory and conditional data fields
2. There are also differences in the number of reporting formats that must be submitted relating to FX transactions
3. Nature of FX transactions that are reported also differ
4. Use/Purpose of FX reporting are also different across markets

Mapping Exercise: Findings

- Despite the discrepancy in the data reporting elements there are standard data elements that are commonly found in the FX reports across the region namely:

1. Transaction reference number
2. Date of transaction – may be trade date or settlement date
3. Information on the identity of the financial institution executing the transaction
4. Information on the counterparty to the transaction
5. Amount transacted
6. USD equivalent
7. Currency involved
8. Nature of transaction
9. Type of transaction
10. Transaction purpose

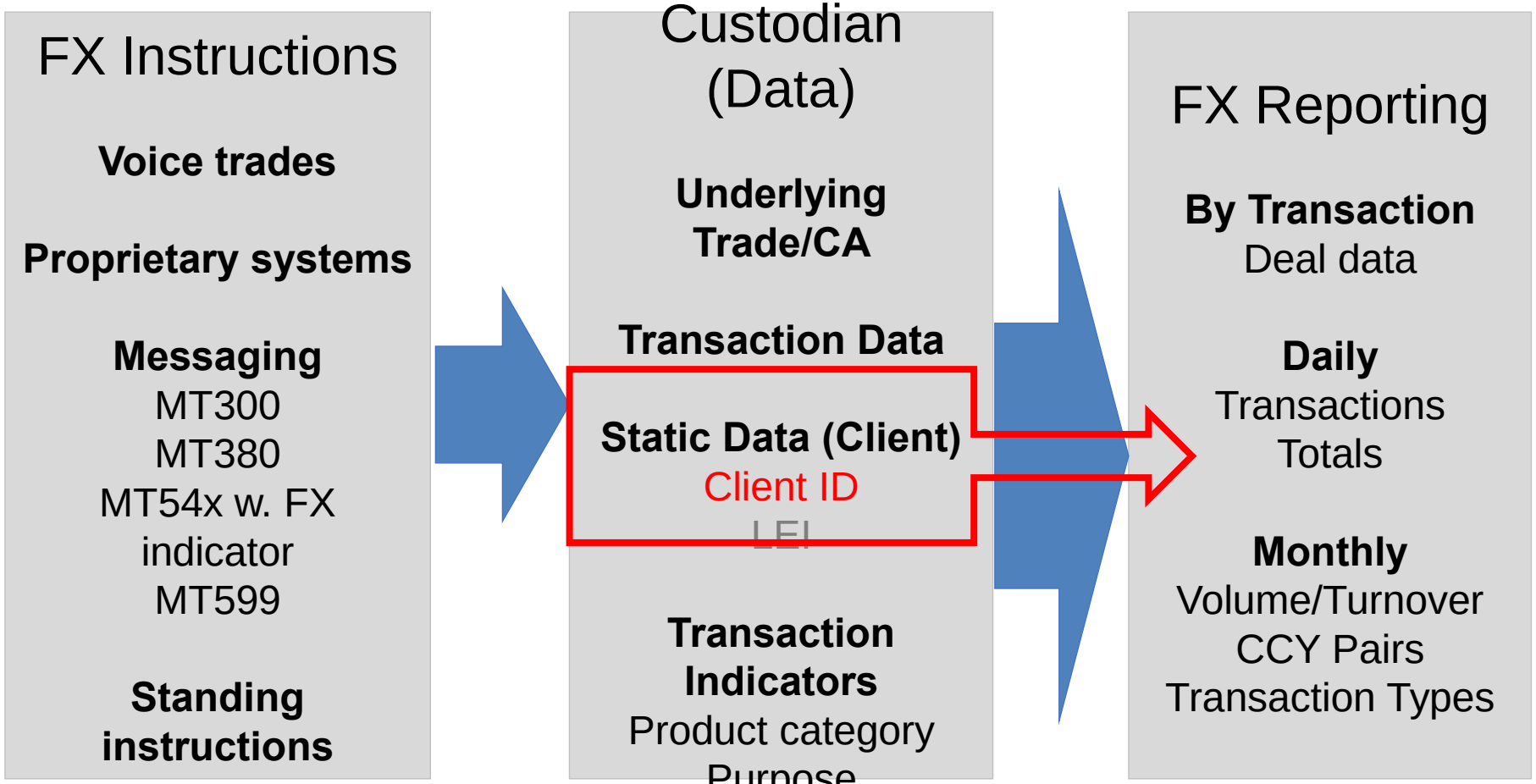
- The required information may be the same but they have different tags. (Example: Date of Transaction- some economies use this tag to mean settlement date while others assign it to mean trade date)

Summary Table

	Indonesia	Malaysia	Korea	Philippines	Thailand
Transaction Report	SISMONTIVAR	ROMS	FX0015 and FX2001	Form 1 Schedule 8	DS_FXA and DS_FTX
Frequency	Daily	Daily	Daily	Daily	Daily
Mode of Submission	SISMONTIVAR	ROMS	FEIS	email	DMS
Submission	every 30 minutes	every 15 minutes	Next business day	within 2 banking days	within 7 days
No. of FX Reports	1	1	106	12	2
No. of data elements on Reporting Bank ID	5	1	4	1	1
Reference Number	1	1	1	Not reported	2
Use of LEI as Counterparty Identifier	NO	YES	NO	NO	NO
Number of Transaction Purpose Codes	Free format	11	>100	>100	>100

Relevance of standardized client ID

Statutory FX reporting likely identifies (all) entities by Client ID (at least proprietary ID within a custodian)



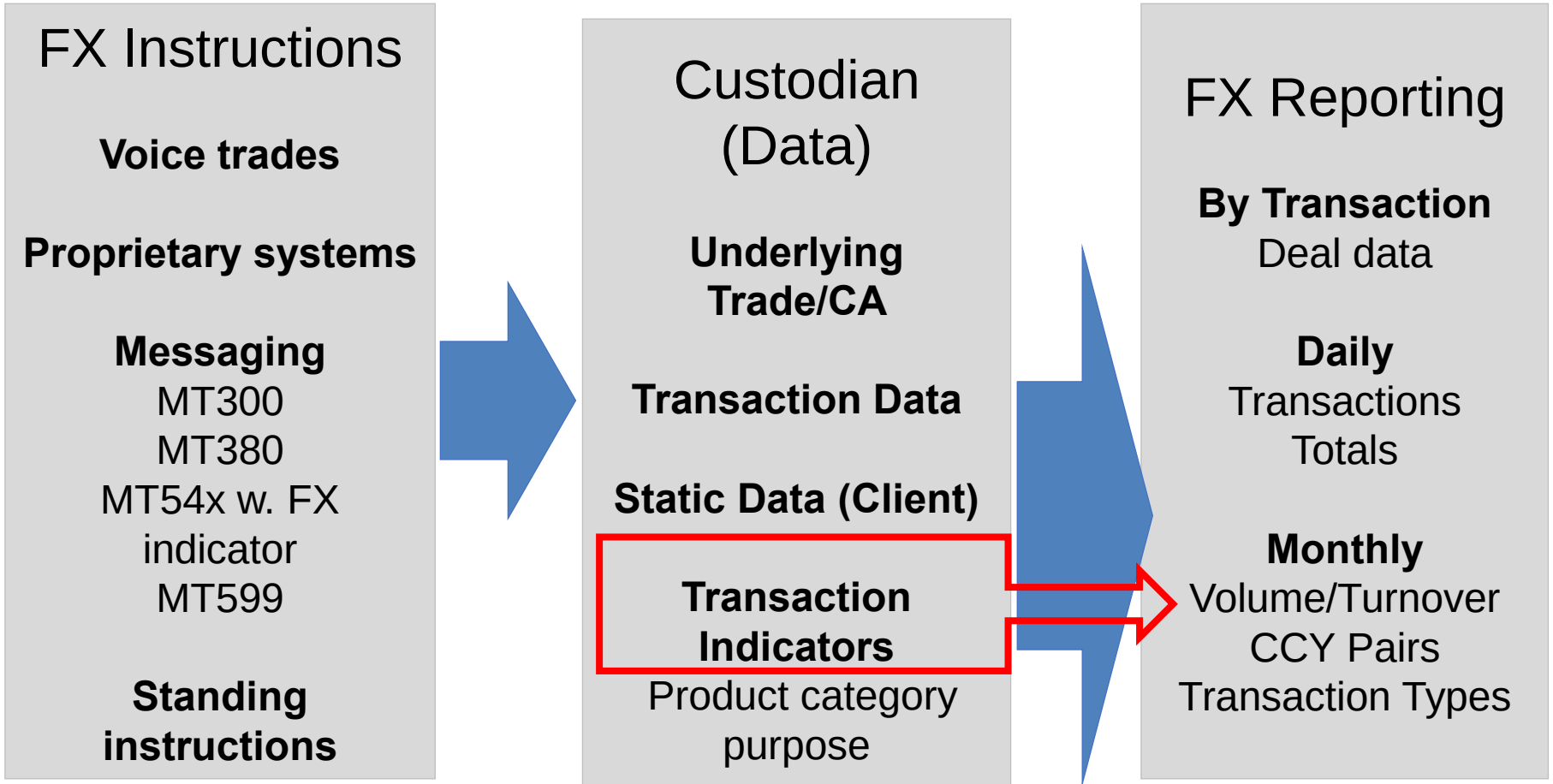
Use of LEI for customer identification and classification in transaction flows

- **Basic data elements for taxation**
- 1. individual or non-individual (entity)
- 2. Name
- 3. Nationality / Legal domicile
- 4. Identity Number (i.e. Tax ID and/or personal ID for individual)
- 5. Date of Birth / Date of company establishment
- 6. Address
- 7. Type of Business (only for institution)
  - a. Corporate (CP)
  - b. Foundation (FD)
  - c. Financial institution - bank (IB)
  - d. Financial institution - non bank (IB)
  - e. Insurance (IS)
  - f. Mutual Fund (MF)
  - g. Pension Fund (PF)
  - h. Securities company (SC)
  - i. Others (OT), i.e. government entity or international organization

LEI can provide the information in red.
LEI can cover most of investors

Relevance of standardized transaction identifiers

OTC derivative reporting will include Unique Transaction Identifier (UTI), Unique Product Identifier (UPI), and Critical Data Element (CDE)



Globally agreed transaction indicators

- Unique Transaction Identifier (UTI)

uniquely identify individual OTC derivatives transactions required by authorities to be reported to TRs

- Unique Product Identifier (UPI)

uniquely identify the product involved in an OTC derivatives transaction that an authority requires, or may require in the future, to be reported to a trade repository (TR)

- Critical Data Element (CDE)

critical OTC derivatives data elements other than those in the UPI and UTI

Collaborations

- Registration Management Group (RMG) of ISO20022
  - The highest ISO 20022 governing body; it supervises the overall registration process
  - Regulatory reporting links to a trade/transaction message and the work of the ABMF supports and also benefits from the work of the RMG in harmonizing messages for data interoperability
- BIS-CPMI on message standardization for ISO20022 compliance
  - CPMI is planning for the ISO 20022 harmonization requirements to identify a core message set and define the minimum requirements for a data model
  - A standard FX instruction message has a consequent implication to payments and cross-border securities settlements and as such the work the ABMF does has links to the work on payment standardization
- ASEAN Banker's Association on Data Interoperability
  - FX standardization can be a use-case scenario for Data Interoperability—a harmonized FX instruction message gives way to standardization of data for cross-border accessibility

Next Steps

- The divergence in the reporting of transaction purpose will be analyzed to see how the various codes from across markets may be re-aligned and matched across markets (keeping in mind the existing purpose of such codes and regulations in each market) not just for FX reporting but for data interoperability of cross-border payment transactions
- The requirements on counterparty ID also provide a potential for proposing the use of a global identifier; this has implications on AML/KYC practices of the various markets
- The difference in the data elements that are required in the FX reporting across various markets is also worth looking into. On the one hand, minimal data elements requirements is neat and simple but it may also be worthwhile to check the possibilities of including relevant information such that the end to end transaction flow is captured in the report; this could also have implications on data interoperability (Note: Some markets' FX reports can be fulfilled using the ROMS format)

ISO 20022 Registration Management Group (RMG) Update

-- Time to take stock of the ASEAN+3 experience and invest in Standards

Prepared for the 36th ASEAN+3 Bond Market Forum (ABMF), Manila, Feb 2, 2023

Masayuki (Mike) Tagai (田貝征之)

Convenor, ISO 20022 Registration Management Group (RMG)

Executive Summary – Time to invest in the ISO 20022 Standard and the ISO 20022 RMG

- Many ASEAN+3 markets have introduced ISO 20022 at their CSD, RTGS and RTP messages.
- 2023 is a key year as SWIFT migration of its payment messages to ISO 20022 starts in March. Regulatory attention is increasing, particularly around using ISO standards as a means for compliance and to enhance cross border payments under the CPMI roadmap (BB14).

- The Registration Management Group (RMG) is the highest governing body for ISO 20022 and (https://www.iso20022.org/registration-management-group) a key forum that impacts the future of financial messaging and resulting market structure.

- Members of the RMG are composed of senior industry experts representing nations, global financial market infrastructures, technology providers and major central banks.

- The RMG has started to drive changes such as expanding beyond messaging and introducing API resources standardization, advocating for the true value of the ISO 20022 method and providing adoption / implementation guidance by tackling interoperability challenges.

- Through proactive engagement, the ASEAN+3 economies can help evolve the standard, shape the future financial messaging landscape and fast-track the benefits of ISO 20022. Engagement can be driven through participation at the RMG and select ISO standards bodies.

ISO 20022 Registration Management Group (RMG) – Status Today

ISO20022 RMG: Role and Function

The RMG represents the ISO 20022 user communities and is the highest ISO 20022 registration body. It supervises the overall registration process and coordinates with ISO TC68/SC9* which is the standard owner.

RMG also coordinates with ISO TC68 for the objective to coordinate various actors required for the high-quality exchange of information for financial services.

The RMG functions include the approval of new business justifications, appointing and allocating SEG** resources as well as issues resolution and communication related to the registration activities.

The ISO 20022 registration activities are undertaken by a Registration Authority (RA) which is carried out by SWIFT*** under contract with ISO. ISO TC68/SC9 provides oversight over the RA and the RMG as proxy to the users is expected to provide relevant information into this process.

Progress between 2021 and 2022

- Creation of a Practice Design group to initiate market practice discussions with Regulators (CPMI)
- Creation of an API resources working group leading to an API Resources Standards Evaluation Group (SEG)

*ISO: ISO (International Organization for Standardization) is an independent, non-governmental international organization with a membership of 164 national standards bodies. There are 164 countries and 781 technical committees (TC) and subcommittees (SC) to take care of standards development. Financial Services are discussed at TC68. TC68/SC9, responsible for data transport standards within TC68 is the current owner of the ISO 20022 standard and is also responsible for the oversight of the RA.

** SEG: The Standards Evaluation Groups (SEG) is organized by the RMG according to business needs. The SEGs represent future users of the resulting messages in specific financial business areas. Their key function is to validate new candidate messages and change requests whether they are fit for use by the underlying businesses.

*** SWIFT as RA: The RA maintains and publishes the ISO 20022 Repository and associated Data dictionary, under contract with ISO.

The ISO 20022 RMG Membership

Strength of a diverse set of communities of users of the ISO 20022 standard and ISO 20022 messages

Heritage ISO TC68 P-Member Countries

1	Australia	8	*France*	15	*Norway*
2	*Austria*	9	Germany	16	Singapore
3	Brazil	10	Italy	17	South Africa
4	Canada	11	India	18	Sweden
5	China	12	*Japan*	19	Switzerland
6	Denmark	13	Korea	20	United Kingdom
7	Finland	14	*The Netherlands*	21	United States

Heritage ISO TC68 Liaison Institutions

1	Clearstream	5	FIX Protocol Ltd	9	nexo A.I.S.B.L.
2	Euroclear	6	ISDA/FpML	10	SWIFT
3	European Central Bank (ECB)	7	ISITC	11	VISA International
4	European Payments Council (EPC)	8	Mastercard	12	

New Communities joining after 2015*

1	ACTUS	4	DTCC	7	RippleNet
2	Bank of England	5	NACHA, IFX Forum	8	Mojaloop Foundation
3	CFTC	6	OMG	9	

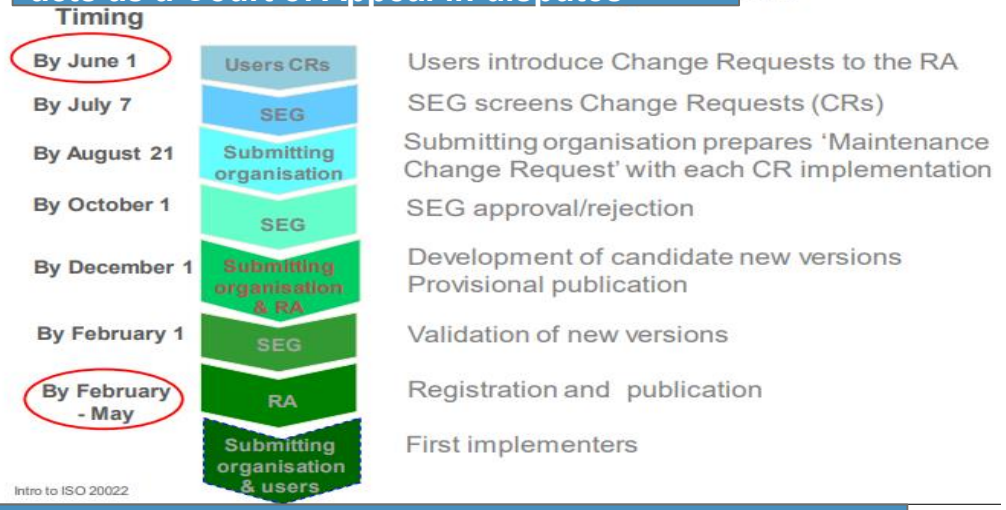
*: In 2015, the RMG expanded its membership to communities within a nation and to communities that cross national boundaries in order to counter the constraints the ISO (one-country-one-vote) system brings about.

How are ISO 20022 messages developed and what is the role of the RMG?

The RMG approves or rejects any request to develop a new ISO 20022 message and assigns the evaluation to a SEG

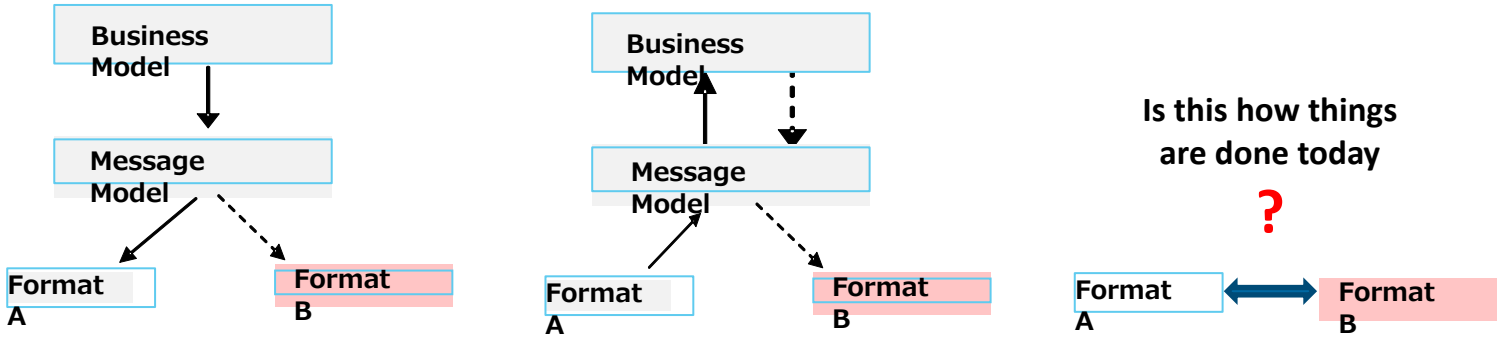
- The RMG can define the scope of the ISO 20022 repository and guards its integrity
- Any community of prospective ISO 20022 users can raise a business justification

Changes to existing ISO 20022 messages are raised directly to a SEG and the RMG acts as a Court of Appeal in disputes



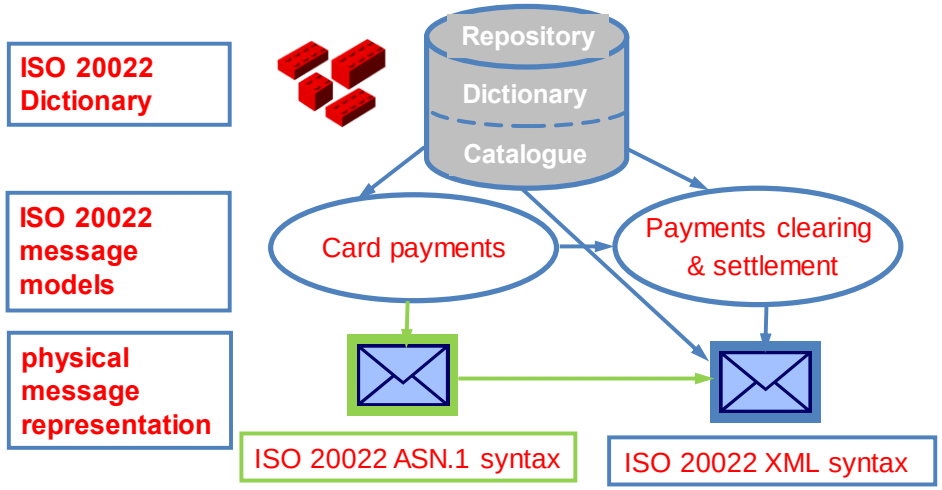
- Many changes to exiting ISO messages are coming from new types of service providers
- Existing ISO messages can be changed and adopted for any community (not SWIFT)

ISO 20022: Enables consistent change by upstream modelling and aligned data dictionaries



The ISO 20022 Standard

Part 1: Metamodel
Part 2: UML profile
Part 3: Modelling
Part 4: XML schema generation
Part 5: Reverse engineering
Part 6: Message transport characteristics
Part 7: Registration
Part 8: ASN.1 generation



（出所）Introduction to ISO 20022 – Universal financial industry message scheme, Feb. 2022, https://www.ISO20022.org

ISO20022：RMG Role and Intended Evolution

The standards space including RMG are made up of volunteers supported by firms supporting pro-bono efforts by their employees. Capacity is a constraint which could be alleviated with firms with real business case providing input.

- The RMG sits at the top of the message registration process today
  - It approves requests from the market to develop new messages
  - It acts a “court of appeal” in case of issues in the registration process
  - It accepts new member applications according to criteria
  - It has grown out of the ISO (one-country-one-vote) system in 2015
- In late 2019, the RMG decided to expand beyond “message registration”
  - To address a “Business” audience beyond the “Developer” community
  - Opportunities that the RMG is looking to address include;
    - API resource standards, upstream modelling, semantic representation
    - Interoperability that supports user front-middle-back-reporting integration (e.g., FIX and ISO 20022)
    - Advocacy for ISO20022 standard adoption and implementation guidance
- Convenor, Secretary and Vice-Convenor composition

Convenor	Secretary	Vice Convenor
Gerard Hartsink (Netherlands)	X9（U.S.）	Robert J. Blair （U.S.）
James Whittle(UK)～Jun 2021	Pay.UK（UK）	Robert J. Blair (U.S.) 2015～Masayuki Tagai （JP）
Apr 2021 ～ Masayuki Tagai (JP)	savemeri (JP)	Richard Robinson (U.S.) Martin Walder (CH)

ISO 20022: Opportunities and Tactical Steps possible for ASEAN+3

Time for ASEAN+3 to take collective stock of ISO 20022 implementation and start leading ISO 20022 standards development

Payment banks are moving out of Unstructured data into Structured data, still using legacy ISO messages	There is more to ISO 20022 that helps enhance the user's data capabilities	The ISO 20022 RMG is working to make ISO 20022 more usable	ASEAN+3 Opportunities
Standard messages are published and made available. But implementation is left to the market	Implementation guidance for the ISO 20022 method and message Solving for CPMI X-Border (BOE, FED, ECB)	Implementation guidance for the ISO 20022 methodology Practice Design	- Sharing the value of the ISO 20022 experience
Focus on publishing financial messages on iso20022.org	**Non-bank sector driving recent changes** Enabling usage of business models and message models underlying the schema Optimize user interface and tools for the data dictionary	Enhancing registration support Coordinate with RA investment plans	- Interoperability across FX to payments to regulatory reporting in select ASEAN+3 markets
Focus has been on ISO 20022 XML messages	**Standardized API resources** **Introduction of JSON syntax** Considering syntax agnostic standards ISO 20022 up for revision by 2024	**Kicking off the API SEG** Work with ISO/TC68/SC9/WG4 looking to revise the ISO 20022 standard	- **Influence the next ISO 20022 messages** - **Influence the standard**
Lack of work aids / tools to access the repository	Solving for CUFIR (China)	Coordinate with SWIFT plans and industry appetite	- Support agenda development - Drive interoperability
Resource dependency on submitters, the RA and SEG	New communities as members of the RMG Coordination with other industry bodies	Developing formal dialogue with other industry bodies	- **Participate in RMG, SEG discussions**
Output mechanism for advocacy is required	iso20022.org and TC68 channels	Broaden the knowledge about ISO 20022 and its implementation, including the topic of compliance with the standard	- Support advocacy - Provide content

What is the strategic opportunity that could solve for the complexity across ASEAN+3?

Definitions: Message Development Practices and Message Implementation Practices

ISO 20022 as a Standard

The ISO 20022 Standard

Part 1: Metamodel
Part 2: UML profile
Part 3: Modelling
Part 4: XML schema generation
Part 5: Reverse engineering
Part 6: Message transport characteristics
Part 7: Registration
Part 8: ASN.1 generation

SC9/WG4
RMG/TSG work

RMG Postcard (see next page)
SG1 report

Implementing the ISO 20022 Standard (Method)

ISO 20022 Message development in Practice

Step 1: Creation of a Business Information Model
Defining the business activity / process by describing business roles, actors and the business information required for the activity to be executed.
The business information consists of business components containing business elements. The ISO 20022 standard utilizes the Unified Modelling Language (UML) for this step to take place.

Step 2: Defining the Logical Message Model
Describing all information required to execute a business activity / process in a syntax agnostic way. A representation of message components containing message elements (derived from business elements) and key characteristics of such elements.

Step 3: Physical representation of the Message
Converting the message model to an agreed syntax (typically XML)

Guidance for implementing the ISO 20022 Standard (Method) could take the form of;

- Advocating for accurate knowledge
- Advocating the value of the method / modelling
- Promoting work aids and tools (e.g., CUFIR)
- Improving the message maintenance process
- Sharing / seeking feedback from communities

Implementing the ISO 20022 Message (Artefact)

ISO 20022 Message implementation in Practice

Step 1: **Alignment of internal business information model to external model** may or may not be taking place for long established businesses assuming the same business being carried forward thru the years.

Step 2: Alignment of the logical message model may or may not be taking place. Possible confusion between an internal data model (a collection of definitions and constraints) for processing applications and a logical message model.

