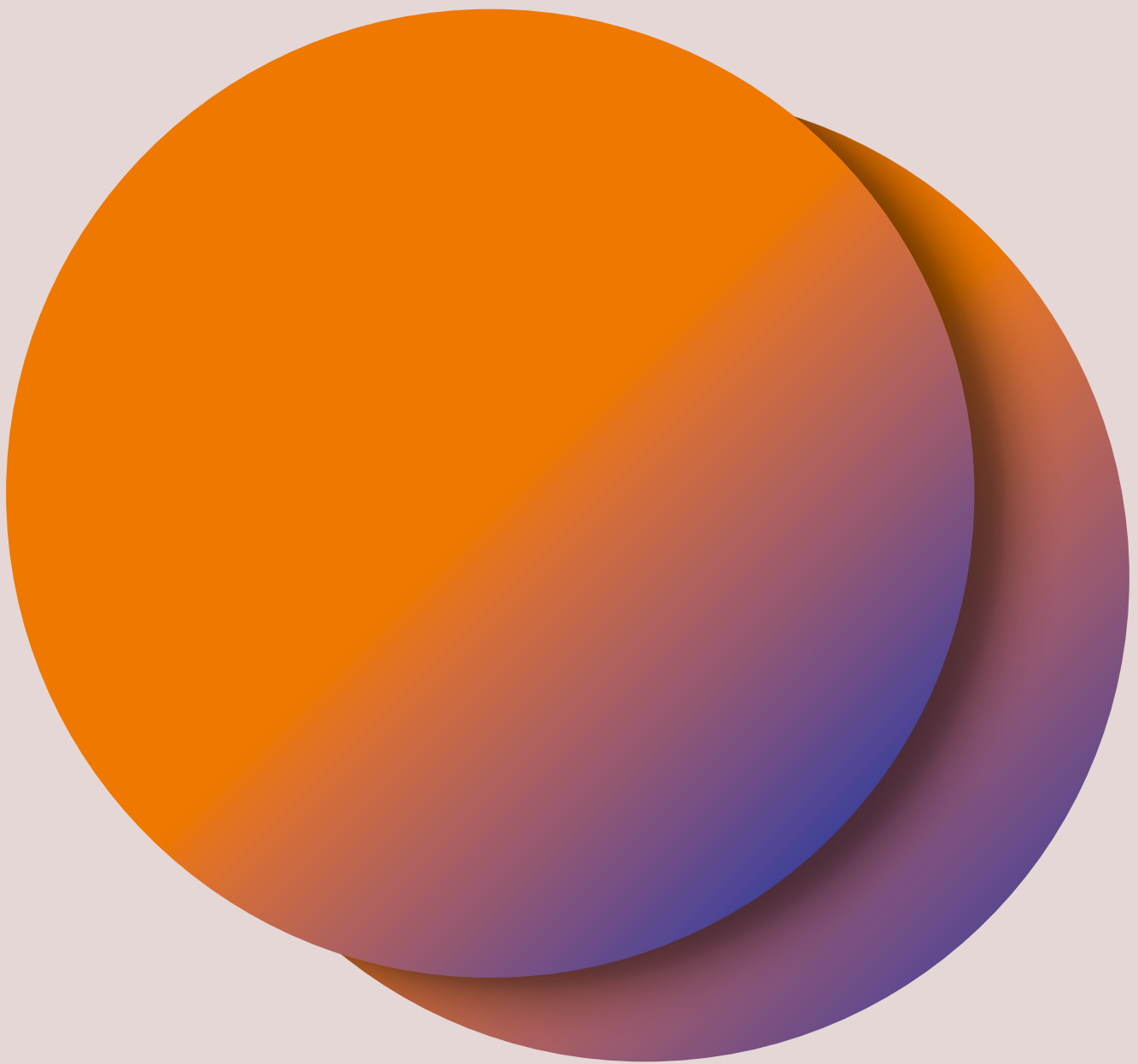




Progress Report of the Digital Currency Forum

July 2023





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About the name of the Digital Currency

The digital currency being developed by the Digital Currency Forum is tentatively called as "DCJPY". The Forum will continue considering how its digital currency should be entitled.



Introduction

The Digital Currency Forum was established in 2020 by leading Japanese companies and financial institutions in order to contribute to the development and efficiency of the economy and industry by building cutting-edge financial infrastructure suited to the digital age. Since then, the Forum has continued to grow steadily and the scope of its activities has expanded.

The Digital Currency Forum publishes the details of its activities through its “Progress Reports” in order to ensure the transparency of its activities, to widely share the knowledge gained, and to contribute to the development of the economy and society. This is the third Progress Report, following the first and second reports issued at the end of 2021 and the start of 2023 respectively.

In recent years, under the global inflationary pressures and with the support of public opinion, the purpose of macro policy of major overseas countries has shifted significantly from dealing with disinflationary trends that lasted for over a decade after the global financial crises to fighting against inflation. This fact evidences that people always seek stability in the value of currencies.

Owing to currencies human beings are able to transform various goods and services into abstract values that can be compared, aggregated and subtracted. Through such abstraction, human beings have dramatically enhanced the efficiency of processing information and data in economic transactions. However, in order for a currency to perform such a function of efficient processing of information and data, its value must be stable. The Digital Currency Forum, being fully aware of this, aims to realize a digital currency with stable value.

The functions of currency, which are a unit of account, a store of value and a medium of exchange, are interlinked and inseparable. The Digital Currency Forum’s plan to issue digital currencies as an advanced form of on bank deposits has the great advantage, since there will be no need to impose strict quantitative ceilings on their transactions so as to make their usage into small payments. Indeed, it will be quite important to maintain the functions of the currency mentioned above as a whole, without separating its functions of storing value and mediating exchanges.

Nowadays, “generative AI” such as “Chat GPT” is attracting attention as a new digital technology that can bring about major changes in the economy and society. These technologies have the potential to further automate transactions.

Finance can be regarded as a bundle of advanced information and data processing functions, and in recent years new challenges to human beings have enhanced economic and social needs for advanced financial functions.

In response to global warming and the global trend toward carbon-neutralization, financial institutions are required to assess not only traditional risks but also the risks to natural environments. Moreover, they have to deal with new types of market transactions such as trading of emissions rights. These new financial services and transactions require more advanced information and data processing than in the past. Accordingly, it is becoming necessary for financial service provider to utilize advanced digital technology in order to satisfy such economic and social needs for their services. It can also be said that the development of digital technology has enabled human beings to tackle with the global environmental challenges. Furthermore, applying advanced digital technologies to financial infrastructure is crucial for the



revitalization of regional economies and the deterrence of financial crimes.

In this regard, the two-tiered digital currency platform “DCJPY (tentative name)” designed and implemented by the Digital Currency Forum can utilize “programmable” business areas so as to facilitate various entities to make use of advanced technologies including generative AI in accordance with economic and social needs. The Forum is collaborating with a wide range of economic entities in order to facilitate innovation led by private sector initiatives.

Many countries are now conducting researches and experiments on digital currencies including central bank digital currencies (CBDCs). These efforts are useful to deepen understanding of the payment and settlement system and to consider how financial infrastructure can contribute to people’s well-being and the development of the economy. Through the process of these researches and experiments on CBDCs in wide-ranging countries, the importance of the role of the private sector in payment and settlement infrastructure and their innovation has been reconfirmed and increasingly emphasized.

The bankruptcy of Silicon Valley Bank in the United States in the spring of 2023 showed the potential risk of “digital bank run.” Connected to this, we would also like to add that digital currency based on bank deposits, which the Digital Currency Forum is working on, does not in itself accelerate liquidity crises in the banking sector.

The two-tiered digital currency platform DCJPY, which is planned and implemented by the Digital Currency Forum, is designed to coexist with CBDCs if they are issued. As DCJPY has two layers of its “Common Area” and “Business Process Area,” DCJPY can use its Common Area to facilitate inter-operability with CBDC. The Digital Currency Forum are working proactively on what can be done by the private sector to create better financial infrastructure, so that economic entities do not fall into the “wait-and-see” phase of deliberations on CBDCs and do not delay the digitalization and innovation of payment and settlement infrastructure in Japan. We hope that discussions at the Forum and those on CBDCs will create positive synergies and lead to the upgrading of Japan’s financial infrastructure.

The Digital Currency Forum will continue to actively promote private sector initiatives to contribute to the digitalization of payment and settlement infrastructure and the associated development of the economy. Through these efforts, we will strive to make Japan’s financial infrastructure the most advanced in the world to meet the demands of the people and the economy.

Hiromi Yamaoka
Chairperson,
Digital Currency Forum





Part 1

Previous activities of The Digital Currency Forum

- Up to now, we have implemented PoCs and theoretical validations with the forum members of more than 60 companies, local governments, and organizations. The progress has been made in the validation of the practical application for DCJPY and the expansion of use case area. -

The Digital Currency Forum started in December 2020. It is a forum to examine the value and significance of digital currencies aimed at solving social and industry issues in which more than 100 companies, local governments, and organizations participate. It is an effort to popularize digital currencies in a private sector-driven manner that is unparalleled globally.

More than 60 companies have participated so far (total number of participating companies, compared to the end of January 2023, an addition of about 20 companies. The number of actual companies was more than 40), and proofs of concept (hereinafter referred to as "PoC") and theoretical validations were carried out. In the PoC of the Regional Currency Subcommittee and Administrative Affairs Subcommittee, we also conducted trial issuance of the digital currency DCJPY (hereinafter referred to as "DCJPY") by banks and confirmed the practical needs and feasibility of the two-tiered digital currency platform.