Step 3: **Data –Sourcing, Validating and Reconciling**

Step 4: Alignment of the physical message to the internal application mapped for processing

Enterprise application implementation in Practice

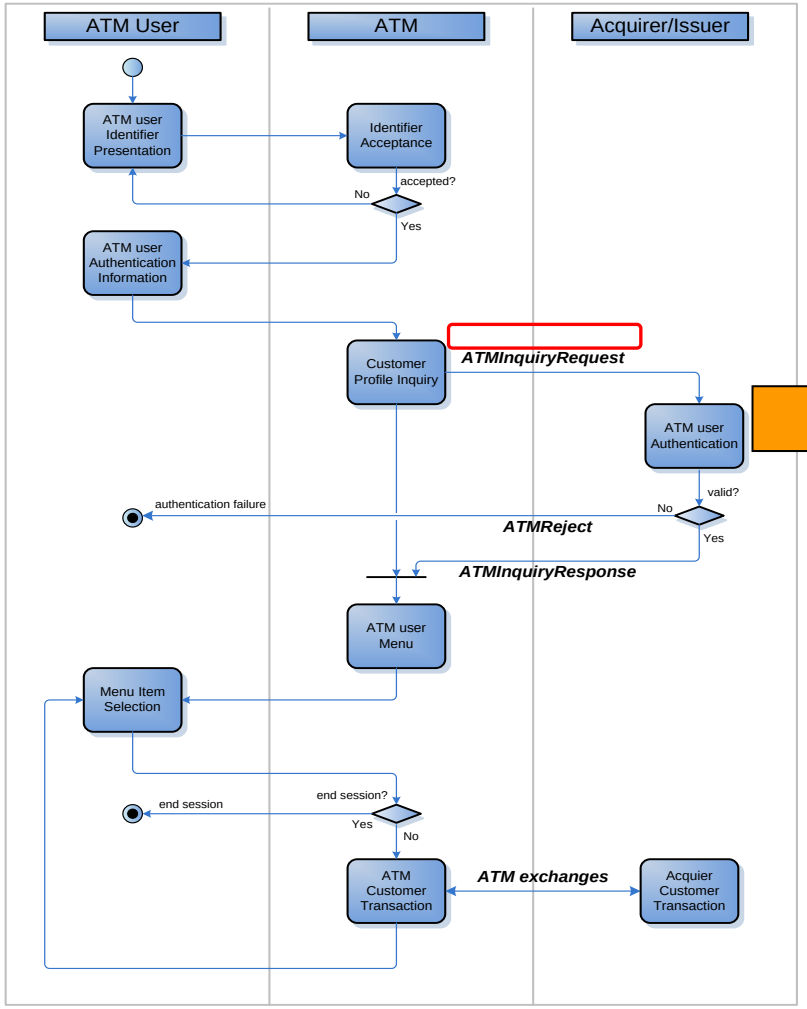
Largely considered a mapping exercise between the externally derived physical message and the internal data definitions and business convention.

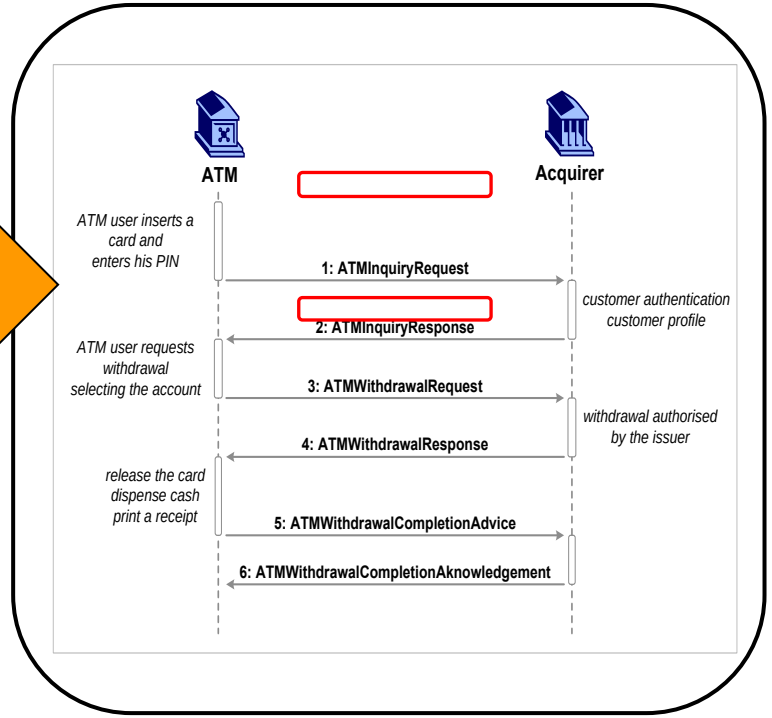
Guidance for implementing the ISO 20022 Message could take the form of;

- Setting a common framework for dialogue
- Providing clarity to the issues at hand
- Providing venues to align scope of implementation and related definitions

Step 1: Creation of a Business Information Model

The business and client view - Defining the business activity / process by describing business roles, actors and the business information required for the activity to be executed.
The business information consists of business components containing business elements. The ISO 20022 standard utilizes the Unified Modelling Language (UML) for this step to take place.





（出所）ISO 20022 ATM Interface for Transaction Processing and ATM Management, Message Definition Report – Part 1, Edition October 2017

Step 2: Defining the Logical Message Model

The designer view: Describing all information required to execute a business activity / process in a syntax agnostic way. A representation of message components containing message elements (derived from business elements) and key characteristics of such elements.

ATM Inquiry Request

14.2 Structure

Or	MessageElement/BuildingBlock<*XML Tag*>	Mult.	Type	Constr. No.	Page
	Message root <Document> <ATMWdrwlReq>	[1..1]			
	Header *<Hdr>*	[1..1]			283
	MessageFunction *<MsgFctn>*	[1..1]			283
	Function *<Fctn>*	[1..1]	CodeSet		284
	ATMServiceCode *<ATMSvcCd>*	[0..1]	Text		285
	HostServiceCode *<HstSvcCd>*	[0..1]	Text		285
	ProtocolVersion *<PrtcolVrsn>*	[1..1]	Text		285
	ExchangeIdentification *<XchgId>*	[1..1]	Text		286
	CreationDateTime *<CreDtTm>*	[1..1]	DateTime		286
	InitiatingParty *<InitgPty>*	[1..1]	Text		286
	RecipientParty *<RcptPty>*	[0..1]	Text		286
	ProcessState *<PrcStat>*	[0..1]	Text		286
	Traceability *<TracBlt>*	[0..*]			286
	RelayIdentification *<RlayId>*	[1..1]	±		286
	SequenceNumber *<SeqNb>*	[0..1]	Text		287
	TraceDateTimeIn *<TracDtTmIn>*	[1..1]	DateTime		287
	TraceDateTimeOut *<TracDtTmOut>*	[1..1]	DateTime		287
	ProtectedATMWithdrawalRequest *<PrtctdATMWdrwlReq>*	[0..1]	±		287
	ATMWithdrawalRequest *<ATMWdrwlReq>*	[0..1]			287
	Environment *<Envt>*	[1..1]			292
	Acquirer *<Acqrr>*	[0..1]	±		295
	ATMManagerIdentification *<ATMMgrId>*	[0..1]	Text		296
	HostingEntity *<HstgNtty>*	[0..1]	±		296
	ATM *<ATM>*	[1..1]			296
	Identification *<Id>*	[1..1]	Text		298
	AdditionalIdentification *<AddtlId>*	[0..1]	Text		298
	SequenceNumber *<SeqNb>*	[0..1]	Text		298
	BaseCurrency *<BaseCcy>*	[1..1]	CodeSet	C1	298
	Location *<Lctn>*	[0..1]			299
	AddressLine *<AdrLine>*	[0..2]	Text		299

14.4.1.1.1 Function <Fctn>

Presence: [1..1]

Definition: Type of requested function.

Datatype: "MessageFunction11Code" on page 1300

CodeName	Name	Definition
BALN	ATMBalance	Provide the ATM counters resettting those that are applicable.
CMPA	ATMCompletionAcknowledgement	Acknowledgement of a completion advice.
CMPD	ATMCompletionAdvice	Advice of an ATM transaction completion.
ACMD	ATMControl	Global ATM commands.
DVCC	ATMDeviceControl	Maintenance commands to perform.
DIAQ	ATMDiagnosticRequest	Request for a diagnostic.
DIAP	ATMDiagnosticResponse	Response to a diagnostic request.
GSTS	ATMGlobalStatus	Global status of the ATM.
INQQ	ATMInquiryRequest	Request for an inquiry.
INQP	ATMInquiryResponse	Response to an inquiry request.
KYAQ	ATMKeyDownloadRequest	Request for a key download.
KYAP	ATMKeyDownloadResponse	Response to a key download.
PINQ	ATMPINManagementRequest	Request for a cardholder PIN management.
PINP	ATMPINManagementResponse	Response to a cardholder PIN management request.
RJAQ	ATMRequestReject	Rejected request message.
RJAP	ATMResponseReject	Rejected response message.
WITV	ATMWithdrawalAdvice	Response of a withdrawal transaction.
WITK	ATMWithdrawalAknowledgement	Acknowledgement of a withdrawal transaction advice.
WITQ	ATMWithdrawalRequest	Request for a withdrawal transaction.
WITP	ATMWithdrawalResponse	Response to a withdrawal transaction request.
INQC	CountersInquiry	Request the value of the ATM counters.

(Source) ISO 20022 ATM Interface for Transaction Processing and ATM Management, Message Definition Report – Part 2, November 2017

SESSION 10

Digitalization and Market Developments

- **Case 1:** The Application of DLT in critical financial markets infrastructure use cases and impact to ecosystem by Mr. Willy Lim, Solutions Architect and Global Advisory Lead – Digital Currencies and Capital Markets, R3

- **Case 2:** Functional Traceable Token- Case for Aid Coin by Mr. Shingo Fujimoto, Fujitsu

Application of DLT in FMI and impact to ecosystem : Payments and Settlement functions

36th ASEAN+3 Bond Market Forum

Willy Lim, Global Advisory Lead

Our Vision

Our vision is **a connected world where value moves freely,**

business is done safely, and the edges of networks become invisible

Non-exhaustive

Who we enable

Leading FMIs/Exchanges:

DTCC, Nasdaq, SDX a SIX company, euroclear

Chosen to power and connect many leading consortia:

TRADEIX, CONTOUR, SPUNTA ABI LAB DLT

Empowering some of the world's leading banks:

WELLS FARGO, ING, HSBC, MUFG

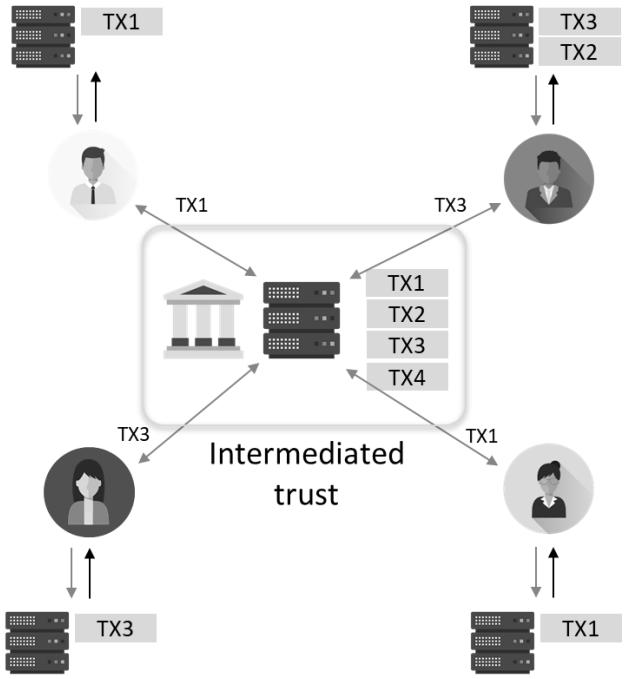
Technology leader and advisory partner for CBDCs with Central Banks

- **Jasper** (Bank of Canada – 2016+)
- **Ubin** (Monetary Authority of Singapore – 2017+)
- **Inthanon** (Bank of Thailand – 2018+)
- **LionRock** (Hong Kong Monetary Authority – 2019+)
- **E-Krona** (Sveriges Riksbank [Sweden] – 2020+)
- **Helvetia** (Swiss National Bank and SIX – 2020+)
- **Khokha** (South African Reserve Bank – 2020+)
- **Jura** (BdF, SNB, BIS, SIX – 2020+)
- **Asian Development Bank** (RMA Bhutan –2021+)
- **Digital Tenge** (Central Bank of Kazakhstan – 2021+)
- **Dunbar** (BIS, RBA, SARB, BNM, MAS– 2021+)
- **G20 Techsprint** (Bank Indonesia– 2022+)

r3.

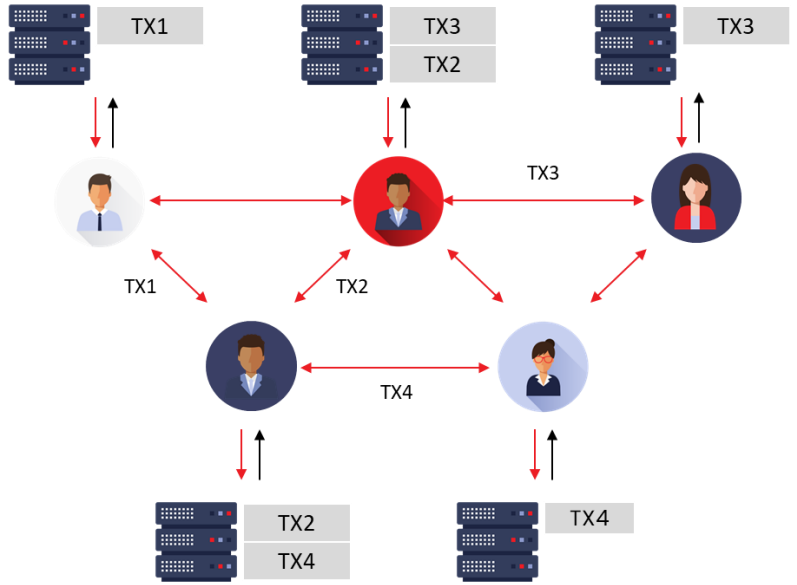
What is DLT?

Current centralized state:
Trust creates friction



- Relies on central authority for trust
- Single point of failure

Future distributed state:
Digital trust



- Decentralized trust with centralized governance
- Greater resilience
- Innovation with smart contract workflows

Why DLT for FMIs?

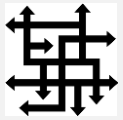
Role of FMIs

- ✓ Function as **arbiter of truth** for capital markets ecosystem
- ✓ **Systemic importance** as critical markets infrastructure of any economy
- ✓ … but also, role to **enhance efficiency and reduce risk** for ecosystem players

Current State

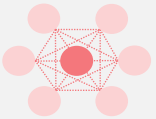
Hub and Spoke – Patchwork of fragmented systems across ecosystem, connected through different protocols and connection points

Demand for innovation – with the advent of digital assets and currencies, T+0 settlement, DvP etc.



Complex upgrade paths – difficulty in implementing change and innovation due to patchwork of legacy systems

With DLT



Decentralized trust – Single shared ledger enables golden source of truth across different entities

Enables innovation – tokenization of assets, smart contract programmability etc. while enforcing governance

Alleviates operational risk – through upgradable smart contracts, no single point of failure

R3's involvement with FMIs

Project Ion

T+1 settlement acceleration platform

Digital CSD

Next-gen post-trade settlement through tokenization

Digital Asset Exchange

Tokenization of traditional assets

Digital Collateral Registry

Efficient management, trading of HQLA

DTCC – Project Ion

T+1 settlement acceleration platform

CHALLENGE

- U.S. Equity Market is demanding **faster clearing and settlement services**, specifically around **optimizing traditional netting and novation**
- Need to **modernize settlement clearing processing** and ensure their relevance in capital markets for years to come

SOLUTION

- Corda underpins DTCC's settlement acceleration platform which is operating at scale
- Allows participants to transact atomically while maintaining privacy across settlement and novation workflows
- Reduces settlement times for U.S. Equities from two days post trade (T+2) to T+1
- Potential to fully integrate into the U.S. clearance and settlement processes while decoupling from existing infrastructure
- Capable of up to 6,300 trades per second or 115mn trades per day

DTCC

RESULTS

Reduced settlement time to reduce counterparty, credit and default risk

Move to T+1 could reduce $13.4 billion held by its members in margin each day by 41%

Impactful shift in how capital markets operate

Live in parallel production environment

r3.

HQLAx

Digital Collateral Registry on DLT

CHALLENGE

- Lack of trust in counterparties' ledgers results in CSD as sole arbiter of truth
- Current systems settlement positions only updated on T+2 basis, meaning short-dated transactions are either high risk, or unable to be processed

SOLUTION

- Digital Collateral Registry used to record ownership of baskets of HQLA; underlying securities remain static in CSD
- Enables participants to execute DvD ownership transfers of baskets of securities in near real-time
- Reduces intraday credit exposures & liquidity requirements, generating capital savings
- Legally-binding smart contract code makes for better governance

HQLA[X]

RESULTS

Reduced settlement time to reduce counterparty, credit and default risk

Capital cost savings from reduced intraday credit risk and liquidity requirements

Impactful shift in how capital markets operate

Live in production environment

r3.

Euroclear

Digital Central Securities Depository (CSD) Platform

CHALLENGE

- Equity markets around the world are demanding faster clearing and settlement services
- Need to modernize settlement clearing processing and ensure their relevance in capital markets for years to come

SOLUTION

- Digital CSD built on Corda integrated into upstream and downstream services such as centralized registry(s) and off-ledger settlement
- List, hold registry for, custody and settle a broader spectrum of institutional grade digital assets alongside traditional assets
- Potential to enable T+0 atomic settlement

euroclear

RESULTS

Reduced settlement time to reduce counterparty, credit and default risk

Manage full end-to-end asset lifecycle from issuance to settlement

Impactful shift in how capital markets operate

> Innovation is about trying to leverage what works well and trying to address what does not work well and that's where specialized DLTs like Corda can help you connect the dots and run the process much more efficiently than it is today.

EDWIN DEPAUW, MANAGING DIRECTOR, EUROCLEAR

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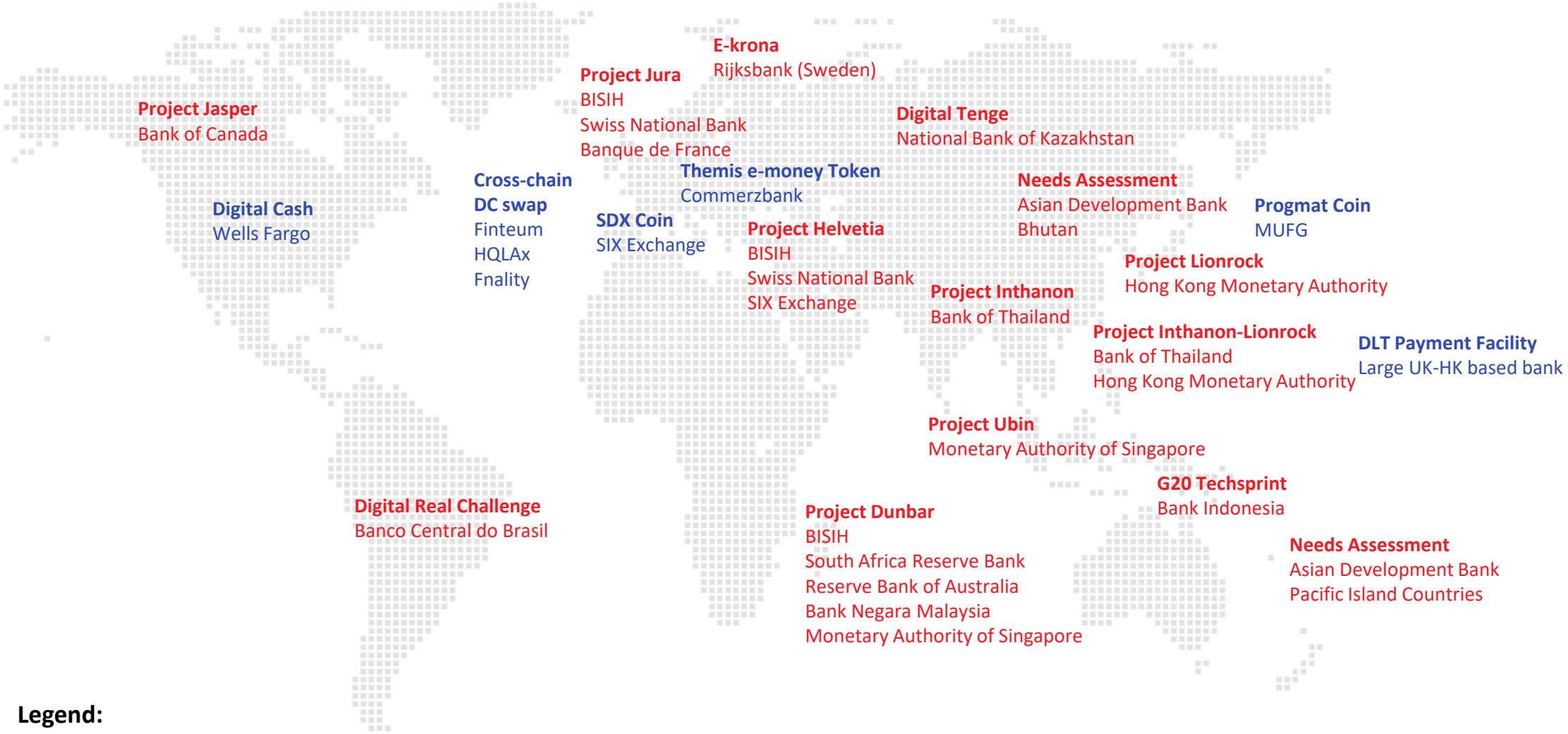
Digital Currencies are coming: Snapshot of DCs on Corda



Legend:

CBDC initiative

Private-sector Digital Currency initiative

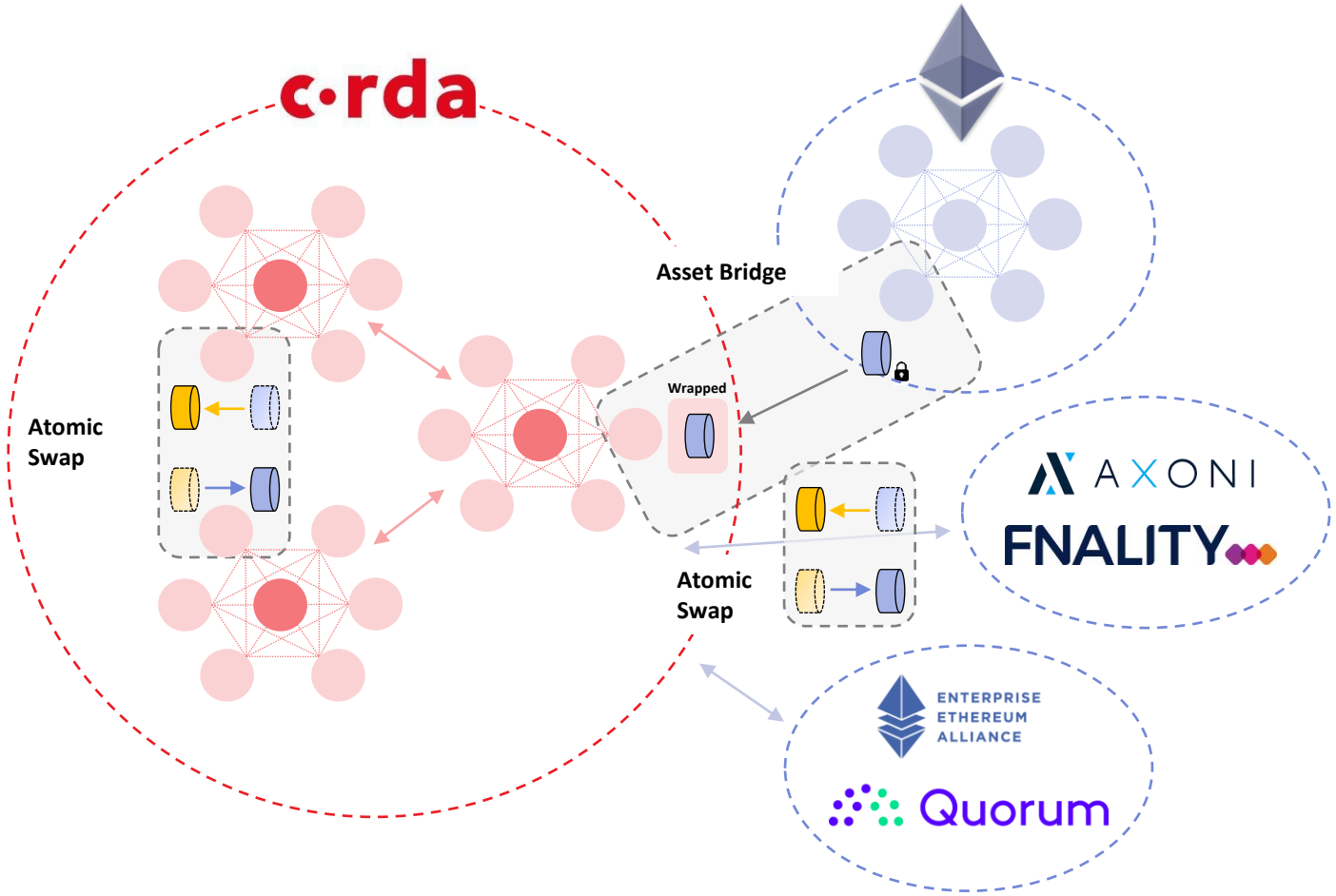
Vision : Simplify Risk Free Payments for digital economy

Interoperability: How the future will look like

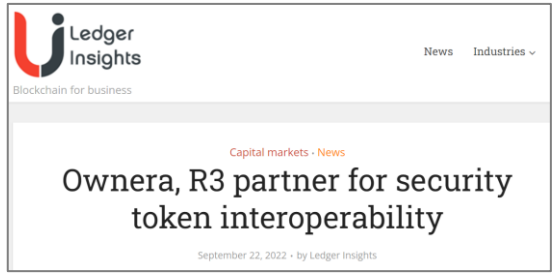
Vision : Open Finance Ecosystem

Interoperability across Corda Ecosystem

Interoperability with Ethereum Ecosystems



Live Examples



Thank you

r3.com | corda.net | conclave.net

linkedin.com/company/r3cev-llc

@inside_r3
@cordablockchain
@conclavecompute

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Bela Vista- 6th Floor
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Mumbai
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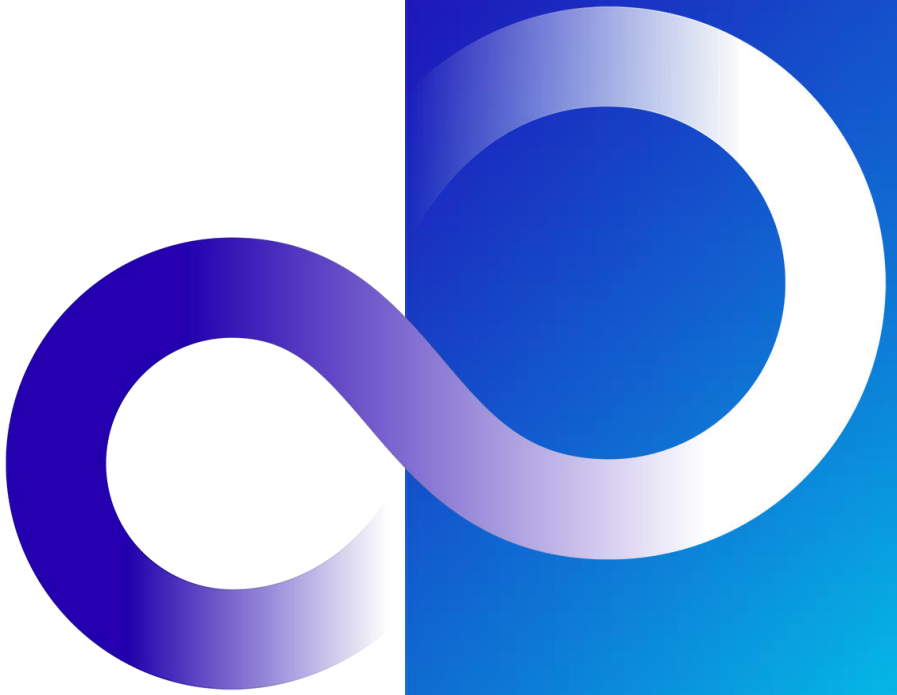
Mumbai, 400051, India

Singapore
18 Robinson Road, Level #14-02
Singapore, 048547

Functional Traceable Token
- Case for Aid Coin -



2023/2/2

Shingo Fujimoto

Project Manager, FUJITSU Limited

Presenter

Shingo Fujimoto

Project Manager,
Data & Security Research Laboratory,
FUJITSU Limited

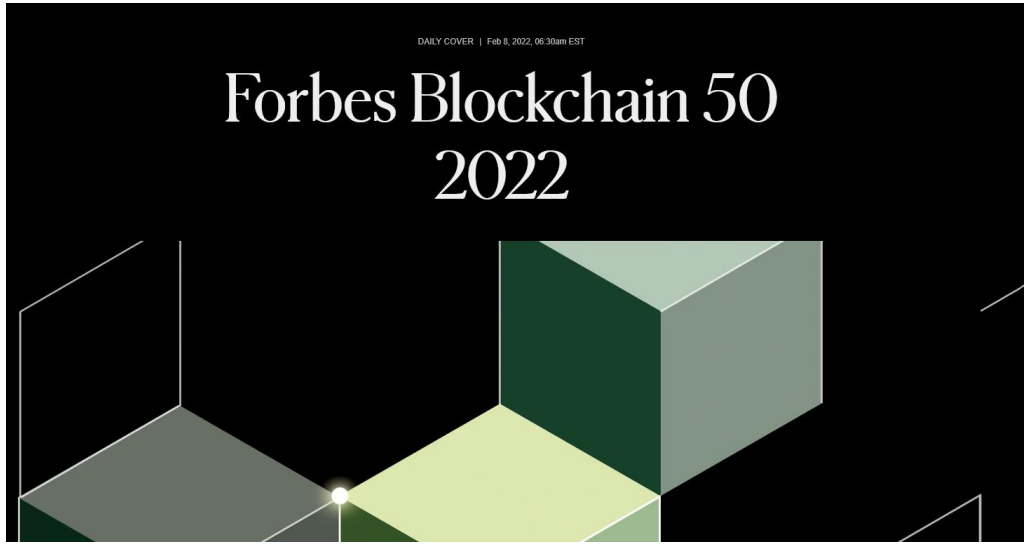
FUJITSU

- **Research on Blockchain since 2017**
- **Technical leader on Blockchain PoCs**

HYPERLEDGER FOUNDATION

- **Governing Board Member since 2021**
- **Former CACTUS maintainer**

FUJITSU is selected on Forbes Blockchain 50



Fujitsu

TOKYO

The $32 billion (12-month sales) telecommunications and computer hardware company runs a blockchain innovation lab in Brussels with more than 40 clients— from a rice-trading startup to giant brewer Anheuser-Busch. The companies use the lab to test fresh ideas, backed by Fujitsu's technical expertise. In November, for example, water purification firm Botanical Water Technologies started building a trading platform using Fujitsu's in-house distributed ledger technology, which will allow sugar mills, distilleries and cola makers to sell or reuse the water they would normally discard during production. The platform, launching in April, will trace the water as it's purified, sold and delivered, and give companies the option to donate a portion of their purified water to water-scarce communities.