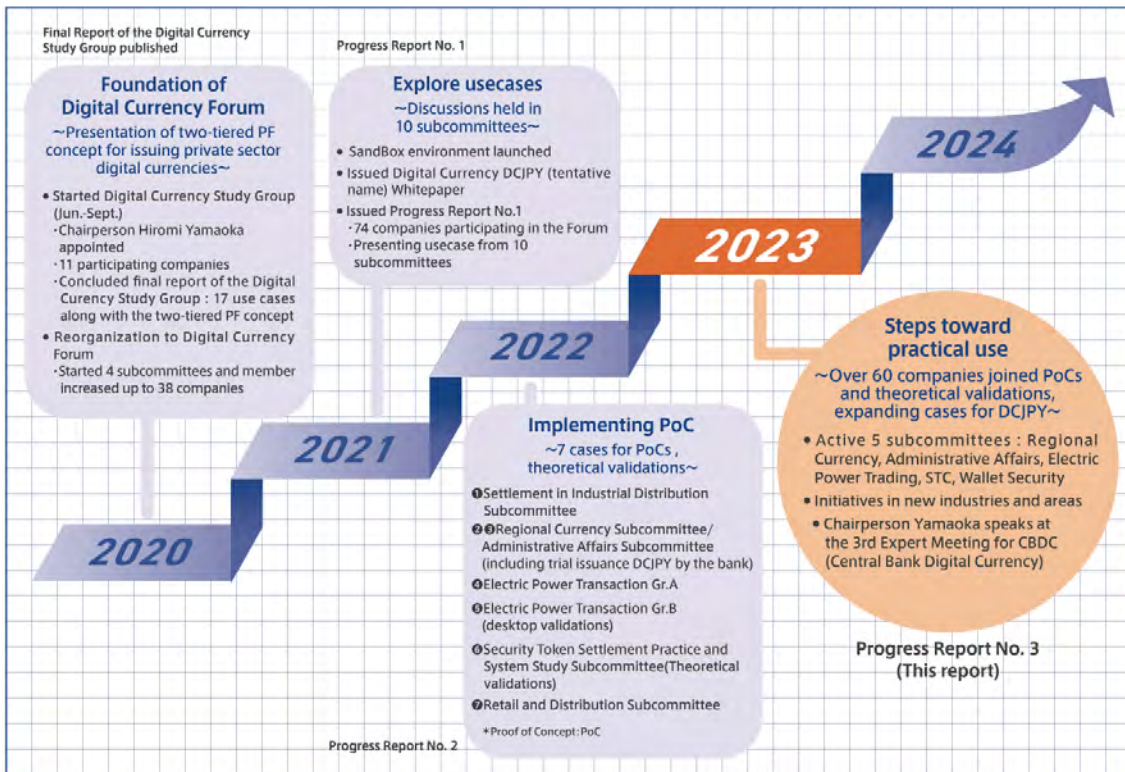


Figure 1: Step towards practical use



In FY2023, companies that have implemented PoCs and theoretical validations so far are pursuing activities toward practical use in 2024, such as detailed validations for practical application, preparation for implementation, and formulation of test plans for practical use.

The Digital Currency Forum aims to achieve:

- (1) Innovation of settlement infrastructure using digital technology
- (2) Contribute the digitalization for the Japanese economy and to the realization of various associated forms of value creation
- (3) Digital Payment as a Service^{*1}

Based on the use cases formulated by the predecessor Digital Currency Study Group (started in June 2020) from the perspectives of “cost reduction for the economy and society,” “risk reduction for economic transactions,” and “promotion of innovation and economic advancement,” participating members in each subcommittee of the Digital Currency Forum have discussed the use of digital currencies, studied use cases, and carried out PoCs and theoretical validations in solving social issues including carbon neutrality and regional revitalization, solving industry issues including improving efficiency in the supply chain, as well as new business areas such as security tokens and NFTs.

^{*1} The ability of various business and economic activities to provide payment and settlement services as one of a wide range of services by incorporating the functions of digital currency in accordance with their respective needs.

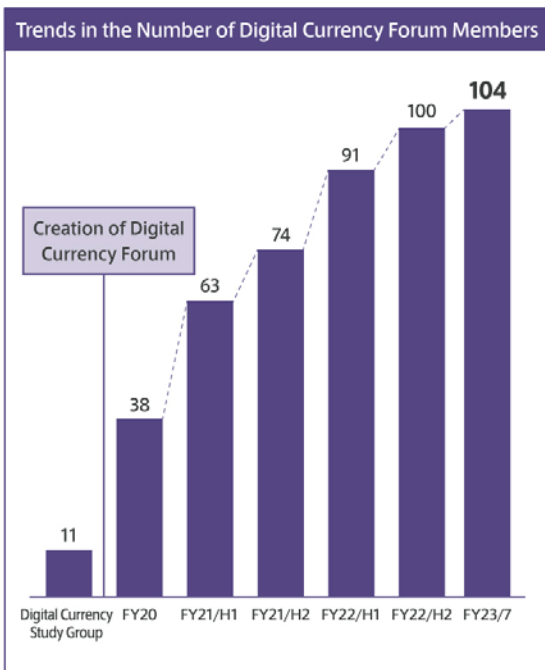


Figure 2

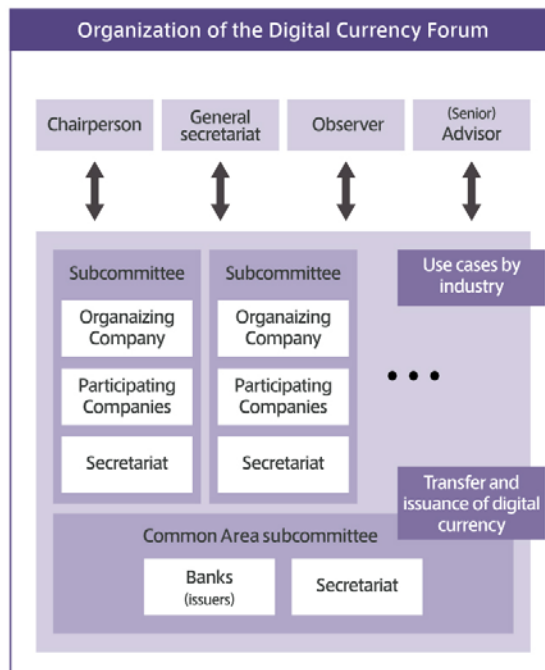


Figure 3



From FY2021 to the first half of FY2022, each subcommittee of the Digital Currency Forum has explored solutions with DCJPY to the social issues through various industry issues in a range of industries, such as:

- **Issues in improving business efficiency in administrative affairs such as benefit payments**
- **Visualization of renewable energy and digitalization of environmental value to achieve carbon neutrality**
- **Settlement issues for blockchain digital assets**
- **Issues related to the complexity of operations and the time to funding in commercial transactions**
- **Improving the efficiency and advancement of operations related to the supply chain**

In addition, the Wallet Security Subcommittee has considered issues such as identifying basic security requirements and risks for using digital currency in a safe and secured environment.

In the second half of FY2022, from February to March 2023, we carried out the following PoCs:

- **PoC for the possibility of secondary distribution of environmental value tokens**
- **PoC of sustainability link loans using renewable energy electric power transaction data**
- **PoC related to the use of digital currency in the health care business using purchasing data from Aizuwakamatsu City and settlements between businesses in an agriculture seller-buyer matching service**
- **PoC related to issuance for the enterprise and payment of expenses from enterprise to the external contractors simulating subsidy projects in the Tokyo Metropolitan Government**

In 2023, we are making progress in considering expanding the application areas of DCJPY, and there is also a move to launch new subcommittees and use case study meetings in the insurance industry and e-commerce related fields.

The validation content and results of the PoCs carried out in February-March 2023 are described in detail in "3. Step towards the practical use."

In addition, we have presented the specifications and workflow of the necessary functions for the issuance of DCJPY, and the connection specifications that summarize the basic structure of the platform, such as the architecture and infrastructure summarizing the required functions to private sector banks that are the issuers of DCJPY, and continue to hold detailed discussions with them. Various information for banks and service content and technical product updates related to the practical application of the two-tiered digital currency platform will be announced in a whitepaper (issued by DeCurret DCP Inc.) within the year.



The activities of the Digital Currency Forum have been published in many media, and the English version has been disseminated. We have received inquiries not only from Japan but also from major overseas countries, and there is interest and praise about private sector-led initiatives and two-tiered digital currency platforms.

We have moved on from the discussion of whether digital currencies will be issued or not, to the discussion of how digital currencies can be used and how they can solve problems, which relate to how our lives will change and how we can change the world in the future.

In response to this trend, the Digital Currency Forum will continue to disseminate information to relevant parties such as the private sector and central banks in Japan and overseas.

The Secretariat of the Digital Currency Forum, which aims to implement initiatives under the all-Japan system, is planning to increase the number of meetings organized by the Secretariat, such as an orientation meeting to exchange opinions on use cases with participating companies, and to launch new subcommittees and use case study meetings for new participants in this activity based on an understanding of activities up to now and basic understanding about DCJPY. We look forward to receiving inquiries from companies, local governments, and organizations.

The Digital Currency Forum will continue to actively work with participating companies to digitize the role of all currencies and values, and will actively work to ensure that the initiative contributes to people, benefits the economy and society, and contributes to the creation of a prosperous society.





Part 2

Member's voice

Among the inquiries to the Digital Currency Forum Secretariat, there have been many opportunities to receive questions relating to feedback about the Forum and the opinions of active participating members.

In response to such requests, we have collected "Views of Participants" from volunteer members about their feelings regarding past activities and future activity policies.

Internet Initiative Japan Inc.

We are participating in seven subcommittees with 30 staff. Through intense discussions and hypothesis validation with the participating companies, we have realized the magnitude of the business impacts brought by digital currencies. In the future, we look forward to raising the level of Forum activities for early implementation in society, including the resolution of issues such as the development of social systems and laws, as well as the technical aspects. As a company that provides the Internet, we will continue to actively participate in activities to contribute with new infrastructure technologies and ideas that support digital currencies.

INTEC Inc.

We are participating in the Retail and Distribution Subcommittee. By participating in a PoC, we were able to confirm the effect of problem solving (digital linkage of business flow and settlement) in the supply chain between manufacturers, wholesalers, and retailers using digital currency (automatic clearing of accounts receivable and accounts payable and optimization of the payment cycle, etc.), which was very meaningful. In the future, we would like to promote the use of our EDI (data exchange between companies) services.



The Kansai Electric Power Company, Incorporated

Participants from companies in different industries were able to hold frank discussions and gain new perspectives. Although the potential of business is likely to expand more than imagined due to the application of digital currency, we felt through our activities that there are many regulatory and other issues. We would like DCJPY to gain a presence and position among settlement methods by deepening cooperation with banks and improving usability because it is a reliable settlement method for deposits linked to currencies.

DAIDO LIFE INSURANCE COMPANY

Through our activities in the Digital Currency Forum, we have not only deepened our knowledge about digital currencies, but also exchanged opinions with people from different industries who we do not usually interact with on a wide range of topics such as environmental value trading and regional revitalization, and we feel that the Forum is very meaningful. Many companies, including those in subcommittees in which we have not participated, have been able to discuss use cases, and we hope that this activity will lead to innovations in settlements.

Nomura Holdings, Inc.

We have participated in the activities of the Digital Currency Forum and were involved in the establishment of the STC Subcommittee. Together with company representatives from other industries, we were able to gather professional knowledge and consider it in depth, making it a very meaningful subcommittee. Collaborations with other companies may be created through the Forum and subcommittees, and we are very excited about future developments.



IT/BPO-related company

It is an environment where we can hear about the efforts and examples of companies that we do not normally interact with, so we feel that the value is high from the viewpoints of providing a trigger for us to review our own initiatives and improving our perspective. Through cooperation with financial institutions, we expect DCJPY to be developed as one type of settlement method.

Retail-related company

We expect that in the future, it will be possible to use a POS-linked digital currency and settlement system that does not require staff to check manually and judge each time at stores. Currently, settlements in the retail and distribution industries are POS-linked, and if they can be automatically identified and processed in physical stores, it will lead to reduction of workload. On the other hand, there is a concern that the flexibility will be reduced if the POS connection is unified due to the recognition that POS connection and automatic distinction are not possible in the system with the ongoing project for local government initiative. However, by working on such issues with various companies participating in the Digital Currency Forum, we would like to improve the settlement data environment for multiple companies, solve the system and accounting workload issues of each company, and aim for convenience.





Part 3

Steps towards the practical use of Digital Currency

[1] Regional Currency Subcommittee

- Aiming to solve regional issues and revitalize regions with digital currency -

We carried out a PoC involving citizens and enterprises for the implementation of a “digital regional currency” in the Aizuwakamatsu region to identify issues from the perspective of users

More than 40 companies and local governments have participated in the Regional Currency Subcommittee, which has been actively working with the aim of solving regional issues and revitalizing regions using DCJPY.

The “digital regional currency” that this subcommittee aims to achieve is a mechanism that promotes the revitalization of local economies and mutual assistance by seamlessly connecting local stakeholders such as citizens, local businesses, local governments, and regional financial institutions.

In the fiscal year before last (FY2021), we validated the core functions of DCJPY as a currency and the functions of regional wallets as a user interface in a small-scale PoC simulating a childcare benefit coupon^{*1}. This experiment used simulated users and stores, but last fiscal year (FY2022), we carried out a PoC in the Aizuwakamatsu area with actual participation by citizens and enterprises in anticipation of full-scale social implementation.

Specifically, in the business of using purchasing data at local supermarkets to promote health, DCJPY was used in conjunction with the local currency “Aizu Coin” to settle funds. In addition, DCJPY was used in the same way to settle charges generated by transactions using the platform called “Jimonomikke![®]”^{*2} service that matches farmers and restaurants in the region. Through these PoCs, the benefits of digital regional currencies can be felt by the local community, and the issues are extracted from the perspective of users for practical application.

In addition, five banks, Mizuho Bank Aizu Branch, Toho Bank, Aizu Shinkin Bank, Aizu Commerce and Industry Credit Union, and Japan Post Bank, participated in the experiment as issuing financial institutions. These regional financial institutions, which are assumed to be the issuing entities when the “digital regional currency” is put into practical use, are expected to validate the business of the financial institution side and commit to the region through financial services by actually experiencing the issuance. The following shows a summary of the PoC scenarios in FY2022. Both run from March 3 (Fri) to March 16 (Thu), 2023, and the locations are smart city AiCT, financial institution offices, and York-Benimaru headquarters (PoC 1). In addition, the process of aggregation and transfer instructions implemented in any of the following PoCs is an area that can be automatically processed by using smart contracts when implementing digital currency, and we will consider further efficiency improvements in future PoCs.



PoC 1:

Use of digital currency in the healthcare business using purchasing data

- (1) The General Incorporated Association AiCT Consortium³ aggregates the amount of the regional currency “Aizu Coin” used in York-Benimaru.
- (2) The General Incorporated Association AiCT Consortium gives an instruction to transfer the settlement amount in digital currency to the York-Benimaru headquarters using the “ID Settlement Platform” provided by TIS Inc.
- (3) York-Benimaru uses the “Two-tiered Digital Currency Platform” provided by DeCurret DCP Inc. to burn the digital currency and deposit it into the yen account of a financial institution to complete the fund settlement.

PoC 2:

Utilization of digital currency for business-to-business settlements in an agriculture seller-buyer matching service

- (1) The Aizu edition Jimonomikke! operator (intermediate wholesaler: Aizu Chuo Seika Co., Ltd.) aggregates the amounts traded in “Jimonomikke! ®” provided by Toppan Inc.
- (2) The Aizu edition Jimonomikke! operator notifies the actual consumer (Ayumu Café) of the charge amount, and the actual consumer utilizes the “ID Settlement Platform” provided by TIS Inc. to settle the amount in digital currency, and gives an instruction to transfer the amount to the Aizu edition Jimonomikke! operator. An instruction is also given in the same way to transfer the settlement amount to the producer (AIZU NOTE).
- (3) The Aizu edition Jimonomikke! operator receives the transfer information and receives the settlement matching the Aizu coin balance in digital currency using the same system. Similarly, the producer receives digital currency matching the transfer amount.
- (4) The Aizu edition Jimonomikke! operator and producer use the “Two-tiered Digital Currency Platform” provided by DeCurret DCP Inc. to burn the digital currency and deposit it into the yen account of the financial institution to complete the fund settlement.



PoC Currency and Data Flow

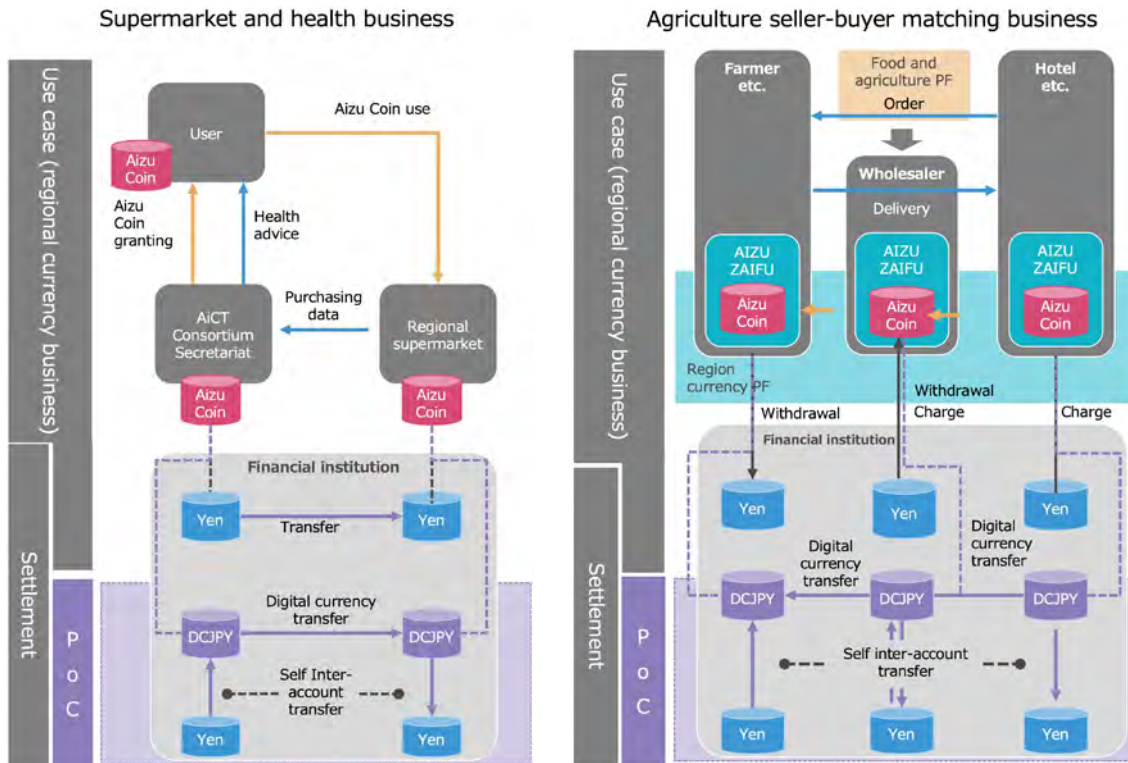


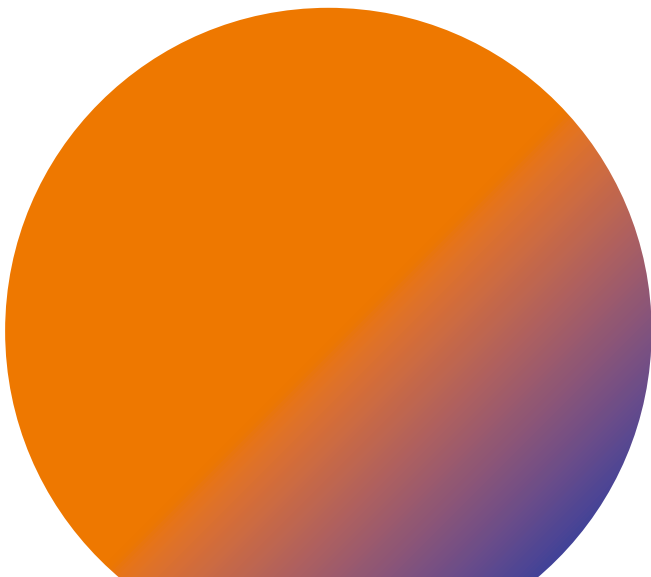
Figure 4

Aizuwakamatsu City's "Cooperative Smart City Promotion Project Using Multi-disciplinary Data Collaboration" was adopted as the FY2022 Digital Garden City Nation Initiative (Type 3), and "smart" and "attractive" urban development using ICT and digital technology is being promoted. In FY2023, business development in a wide range of fields such as the environment, administrative procedures, and revitalization of shopping streets is planned, and the subcommittee will continue to implement PoCs to validate a wide range of areas, including unvalidated areas, with a view to the social implementation of DCJPY.

In addition, this subcommittee includes many companies that are already developing regional currency services as their own business while seeking to further expand their functions, as well as local governments and leading regional companies that are seeking to revitalize regions through DX. In FY2023, we will work with these companies and local governments to develop and deepen "digital regional currencies," and will also deepen discussions on creating common platforms and standardization among various regional settlement services in Japan.



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- *1 Please refer to the following for more information about the PoC that simulated childcare benefit coupons carried out in FY2021.
Press release from Aizuwakamatsu City and the General Incorporated Association AiCT Consortium
<https://www.aict.or.jp/blog/368b3ccb37e>
Press release from Kesennuma City
<https://www.kesennuma.miyagi.jp/sec/s002/020/030/050/020/100/12/20220323sangyousenryakuka.pdf>
 - *2 Jimonomikke! ®
A platform developed by Toppan Inc. that connects producers of agricultural products with regional customers (actual demand entities) such as accommodation facilities, nursing care facilities, and restaurants with a dedicated app to match production information with demand information.
 - *3 General Incorporated Association AiCT Consortium
Please refer to the following.
<https://www.aict.or.jp/>





[2] Administrative Affairs Subcommittee

-Developing Digital Transformation by digital currency -

Explored PoCs on subsidies for enterprises using DCJPY, extract issues related to public fund payment, and validate the effects

The Administrative Affairs Subcommittee is examining how DCJPY can be used to solve issues and improve the efficiency of administrative procedures involving the transfer of funds, such as tax payments and the delivery of various benefits and subsidies. In addition to the perspectives of related parties such as the national government, local governments, financial institutions, and citizens who receive administrative services, the subcommittee is also identifying issues from the perspective of policy areas such as health and welfare, and studying use cases that take advantage of the unique characteristics of DCJPY, such as programmability and traceability, as well as improving administrative efficiency through digitalization.

In the fiscal year before last (FY2021), we carried out a PoC on the delivery of coupons using DCJPY assuming temporary special benefits for child-rearing households in Aizuwakamatsu City and Kesenuma City^{*Note}. In the last fiscal year (FY2022), with the cooperation of the Tokyo Metropolitan Government (hereinafter referred to as "TMG"), we have been carrying out a PoC on subsidies for businesses using DCJPY.