BLOCKCHAIN PLATFORMS: Hyperledger Fabric, Besu and Cactus, plus Ethereum

KEY LEADERS: Frederik De Breuck, head of Enterprise Blockchain Solution Center; Shingo Fujimoto, manager of data and security laboratory, Fujitsu Research

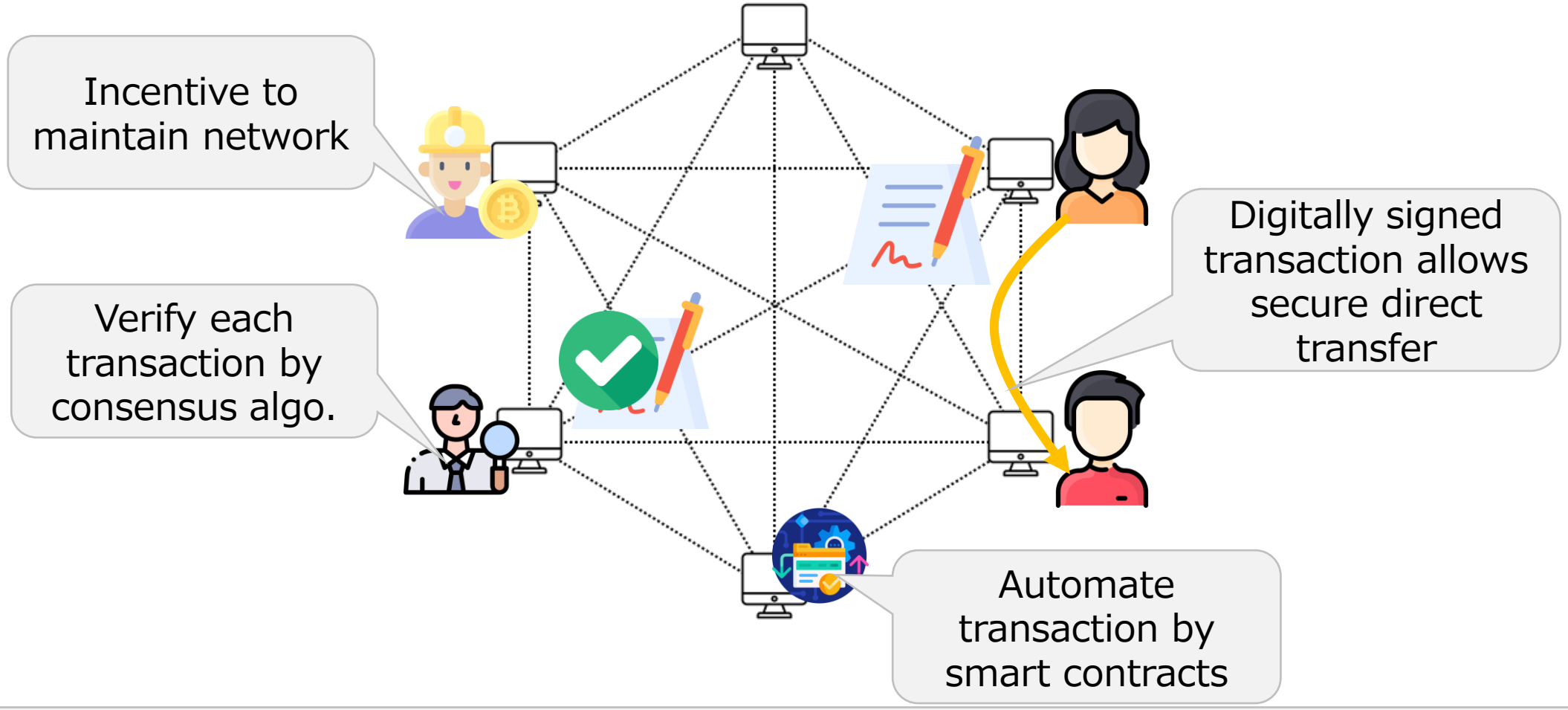
Executive Summary

- Blockchain Basics [Background]
  - Blockchain and tokenization

- Use Case and Issues [Expectation]
  - Financial assistance for developing countries (e.g., ODA)
  - Visualize and control usage of assisted money

- **Introduction of Aid Coin** [Proposal]
  - Blockchain-based stable coin system, giving us traceability of coins
  - Prohibits undesired payment of coins, enforcing correct use of coins

Blockchain and Cryptocurrency

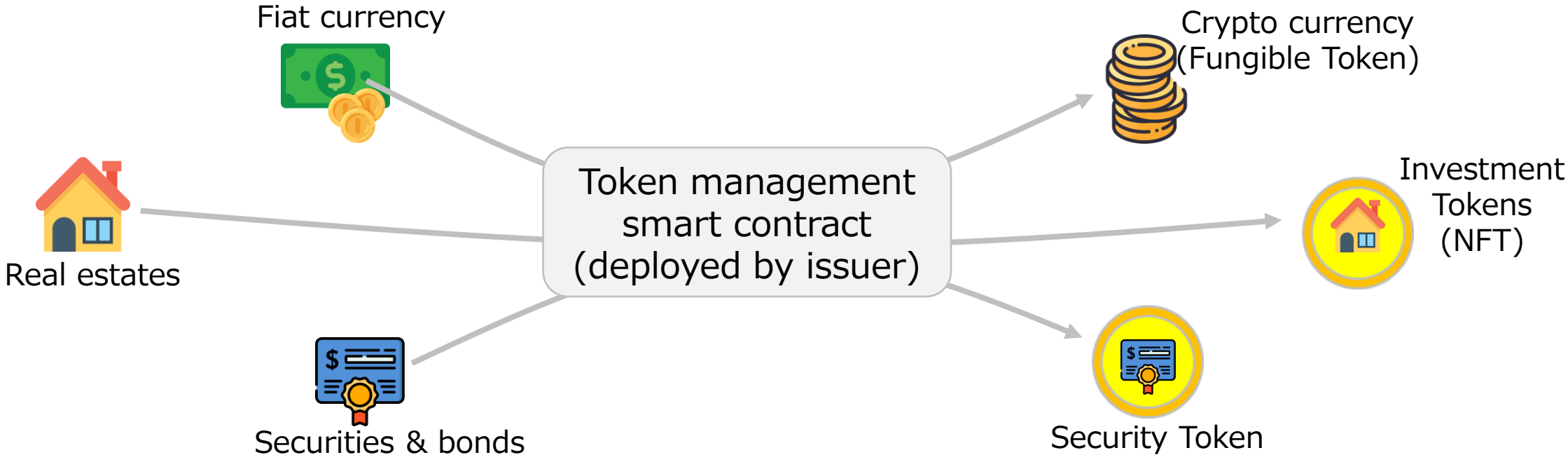


Matured crypto technologies allow us to secure financial infrastructure

What is Tokenization ?

> **Tokenization** refers to a process by which a piece of sensitive data, such as a credit card number, is replaced by a surrogate value known as a token. The sensitive data still generally needs to be stored securely at one centralized location for subsequent reference and requires strong protections around it.

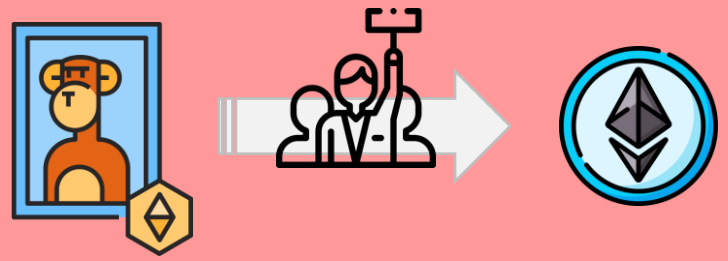
Cited from “Gartner Glossary”: https://www.gartner.com/en/information-technology/glossary/tokenization



Token economy, now and future

Token economy now

Cryptocurrency exchange



Selling NFT arts

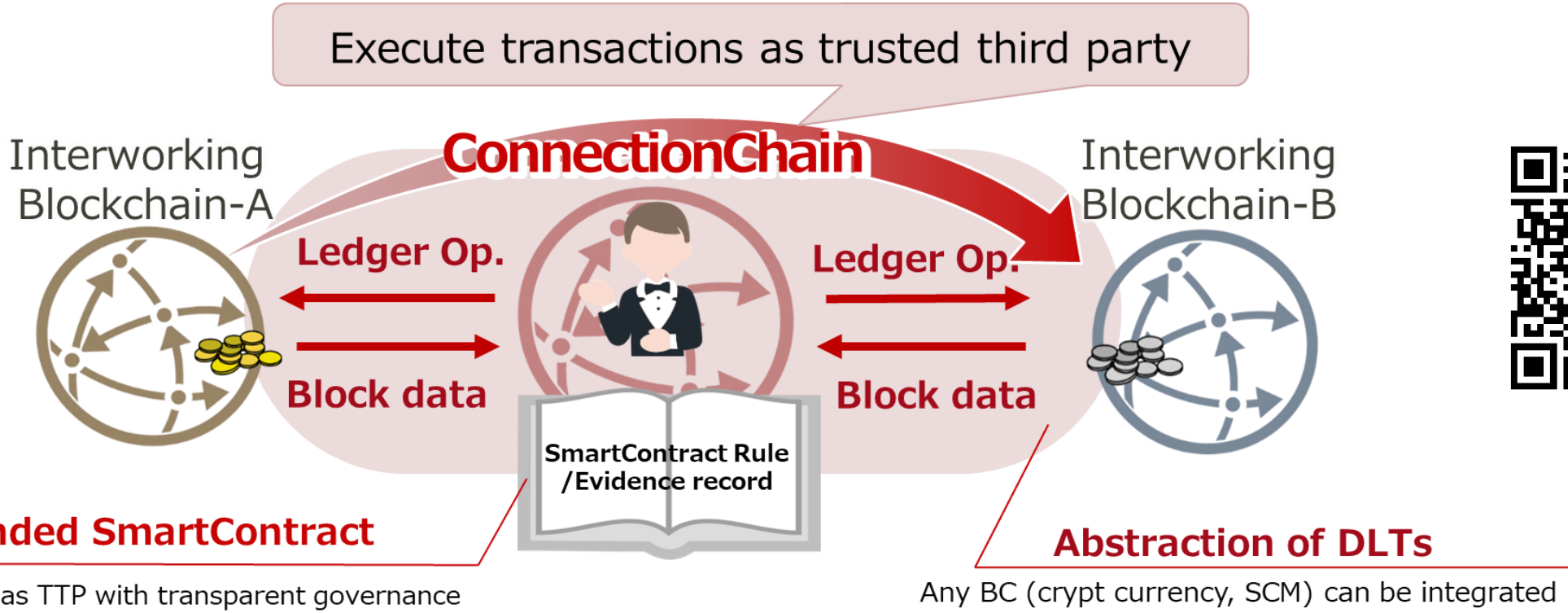
Token economy for future

Shared investment

Cross-border investiment

The shift from speculative to the sustainable token economy

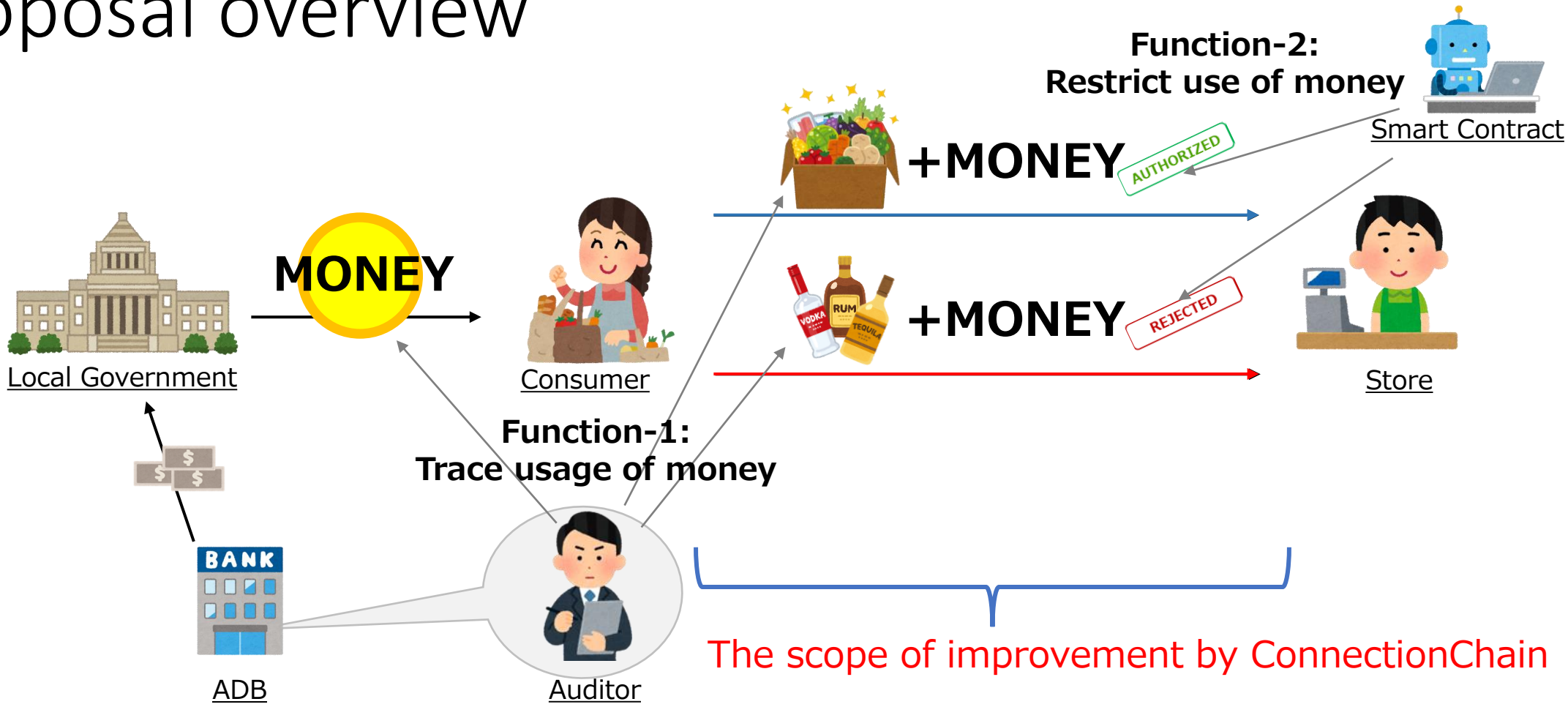
Tech. for token economy: ConnectionChain



Press Release(2017.11.15)
https://www.fujitsu.com/global/about/resources/news/press-releases/2017/1115-01.html

ConnectionChain is designed to enable secure interworking between DLTs

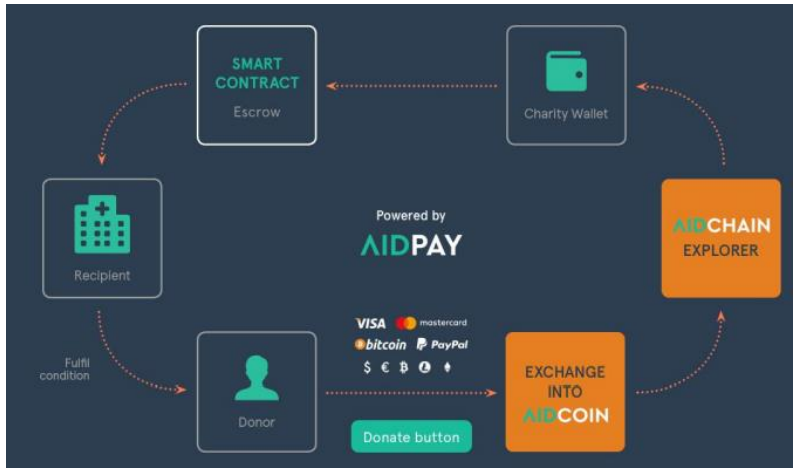
Proposal overview



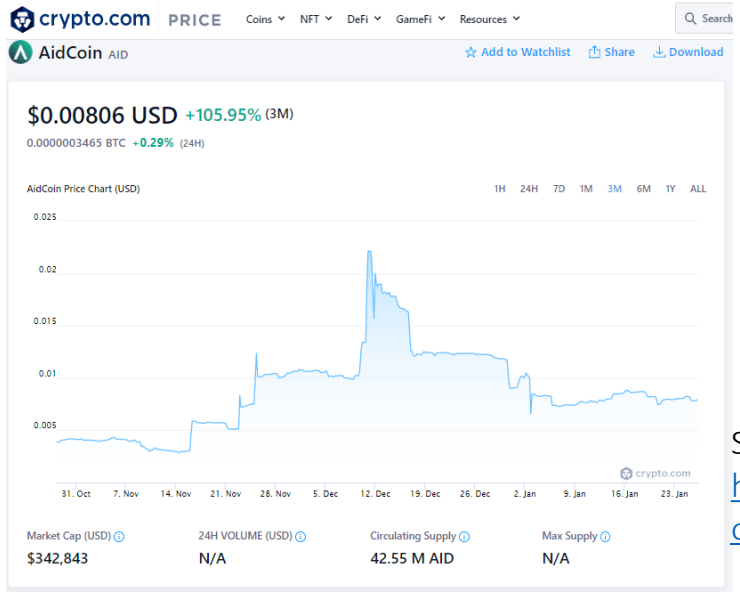
Aid Coin – Traceable token powered by ConnectionChain

Similar activity

- Aid Coin
  - https://www.aidcoin.com/
  - Cryptocurrency “AID” based payment system
- Existing issues
  - Pure cryptocurrency system
    - Market value may change frequently
    - Payee required to exchange to fiat currency to use in real world
  - Covers online payments only
    - Transaction does not contain the purpose of payments

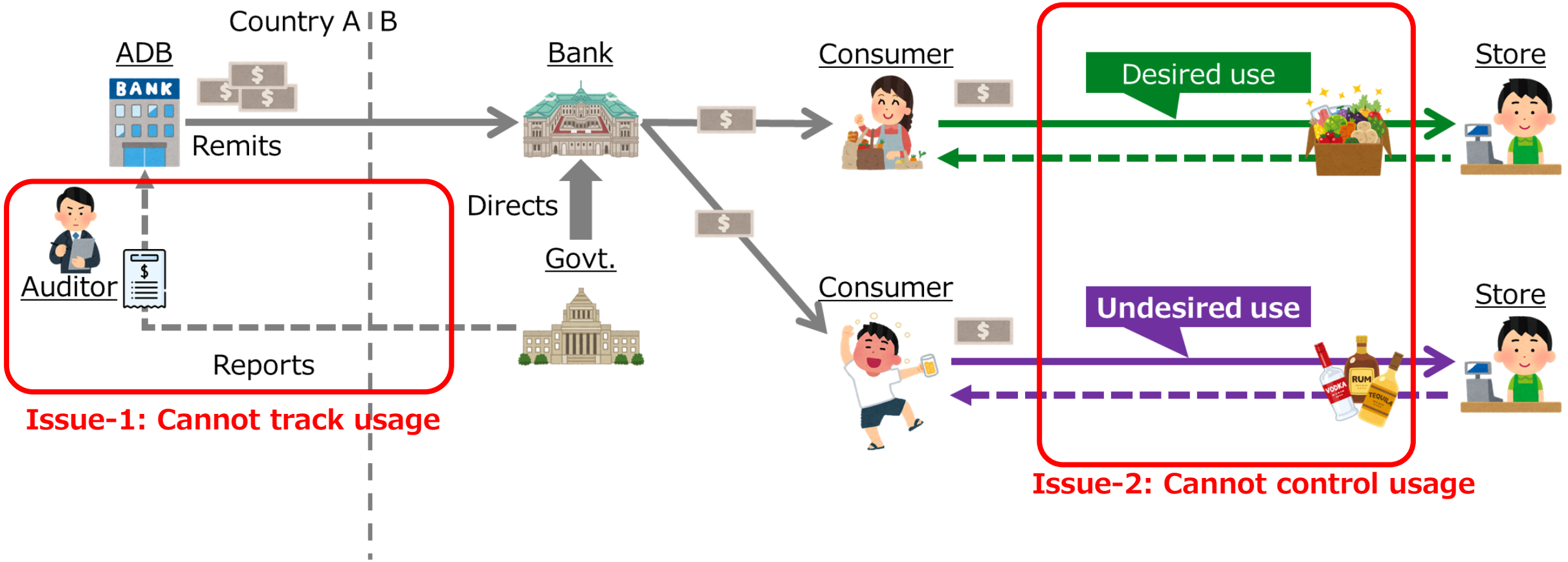


Source: https://cryptopapers.info/assets/pdf/aidcoin_v3.pdf



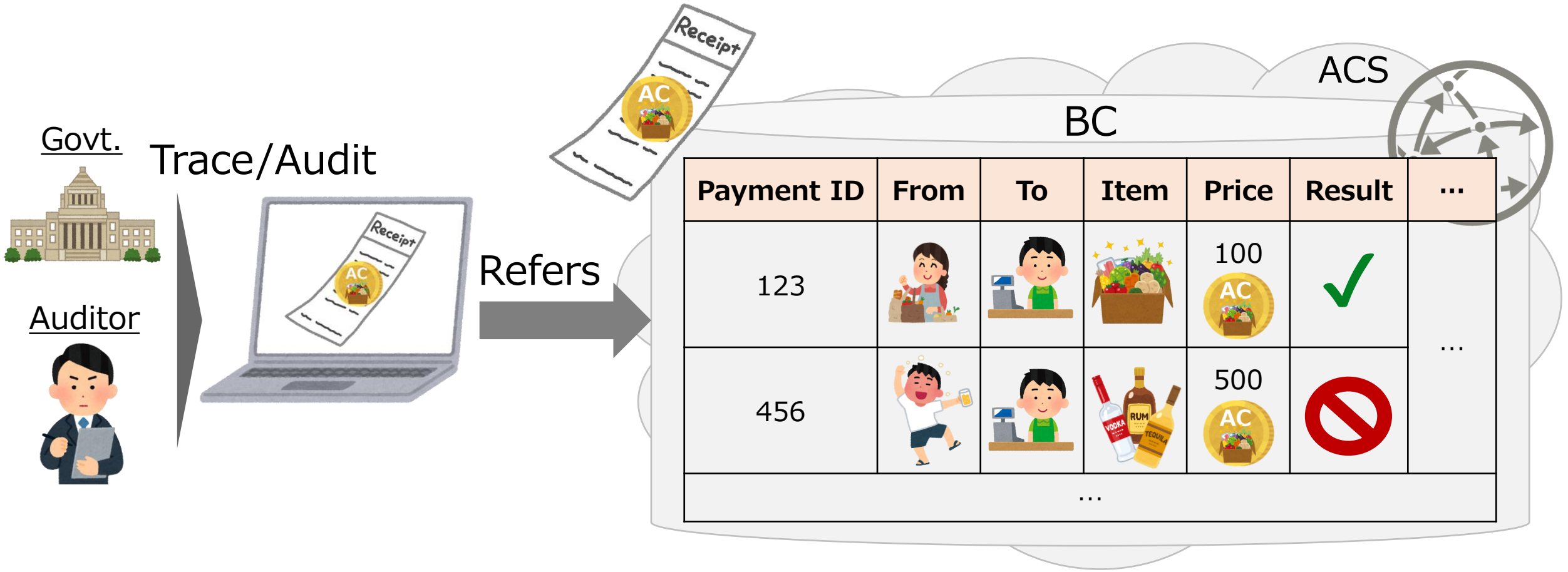
Source: https://crypto.com/price/aidcoin

Current Issue



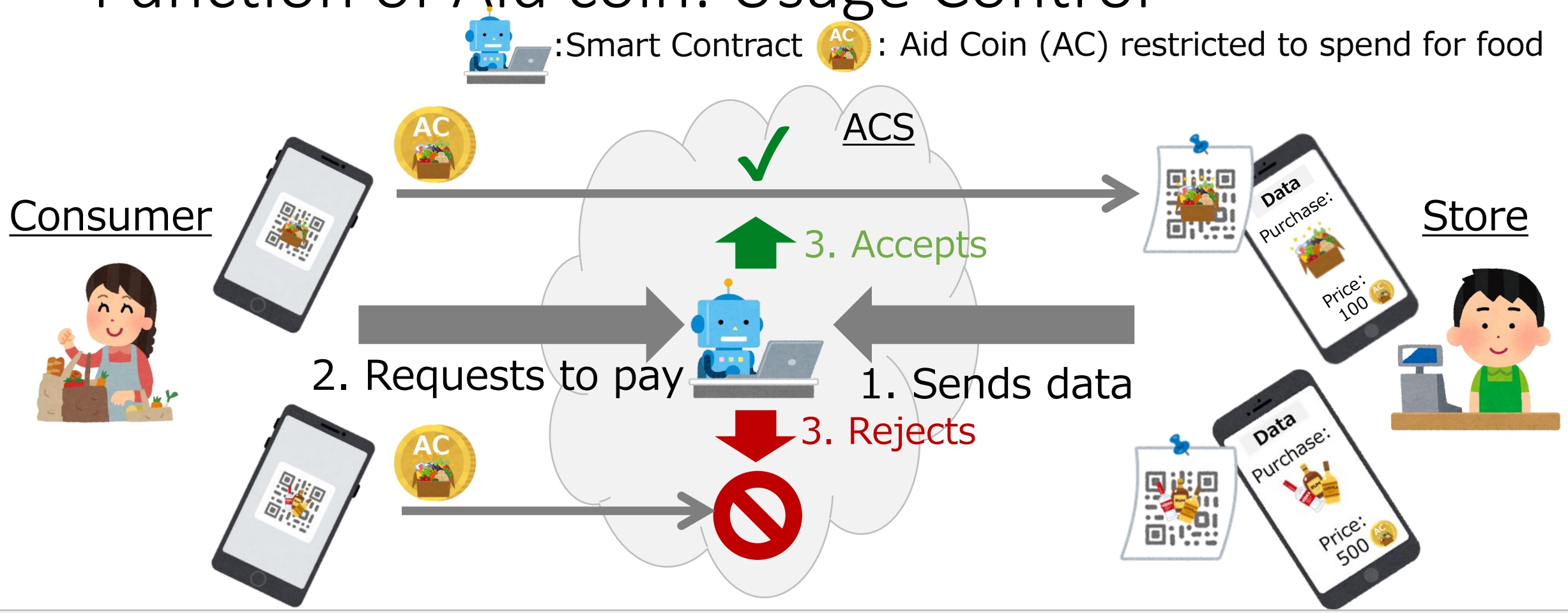
Tracking and control of aid money are limited