Specifically, we used DCJPY to deliver subsidies to enterprises pay expenses to sub-contractors from enterprises, simulating subsidy projects in TMG. The subsidies were granted in digital currency prior to the commencement of the project based on the grant application and were controlled to be paid only for the subsidized expenses according to the subsidy rate. After the completion of the project, data such as payment recipients and payment amounts required for the preparation of the project report were automatically output and submitted to TMG, and unused subsidies were reimbursed to TMG. For enterprises, it is expected that the administrative workload related to reporting to TMG on subsidies and various procedures will be reduced, and for TMG, it is expected that the workload related to the review of subsidies and payment affairs will be reduced by controlling the use of funds and the automatic creation of data related to project reports.



The following shows a summary of the PoC scenarios in FY2022.

Date: March 28, 2023 (Tue)
Place: TOKYO UPGRADE SQUARE
(25th Floor, Shinjuku Sumitomo Building)
Participants: TOPPAN Edge Inc.
(Administrative Affairs Subcommittee Secretariat)
TIS Inc. (provision of wallet app, etc.)
Mizuho Bank, Ltd. (cooperation and support related to the issuance and burning of digital currency)
* Tokyo Designated Financial Institution
Tokyo Metropolitan Government (provision of PoC location, cooperation and support for the implementation of the PoC)
DeCurret DCP Inc. (provision of digital currency platform)

- (1) TMG utilizes the two-tiered digital currency platform provided by DeCurret DCP Inc. to issue and hold digital currency backed by the ordinary deposit account of Mizuho Bank, Ltd. Similarly, subsidized enterprises issue and hold digital currency backed by their own deposit accounts.
- (2) TMG issues a subsidy (grant decision amount) to the enterprise in digital currency. Enterprises are not allowed to burn or cash out the issued digital currency in their own bank deposit accounts.
- (3) The Enterprise pays the expenses for the subsidized project that have been decided in advance by TMG in digital currency. For payments, the amount paid as a subsidy from TMG and the out-of-pocket amount paid by the enterprise are automatically calculated according to the subsidy rate. In addition, payments can be made to subcontractors that have been approved by TMG and described in the subsidy application form in advance, but payments cannot be made to any other party. Subcontractors can burn and cash out the received digital currency in their bank deposit accounts.
- (4) Each time a payment is made, information such as the payment amount, payment date, payment recipient, and expense items are recorded on the blockchain, and the use status of the subsidy is shared between TMG and the enterprise, and both parties can check it at any time. After the completion of the project, the information is output as relevant data in the project report and submitted to TMG.
- (5) TMG reviews the performance report and finalizes the subsidy amount. If there is a difference between the finalized subsidy amount and the estimated amount granted in advance, an adjustment process will be carried out.



PoC Digital Currency and Data Flow

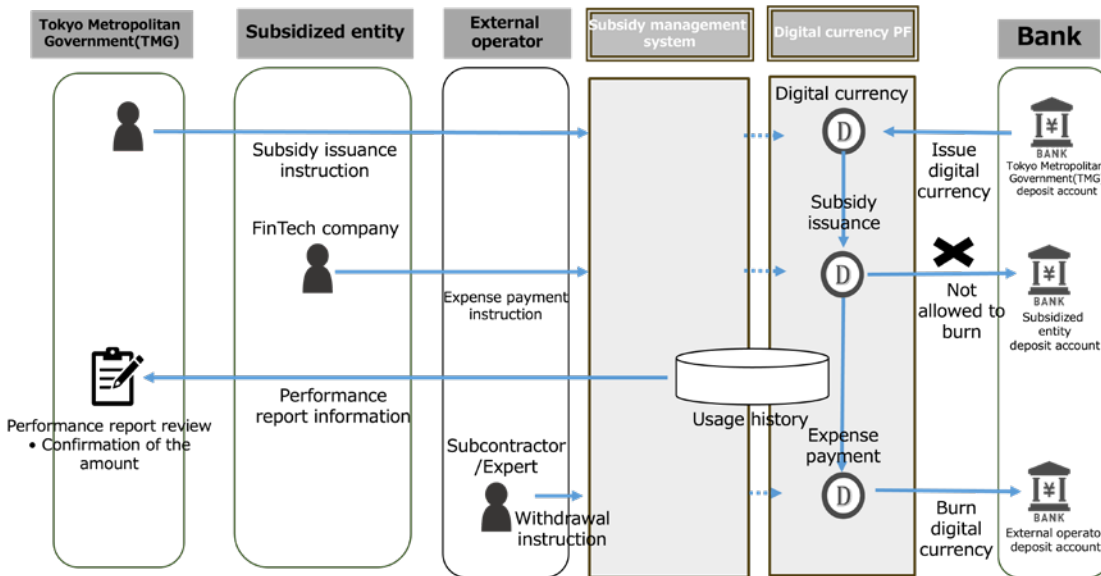


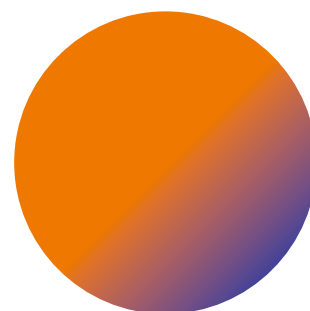
Figure 5

Through this PoC, we were able to extract issues related to the payment of public funds using digital currency and validate the effects. In FY2023, with a view to the social implementation of digital currencies, we would like to proactively conduct PoCs unique to DCJPY that are of social significance, not only for deposits and withdrawals such as benefits and payments, but also for presenting use cases that lead to the automation and improved efficiency of general administrative services and procedures such as tax payment certification and cooperation with medical and nursing care.

***Note** Please refer to the following for more information about the PoC that simulated childcare benefit coupons conducted in FY2021.

Press release from Aizuwakamatsu City and the General Incorporated Association AiCT Consortium
<https://www.aict.or.jp/blog/368zb3ccb37e>

Press release from Kesenuma City
https://www.kesenuma.miyagi.jp/sec/s002/020/030/050/020/100/12/20220323sangyousenryaku_ka.pdf





[3] ST-Coin (STC) Subcommittee

The STC Subcommittee examines the practical application of digital currency settlement in ST* transactions.

Although the Digital Currency Forum previously had a STO Subcommittee (Security Token Settlement Practice and System Study Subcommittee), which achieved certain results, the new STC Subcommittee started in 2022 to further promote the study of the ST area.

In FY2022, the STC Subcommittee examined ST transaction ordering, contracting, and settlement operations, validated the feasibility of ST-based DvP settlement operations, systems, and laws and regulations using digital currency, and compiled and published the results in a report. The following is a summary of the results of the study compiled and published in the report.

The STC Subcommittee plans to study the ST secondary distribution market and the implementation methods of various systems for the practical application of digital currency settlement in detail from FY2023 onwards. For the specific study policy, ST and digital currency will be issued to carry out the validation assuming actual operation, and a series of business flow demonstrations are planned. Details will be discussed at future subcommittee meetings.

* ST (security tokens) are securities that are issued using electronic means such as blockchain in lieu of traditional mechanisms such as stocks and corporate bonds. In Japan, due to the revision of the Financial Instruments and Exchange Act on May 1, 2020 and the revision and enforcement of the relevant government/ministry ordinance, "Electronically Recorded Transferable Rights to Be Indicated on Securities, etc." are stipulated, and ST can be handled in accordance with laws and regulations, and have actually been issued.

FY2022 Validation Results Summary

The STC Subcommittee examined ST transaction ordering, contracting, and settlement operations, and validated the feasibility of ST-based DvP settlement operations, systems, and laws and regulations using digital currency.

As a result, it confirmed a certain level of feasibility of the introduction of digital currency in ST transactions, and compiled and published a report on the results of the study.



1. Validation target, assumed transactions

In examining the transaction/settlement process in detail, the subcommittee conducted a detailed examination of the business flow of the three transaction patterns that are expected to be realized (see the figure below, hereinafter referred to as the “validation scenario”) from the perspective of the provider of the escrow function to realize relative transactions/exchange transactions and DvP. This validation was carried out assuming the use of the digital currency platform developed by DeCurret DCP Inc. and the ST platform developed by BOOSTRY Co., Ltd.

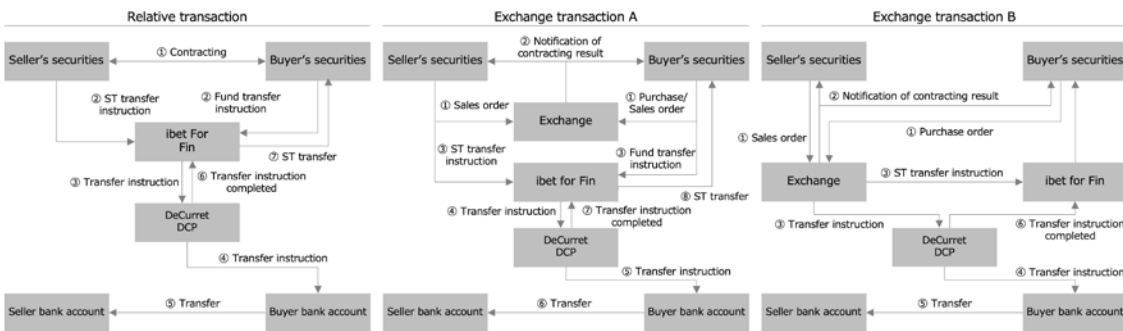


Figure 6

2. Validation items and results

For the validation scenario, the subcommittee conducted validation from the following three perspectives. The following shows a summary of the validation results.

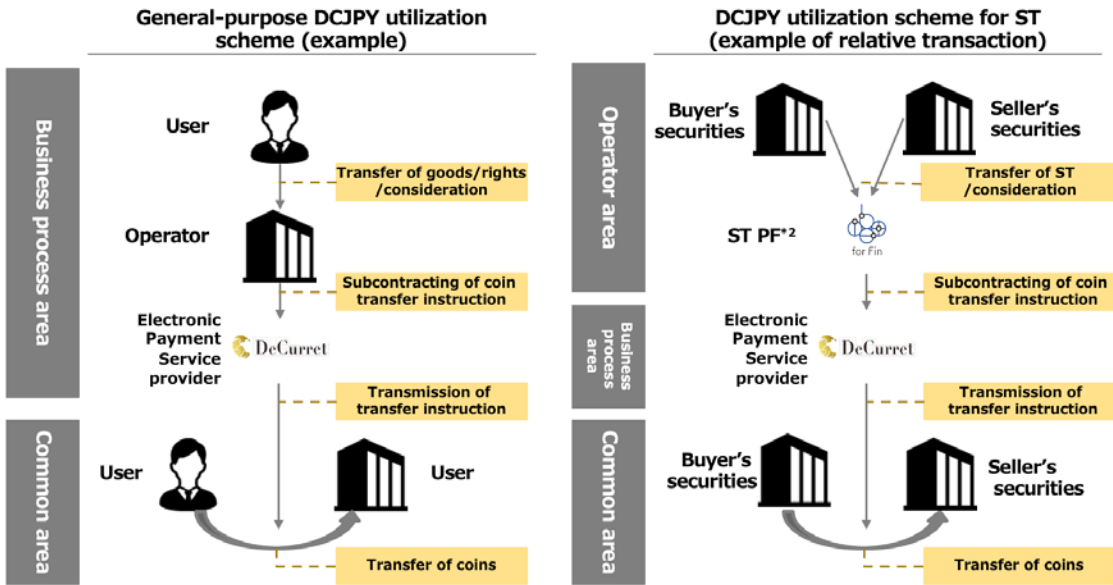
Item	Validation results
Business Validation	<ul style="list-style-type: none"> • Create three patterns of detailed business flow related to securities companies, exchanges, ST platforms, digital currency platforms, and banks. • Practitioners validate the practical application method of digital currency settlement in ST transactions.
Technical Validation	<ul style="list-style-type: none"> • Conduct technical validation of the basic functions of the digital currency platform. • Determine the data items to be linked with the ST platform, and confirm the operation of the digital currency platform using the test data of the data items.
Legal Validation	<ul style="list-style-type: none"> • Conduct a legal investigation into whether acts related to the transfer of digital currencies may be subject to regulation under the Financial Instruments and Exchange Act, the Banking Act, and other business laws. • DeCurret DCP, the operator of the digital currency platform, confirmed that it can be implemented without legal problems by entrusting the transmission of instructions to the bank pertaining to the transfer of digital currency as an electronic payment service provider.

Figure 7 For details on the validation results, refer to “STC Subcommittee Annual Report 2022”
 URL: https://www.decurret-dcp.com/assets/stc_report_2022.pdf



Example of report contents (P5) Two-tiered Digital Currency DCJPY (tentative name)

- The fund settlement bank utilized the digital currency DCJPY^{*1} issued on the digital currency platform provided by DeCurret DCP to consider the practical application method of digital currency settlement accompanying ST transactions.



*1 Refer to DCJPY (tentative name) Common Area Paper November 2021
*2 PF means platform

Figure 8

Example of report contents (P11) Positioning after FY2023

- Studies in FY2022 confirmed a certain degree of feasibility for the use of digital currencies
- From FY2023 onward, we will make the implementation method corresponding to the secondary market more concrete and consider the policy for formulating the implementation plan

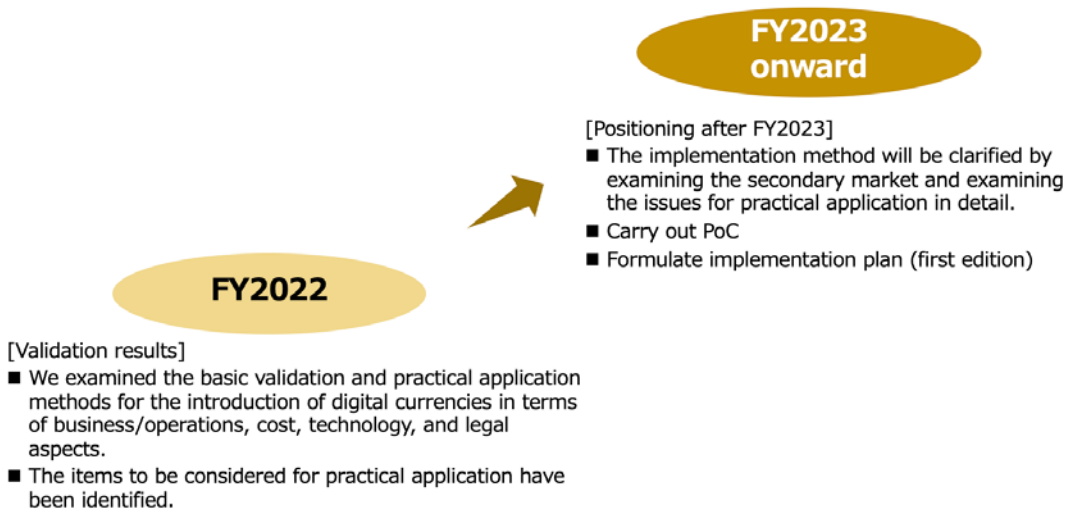


Figure 9



Participating companies

Securities companies

- Nomura Holdings, Inc.*
- Daiwa Securities Group Head Office*

ST platform

- BOOSTRY Co., Ltd.*

Digital currency platform

- DeCurret DCP Inc.*

Settlement banks

- Sumitomo Mitsui Banking Corporation
- MUFG Bank, Ltd.
- Resona Bank, Limited

Exchanges

- JPX Market Innovation & Research, Inc.
- Osaka Digital Exchange Co., Ltd.

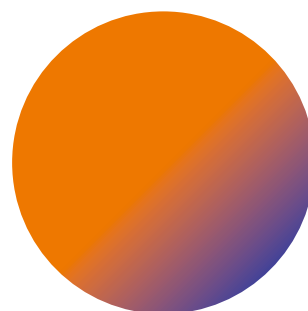
Securities system

- Daiwa Institute of Research Ltd.
- Fintertech Co. Ltd.
- Nomura Research Institute, Ltd.

Law firm

- Anderson Mori & Tomotsune LPC

*Secretariat





[4] Electric Power Transaction Subcommittee

- Accelerate the carbon neutrality by using digital currency -

Using digital currency for “P2P” trading of electricity and environmental value, and utilizing electric power transaction data for green finance

The Electric Power Transaction Subcommittee is exploring new business models for decarbonization by using DCJPY for the transaction of electricity and the environmental value in which DCJPY will help the buyer to be proved automatically of purchasing renewable electricity, and also has done a demonstration of purchasing goods or service by using DCJPY earned from electricity or environmental value transaction.

By applying blockchain and distributed ledger technology, it will be possible to track how electricity is produced and how it is valued, leading the business that promotes carbon neutrality. Up to now, the subcommittee has processed the cases to accelerate the decarbonization such as clarifying the purchase and transaction of renewable electricity by transferring “electricity tokens” and “environmental value tokens” linked to green energy in the Business Process Areas.

This is expected to allow companies to choose and procure green energy effectively and to streamline the administrative work involved in such procurement. It will also be easier for them to prove that their corporate activities are consistent with carbon neutrality, and to expand into areas of corporate funding such as green finance. It is thought that these activities will become even more important in the near future for all the countries, including Japan, to achieve carbon neutrality.

Receive service, by using environmental value based on digital currency

This subcommittee is studying a mechanism and completed PoC to apply bank-issued digital currency in Japanese Yen for the electricity peer-to-peer (P2P) trading platform where to trade electricity and environmental value and to be settled in real-time and operated seamless.

This subcommittee is studying a mechanism and completed PoC to apply bank-issued digital currency in Japanese Yen for the electricity peer-to-peer (P2P) trading platform where to trade electricity and environmental value and to be settled in real-time and operated seamless.

The use case for FY2022 is for consumers to pay the services by digital currency obtained through the resale of environmental value, which will expand the scope of settlements using digital currency and advance the possibility of business utilization. Although the current system has limitations on the secondary use (resale) of environmental value, the PoC was implemented without considering this point for the time being, to study the potential of digital currencies.

Specifically, the PoC was held by assuming bus rides as a service, as shown in Figure 10.

- (1) As a first step, the prosumer sells electricity derived from renewable energy (electricity + green energy) to the user (consumer) and receive digital currency in exchange for electricity fee and environmental value fee.
- (2) The user not needed carbon offset, consumes the electricity and transfers the unnecessary environmental value to the bus company via the electricity P2P trading platform.
- (3) Since the environmental value can be obtained from this platform any time instead of getting from the market, the bus company adds a premium on the environmental value and purchases it, and pays the consideration (environmental value fee + premium) to the user in digital currency.
- (4) The user rides the bus with the obtained digital currency and pays the fare. As a result, payment for the service (bus ride) by environmental value succeeds.

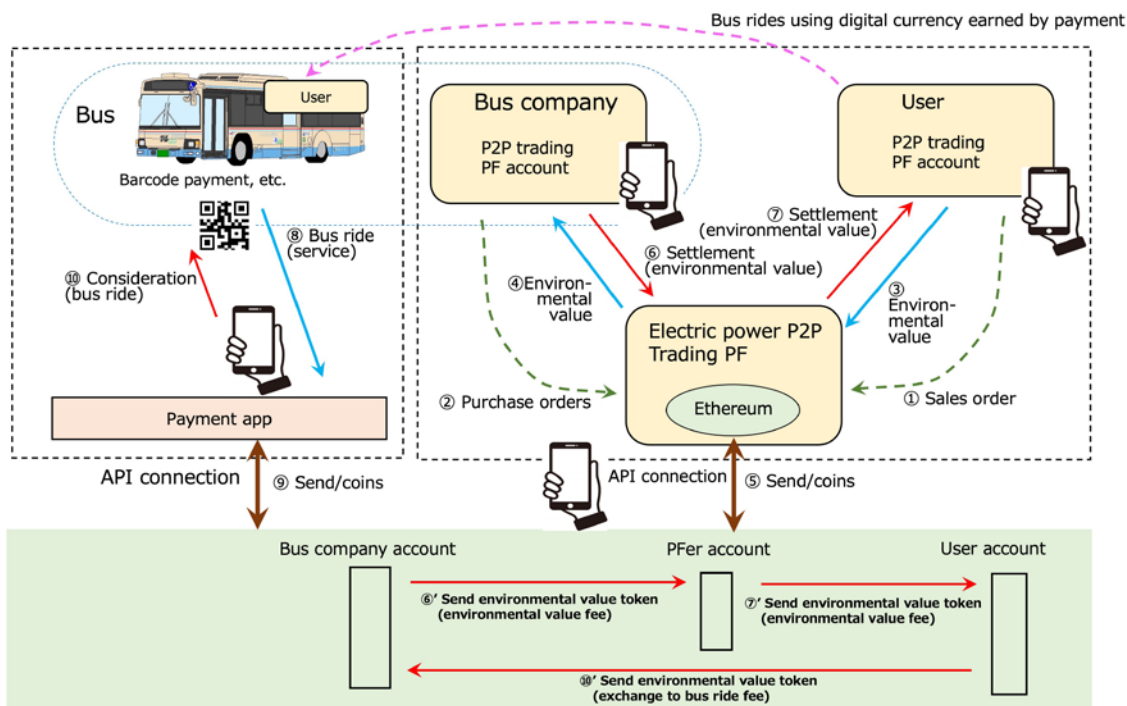


Figure 10: Bus rides based on environmental value



From above, this use will be new for the user to utilize the environmental value. In addition, the bus companies will be able to reduce their CO2 emissions [offset emissions in reports based on the Act on Promotion of Global Warming Countermeasures (Warming Countermeasures Act)] by acquiring environmental value by providing their services. Furthermore, it can also be considered for use in green finance related to bus companies by using the history record of their environmental initiative acts recorded in the digital currency platform.