Function of Aid coin: Traceability



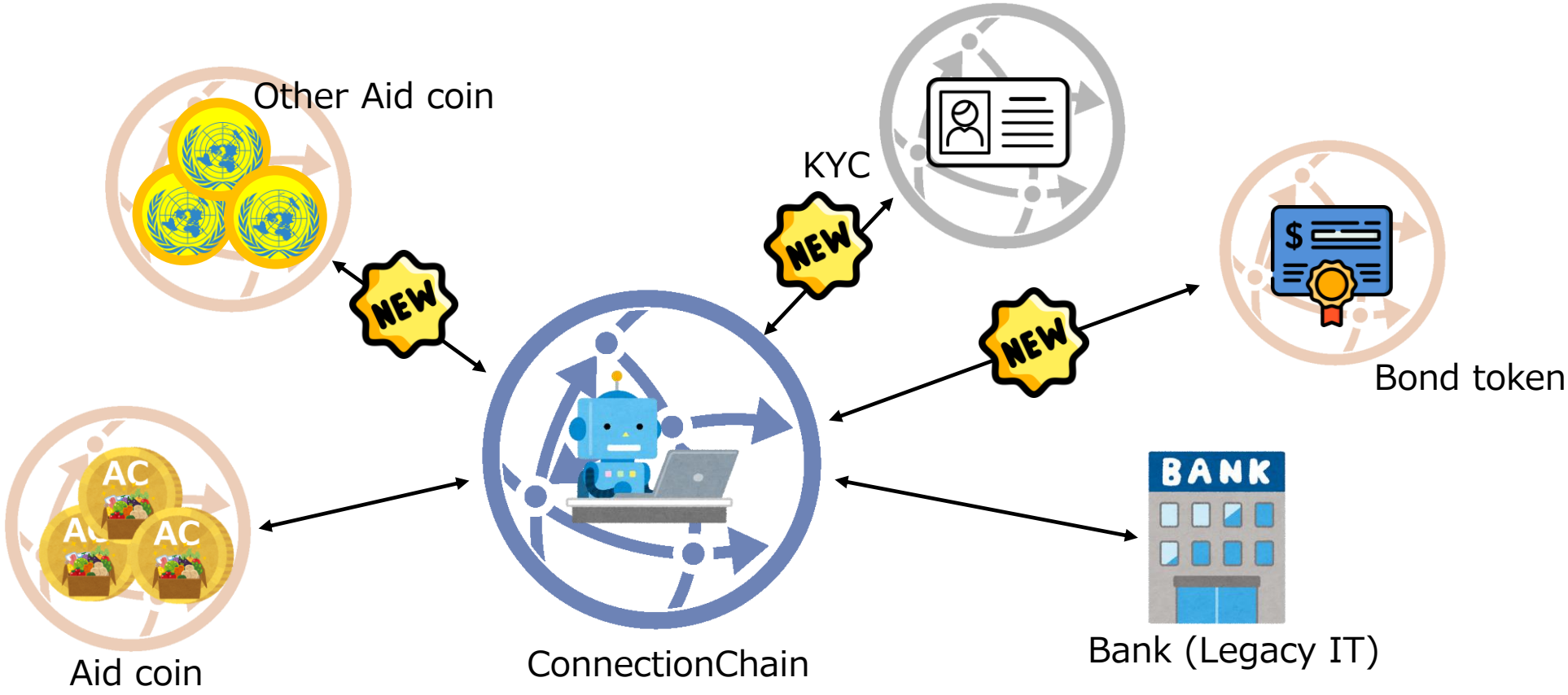
Linkage of receipt and payment allows better tracking of the usage of aid

Function of Aid coin: Usage Control



Better control on the usage of aid money with smartphone payment

Function of Aid coin: Expandability



Flexibility of ConnectionChain allows enhancing functions continuously

Summary of presentation

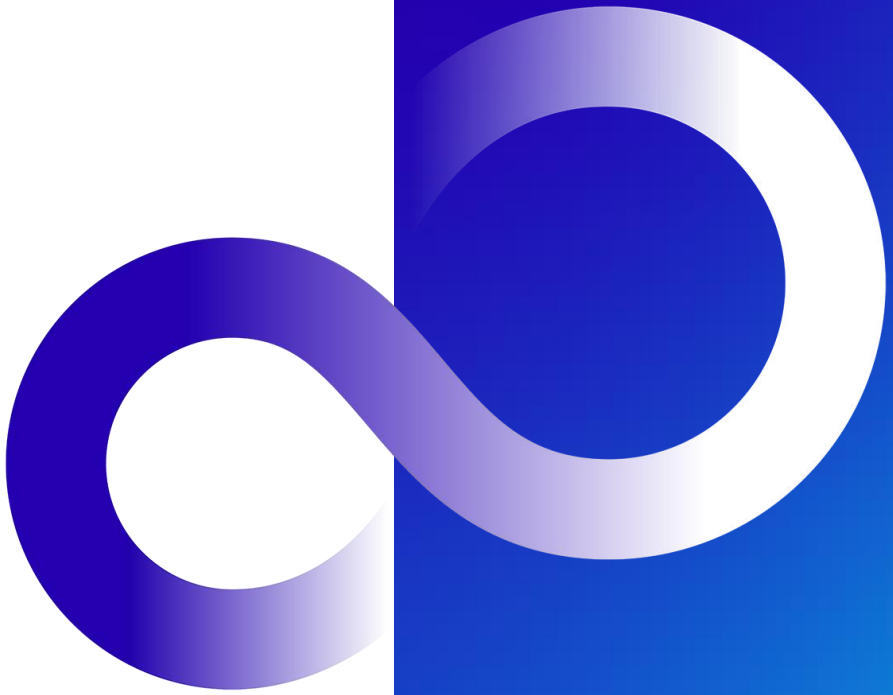
- Introduced ConnectionChain, interworking system for DLTs
- Proposed Aid coin as traceable token
- We believe the Aid coin system will help to energize ADB’s activities

Remaining Issues

- Functions (other than Aid …)
  - Usage criteria
  - Wallet security
  - KYC for user
  - Currency exchange rate
  - Verifying eligibility of investments
- Implementation
  - Coin issuer’s governance
  - User privacy

We want to collect your ideas for adding more functions

Thank you



ADB

SESSION 11

Financial Digitalization and Its Implications for ASEAN+3 Financial Stability

Prof. Shinobu Nakagawa
Saitama University

The 36th ABMF Meeting, Session 11
2 February 2023, 15:20-16:00 (GMT+8: Manila Time)

Financial Digitalization and Its Implications for ASEAN+3 Regional Financial Stability

Authors: Shinobu NAKAGAWA, Saitama University, Japan
Jungwoon LEE, Asian Development Bank
Takeshi OSADA, Saitama University, Japan
Satoru YAMADERA, Asian Development Bank

Saitama University
埼玉大学

ADB

Curriculum Vitae

NAKAGAWA Shinobu

Born in Osaka, Japan, October 1965
Title: Professor (Deputy Dean), Faculty of Economics, Saitama School of Economics and Management, Saitama University
Research Area: Japanese Economy, Economic Policy, Global Finance, Financial Literacy and Education

(Academic career)

March 1988 BA in Economics, Kobe University
March 1990 MA in Economics, Graduate School of Economics, Kobe University
September 2003 Ph.D. in Economics, Graduate School of Economics, University of California, San Diego, United States of America

(Business career)

April 1990 Joined the Bank of Japan (BOJ)

— Filled various BOJ posts until March 2020, including **Chief of Center for Monetary Cooperation in Asia (CeMCoA) from 2009 to 2012**, General Manager of Hakodate Branch, **Deputy Director-General (Global Finance) from 2014 to 2018**, and Director-General of Public Relations Department

April 2020 Professor, Saitama University

(Others)

Secondment to the International Monetary Fund (IMF) as Senior Economist of the Monetary and Capital Markets Department (MCM) from September 2004 to September 2007

— Responsible for the Global Financial Stability Report (GFSR), Japan Article IV Consultation, etc.

FINANCIAL DIGITALIZATION AND ITS IMPLICATIONS FOR ASEAN+3 REGIONAL FINANCIAL STABILITY

JANUARY 2023

CONTENTS

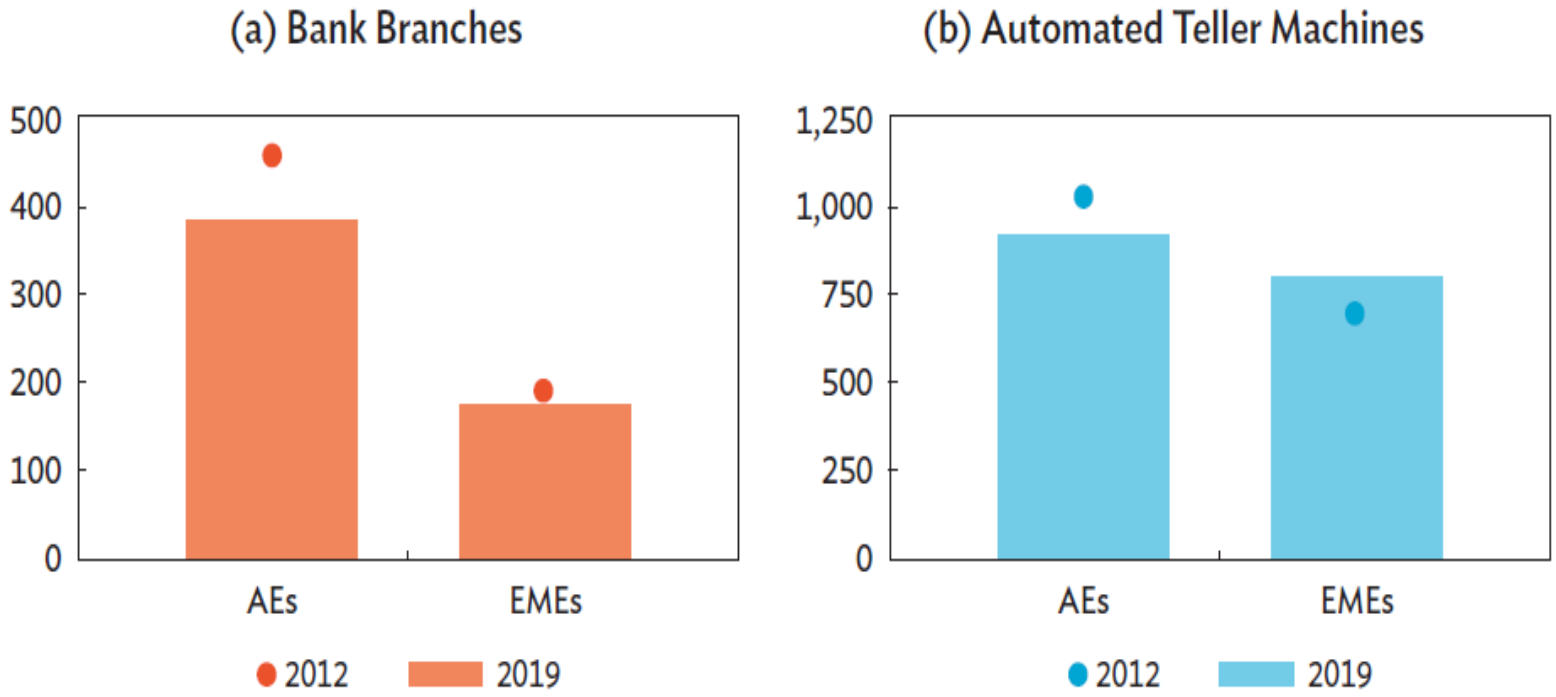
Review of the Digital Finance Landscape and the Impact of Digitalization on Financial Institutions

[Key messages]

- Financial digitalization is progressing globally and also in Asia and the Pacific, and it will never regress.
- Financial digitalization further promotes cross-border banking and other financial services.
- Existing financial services are unbundled.
- Cross-border branchless banking might emerge and spread in the future.
- Banking industry has increasingly become competitive (e.g., among existing banks, existing banks vs. new entrants, FinTech vs. TechFin firms).

Digital Banking and Traditional Channels

Figure 2.1: Number of Bank Branches and Automated Teller Machines per Million Inhabitants in Committee on Payments and Market Infrastructures Jurisdictions

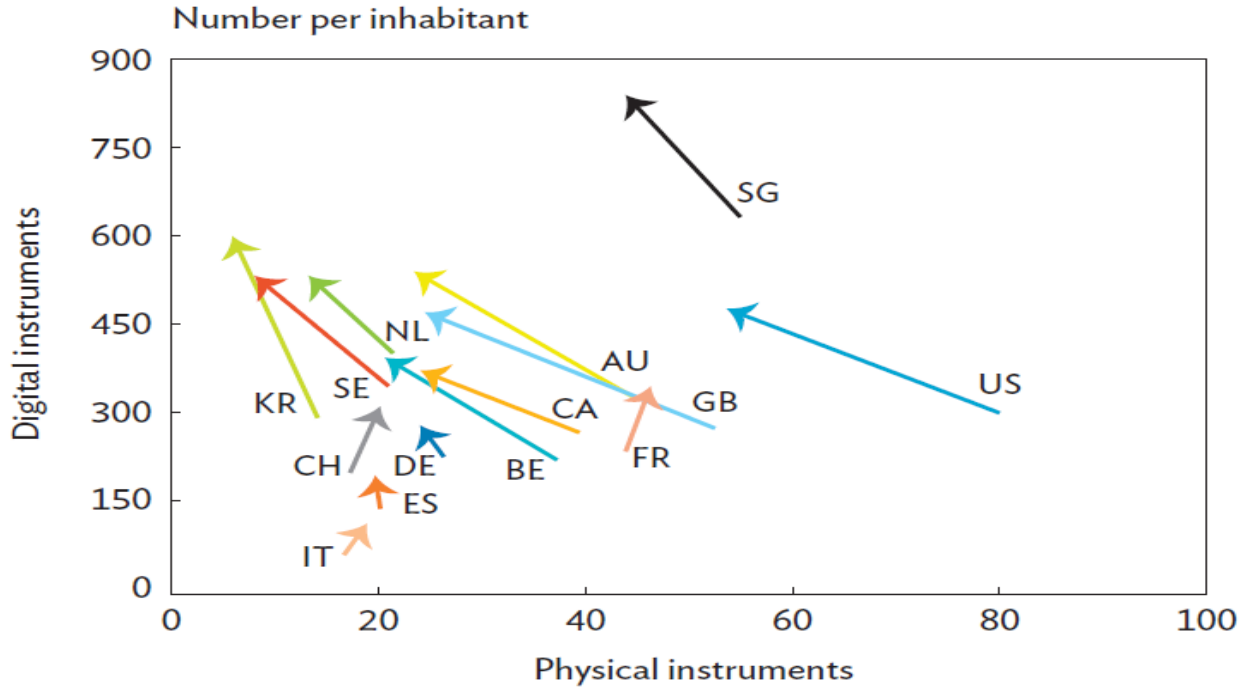


AE = advanced economy, EME = emerging market economy.

Source: C. Boar and R. Szemere. Payments Go (Even More) Digital. *Bank for International Settlements*. https://www.bis.org/statistics/payment_stats/commentary2011.htm.

Digital Payment

Figure 2.2: Payments Are Shifting to Digital Instruments



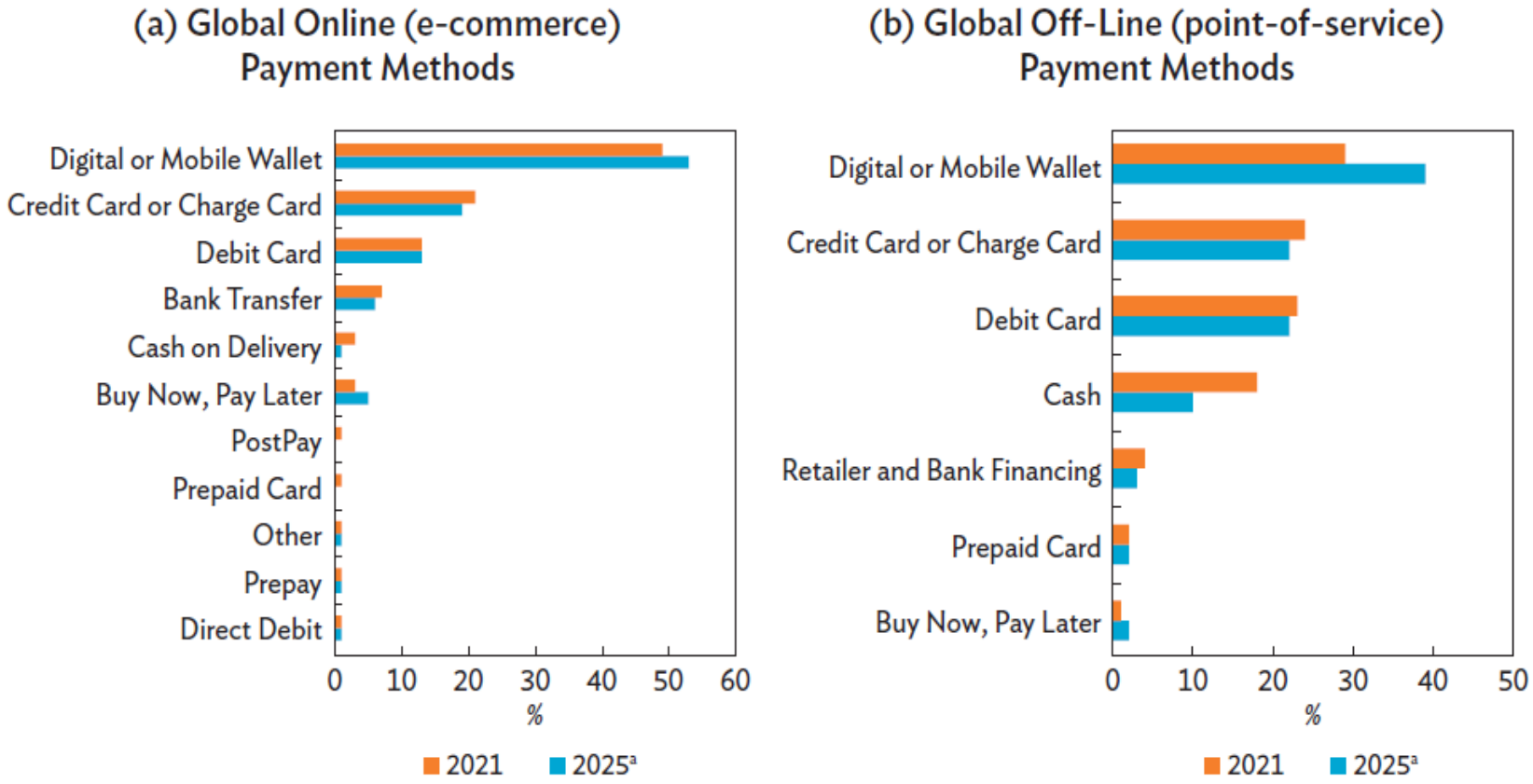
AU = Australia, BE = Belgium, CA = Canada, CH = Switzerland, DE = Germany, ES = Spain, FR = France, GB = United Kingdom, IT = Italy, KR = Republic of Korea, NL = Netherlands, SE = Sweden, SG = Singapore, US = United States.

Notes: The start (end) of an arrow represents 2012 (2019). Digital instruments include credit transfers, direct debits, card and e-money payments, and other cashless instruments. Physical instruments include paper-based payment instruments (cheques) and cash withdrawals at ATMs (used as a proxy for cash payments). For Canada, the latest data for cash withdrawals at ATMs are for 2017. For Spain, the start of the arrow represents 2014. For Switzerland and the United Kingdom, physical instruments include cheques and total cash withdrawals.

Source: C. Boar and R. Szemere. Payments Go (Even More) Digital. *Bank for International Settlements*. https://www.bis.org/statistics/payment_stats/commentary2011.htm.

Digital Payment (continued)

Figure 2.3: Global Payment Trend



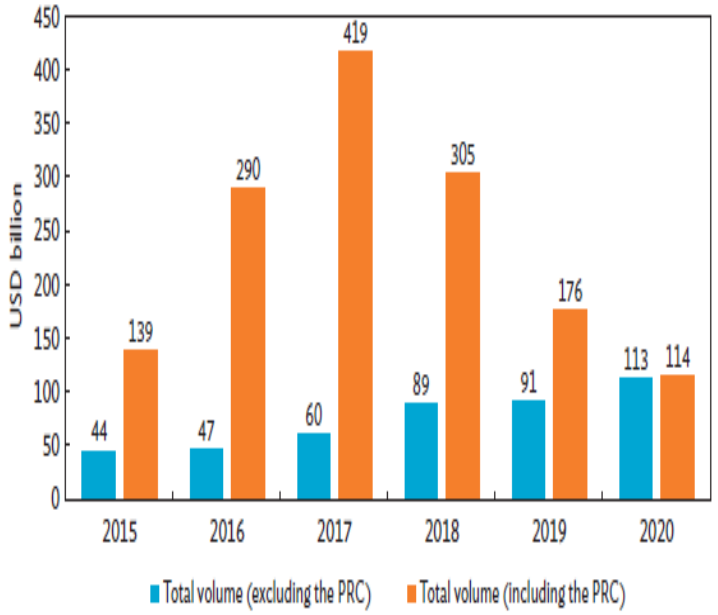
[a] Denotes a forecast.

Note: Share of each payment method is based on transaction value.

Source: WorldPay. 2022. *The Global Payments Report*. https://worldpay.globalpaymentsreport.com/en.

FinTech Financing

Figure 2.4: Total Global FinTech Volume
(USD billion)

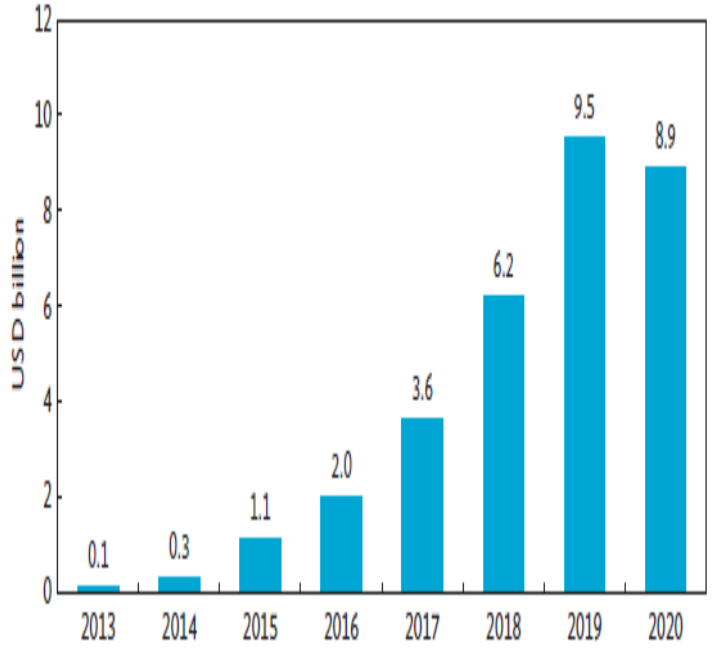


PRC = People's Republic of China, USD = United States dollar.

Note: The online FinTech financing sector in the PRC has shown a drastic decline from USD358.3 billion in 2017 to USD1.2 billion in 2020, with its global market share decreasing by about 84% during this period, mainly due to regulatory tightening and a crackdown on improperly licensed platforms following growing public complaints about high levels of fraud and defaults.

Source: T. Ziegler et al. 2021. *The 2nd Global Alternative Finance Market Benchmarking Report*. Cambridge Centre for Alternative Finance. June. https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/the-2nd-global-alternative-finance-market-benchmarking-report/.

Figure 2.5: FinTech Financing Market Volume in Asia and the Pacific, Excluding the People's Republic of China
(USD billion)

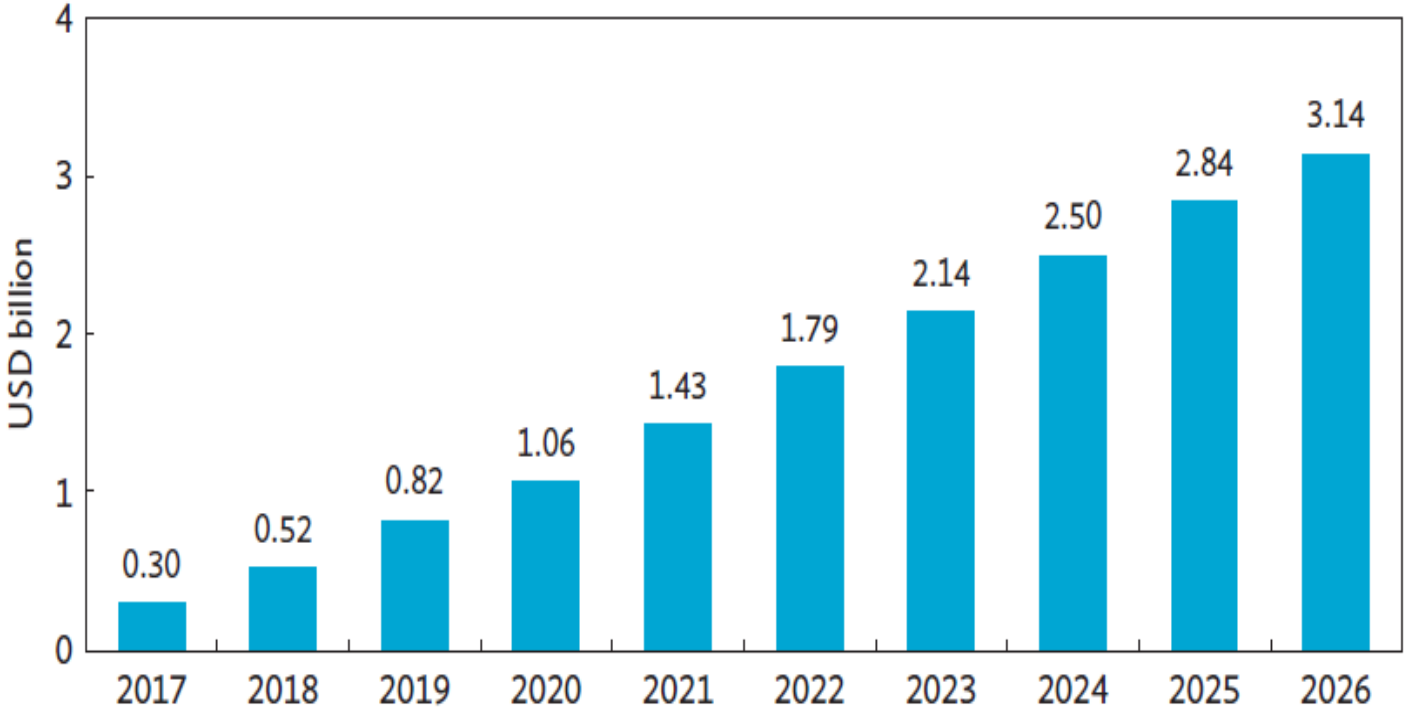


USD = United States dollar.

Source: T. Ziegler et al. 2021. *The 2nd Global Alternative Finance Market Benchmarking Report*. Cambridge Centre for Alternative Finance. June. https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/the-2nd-global-alternative-finance-market-benchmarking-report/.

Robo-Advisor

Figure 2.6: Global Assets Under Management in the Robo-Advisor Market
(USD trillion)



USD = United States dollar.

Source: Statista. Robo-Advisors—Worldwide. https://www.statista.com/outlook/dmo/fintech/digital-investment/robo-advisors/worldwide?currency=usd (accessed 12 September 2022).

Digital Technologies in Financial Services in Asia

Table 2.2: Technologies Used by Southeast Asian Economies FinTech Firms
(%)

Technology	Product Category				
	Artificial Intelligence/ Machine Learning/ Big Data	Capital Raising Crowdfunding	Digital Lending	Digital Payments	Enterprise Technology for Financial Institution
Augmented Reality	4	0	2	2	0
Virtual Reality	4	0	2	0	4
Speech Recognition	13	0	5	2	11
Natural Language Processing	30	6	12	9	19
Deep Learning	39	11	12	5	26
Image Recognition	35	6	20	16	30
Robotic Process Automation	26	22	41	16	26
Blockchain/Distributed Ledger Technology	13	39	7	35	44
Machine Learning	65	22	41	23	48
Predictive Analytics	91	61	76	58	70

Source: Cambridge Centre for Alternative Finance, Asian Development Bank Insitute, FinTechSpace. 2019. *ASEAN FinTech Ecosystem Benchmarking Study*. Cambridge, UK. https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/the-asean-fintech-ecosystem-benchmarking-study/.

FinTech and Bigtech Companies

Table 2.3: Financial Services Offered by Bigtech Companies

Bigtech	Main business	Banking[a]	Credit provision	Payments	Crowdfunding	Asset management	Insurance
Google	Internet search/advertising	✓[b]		✓			
Apple	Tech/producing hardware			✓			
Facebook	Social media/advertising			✓			
Amazon	E-commerce/online retail		✓	✓	✓		✓
Alibaba (Ant Group)	E-commerce/online retail	✓	✓	✓	✓	✓	✓
Baidu (Du Xiaoman)	Internet search/advertising	✓	✓	✓	✓	✓	✓
JD.com (JD Digits)	E-commerce/online retail	✓	✓	✓	✓	✓	✓
Tencent	Tech/gaming and messaging	✓	✓	✓	✓	✓	✓
NTT Docomo	Mobile communications	✓	✓	✓	✓		
Rakuten	E-commerce/online retail	✓		✓		✓	✓
Mercado Libre	E-commerce/online retail		✓	✓		✓	

✓ = provision of financial service through Bigtech entity and/or in partnership with financial institutions outside Bigtech group in at least one jurisdiction.

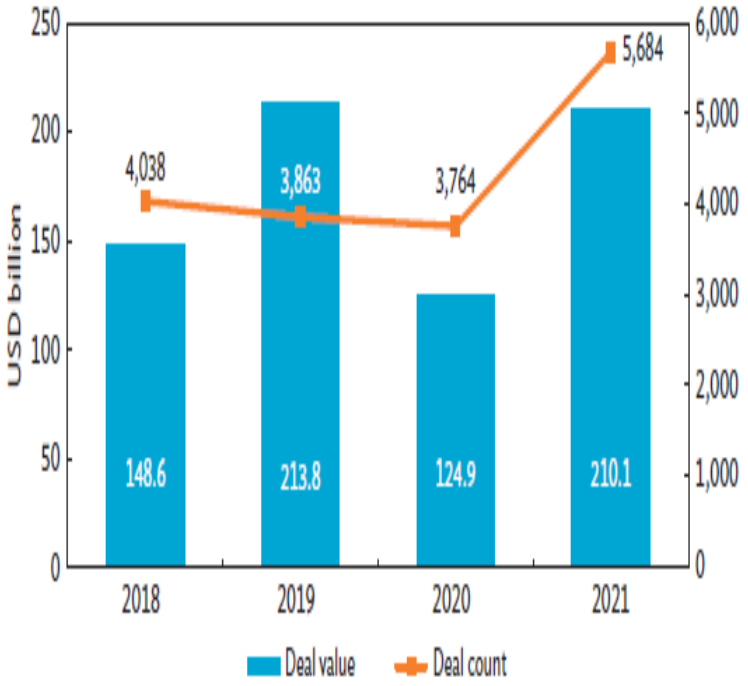
[a] The core activity of an entity engaged in banking is taking deposits, though regulations vary across countries.

[b] Launch was expected in 2021.

Source: J. C. Crisanto, J. Ehrentraud, and M. Fabian. 2021. Big Techs in Finance: Regulatory Approaches and Policy Options. *FSI Briefs* No. 12. March.. https://www.bis.org/fsi/fsibriefs12.pdf.

FinTech and Bigtech Companies (continued)

Figure 2.7: Total Global Investment Activity in FinTech Companies
(USD billion)

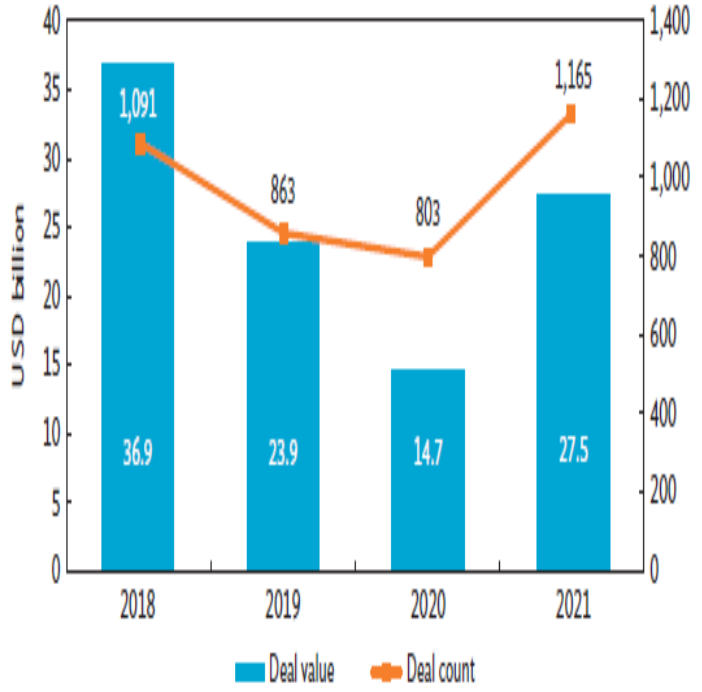


USD = United States dollar.

Note: Data for 2021 as of 31 December.

Source: KPMG International. 2022. *Pulse of Fintech H2'21*. January. https://home.kpmg/xx/en/home/insights/2022/01/pulse-of-fintech-h2-2021-global.html.

Figure 2.8: Total Investment Activity in FinTech Companies in Asia and the Pacific
(USD billion)



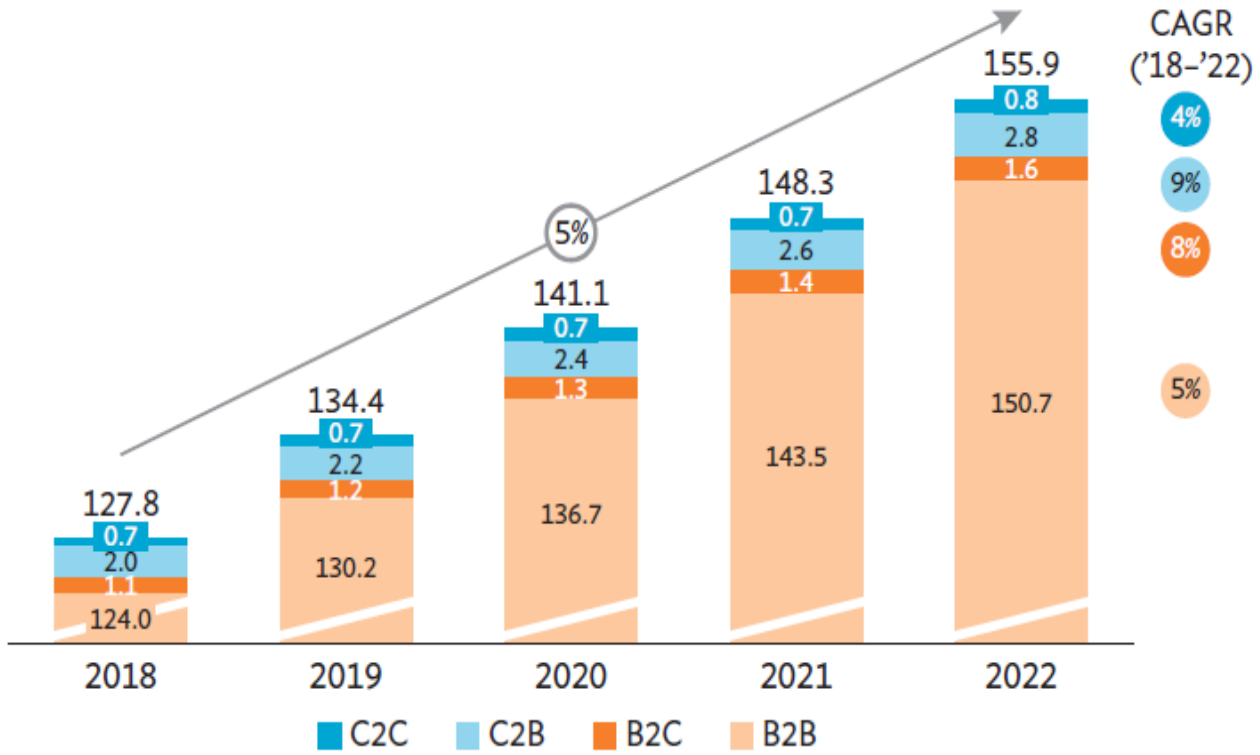
USD = United States dollar.

Note: Data for 2021 as of 31 December.

Source: KPMG International. 2022. *Pulse of Fintech H2'21*. January. https://home.kpmg/xx/en/home/insights/2022/01/pulse-of-fintech-h2-2021-global.html.

Cross-Border Digital Payments

Figure 2.9: Global Cross-Border Payment Volume
(USD trillion)

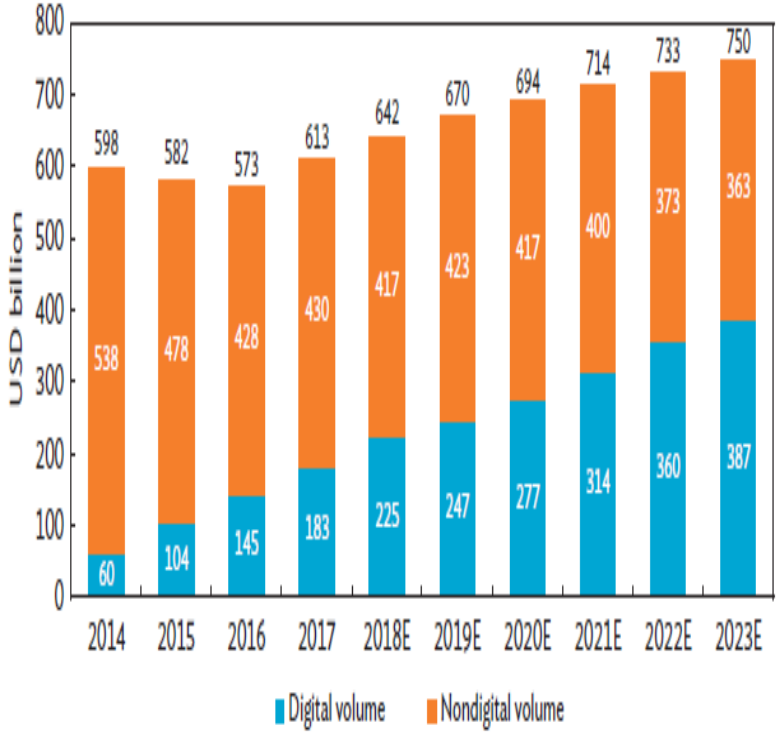


B2B = business–to–business, B2C = business–to–consumer, CAGR = compound annual growth rate, C2B = consumer–to–business, C2C = consumer–to–consumer, USD = United States dollar.

Source: F. Seeh. 2021. How New Entrants Are Redefining Cross-Border Payments. *Ernst & Young*. 23 February. https://www.ey.com/en_gl/banking-capital-markets/how-new-entrants-are-redefining-cross-border-payments.

Cross-Border Digital Remittances

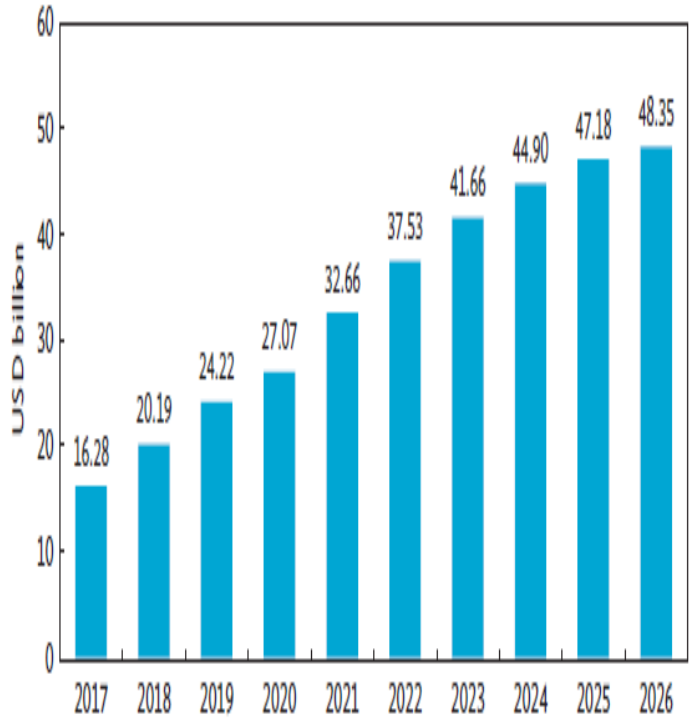
Figure 2.10: Global Cross-Border Remittance Volumes
(USD billion)



E = estimate, USD = United States dollar.

Sources: Business Insider Intelligence estimates; Juniper Research; M. Nicoli and U. Ahmed. 2019. *World Bank Blogs*. "How Digital Remittances Can Help Drive Sustainable Development." https://blogs.worldbank.org/psd/how-digital-remittances-can-help-drive-sustainable-development.

Figure 2.11: Global Cross-Border Digital Remittances by Fintech Firms
(USD billion)

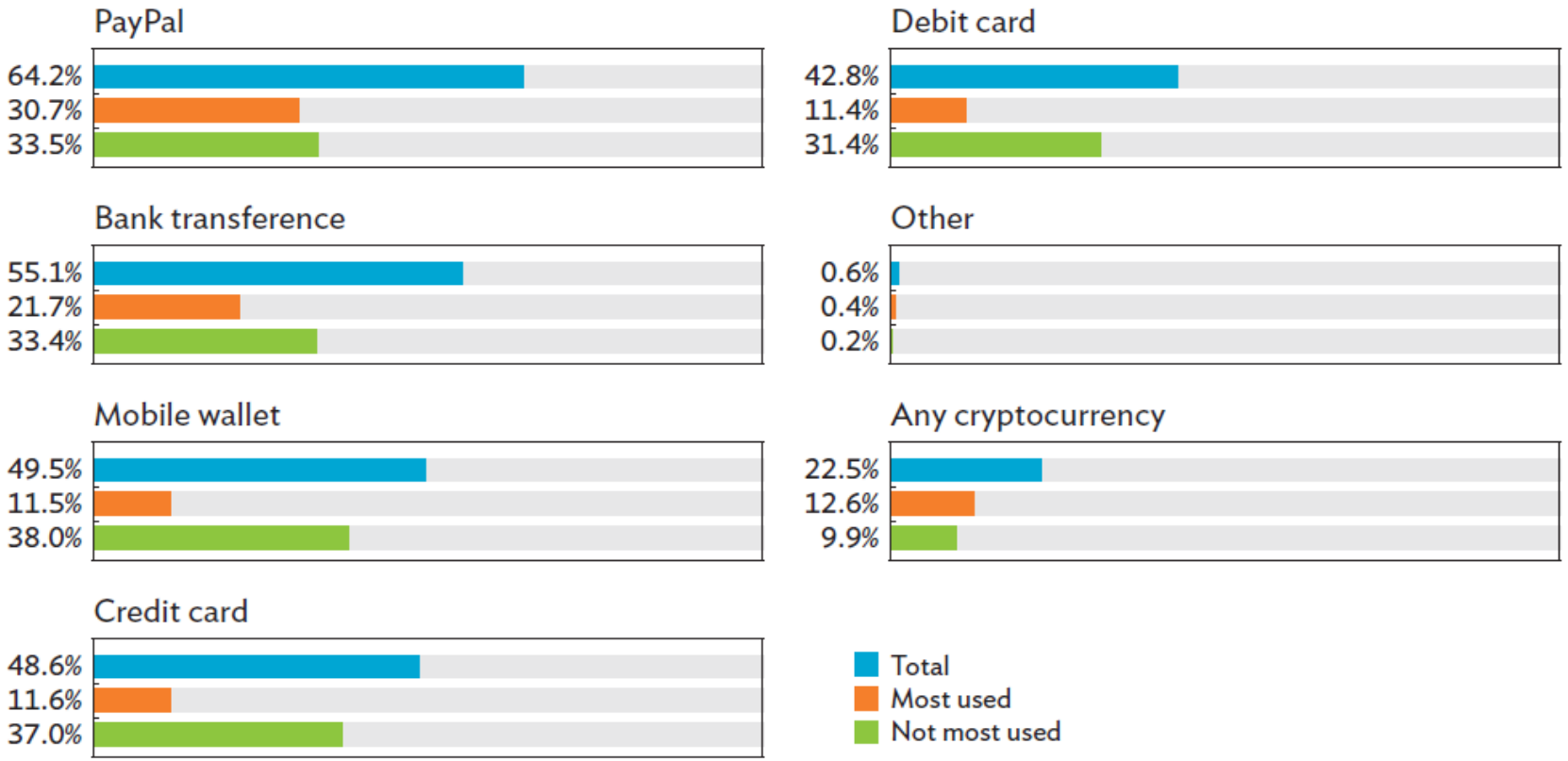


USD = United States dollar.

Source: Statista. Digital Remittances—Worldwide. https://www.statista.com/outlook/dmo/fintech/digital-payments/digital-remittances/worldwide (accessed 12 September 2022).

Cross-Border Digital Remittances (continued)

Figure 2.13: Payment Methods Used for Cross-Border Digital Remittances in the United States

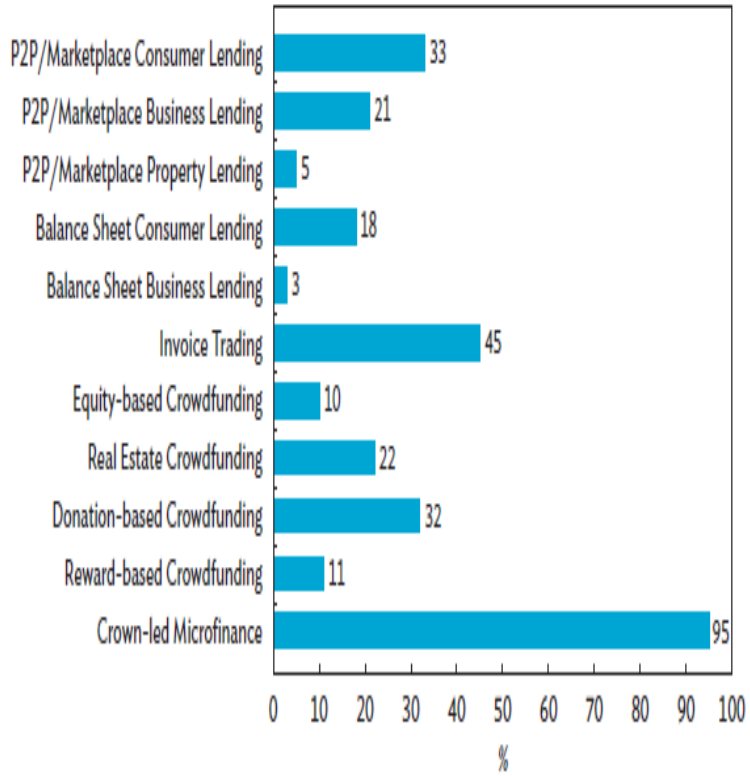


Note: Share of consumers using select payment methods for cross-border digital remittances

Source: PYMNTS and Stellar Development Foundation. 2021. *The Digital Currency Shift: The Cross-Border Remittances Report*. https://www.pymnts.com/wp-content/uploads/2021/09/PYMNTS-Cross-Border-Remittances-Report-September-2021.pdf.

Cross-Border FinTech Financing

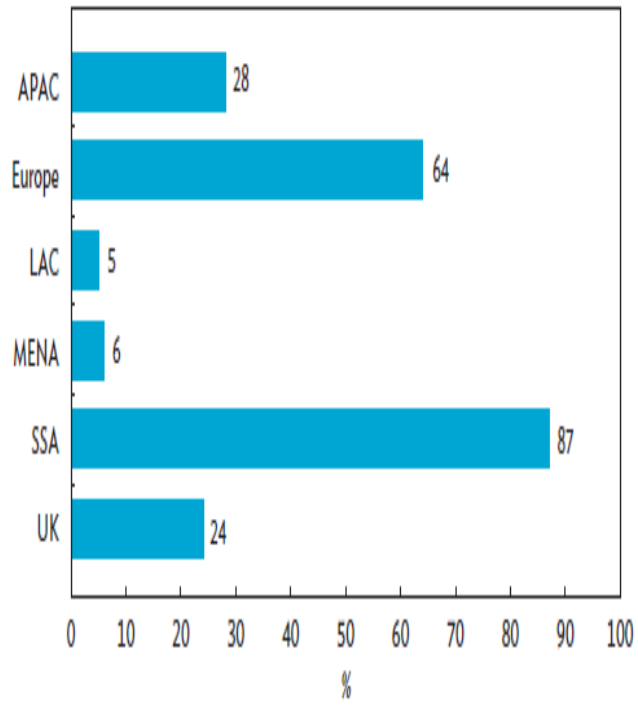
Figure 2.14: Global Cross-Border Transactions of FinTech Financing by Model



P2P = peer-to-peer.

Source: T. Ziegler et al. 2021. *The 2nd Global Alternative Finance Market Benchmarking Report*. Cambridge Centre for Alternative Finance. June. https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/the-2nd-global-alternative-finance-market-benchmarking-report/.

Figure 2.15: Global Cross-Border Transactions of FinTech Financing by Region

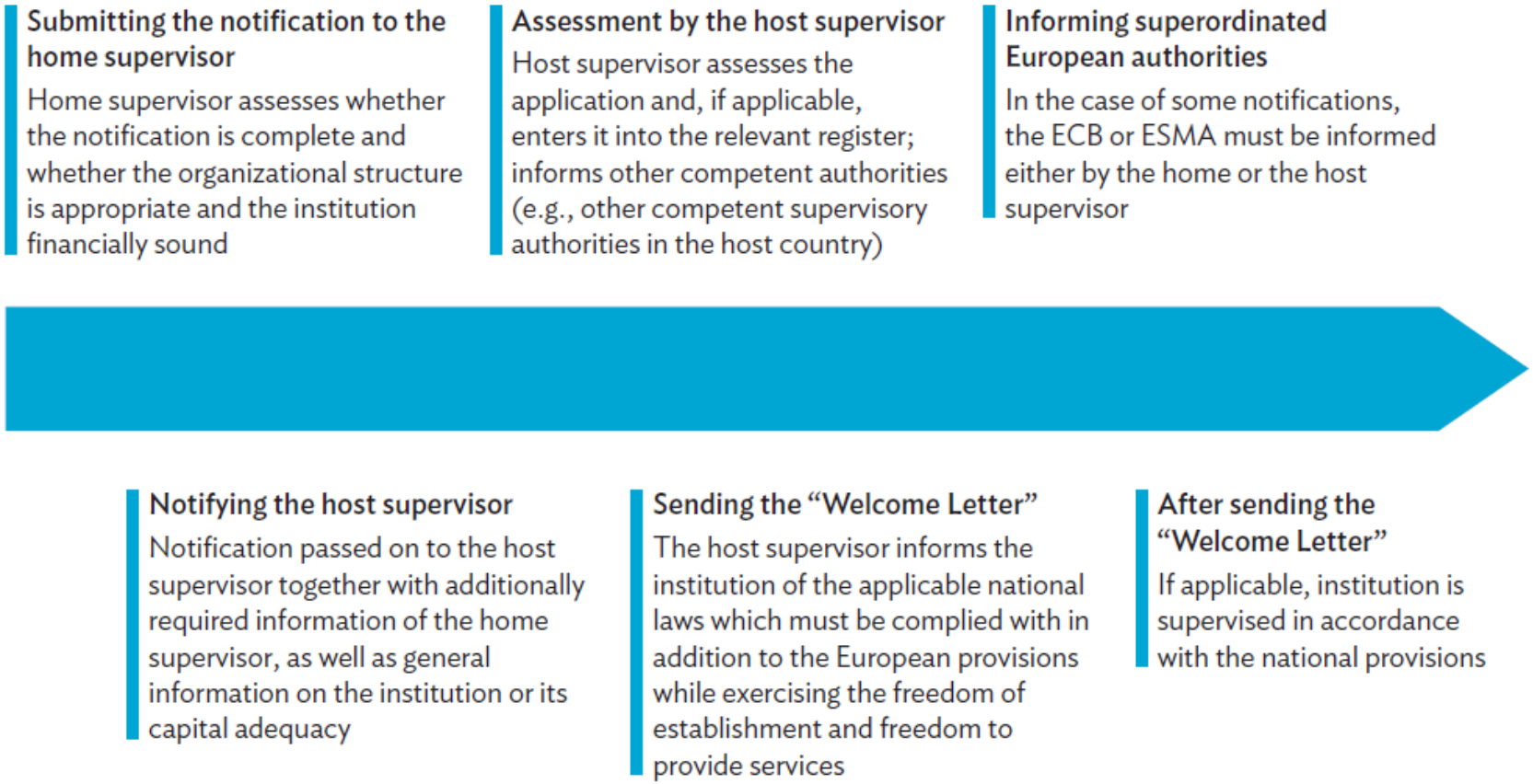


APAC = Asia-Pacific, LAC = Latin America and the Carribean, MENA = Middle East and North Africa, SSA = Sub-Saharan Africa, UK = United Kingdom.

Source: T. Ziegler et al. 2021. *The 2nd Global Alternative Finance Market Benchmarking Report*. Cambridge Centre for Alternative Finance. June. https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/the-2nd-global-alternative-finance-market-benchmarking-report/.

Cross-Border Branchless Banking

Figure 2.16: European Passporting Process



ECB = European Central Bank, ESMA = European Securities and Markets Authority.

Source: German Federal Financial Supervisory Authority. Passporting. European Passport. https://www.bafin.de/EN/Aufsicht/BankenFinanzdienstleister/Passporting/passporting_artikel_en.html.

Cross-Border Branchless Banking (continued)

Table 2.4: Specific Licensing Frameworks for Digital Banks

Economy	Regulatory status	Transitional Scheme	License Restrictions to Specific Market Segments
Hong Kong, China	Virtual bank	No	None
Korea, Republic of	Internet-only bank	No	Retail and SMEs
Malaysia	Digital bank	Yes	None
Singapore	Digital full bank	Yes	None
	Digital wholesale bank	No	SMEs and other non-retail customers
Taipei,China	Internet-only bank	No	None
United Arab Emirates (ADGM)	Digital bank	No	None

ADGM = Abu Dhabi Global Markets, SMEs = small and medium-sized enterprises.

Source: J. Ehrentraud, D. G. Ocampo, and C. Q. Vega. 2020. Regulating FinTech Financing: Digital Banks and FinTech Platforms. *FSI Insights* No. 27. Bank for International Settlements. 27 August.. https://www.bis.org/fsi/publ/insights27.htm.

Cross-Border Branchless Banking (continued)

Table 2.5: Licensing Requirements for Digital Banks

	AE	HK	KR	MY	SG	TC
General licensing requirements						
Legal form and place of incorporation	✓	✓	✓	✓	✓	✓
Ownership structure/control	✓	✓	✓[a]	✓[a]	✓	✓[a]
Long term sustainability of the business plan	✓	✓	✓	✓	✓	✓
Fitness and propriety test	✓	✓	✓	✓	✓	✓
Minimum paid-up capital	✓	✓	✓[b]	✓[c]	✓[c]	✓
Sound risk culture: risk governance frameworks	✓	✓	✓	✓	✓	✓
Exit plan	✓	✓	✓	✓	✓	✓
Technology-related licensing requirements						
Fitness and propriety test on technology fields	–	✓	✓	✓	✓	✓
Track record in technology	–	✓	–	✓	✓	–
Third-party assessment of IT systems	✓	✓	–	✓	–	–
Financial inclusion	✓	✓	✓	✓	✓	–

– = not explicit; ✓ = requirement applies in full from the start; AE = United Arab Emirates; HK = Hong Kong, China; IT = information technology; KR = Republic of Korea; MY = Malaysia; SG = Singapore; TC = Taipei,China.

[a] Requirements on who is allowed to own and/or control digital banks differ from those applicable to traditional banks. In Malaysia, while not a mandatory requirement, preference is given to applicants where the controlling equity interest resides with Malaysians.

[b] Internet-only banks have a minimum capital requirement of KRW25 billion; other banks KRW100 billion.

[c] M Compliance not required in full in the initial phase of transitioning schemes.

Source: J. Ehrentraud, D. G. Ocampo, and C. Q. Vega. 2020. Regulating FinTech Financing: Digital Banks and FinTech Platforms. *FSI Insights* No. 27. Bank for International Settlements. 27 August. https://www.bis.org/fsi/publ/insights27.htm.