Here, the key point is how to reflect the transaction content to the digital currency. This is handled by setting custom tokens in the Business Process Areas and stipulating the exchange rate with the digital currency for each. When the electricity from renewable energy source is sent from the prosumer to the consumer as shown in Figure 11, the electricity and environmental value are transferred by the electricity P2P transaction, and in return, the digital currency is transferred from the user to the prosumer based on the remittance instruction from the electricity P2P platform. In order to reflect this transaction at the same time, the electricity token set in the Business Process Area (electricity coin in Figure 11) and the environmental value token (environmental value coin in Figure 11) are transferred. This makes it clear that the digital currency transferred from the user to the prosumer is a consideration for electricity and environmental value.

Next, when the user is transferring the environmental value to the bus company, the environmental value will be transferred with P2P transaction exchanged to digital currency. When the bus company pays the premium in this transaction, the environmental value coins and premium coins are transferred together with the digital currency in the Business Process Area as shown in Figure 11. This will clearly show that the digital currency transferred from the bus company to the user is the consideration for the transaction with the premium added to the green certification.

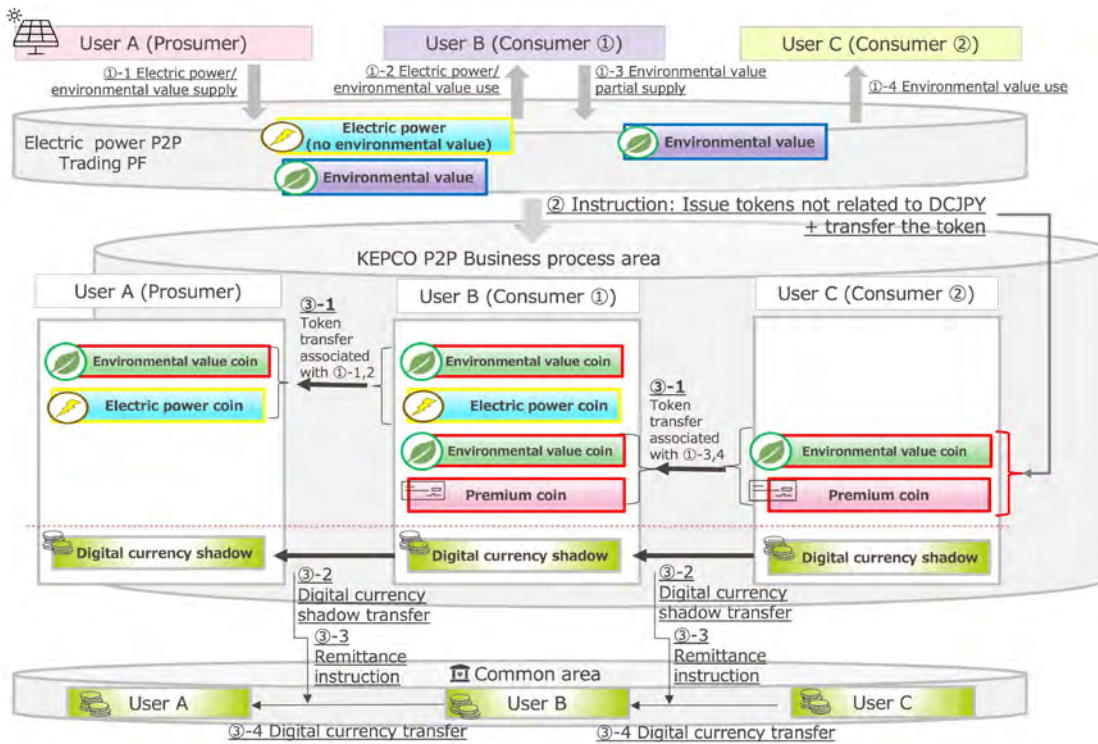


Figure 11: Clarification of the transaction content by setting the token to the Business Process Area

In order to achieve such use of the service, DeCurret DCP Inc. developed an app for the PoC which gives a remittance instruction for coins in the Business Process Area. As shown in Figure 12, the app screen now displays the amount of digital currency, environmental value coins, and premium coins held. Then it shows the environmental value coins and premium coins to be transferred by proceeding the payment by digital currency.

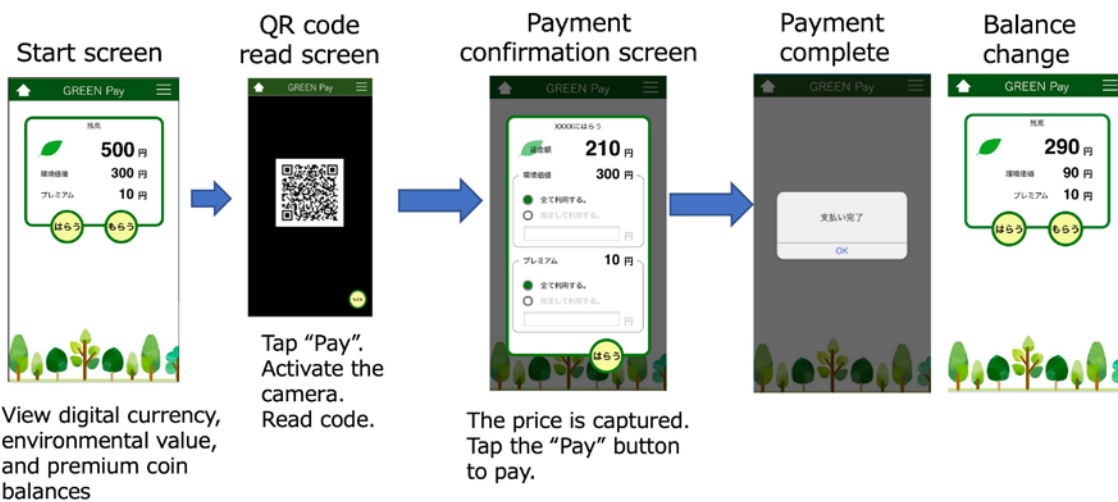


Figure 12: Payments and coin transfers with the app



Green finance based on digital currency

In addition, the Electric Power Transaction Subcommittee of the Digital Currency Forum is studying use cases utilizing for corporates business and funding etc., by using data of sourcing renewable energy and environmental values.

For example, it may be possible to accumulate transaction data from renewable energy, environmental value, and elements that are environmentally friendly on a blockchain and use them for financial aspects such as fundraising.

In the initial stage, the subcommittee used virtual data to obtain, score, and visualize electric power transaction results, assuming small and medium-sized enterprises (hereinafter referred to as "SMEs") in the manufacturing industry (chemical industry and food manufacturing industry) and their employees, and validated those data based on the use case from the perspective of financial institutions.

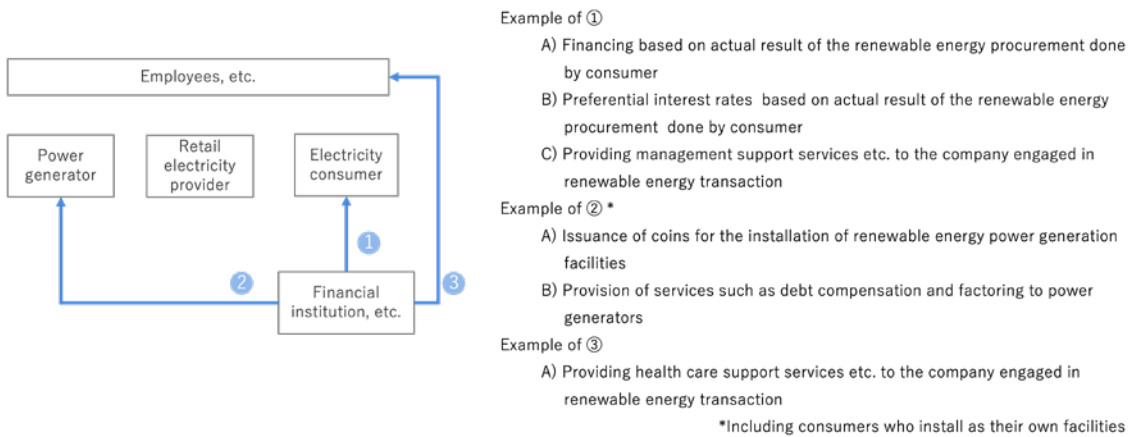


Figure 13: Example of financial services using renewable energy electric power transaction data

However, simply providing green finance based on digital currency using renewable energy and environmental value data has limited significance to proceed PoC and addressing subsequent services, so it was thought necessary to deepen the study of possible schemes for the following carbon neutrality issues.

< Considered issues for carbon neutrality >

- (1) Increasing importance of reducing greenhouse gas emissions across the supply chain
- (2) High response costs for SMEs to tackle decarbonization
- (3) Required to improve administrative costs and service quality by financial institutions to provide services to SMEs
- (4) Procuring renewable energy from power plants that are not actually environmentally friendly will increase reputation risk for companies



During the discussions, the subcommittee was able to evaluate the active use of renewable energy by consumers, and decided to study a service that simulates a sustainability link loan (hereinafter referred to as "SLL") as a financial service that utilizes power purchase destination information that includes third-party evaluation information.

SLL is a loan that encourages borrowers to achieve ambitious sustainability targets (hereinafter referred to as "SPTs"). Borrowers of loan funds act towards achieving the ambitious SPTs they have set and the degree of improvement is linked to the terms of the loan. A key characteristic is that, unlike green loans, the use of funds is not limited to a specific project. Most of the goals are set to reduce greenhouse gas emissions, but also the cases where the goal is to obtain employee paid holidays or childcare leave.

Financing service can be provided to encourage customers to take proactive decarbonization actions by providing financing for decarbonization targets that set the amount of greenhouse gas emissions reductions and the percentage of electricity purchased from evaluated power plants, and by monitoring the use of renewable energy and environmental value by customers. The study also found that using characteristics of digital currencies such as limiting application the loan funds and minimizing the administrative cost will help to provide service to SMEs that are working on decarbonization.

The P2P electric power trading platform developed by ENERES Co., Ltd. implements some of the functions of financial services, monitors the usage record of renewable energy and environmental value of consumers, and executes loans from financial institutions, etc. using DCJPY. If the consumers who take out the loans use the digital currency for the construction of new renewable energy systems, etc., it is possible to create a cycle of value while solving the problems towards carbon neutrality, and the subcommittee decided that it would be meaningful to carry out a PoC.

The PoC assumes an actual service and following scenario shown in Figure 14. Virtual data is used in the PoC.



Implementation details

(1) Electricity transaction data acquisition

1. Assuming that User C is an SME, in addition to User C's electric power transaction performance data, User C's power purchase destination power supply type, power generation area, and power plant information, etc. are recorded on the P2P electric power trading platform.

(2) Loan execution

1. Assuming that User D is a financial institution, etc., User D refers to the information of the P2P electric power trading platform, and executes a loan in digital currency the application of which is restricted to User C.
2. User D provides User C's sustainability target data and interest rate table data to the P2P electric power trading platform.
3. User D also provides interest rate table data to the Business Process Area similar to the P2P electric power trading platform.

(3) Use of loan

1. User C who received the loan uses the digital currency for payments such as buying and selling with the User E who is a counterparty in line with the purpose of the loan.

(4) Collecting the interest

1. The actual data of the electric power transaction conducted by User C, and the information about the power purchase destination of User C will be kept on the P2P electric power trading platform continuously after the loan execution.
2. At the timing of interest rate collection after a certain time, the interest rate of User C is automatically calculated on the P2P electric power trading platform, and the interest rate is collected from User C in a digital currency other than the digital currency financed by User D.
3. Automatically calculate and apply the interest rate for the next period for User C on the P2P electric power trading platform.

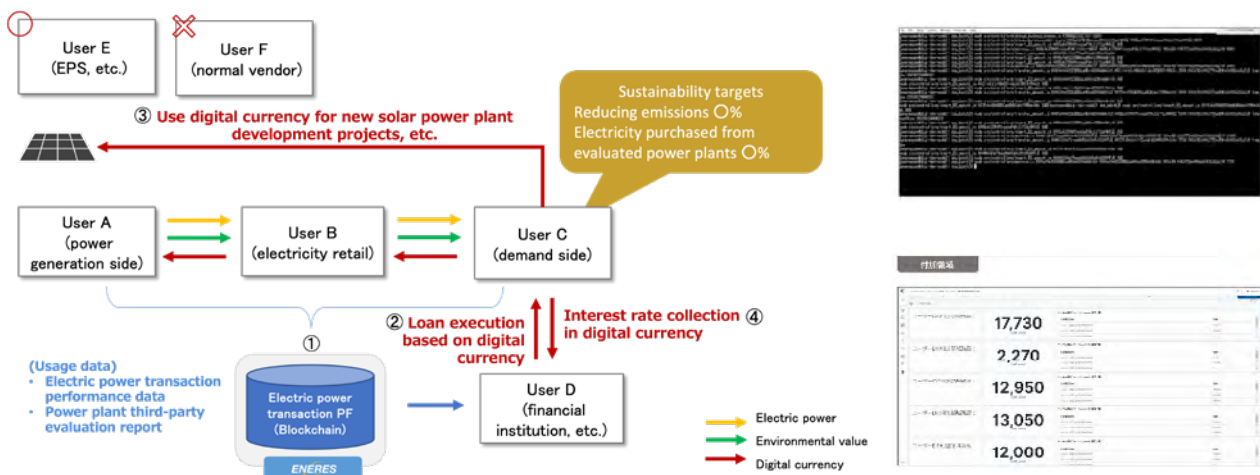


Figure 14: PoC on financing using digital currency DCJPY with the use of electric power transaction



This PoC implemented an example of a use case in which data on renewable energy and environmental value acquired by consumers are used for the business cases and funding. It was found that it is highly possible to use digital currency to create a cycle of value through the following process: (1) Financial institutions, etc. provide financial services in digital currency that reflect real-time electricity accurate data, (2) New renewable energy power plants are built with the digital currency, (3) Consumers procure renewable energy generated from the power plants, and (4) Digital currency is used to pay for those transactions. When the use case utilized in this PoC is developed into real services, it is expected to accelerate efforts to decarbonize the entire supply chain, including SMEs.

Future activities

The PoC on the tokenization of environmental value has succeeded in validating the effect of preventing double counting of environmental value using tokenization and blockchain technology as tools to digitize environmental value on two-tiered digital currency platforms and P2P electric power trading platforms.

In another PoC in which the data of renewable energy and environmental value acquired by consumers is utilized for the business and financing, it was confirmed that creating a cycle of value can support to accelerate companies effort towards decarbonization.

In FY2023, to study a new business model to accelerate the decarbonization, which is the activity policy of this subcommittee, we will take advantage of the results validated in this PoC and proceed with the subcommittee on the theme of considering the digitalization of carbon credit, which is an environmental value, and the business model for its practical application.

The subcommittee will continue to study business models using DCJPY, led by Kansai Electric Power Company, Inc. and ENERES Co., Ltd., and will continue to promote the integration of DX (Digital Transformation) and GX (Green Transformation) in the energy field, aiming to develop practical services for corporates to accelerate the carbon neutral.

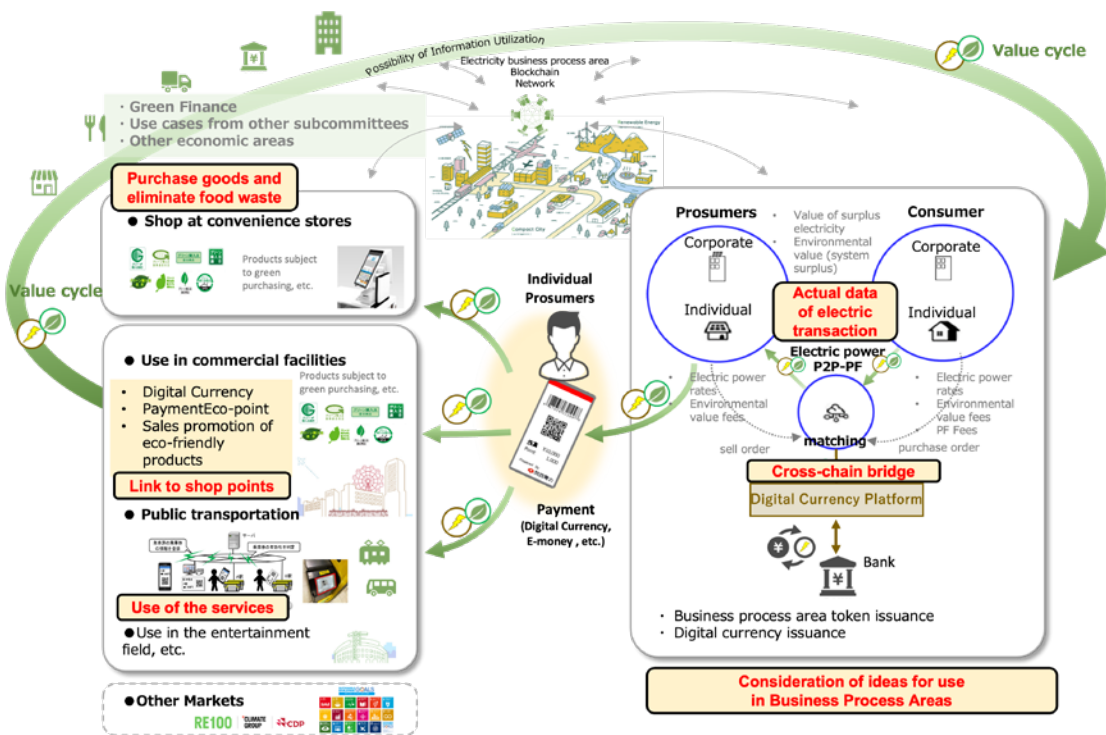
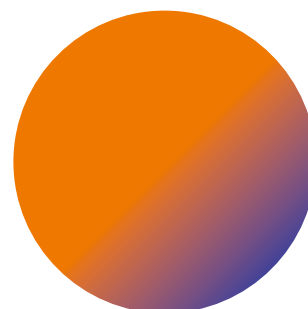


Figure 15: World view of the Electric Power Transaction Subcommittee

Participating companies

- The Kansai Electric Power Company, Incorporated
- ENERES Co., Ltd.
- Internet Initiative Japan Inc.
- DAIDO LIFE INSURANCE COMPANY
- Chubu Electric Power Co., Inc.
- Tokyo Metropolitan Government
- Hankyu Hanshin Holdings, Inc.
- Sumitomo Mitsui Banking Corporation
- MUFG Bank, Ltd.
- Lawson, Inc.





[5] Wallet Security Subcommittee

- Consideration of security issues when connecting blockchain systems in the Business Process Area, assuming a business that handles digital assets -

Security challenges when connecting Business Process Area systems to other blockchain systems

Purpose of the subcommittee activities (second phase) and activity details

The Wallet Security Subcommittee is working with the goal of formulating basic security requirements centered on the management of private keys (signature keys), software that uses signature keys, and users so that the companies and organizations as a member of the Digital Currency Forum can handle digital currency platforms safely and securely. Up to September 2022 was positioned as the first phase, and the subcommittee mainly considered security issues and countermeasures guidelines in the management of digital currency platform signature keys in the Business Process Area systems and compiled a security report. The Business Process Area systems targeted in the first phase are systems managed by a Business Process Area operator, which can be said to be a traditional service system. As discussed in other subcommittees of the Digital Currency Forum, it is also possible for the Business Process Area system to connect with other blockchain systems and link with other services and systems through them. When connecting to a blockchain system, there are challenges specific to decentralized systems that go beyond the framework of Business Process Area operators, so it is necessary to consider them differently from conventional systems. Therefore, this subcommittee moved to the second phase and began discussions focusing on the security issues that could arise when building and operating a Business Process Area system that connects to other blockchain systems.

There are many types of blockchain systems, so it is difficult to treat and discuss them as a single system. Therefore, the subcommittee conducted a survey on several representative blockchain systems. According to the classification of ISO 23257: 2022 (Blockchain and distributed ledger technologies — Reference architecture), blockchain systems were organized by the axis of public/private (whether the connection is public or not) and the axis of permissionless/permissioned (systems with or without an access control mechanism), and the public permissionless and private permissioned blockchain systems with relatively high applicability were the main subjects of consideration. The subcommittee is examining the model diagram of the system assumed in the Business Process Area system in the same way as the security considerations in the first phase, and is identifying security issues based on this model diagram.



Figure 16 is a model of an example of a fictional operator XYZ company building and operating a Business Process Area system connected to a public permissionless blockchain system. This model assumes Ethereum as an example of a public permissionless blockchain. In the public permissionless blockchain, there are a wealth of development tools, smart contracts, wallets (software/hardware), etc., and it is expected that various Business Process Area systems will be developed by using them, but on the other hand, there are also potential security risks of community-driven blockchain systems, peripheral systems, and software groups that are beyond the control of Business Process Area operators. It is also necessary to consider the management of signature keys to access the blockchain system and the integrity of transactions by DCJPY and additional domain coins on the digital currency platform, and the processing performed on public permissionless blockchains.