Banking Regulation and Supervision in the Digital Era

[Key messages]

- Progress of financial digitalization is a great opportunity for the financial industry as a whole. It also contributes to the achievement of SDGs.
- While being aware of the risks involved, technological innovation in financial services should not be fundamentally impeded, and a free and competitive environment should be sufficiently ensured.
- To enjoy the advantages with minimizing the risks, we need to understand the basic principles, desirable changes, and policy challenges for emerging regulatory and supervisory issues in the digital financial landscape.

Basic Principles

1. Promoting financial innovation

Table 3: Initiatives to Promote Innovation by Jurisdiction

	Innovation Facilitator		
	Innovation Hub A place to meet and exchange ideas	**Accelerator** Boot-camp for start-ups, culminating in a pitch presentation	**Regulatory Sandbox** Testing in a controlled environment, with tailored policy options
Australia	ASIC	ASIC	ASIC
Belgium	NBB/FSMA		
ECB	SSM		
France	ACPR/AMF	BDF	
Germany	BaFin		
Italy	BOI		
Hong Kong, China	HKMA	HKMA	HKMA/SFC/IA
Japan	BoJ/FSA		
Korea, Republic of	FSC		FSC
Luxembourg	CSSF		
Netherlands	DNB/AFM		DNB/AFM
Poland	FSA		
Singapore	MAS	MAS	MAS
Switzerland	Finma		Finma
United Kingdom	BoE/FCA	BOE	FCA

ACPR = Autorité de contrôle prudentiel et de resolution, AFM = Netherlands Authority for the Financial Markets, AMF = Autorité des marchés financiers, ASIC = The Australian Securities and Investments Commission, BaFin = The Federal Financial Supervisory Authority, BDF = Banque de France, BoE = Bank of England, BOI = Bank of Italy, BOJ = Bank of Japan, CSSF = Commission de Surveillance du Secteur Financier, DNB = De Nederlandsche Bank, FCA = Financial Conduct Authority, Finma = Swiss Financial Market Supervisory Authority, FSA = Financial Services Agency, FSA (Poland) = Financial Supervision Authority, FSC = Financial Services Commission, FSMA = Financial Services and Markets Authority, HKMA = Financial Services and Markets Authority, IA = Insurance Authority, MAS = Monetary Authority of Singapore, NBB = National Bank of Belguim, SFC = Securities and Futures Commission of Hong Kong, SSM = Single Supervisory Mechanism.

Source: Bank for International Settlements, Basel Committee on Banking Supervision. 2018. *Sound Practices: Implications of Fintech Developments for Banks and Bank Supervisors*. 19 February. https://www.bis.org/bcbs/publ/d431.htm.

Basic Principles (continued)

2. Ensuring the effectiveness of banking supervision while paying attention to the balance between promoting financial innovation and maintaining financial system stability
3. Coordination and cooperation among relevant authorities will become increasingly important
4. Effective human resource development in charge of bank supervision in the era of financial digitalization (e.g., certain level of FinTech and cyber security literacy, and necessary skills for RegTech and SupTech developments)

Desirable Changes

- Ensuring a level playing field between existing banks and new entrants
- Not granting special treatment in bank licensing standard
- Eschewing excessive regulations and supervision
- Maintaining the existing entity-based framework in principle, and flexibly and appropriately applying activity- or risk-based regulations and supervision depending on the type of banking service and the extent of influence on financial system and infrastructure

Policy Challenges

- Cyber Security and Cyber Resilience as Bigger Threats to Digital Finance
  - ✓ Expansion of e-payments → Increase in the risk of cyber attacks and crime
  - ✓ Financial system disruption caused by cyber attacks as well as human error and natural disasters would be proliferated beyond borders
- Need for Further Coordination and Collaboration among Financial Regulators
  - ✓ To avoid unnecessary regulatory overlap and appropriately address the issues of AML/CFT and KYC/KYCC, inter-agency information exchanges within a country as well as at the regional level need to be considered
- SupTech, RegTech, and Promotion of Data Standardization
  - ✓ SupTech (supervisory technology) for effective supervision
  - ✓ RegTech (regulatory technology) for reducing regulatory burdens
  - ✓ Data standardization with the adoption of legal entity identifiers (LEIs)

Risks and Mitigation Measures for More Digitally Integrated Regional Financial Markets

[Key messages]

- Various digital finance services can be provided without a physical premise. Who should regulate and how?
- Traditional banking regulation based on territoriality is still effective but needs to be enhanced in the digital era.
- Effective supervisory college plays an important role for improving coordination and cooperation between home and host supervisors.
- To ensure the regional financial stability, cross-border, prudential liquidity assistance measures, such as central bank currency swap and cross-border collateral arrangement, need to be considered and established.

Who Should Regulate and How in the Cross-Border Digital Era?

E-Banking Service without a Local License or Establishment and Consideration for Local Banking Supervisors

When contacted by a foreign bank that intends to provide e-banking services to local residents but does not have a local license or establishment, the local supervisor needs to consider the following:

(i) whether the cross-border e-banking activities are subject to effective home country supervision;

(ii) whether there is an existing adequate process for supervisory dialogue between the respective supervisors on the foreign bank's activity;

(iii) the need to discuss with the foreign bank its intentions and plans—possibly including a discussion with the foreign bank's home supervisor(s) about any identified risks or concerns—and to explore an appropriate framework for coordination and cooperation, if necessary;

(iv) the need to inform the foreign bank of the applicability of any relevant local banking laws, regulations, or requirements; and

(v) the need to inform the foreign bank's home supervisor (if any) of how it intends to ensure the bank's compliance with relevant local banking laws, regulations, or requirements.

Who Should Regulate and How in the Cross-Border Digital Era? (continued)

E-Banking Service without a Local License or Establishment and Consideration for Local Banking Supervisors (continued)

If a situation arises wherein a local bank supervisor determines that a foreign bank with no local presence is conducting cross-border e-banking activities in violation of local laws, regulations, or requirements, it needs to consider the following options:

(i) informing the foreign bank of any noncompliance with local laws or regulations;

(ii) informing the foreign bank's home country banking supervisor (if any) of the situation;

(iii) publicly advising local residents that the foreign bank is conducting cross-border ebanking business in violation of local laws and regulations; or

(iv) taking any appropriate enforcement actions.

Source: Basel Committee on Banking Supervision. 2003. *Management and Supervision of Cross-Border Electronic Banking Activities*. Basel.

Home and Host Supervisory Arrangement: Supervisory College

Principles for an Effective Supervisory College

Principle 1: College Objectives

Supervisory colleges should enhance, on an ongoing and confidential basis, information exchanges and cooperation among supervisors to support the effective supervision of international banking groups. Colleges should enhance the mutual trust and appreciation of needs and responsibilities on which supervisory relationships are built.

Principle 2: College Structures

Supervisory colleges should be structured in a way that enhances effective oversight of international banking groups, taking into account the scale, structure, and complexity of the banking group, its significance in host jurisdictions, and the corresponding needs of its supervisors. While a college is a single forum, multiple or variable substructures may be used given that no single college structure is likely to be suitable for all banks.

Principle 3: Information Sharing

College members should do their best to promptly share appropriate information with respect to a banking group's principal risks, vulnerabilities, and risk management practices. Mutual trust and willingness to cooperate are key for effective two-way information sharing. To facilitate this process, supervisory colleges should strive toward confidentiality agreements among college members such as those contained in memoranda of understanding.

Home and Host Supervisory Arrangement: Supervisory College (continued)

Principles for an Effective Supervisory College (continued)

Principle 4: Communication Channels
Communication channels within a college should ensure the efficiency, ease of use, integrity, and confidentiality of information exchange. The home supervisor should make sound communication channels available to the college and host supervisors should use them appropriately and regularly.

Principle 5: Collaborative Work
Supervisory colleges should promote collaborative work among members, as appropriate, to improve the effectiveness of the oversight of international banking groups. Collaborative work should be by agreement among supervisors and should recognize national legal constraints.

Principle 6: Interaction with the Institution
Interaction between the college members and the banking group should complement the interaction that individual supervisors (both home and host) have with the specific entity they supervise.

Principle 7: Crisis Preparedness
Supervisory colleges are distinct from but complementary to crisis management and resolution structures. The work of a banking group's supervisory college should contribute to effective crisis management planning.

Source: BCBS. 2015. *Progress Report on the Implementation of Principles for Effective Supervisory Colleges*. Basel.

Cross-Border Liquidity Management Will Become More Important

ASIAN DEVELOPMENT BANK

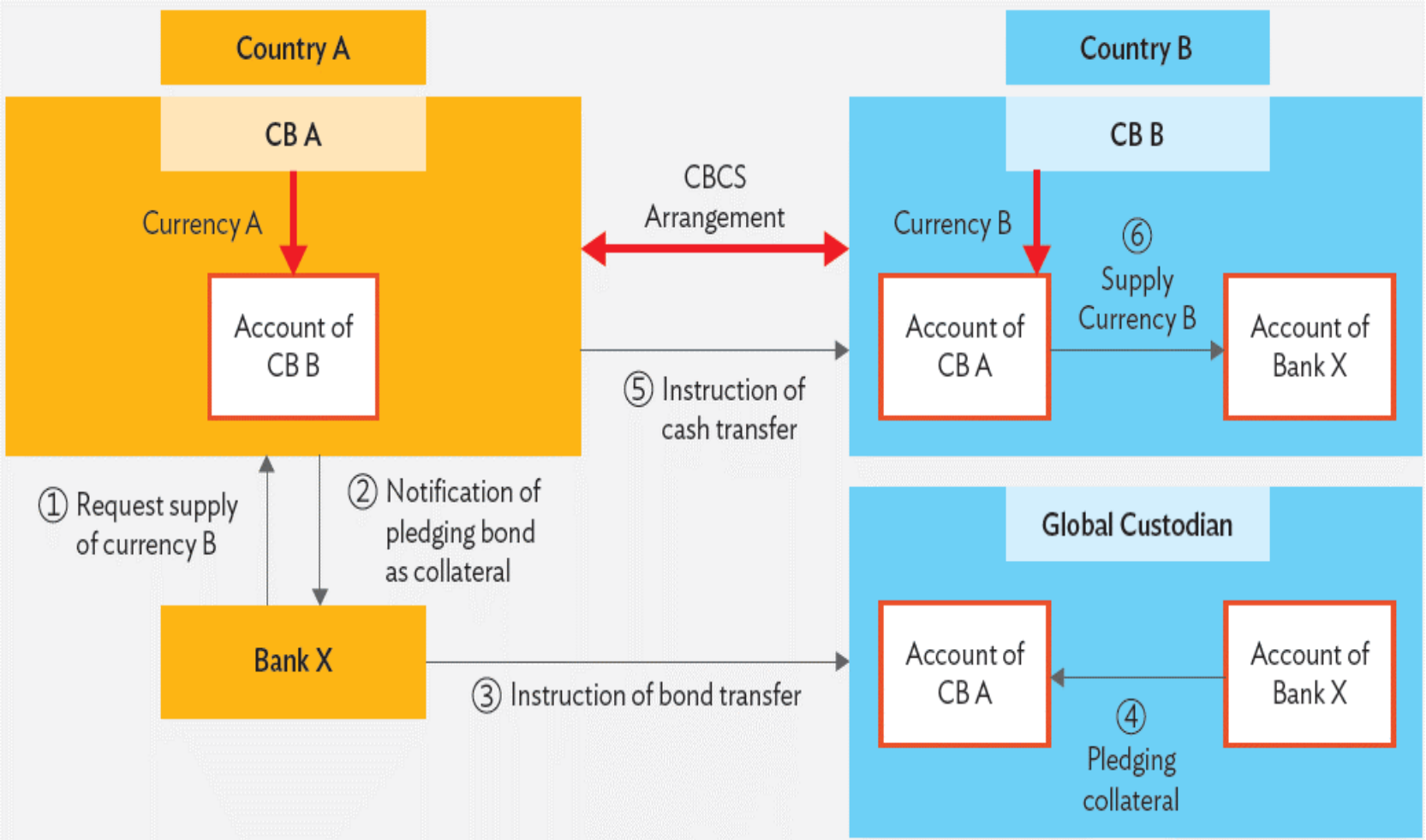
Central Bank Currency Swap and Central Bank Collateral Arrangement

	Central Bank Currency Swap	Central Bank Collateral Arrangement
Implementation Body	- Central bank	- Central bank
Policy Targets	- Domestic financial institutions	- Foreign financial institution local branches
Collateral	- Central bank to central bank: local currency - Central bank to financial institution: local currency or foreign currency bonds	- Local currency bonds
Policy Objectives	- Strengthening financial stability - Enhancing financial cooperation between economies - Promoting the internationalization of local currency	- Strengthening financial stability - Facilitating the use of local currency bonds for cross-border financial transactions

Source: Authors' compilation.

Different from existing CMIM!

Central Bank Currency Swap

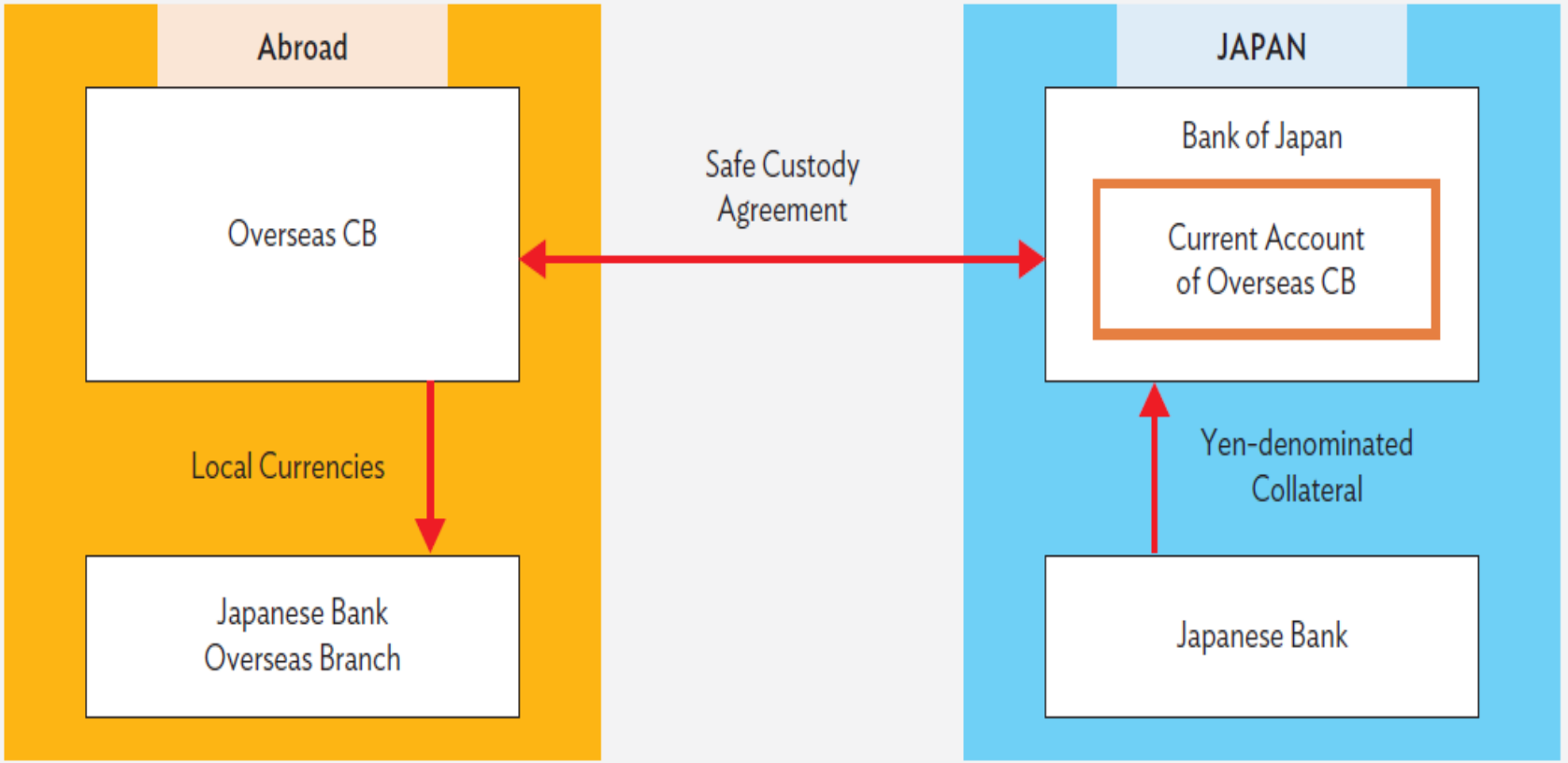


CB = central bank, CBCS = central bank currency swap.

Source: Authors' compilation.

Cross-Border Collateral Arrangement

Figure 11: Cross-Border Collateral Arrangement Model of the Bank of Japan

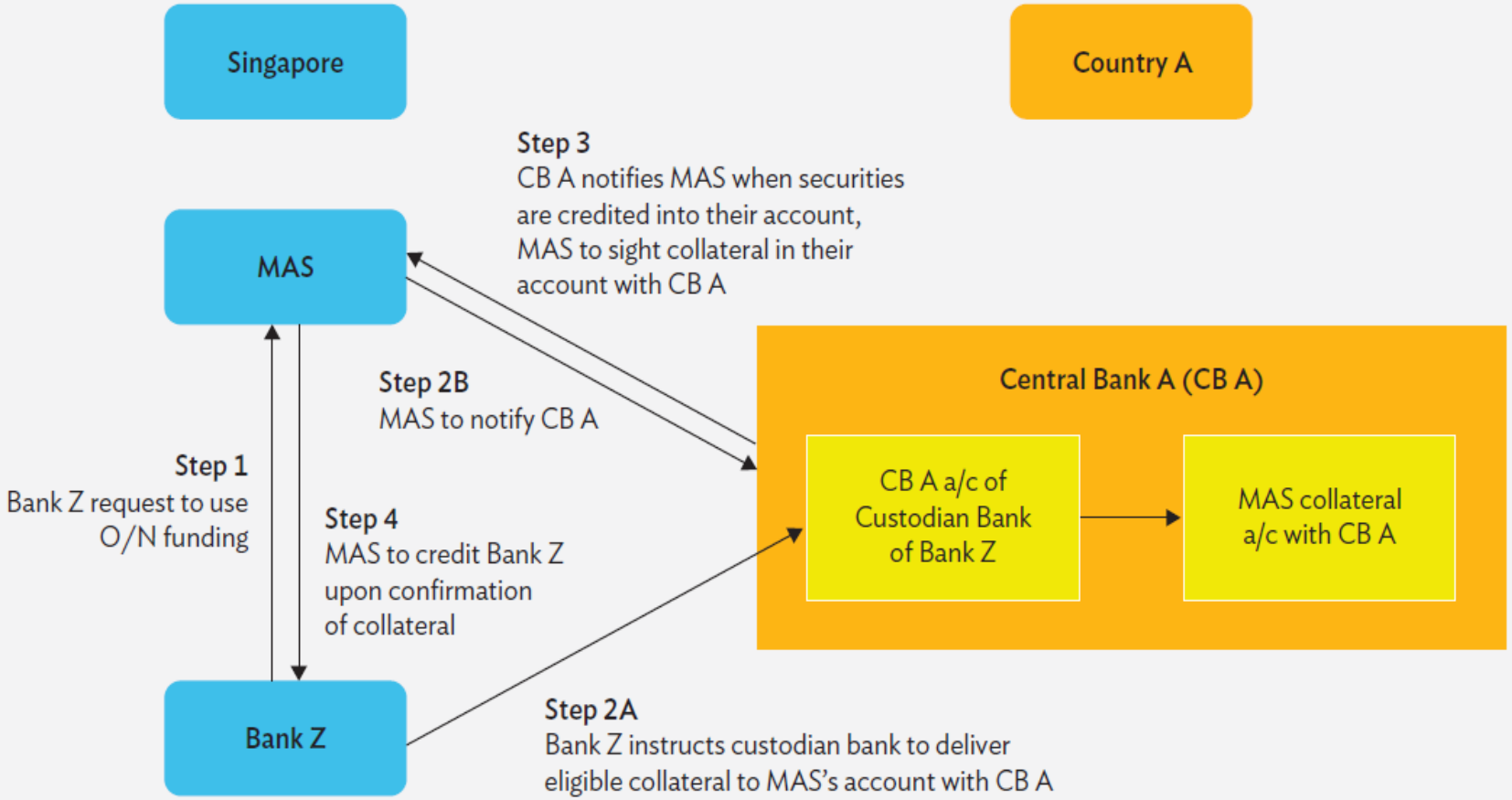


CB = central bank.

Source: Cross-Border Settlement Infrastructure Forum Survey (2021).

Cross-Border Collateral Arrangement (continued)

Figure 12: Cross-Border Collateral Arrangement Model of the Monetary Authority of Singapore



CB A = central bank A, MAS = Monetary Authority of Singapore.

Source: Cross-Border Settlement Infrastructure Forum Survey (2021).

Conclusion

(Development of Financial Digitalization)

- Financial digitalization is progressing globally and also in Asia and the Pacific, and it will never regress.
- Financial digitalization further promotes cross-border banking and other financial services.
- Cross-border branchless banking might emerge and spread in the future.
- Banking industry has increasingly become competitive among existing banks and versus new entrants.

(Banking Regulation and Supervision)

continued

- Progress of financial digitalization is a great opportunity for the financial industry as a whole. It also contributes to the achievement of SDGs.
- While being aware of the risks involved, technological innovation in financial services should not be fundamentally impeded, and a free and competitive environment should be sufficiently ensured.
- To enjoy the advantages with minimizing the risks, financial authorities need to understand the basic principles, desirable changes, and policy challenges for emerging regulatory and supervisory issues in the digital financial landscape.

(Risks and Mitigation Measures)

continued

- Various digital finance services can be provided without a physical premise. Who should regulate and how? Traditional banking regulation based on territoriality is still effective but needs to be enhanced in the digital era.
- Effective supervisory college plays an important role for improving coordination and cooperation between home and host supervisors.
- To ensure the regional financial stability even in the digital era, cross-border, prudential liquidity assistance measures, such as central bank currency swap and cross-border collateral arrangement, need to be considered and established.

Thank you very much!
Q&A

Saitama University
埼玉大学

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SESSION 12

Cross-border collateral as a new business opportunity

- **Local Currency Collateral for Cross-Border Financial Transactions** by Mr. Lelark Park, ADB Consultant
- **Liquidity bridge for cross-border payment** by Mr. Jaekwang Roh, Bank of Korea

LOCAL CURRENCY COLLATERAL FOR CROSS-BORDER FINANCIAL TRANSACTIONS

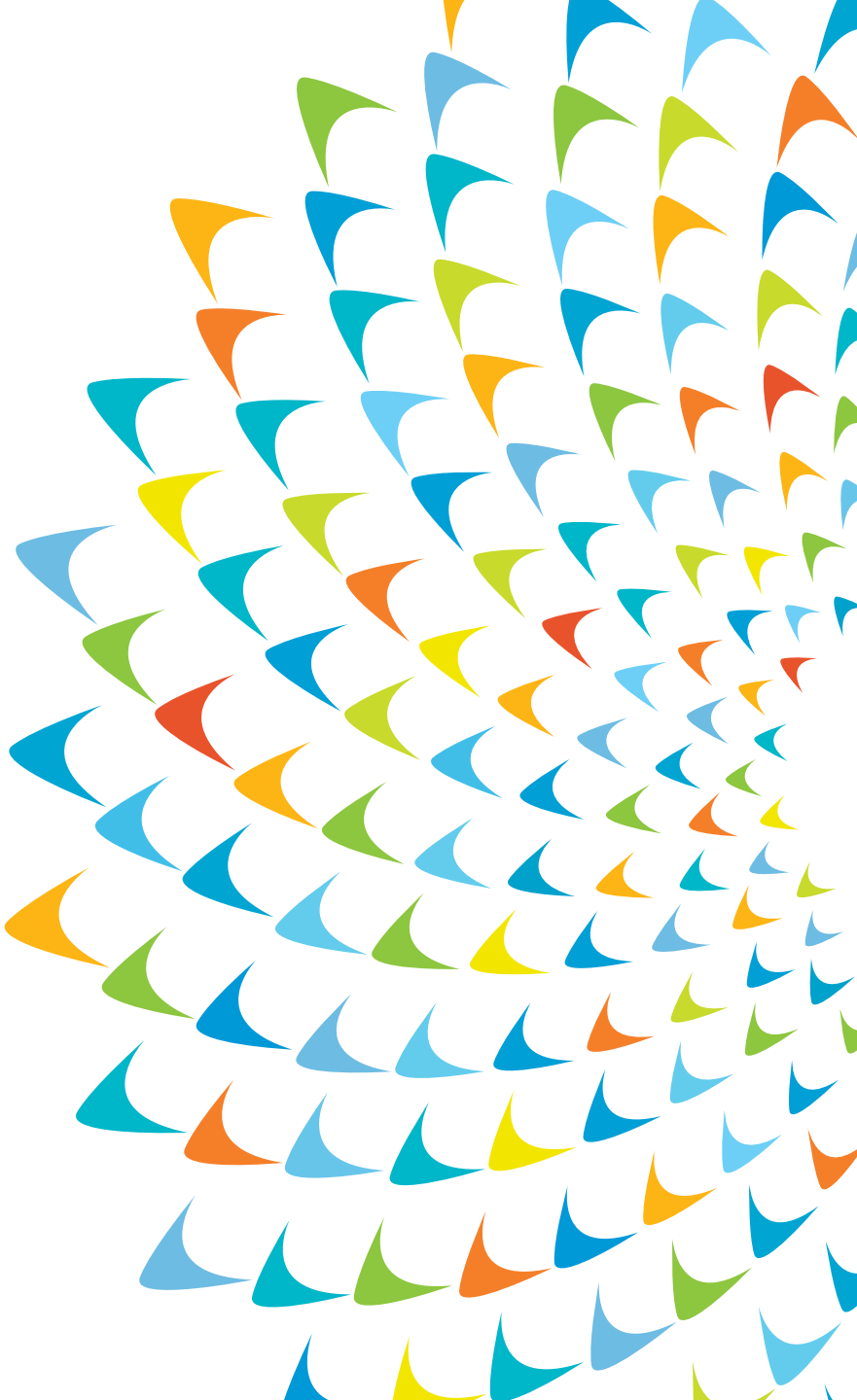
Policy Recommendations from the CSIF

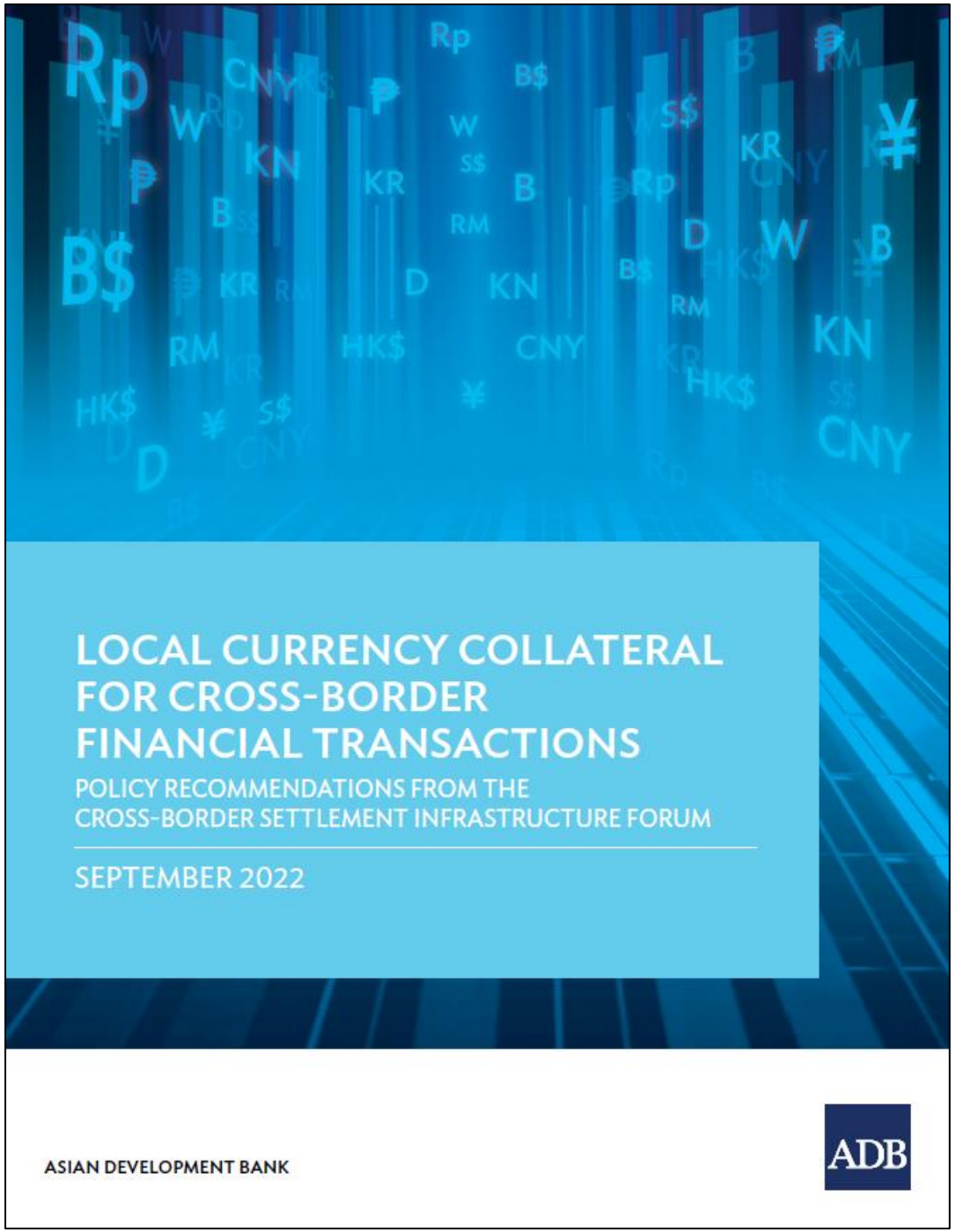
Leelark Park

Consultant

Cross-Border Settlement Infrastructure Forum (CSIF)

Asian Development Bank




LOCAL CURRENCY COLLATERAL FOR CROSS-BORDER FINANCIAL TRANSACTIONS
POLICY RECOMMENDATIONS FROM THE CROSS-BORDER SETTLEMENT INFRASTRUCTURE FORUM
SEPTEMBER 2022
ASIAN DEVELOPMENT BANK
ADB

Outline

I. Background and Objectives

II. Overview of the Collateral Markets

III. CBCA

IV. Use of LCY Bonds as Collateral

V. Policy Recommendations

VI. Next Steps

I. Background and Objectives

Background

➢ **ASEAN+3 Investment Portfolio** (USD billion, %)

Year	Advanced Economy				ASEAN+3		Total
	US	Europe	Amount	%	Amount	%	
2005	660	789	1,449	68.5	78	3.7	2,119
2010	1,017	1,124	2,141	63.4	209	6.2	3,378
2020	1,821	1,125	2,946	**64.1**	523	**11.4**	4,595

Source: IMF's *Coordinated Portfolio Investment Survey*

➢ **Excessive Reliance on Major Currency-Denominated Assets**

I. Background and Objectives

Objectives

- Promoting the Use of LCY Bonds as Cross-Border Collateral
- Expanding the Market Instruments for Funding LCY Liquidity
- Alleviating Dependence on Major Currencies
- Strengthening Financial Stability in the Region

II. Overview of the Collateral Markets

Regional Bond Markets

➢ **Issuances[1)]**

- ✓ Steadily Increase
- ✓ Mainly by Government Bonds

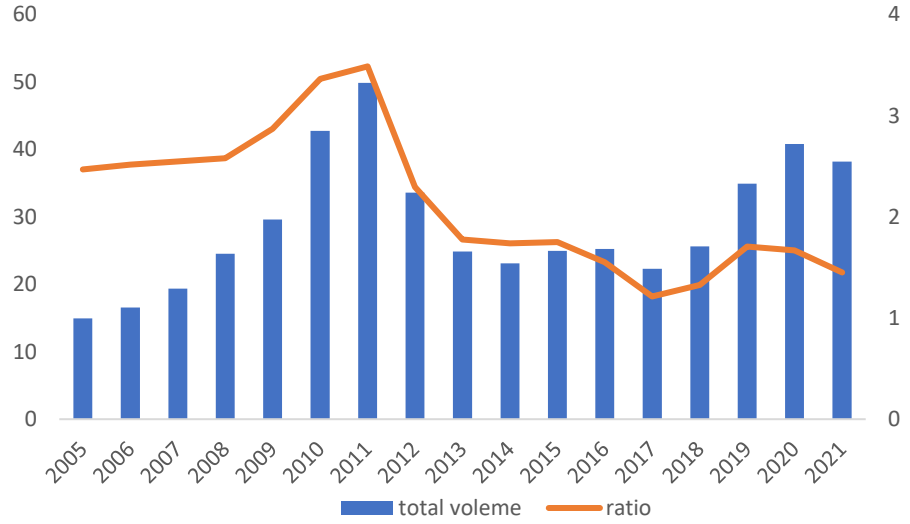
(Trillion USD)

Note: 1) Including nine economies
Source: ADB, *AsianBondsOnline*

➢ **Transactions/Turnover Ratio[2)]**

- ✓ Trading Volume: Fairly Restrained
- ✓ Turnover Ratio: Remaining Sluggish

(Trillion USD)

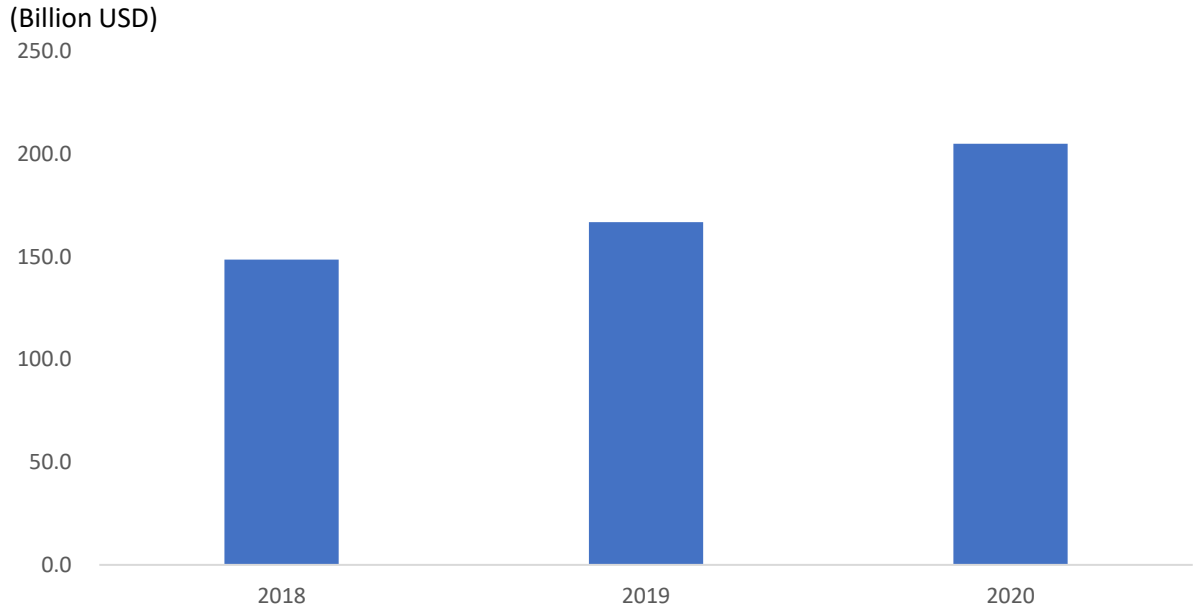


Note: 2) Turnover Ratio only covers government bonds

II. Overview of the Collateral Markets

Collateral Transactions in ASEAN+3

✓ Trading Volume[1)]: Steadily Increase



Note: 1) Total collateral trading volume covers Eight Economies
Source: ADB(2022)

II. Overview of the Collateral Markets

Market Infrastructures: Domestic Segments

Economy	CSD			RTGS	
	Operator	Name of System	Gov. or Corp. Bond	Operator	Name of System
Brunei Darussalam	BDCB	CSD	Government	BDCB	RTGS
Cambodia	CSX	-	Corporate	NBC	RTGS
Hong Kong, China	HKMA	CMU	Both	HKMA	CHATS
Indonesia	BI	BI-SSSS	Government	BI	BI-RTGS
	KSEI	C-BEST	Corporate		
Japan	BOJ	BOJ-NET JGB Services	Government	BOJ	BOJ-NET FTS
	JASDEC	BETS	Corporate		
Korea	KSD	SSS/e-SAFE	Both	BOK	BOK-Wire+
Lao PDR	-	-	-	BOL	RTGS
Malaysia	BNM	RENTAS-SSDS	Both	BNM	RENTAS-IFTS
People's Republic of China	CCDC	CBGS	Both	PBOC	CIPS2
	CSDC	MNS	Corporate		
	SHCH	SHCH-SSS	Corporate		
Philippines	BTr	BTr-NRoSS	Government	BSP	PhilPaSS^{plus}
	PDTC	PDTC	Corporate		
Singapore	MAS	MEPS+ SGS	Government	MAS	MEPS+
	CDP	DCSS	Corporate		
Thailand	TSD	PTI	Both	BOT	BAHTNET
Viet Nam	VSD	VSD-DR system	Both	SBV	IBPS

Source: ADB (2022)

II. Overview of the Collateral Markets

Cross-Border Linkages between Market Infrastructures

	Linkages
Hong Kong, China	CMU–CBGS, SHCH-SSS, HKMA CHATS–BOJ-NET JGBs
Indonesia	BI-SSSS–Clearstream
Japan	BOJ-NET JGBs–HKMA CHATS
Korea	e-SAFE–Euroclear, Clearstream
Malaysia	RENTAS-SSDS–Euroclear
People's Republic of China	CBGS, SHCH-SSS–HKMA CMU, Euroclear
Thailand	PTI–Plan to Connect with Global Custodian

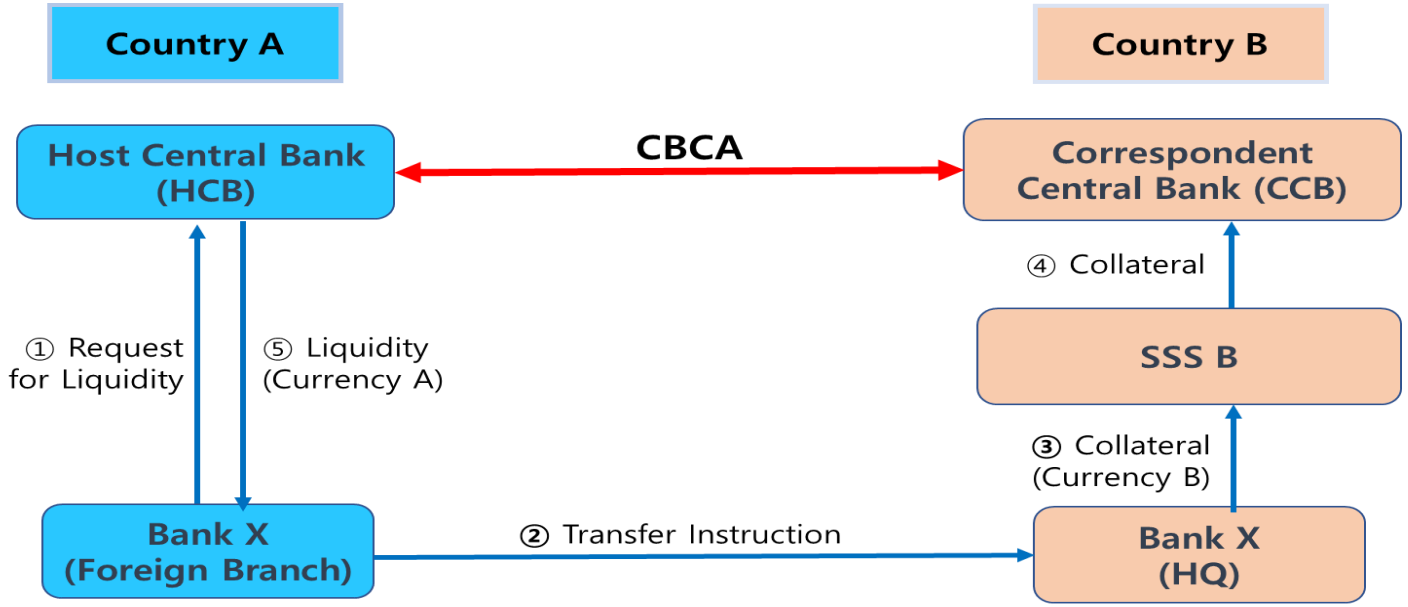
Source: ADB (2022)

III. CBCA

Concept of CBCA*

* Cross-Border Collateral Arrangement

- **CB's Monetary Policy Tool to Provide LCY Liquidity to Domestic FIs accepting FCY Bonds as Collateral**

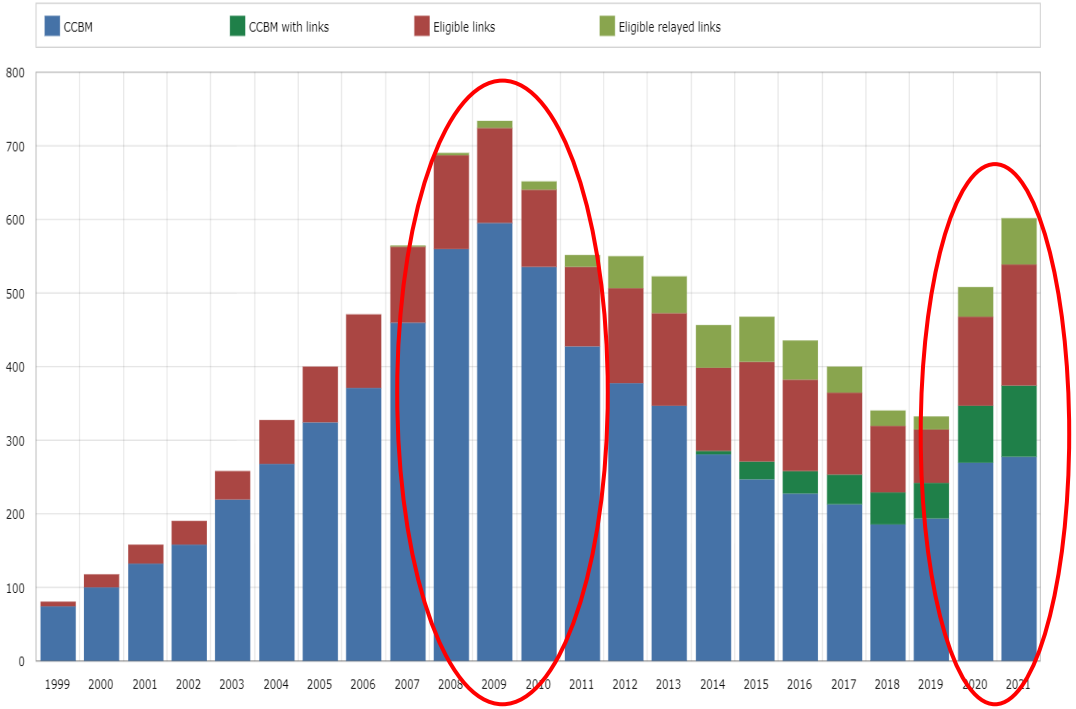


Source: ADB (2022)

III. CBCA

Existing Cases

Euro Area



Source: ECB

ASEAN+3

Arrangements	Eligible Collateral
BOJ[1)] - BI, BOT, MAS (non-reciprocal)	- JGBs
BNM - BOT, BNM - MAS (reciprocal)	- Government Bonds - Central Bank Bills
BOT - MAS (reciprocal)	- Work In Progress

Note: 1) BOJ – BSP: Cash collateral (Japanese Yen)
Source: ADB (2022)

III. CBCA

Potential Benefits

- Increasing Liquidity in the Markets
- Enhancing Cross-Border Usage of High-Quality LCY Bonds
- Expanding Regional Financial Safety Net

Some Issues

- CBs bear All Risks stemming from Valuation, Currency Mismatch etc.
- Effects on Emerging Markets May Be Limited
- Local Liquidity Funding Costs May Increase

IV. Use of LCY Bonds as Collateral

Key Factors Influencing Collateral Demand

- **CB's Collateral Policy**
  - ✓ Establishment of Eligible Collateral Criteria
  - ✓ Introduction of CBCA
- **Tightened Global Financial Regulations following the GFC**
  - ✓ OTC Derivatives Market Reform, Basel III, Uncleared Margin Rule etc.
- **Changes in Market Participants' Perceptions**
  - ✓ Mindful of the Risk of Unsecured Financial Transactions

IV. Use of LCY Bonds as Collateral

Impediments in the Regional Market

- **Lack of Domestic Bond Market Development**
  - ✓ Bond Market Not Being Mature Enough
  - ✓ Lack of Market Participants' Diversity
- **Insufficient Disclosure of Relevant Laws & Regulations**
  - ✓ Lack Some Details (Tax Treatment, Investor Protection etc.)
  - ✓ No Single Platform in Each Economy
- **Foreign Exchange Issues**
  - ✓ Restrictions of LCY Bond for Cross-Border
  - ✓ Lack of Foreign Exchange Hedging Instruments

IV. Use of LCY Bonds as Collateral

Impediments in the Collateral Market

- **Insufficient Market Infrastructures for Cross-Border**
  - ✓ Not Well-Connected Market Infrastructures (CSDs, SSSs)
  - ✓ Different Settlement Cycle

- **Limited Disclosure of Relevant Market Information**
  - ✓ Insufficient Information (Bond Prices, Trading Volume, Investor Protection Rules etc.)
  - ✓ Language Barrier

V. Policy Recommendations

1 Further Development of LCY Bond Markets

- Developing Interbank Bond Markets
- Establishing the HQLA-Centered Eligible Collateral Pools
- Vitalizing Repo Transactions
- Easing Regulations Pertaining to Collateral Transactions

V. Policy Recommendations

2 Disclosure Enhancement of Pertinent Information

- **ADB: ASEAN+3 BMG, Asianbondsonline**
- **BIS-IOSCO: PFMI (Disclosure of Rules, Procedures, Market Data)**
  - ✓ Principle 23: FMI should provide sufficient information to market participants.
- **Additional Specific Measures;**
  - ✓ Building a Single Platform in Each Economy
  - ✓ Providing Sufficient Information in Internationally Common Language
  - ✓ Expanding Market Information Exchange between Economies

V. Policy Recommendations

3 Enhancement of Financial Market Infrastructures

- **Collateral Market Functions Dependent upon Stable Operations of FMIs**

- **For Supporting the Active Collateral Transaction:**
  - ✓ Well-Functioning CSDs and SSSs for Wider Availability of Collateral
  - ✓ Actual Cross-Border DVP Schemes
  - ✓ Harmonizing Settlement Cycle

V. Policy Recommendations

4 Linkages between Regional Market Infrastructures

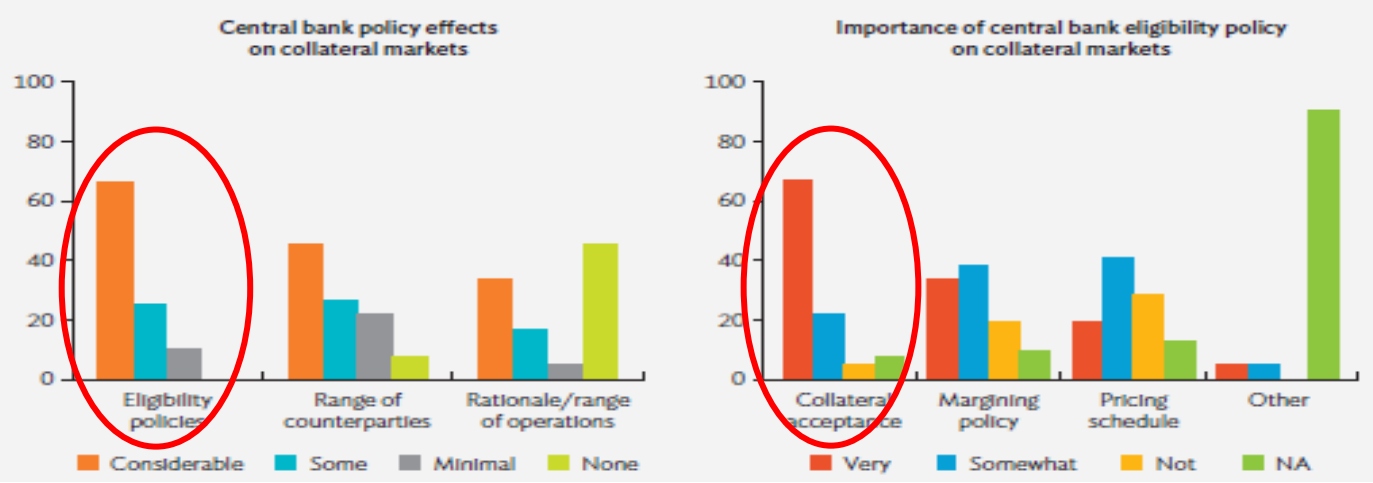
- **Domestic Market Infrastructures Not Widely Linked**

- **To Promote the Use of LCY Bonds and Reduce Operational Risk:**
  - ✓ Strengthening the Linkages between Market Infrastructures
  - ✓ Adopting International Technical Standards (ISO 20022)
  - ✓ Straight-Through-Processing (STP)

V. Policy Recommendations

5 Expansion of CB's Role in Collateral Management

- **CBs need to Lead the Robust Collateral Frameworks:**
  - ✓ Establishment of Collateral Eligibility Criteria
  - ✓ Expansion of Qualifying Collateral Pools Including FCY Assets
  - ✓ Enhancement of Asset Prices Assessment Systems



Source: BIS (2015)

V. Policy Recommendations

6 Expansion of CBCA

- **BIS Report: Key Factors for a Well-Functioning of CBCA**
  - ✓ Active Domestic Bond Markets
  - ✓ Close Links across Financial Markets
  - ✓ Participation of Internationally Active FIs
- **Stepping-stones…**
  - ✓ Inclusion of FCY Assets as Collateral
  - ✓ Reciprocal Arrangement between Advanced and Emerging Economies
  - ✓ Suitable Model for Each Economy

V. Policy Recommendations

7 Facilitation of QAB*s

* Qualified ASEAN Banks

- **QABs under ABIF: Open Domestic Financial Market to Other ASEAN Banks**
- **Three Bilateral Agreements (OJK-BNM, BNM-BSP, BNM-BOT)**
  - ✓ Currently, Only Two QABs in Operation
- **Effect on the Increase of Cross-Border Collateral**
  - ✓ In Conjunction with CBCA: Further Collateral Transactions

VI. Next Steps

In-Depth Study of Cross-Border Collateral Markets

- **Identifying the Current Status of the Collateral Market**
  - ✓ Build the Comprehensive Data Compilation System in Each Economy
- **In-Depth Studies Focusing on Some Key Areas:**
  - ✓ Cross-Border Collateral Financing
  - ✓ Repo Transactions, Securities Lending in Active Markets
  - ✓ Analysis on CBs' Repo Operations as a Starting Point of Discussion

VI. Next Steps

Support for Market Participants' Collateral Activities

- **To Support Business Activities in the Private Sector:**
  - ✓ Establishing Open Eligible Collateral Criteria
  - ✓ Incorporating LCY Bonds into Global Eligible Collateral
  - ✓ Easing Regulations and Constraints Related to Collateral Transactions

VI. Next Steps

Establishment of Regional Market & Legal Practices

- **Volume of Bond Issuances and Transactions Significantly Increasing:**
  - ✓ Developing Market Practices Suitable for the Region
  - ✓ Harmonizing with Global Market Practices
  - ✓ Discussing Asian Common Legal Practices

VI. Next Steps

Close Cooperation between Authorities

- **Financial Stability in One Economy Directly Relevant to Neighbors**
  - ✓ Cooperation between Authorities
  - ✓ More Relevant Information Sharing
  - ✓ Further Training Programs, Seminars, Meetings

VI. Next Steps

Establishment of WGs

- **Constraints of Collateral Markets Very Complex**
  - ✓ Level of Bond Market Development Varies across the Region
- **Challenges to Achieve Notable Enhancement within a Short Timeframe**
- **Specific Measures:**
  - ✓ Forming Dedicated WGs of Experts Supported by Members
  - ✓ Taking Stepwise and Collective Approach to Involve All Member Economies

Thank you

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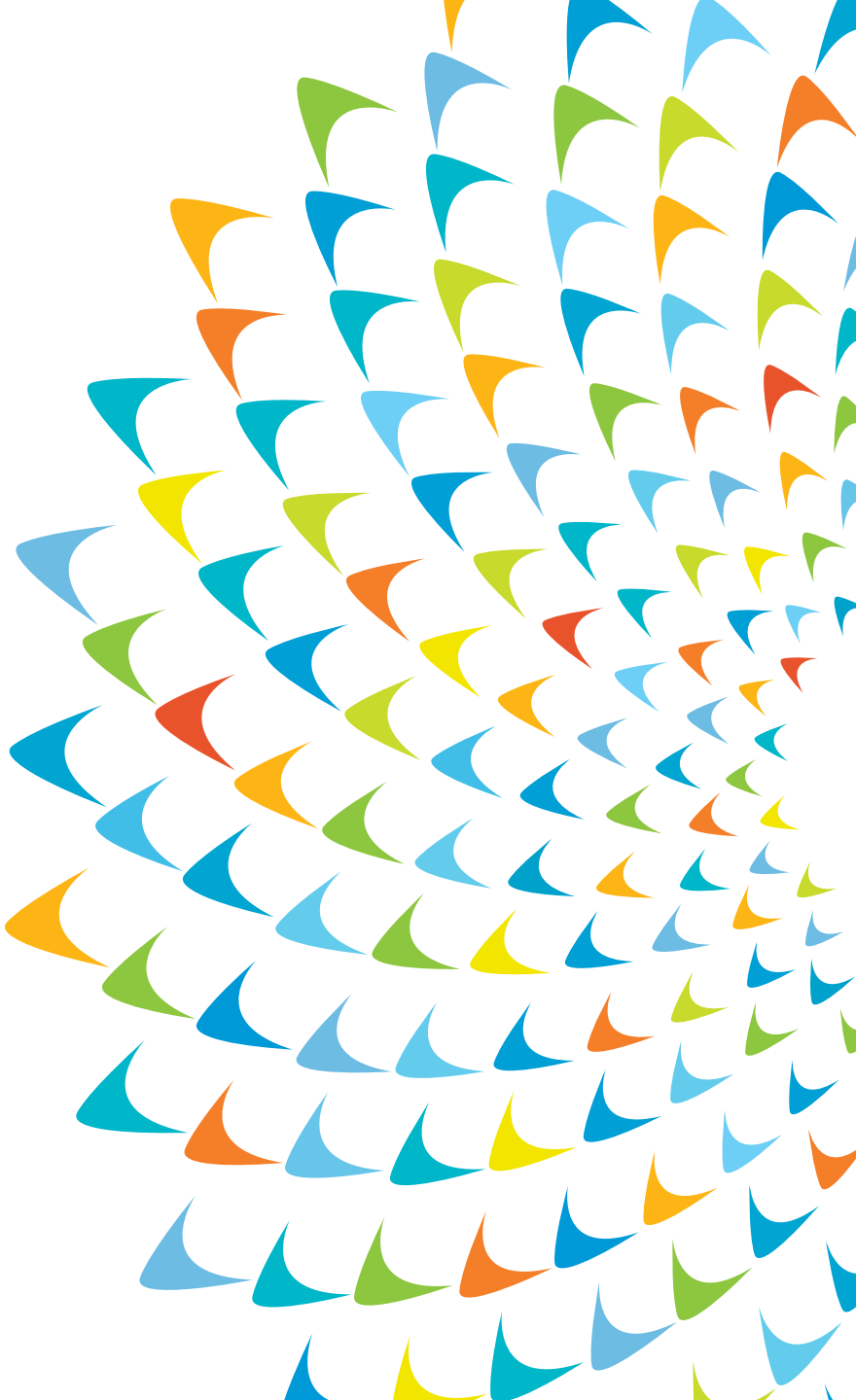


ABMF Meeting

Liquidity bridge for cross-border payments

February 2023

Bank of Korea
Jaekwang Roh

1. Introduction
2. Benefits
3. Challenges and risks
4. Factors influencing the potential usefulness of LB
5. Elements to be considered
6. Summing up

Annex

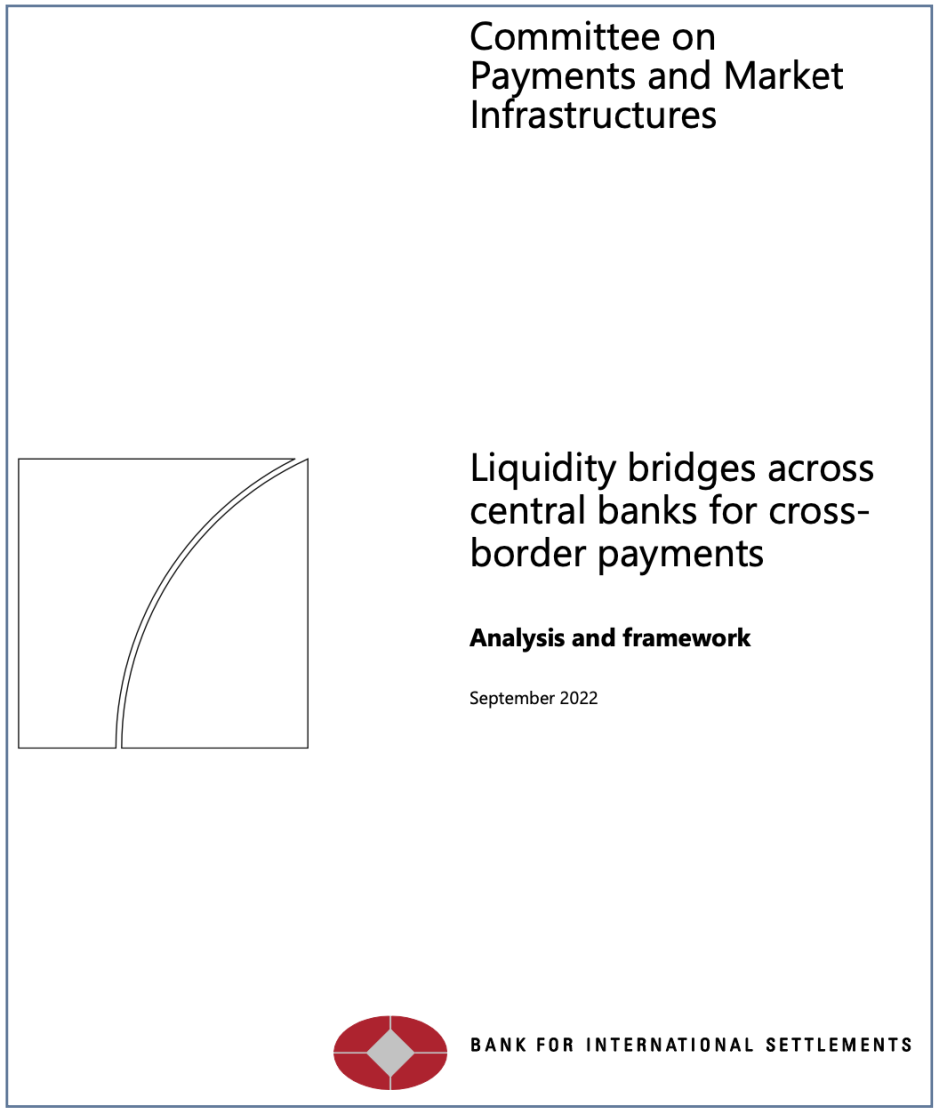
1. Introduction (1/8)

Overview of the focus areas and associated building blocks Figure 1

Source: CPMI: Enhancing cross-border payments: building blocks of a global roadmap - Stage 2 report to the G20 (July 2020)

- Focus area C: <u>Improving existing payment infrastructures and arrangements</u> to support the requirements of the cross-border payments market
- Building block 11 - Exploring reciprocal liquidity arrangements across central banks (liquidity bridges)

1. Introduction (2/8)



Definition

- A short-term, cross-currency intraday liquidity provision arrangement set up between central banks
- Collateral held by LVPS participants at one CB(the facilitating CB) is used as collateral to enable the provision of intraday liquidity by another CB(the lending CB) to the participants in the jurisdiction of the lending CB
- Used to meet routine intraday payment obligations which can be highly variable and large (due to mismatches in the timing of payment inflows and outflows throughout the course of the business day)

Purpose

- Useful for banking groups operating in several currencies
- Improve the efficiency and effectiveness of the liquidity pool
- Reduce the costs of holding liquidity buffers in multiple currencies(LB can help address the fragmentation in liquidity)
- Reduce FX and credit risks arising from obtaining intraday liquidity through FX transactions(When they face a shortfall in one currency, they need to conduct an FX transactions to fund the shortfall with a liquidity surplus in another currency)

⇒ Eventually enhance cross-border payments by reducing funding costs

Mechanism

- FCB holds the participant's collateral in its custody
- LCB obtains a security interest in such collateral in an account under its control at the FCB
- LCB makes available to the participant the local currency which is equivalent in value of the foreign currency collateral received(net of applicable haircuts)
- LCB is exposed to the FX risk, therefore applies an appropriate haircut on the value of the collateral posted to account for these risks and decides on collateral eligibility

Mechanism (cont.)

- The transaction is unwound by the participant repaying its outstanding balance to the lending CB, which would then instruct the facilitating CB to release the collateral delivered by the participant (either by transferring title back to the participant or releasing the guarantee or pledge).
- Should the participant default on its obligations, the lending CB would be entitled to enforce its claim on the participant (including by instructing the facilitating CB to liquidate the participant's collateral)

Characteristics

- No exchange of assets between the central banks involved
- The lending CB lends its own currency to participants in its own LVPS
- Established to support routine intraday payments by participants in normal circumstances
- A special case of CBCA (cross-border collateral arrangements)

Examples

1. Bank of England – Netherlands Bank (est. 2007)

- BoE is the lending CB (provides GBP liquidity to UK RTGS system participants against euro cash collateral held in TARGET2)

2. the Scandinavian Cash Pool (est. 2003)

- The central banks of Denmark, Norway, and Sweden
- Provides intraday liquidity in DKK, NOK, SEK

2. Benefits

- Reduce the need to have multiple cash collateral buffers in multiple currencies/jurisdictions, and/or to undertake FX transactions
- Help to reduce funding and transaction costs and associated FX, credit and settlement risks
- Increase flexibility in banks' intraday liquidity management

⇒ Could help banks reduce funding costs for cross-border payments

2.1 More efficient use of liquidity

- International banks hold foreign currency liquidity in nostro accounts at their correspondent banks, or at the foreign central bank, or invest it in highly liquid assets that can be easily sold or used as collateral in repo agreements to obtain cash

⇒ Can pose credit risks to the bank and incur an opportunity cost, particularly if the bank overfunds its payment obligations to mitigate uncertainties about payment timing.

- LB can reduce liquidity costs and release trapped liquidity for participants ⇒ Expected to reduce the cost of payments. Without LB, banks operating in multiple currencies may need to hold larger liquidity resources to maintain sufficient pools of liquidity in every jurisdiction where they wish to be active in payments.

2.1 More efficient use of liquidity (cont.)

- The costs of funding this liquidity may be high, especially when liquidity conditions are tighter, and they are ultimately passed on to end users, contributing to the cost of cross-border payments.
- The liquidity costs from such fragmented holdings may prevent banks from providing cross-border payment services or other financial services in certain markets or jurisdictions (e.g. where FX risks are greater)
- In addition, LB can increase flexibility in intraday liquidity management, helping banks to optimise liquidity and collateral allocation across jurisdictions and reduce funding costs

2.2 Reduction of FX, credit, and settlement risks and operational complexity for participants

- LB reduces FX and credit risks for participants if their use of LBs replaces the sourcing of FX liquidity via FX swap transactions with commercial counterparties. LB would operate irrespective of wider market conditions, whereas LVPS participants' access to FX swap markets may be less certain in periods of market stress.
- LB reduces credit and settlement risks to the participants arising from FX outright and swap transactions and/or short-term borrowing in one currency to fund temporary liquidity shortfalls
- Benefits in terms of operational efficiency as LB transactions are likely to involve fewer settlement legs and fewer counterparties/clearing entities than the alternatives

⇒ Help tackle the friction in cross-border payments related to long transaction chains and thus support faster and cheaper payments

2.3 Support for financial stability

- CBs already provide intraday liquidity to domestic participants to facilitate intraday payment obligations. Similarly, LB could help reduce intraday settlement risk across borders. By providing additional liquidity facilities across currencies, LB could enable flexible liquidity management
- LBs may also support financial stability by reducing asset and currency volatility and stabilising the demand for collateral and reserves. make participants' cross-currency liquidity management more robust to market disruption
- Without LBs, either precautionary liquidity buffers would need to be higher to ensure the fulfilment of payment obligations or assets would need to be rapidly sold and converted into the currency of the liquidity shortfall(exacerbating disorderly market conditions)

3. Challenges and risks

- LB entails some financial risk to the central banks involved (typically the lending CB)
- LBs also entail operational costs and risks. A CB can establish an LB only where it has legal authority to do so and must also ensure that the legal framework is robust. LBs also may have implications for how prudential liquidity regulations are designed and applied.
- Challenging for jurisdictions with more volatile currencies and less mature legal systems and operational arrangements
- A multilateral LB arrangement may incur more risks and complexities than a bilateral arrangement(particularly from an operational perspective)

3.1 Financial risks

- Financial losses for central banks may materialize in the following sequence of events

① The borrowing LVPS participant fails to repay the intraday credit provided by the lending CB

② Liquidation proceeds of the collateral fall short of the credit provided(because of unexpectedly large adverse movements of the exchange rates and/or of the value of the collateral posted to the facilitating CB), such that haircuts prove insufficient

③ The borrowing LVPS participant is in default and cannot be forced to compensate for the shortfall of collateral liquidation value

3.2 Costs of establishment and operation

- The two areas of cost in establishing an LB:
  ① the technical implementation costs and ② the cost of establishing legal agreements(between the central banks, between the central banks and their respective participants)
- Costs may significantly increase if the implementation of an LB were to require additional changes to the legal and operational frameworks of the participating central banks.
- If established using cash collateral in an account-based structure, costs may be lower (Liquidity is pledged via an ordinary transfer between accounts in the national RTGS system). Costs may be higher in multilateral bridges and when using a broader range of collateral if real-time monitoring of positions and collateral reallocation across bridges is required
- Costs may be lower when the LB makes use of existing operational capabilities, IT systems and frameworks, but they will increase if new systems are required

3.2 Costs of establishment and operation (cont.)

- The SCP: Implementation costs were financed by the participating banks. Ongoing costs are not charged to the SCP participants(the cost is very low and difficult to distinguish from the other costs associated with running an RTGS system)

- The BoE-DNB LB: Similar in that participants are not charged for use of the bridge. Ongoing costs (which are low) are included in the operational costs of the UK RTGS system(which is funded via a tariff paid by participants on a full cost-recovery basis)

3.3 Operational risks

- LB increases the operational interdependencies between CBs
- The effects of an operational failure at one CB may affect the functioning of the RTGS system operated by the other
- If there were "chains" of multiple bilateral LBs established, the knock-on effects of a default in one jurisdiction could potentially impact CBs in other jurisdictions
- For LBs to function, subcomponents must also be functional: lending CB might require robust real-time information regarding collateral availability and encumbrance at the facilitating CB. the availability and accuracy of collateral management systems and an infrastructure to transfer information between central banks is necessary

⇒ Resilient infrastructure, operational procedure, and appropriate contingency plans are necessary

3.4 Specific challenges for EMDEs

- Currency volatility and the relative scarcity of suitable collateral may make LB ① difficult to implement and/or ② prohibitively expensive (due to large haircuts)

4. Factors influencing the potential usefulness of LBs

4.1 Volumes, values and uncertainty of payments in LVPS

- High volumes and values for payment flows and related liquidity needs in LVPS will be a first driver for the utility of LB. Uncertainties regarding the direction of cross-border payments and implied overall liquidity needs also support the potential usefulness of LB

4.2 Excess liquidity

- The large-scale asset purchases(e.g. after the GFC) may reduce the usefulness of LB

4.3 Asymmetry of liquidity/collateral buffers

- Participants may HOLD excess liquidity/collateral in one currency in one LVPS but EXPECT high volumes or values of payments in another currency in another LVPS, in which access to adequate liquidity/collateral is more difficult
- May also be useful in a situation which is ex ante fully symmetrical for a participant, but ex post asymmetrical as volumes and directional payment flows materialise in the course of daily payment activity
- One-way LB(one CB is always the FCB and the other is always the LCB) may be useful for situations which are clearly asymmetrical ex ante. Participants hold structurally excessive collateral in one currency and have recurrent, short-term liquidity needs in another currency

4.4 Availability of uncollateralised liquidity and credit limits

- A key assumption of LB: PSP's access to intraday credit is collateralised
- Certain CBs may extend uncollateralised intraday credit (subject to a fee)
- The availability of uncollateralised intraday credit may lessen the business case for a collateralised intraday facility

⇒ The usefulness of LB depends on the framework in place for the provision of intraday credit

4.5 Overlapping membership of LVPS

- The usefulness of an LB increases with the degree of overlap of participant membership between LVPS. The greater the overlap, the greater the number of participants that will benefit from LB.

4.6 Economic and financial integration

- Economic and financial ties increase the usefulness of liquidity bridges.
- Financial institutions within a region tend to have a high degree of economic and financial integration with each other
- However, the usefulness of LB is not limited to geographical proximity as significant flows also occur between major remote currency areas.

4.7 Degree of FX pair volatility and implied haircut

- For more volatile currency pairs, a higher FX haircut will to applied. A larger amount of liquidity pledged to the facilitating CB required for the same value of liquidity provision by the lending CB. Higher haircuts reduce the usefulness of an LB and may increase the opportunity cost of using an LB
- For EMDEs whose currencies exhibit greater volatility vis-à-vis advanced economy currencies, the higher haircuts and increased opportunity costs may reduce the benefits of LB with advanced economies(or between EMDEs themselves)
- The size of the haircut may be affected by the time it would take before a position could be liquidated
- If the LB spans different time zones, and if liquidation procedures would imply a two-day horizon, then haircuts would need to be about 50% higher ⇒ reduce the potential usefulness of the LB
- A high degree of risk protection against market risk at a one-day horizon can generally be achieved for stable currency pairs with haircuts of not more than 1%. For the most volatile currency towards vis-à-vis the euro, 6% haircut would seem to be sufficient

4.8 Operating hours

- Where there are significant overlaps in operating hours, the lending and the pledging of collateral can be completed as part of intraday operations in both RTGS.
- Between two jurisdictions where there is little overlap in operating hours, the overall duration of the collateral pledged may have to be greater than intraday. The lending CB might be able to lend intraday but the facilitating CB holding the collateral may release that collateral only the following day. The duration of the effective collateral encumbrance would span two days (overnight)
- LBs that operate on an overnight basis would need to identify operational protocols to release pledged collateral in instances where the lending CB's LVPS is closed
- Any overnight use of collateral might increase the costs of LB

5. Elements to be considered

5.1 Central bank relationship

1. Direction of liquidity and collateral flows: one-way or two-way

- BoE-DNB: allows the BoE to provide intraday GBP liquidity to the UK RTGS system participants against euro cash collateral held in TARGET2 (but the reverse is not possible)
- SCP: two-way provision of liquidity

2. Role of lending CB and facilitating CB

- Lending CB provides liquidity in domestic currency against foreign currency collateral. The credit and FX risk is borne by the lending CB. Therefore, lending CB is responsible for risk mitigation decisions, such as defining collateral eligibility, haircut, and participation eligibility criteria
- The role of facilitating CB: providing the custodial or cash accounts controlled by the lending CB

5.2 Collateral eligibility

- Cash and high-grade securities(generally cash for operational and risk reasons, including with regard to collateral valuation and haircut)
- Accepting securities introduces additional complexity such as the involvement of CSDs in addition to valuation and haircut

5.3 Haircuts

- If only cash collateral is eligible for LB, haircuts would be designed to primarily cover intraday exchange rate risk

5.4 Collateral pledging arrangements

Option A

- The participants transfer collateral to a pooled account that the lending CB maintains with the facilitating CB
- Ensure collateral ownership, direct control of collateral, the ability of immediate collateral disposal

Option B

- The participants transfer collateral to a segregated pledge account that the participant maintains at the facilitating CB
- Better aligned with the usual collateral pledge arrangement. The account in which cash collateral is maintained would be segregated from the main account held by the participant at the CB, with the collateral pledged to the lending CB

5.5 Eligibility criteria for participants

- In practice, the primary participants in a LB would be international banking organisations using LB to facilitate cross-border payment obligations

- Generally, an LB would require the participant receiving intraday liquidity in one jurisdiction and the entity posting collateral in another jurisdiction to be the same legal entity. Alternatively, a legal entity other than the liquidity receiving participant (possibly an affiliate of the participant) could be the collateral provider

5.6 Pricing

- As a general matter, if LBs are to be used as ordinary tools in the participant's day-to-day liquidity management, pricing should not be punitive nor should it differ substantially from the charge applied by the lending CB for intraday liquidity
- Punitive pricing could introduce a stigma effect that discourages using it. However, the lending CB may consider a penalty for non-default situations in which intraday liquidity is not returned in time

5.7 Size

- The size of drawdowns from LB could be either capped or uncapped
- A capped LB can be capped in terms of aggregated exposure or on a per participant basis
- If uncapped, there can be potential interference with the MP operations of the CB as liquidation of very large exposures in the event of a default might be perceived as an intervention by the CB

5.8 Operational communication flows

- The execution of timely message flows between the lending and facilitating CBs are fundamental to the success of an LB. It is helpful for CBs to facilitate ① the single-step processing of information on the availability of collateral and ② the initiation and termination of lending

- If there is no common messaging protocols(e.g. SWIFT) between the CBs, they may need to establish operational processes in order to generate, transmit and process messages. Such operational set-up constraints may affect the degree to which credit becomes available to participants in real time and may thereby limit the usefulness of an LB

5.9 Legal considerations

- The lending CB need to have the statutory or regulatory authority to lend to participants against collateral denominated in other currencies and held abroad

- Other than that, establishing an LB would require a robust legal documentation to define the arrangement between CBs and between CBs and participants. Differences in legal systems and authorities granted to the CB could pose challenges, especially where the jurisdictions involved do not share similar legal traditions and conventions

6. Summing up

- LB can help reduce the funding cost of the banks that make cross-border payments
- It may help improve the efficiency and effectiveness of the global liquidity pool of banking groups operating in several currencies
- Reduce transaction costs by allowing participants to raise short-term liquidity in different currencies without having to execute an FX trade

⇒ Lower barriers to entry for banking groups when providing cross-border payment services in multiple jurisdictions

6. Summing up (cont.)

- Without an LB, either precautionary liquidity buffers may need to be higher to ensure the fulfilment of payment obligations. Or assets may need to be rapidly liquidated and converted into the currency of the liquidity shortfall
- There are practical challenges to implementing an LB. CBs need to assess and manage the legal, operational, and financial risks and costs
- LBs may be particularly useful between jurisdictions with low currency volatility and with a high volume and value of cross-border payments, and a degree of overlap in the participants and operating hours of the respective LVPS

1. Bank of England (BoE) - Netherlands Bank (DNB)

- Participant A: a direct member of both the UK RTGS system and TARGET2.*
  * It is not required that the participant entity (legal entity) be the same in both UK RTGS system and TARGET2.
- DNB: the facilitating CB, BoE: the lending CB
- Participant A wants to generate GBP liquidity using euro cash it holds in TARGET2.
  Participant A uses the LB in five steps.

① Participant A initiates a cash payment from its TARGET2 account to the UK RTGS system account held at the DNB.

② A SWIFT message is sent across the bridge.

③ A representation of the euro balances delivered to the BoE's account at the DNB by the participant is 'mirrored' in Participant A's Euro Liquidity Account (ELA) in the UK RTGS system.

1. Bank of England (BoE) - Netherlands Bank (DNB)

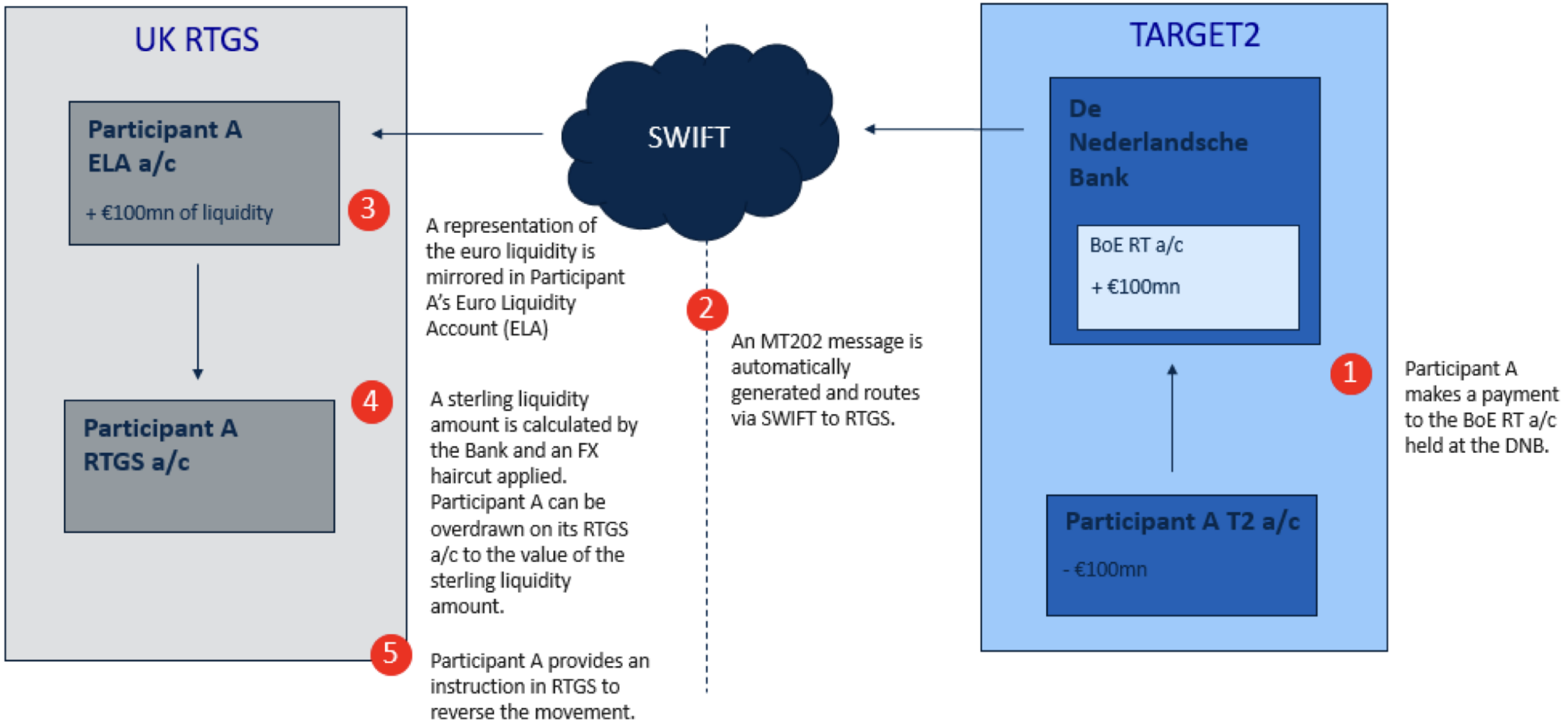
④ The GBP equivalent amount is calculated against the euro exchange rate that is set in the UK RTGS system each evening. A haircut to address exchange rate volatility is deducted, resulting in the amount by which the participant is allowed to be overdrawn on its account in the UK RTGS system. The FX haircut is set at 6% to reflect potential EUR/GBP exchange rate volatility.

⑤ When Participant A has finished using the GBP liquidity, it sends an instruction in the UK RTGS system to reverse the transfer.

- A legal requirement exists whereby the reversal must be performed prior to the TARGET2 end of day. If the participant fails to do this then the BoE will hold the euro liquidity overnight, but this is highly undesirable.**

** The ECB and/or DNB can levy penalties against participants for holding euro liquidity overnight.

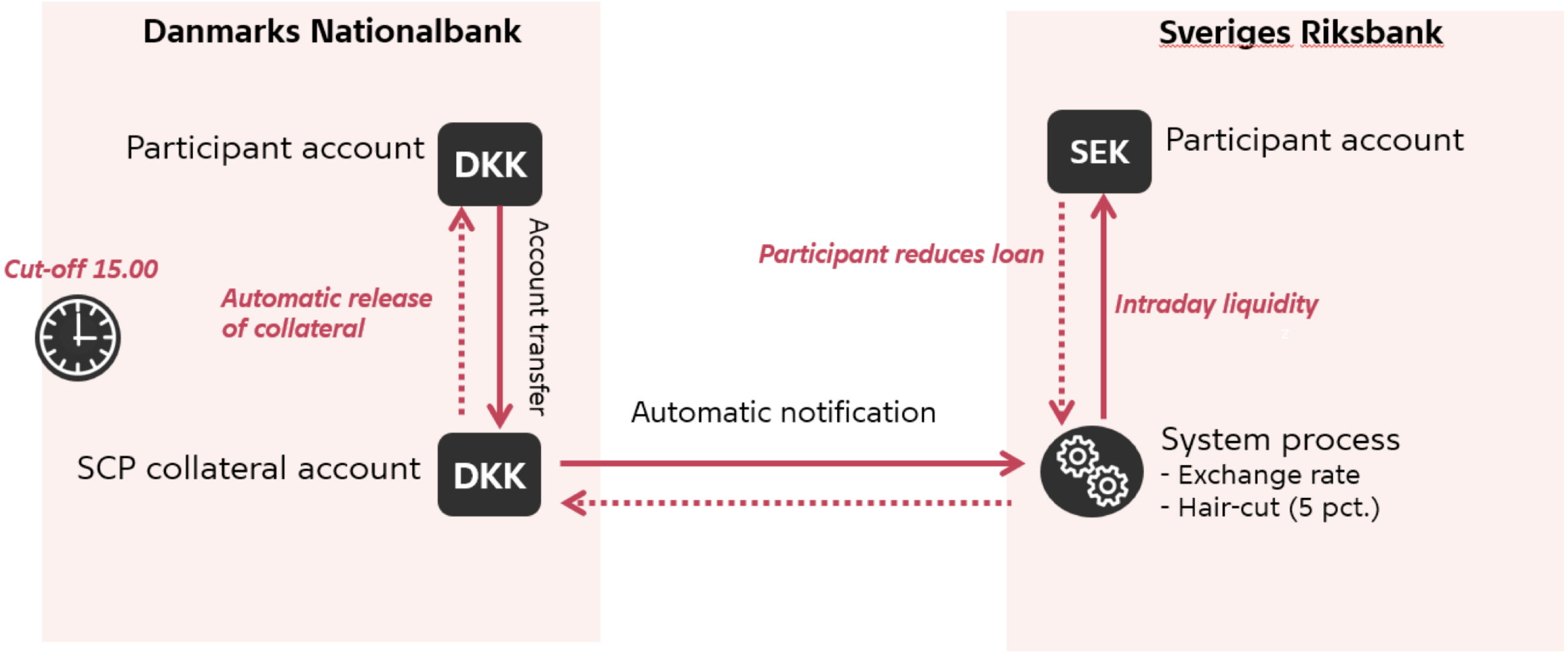
Annex - Functioning of existing liquidity bridges (3/5)



2. Scandinavian Cash Pool (SCP)

- A participant in Danmarks Nationalbank wants to generate SEK liquidity for use at Sveriges Riksbank.
- Danmarks Nationalbank: the facilitating CB, Sveriges Riksbank: the lending CB
- In Danmarks Nationalbank the participant transfers from its current account to its SCP collateral account DKK liquidity that is pledged to Sveriges Riksbank.
- Danmarks Nationalbank automatically notifies Sveriges Riksbank of the pledged amount in DKK.
- After receiving the message, the exchange rate and a haircut are automatically applied at Sveriges Riksbank and the amount in SEK is made available to the participant as intraday liquidity.
- When the participant repays to Sveriges Riksbank, Danmarks Nationalbank is automatically notified, and the collateral initially pledged at Danmarks Nationalbank is released.
- If the credit is not repaid by 16:45(CET), Sveriges Riksbank may enforce its collateral rights by notifying Danmarks Nationalbank to transfer the pledged collateral to an account in Danmarks Nationalbank owned by Sveriges Riksbank.

Annex - Functioning of existing liquidity bridges (5/5)



Thank you