Model diagram for the complete substitution of the enterprise that offers a blockchain game linked to Ethereum (Company XYZ holds the private key required for bridge-free and operation)

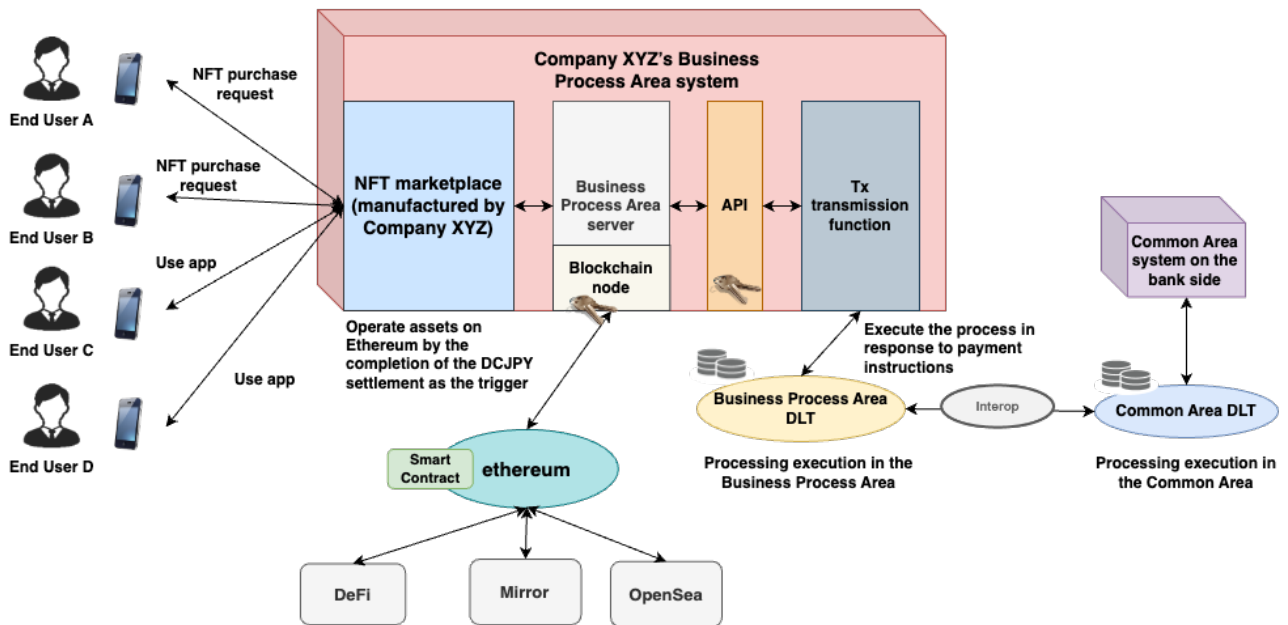


Figure 16: Assumed system model when linking with a public permissionless blockchain



Figure 17 is a model of an example of XYZ company building and operating a Business Process Area system linked to a private permissioned blockchain. This model assumes Hyperledger Fabric as an example of a private permissioned blockchain. This private permissioned blockchain may be jointly operated by a business consortium of Business Process Area operators as an example. Although this model is also influenced by blockchain systems that are not under the control of Business Process Area operators, but comparing to the public permissionless type, it is possible to deal with the problem by cooperating with business consortiums that operate the private permissioned blockchain systems, etc. When operating jointly among multiple operators, it is necessary to consider clarifying the demarcation point of responsibility and stipulate the operation policy.

Model diagram for the complete substitution of the enterprise that offers a blockchain game linked to Hyperledger Fabric (Company XYZ holds the private key required for bridge-free and operation)

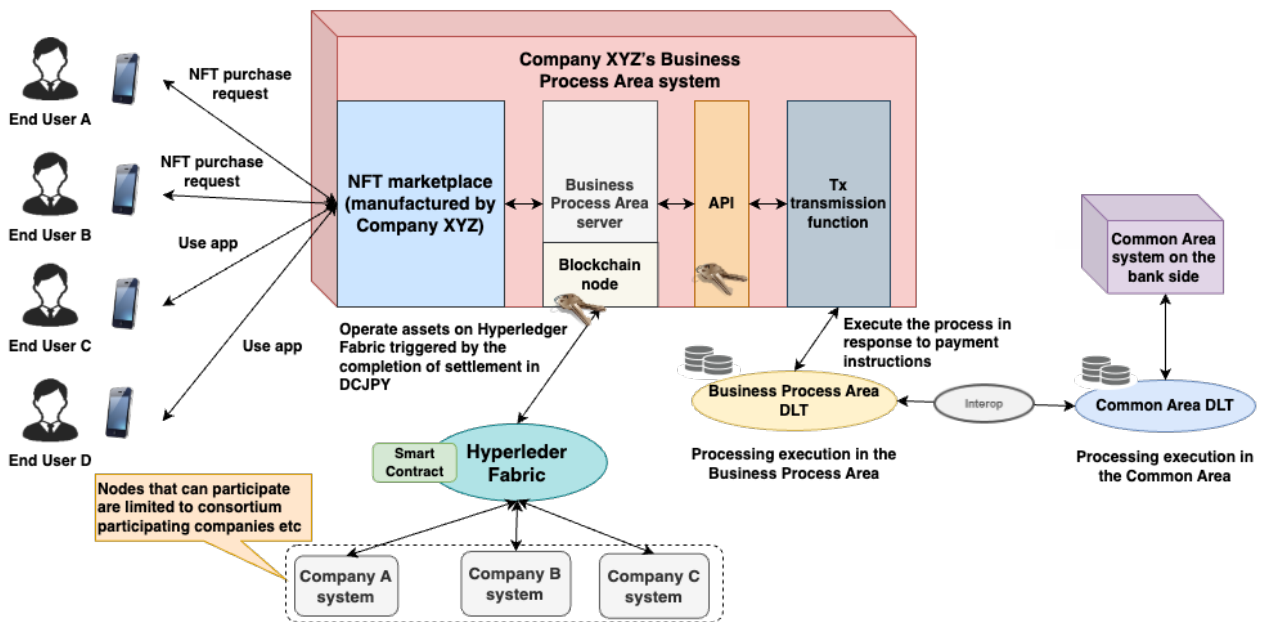


Figure 17: Assumed system model when linking to a private permissioned blockchain



This report provides an overview of what is under consideration, and the Wallet Security Subcommittee will continue to deepen its consideration in the second phase.

Using the currently assumed system model diagram, the subcommittee is discussing security issues and their countermeasures (mitigation measures). In Figures 16 and 17, the subcommittee is discussing NFTs as an example, but we believe that this discussion can be considered as a countermeasure against security issues in dealing with various digital assets including NFTs. Security is a common issue for various digital assets, not only NFTs, but also environmental values that are being studied by the Electric Power Transaction Subcommittee, and security tokens that are being discussed by the STC Subcommittee, and it can be said that there are important applications for handling digital currency platforms safely and securely. In addition to the explanation of the above system model diagram, the identified security issues and countermeasures will be prepared as Part 2 of the security report, and will be the results of the second phase of activities.

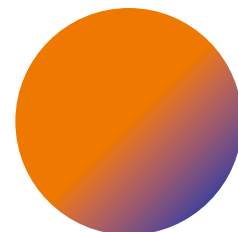
Participating companies

Secretariat

- SECOM CO., LTD.

Members

- Internet Initiative Japan Inc.
- Intelligent Wave Inc.
- NTT DATA Japan Corporation
- Keychain GK
- SBI Security Solutions Co., Ltd.
- Sony Payment Services Inc.
- SoftBank Corp.
- NEC Corporation
- Daiwa Institute of Research Ltd.
- DeCurret DCP Inc.
- Tokyo Kiraboshi Financial Group, Inc.
- Toppan Inc.
- HashPort Inc.
- The Hiroshima Bank, Ltd.
- PwC Consulting LLC
- Future Architect, Inc.
- Resona Holdings, Inc.





[6] Expansion of DCJPY

- Initiatives for new industries and fields -

The members of the Digital Currency Forum are also exploring new applications for digital currencies. DCJPY is a digital currency that has advanced the feature of bank deposits utilizing a “programmable” business field, and it is believed that it will enable private sector economic entities to incorporate digital technology and use information and data according to their needs.

DCJPY is not intended to be used in a specific area, but is being studied for use in all business areas linked to settlement.

Life insurance industry

In the life insurance industry, as various industries undergo major changes due to the development of technology, in addition to providing new products and services through AI, biosensing, and data analytics, processes are becoming automated as well.

Since life insurance is based on the mechanism of executing payments and services according to predetermined rules in contract conditions related to individual lives, “smart contracts” that are executed according to predetermined conditions that are characteristic of blockchain are similar to the structure that enables the execution of automatic payments and services, and it is thought to be a very compatible combination.

In addition, it is characterized by the function of checking the maximum amount of underwriting for domestic death insurance for the purpose of suppressing crime, and joint underwriting and reinsurance to ensure business continuity in the event of large-scale disasters and other risks.

These are also supported by exchanging data mutually at the same time as remittance settlements and advancing the individual contracting process of each company, and in addition to digital currency settlements in this area, it is expected that these contracting processes will be automated.

At the Digital Currency Forum, we are considering whether we can contribute to the development of the life insurance industry by utilizing the latest technology and blockchain technology, which is the basis for the introduction of digital currency, with the participating members.



E-commerce-related industries

In the e-commerce industry, there is a desire to eliminate the inconveniences arising from the diversification of settlement methods. From the merchant's point of view, in the case of a credit card settlement, it takes a few days to several months from the day of the sale for the credit card company to deposit funds into the merchant's account. In addition, from the user's point of view, if you want to make a payment directly from your usual bank account, there is a problem that payment processes such as for "pay-easy" and bank transfers are complicated and it is difficult to use them for e-commerce site settlements.

In response to such issues, with DCJPY which offers advanced bank deposit features, the merchant can use DCJPY to receive funds immediately, which can be expected to improve the efficiency of automatic reconciliation and settlement operations using smart contracts for order information. Users can pay without going through the complicated process of using DCJPY in their daily bank account, and compared to identifying the debit date of the credit card company, there is also the freedom to set the debit date to the date of their choice, which can increase convenience.

This worldview is being discussed with the participants of the Digital Currency Forum, and we are considering the use cases to make them more concrete.





Part 4

Message

Shinichiro Matsuo

Research Professor, Department of Computer Science
Georgetown University

How to make the word “Crypto Winter” unnecessary

From 2022 to 2023, the term “crypto winter” is often used to describe the circumstances surrounding the blockchain industry and crypto assets. Terra/Luna and FTX incidents in 2022 resulted in a turning point for the crypto asset industry. People say “crypto winter” just referring to the phenomenon where the price of crypto assets has dropped or investment has cooled off. However, using words perceived as a change in the season feels like a somewhat optimistic expression in the sense that it may give the misunderstanding that the situation will naturally improve over time. The reality is that for financial applications where blockchain technology is highly functional, the parts that are “still unqualified” have become clear, and sloppy operations have been carried out in the parts that are insufficient. Entrepreneurs may say that “winter is the time for development,” but very few people talk about what this “development” should be.

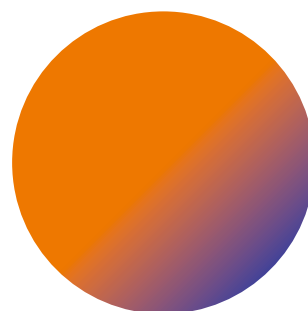
The regulatory situation is also different in Japan from other countries. In the United States, Gary Gensler, the Chair of the Securities and Exchange Commission (SEC), has been working on the strict application of securities regulations, centering on the certification of crypto assets. In light of these developments, while some people have objected that the US government is freezing out crypto assets and trying to stop innovation, at the same time, traditional financial institutions, starting with Blackrock, have successively requested that Bitcoin’s physical ETF be certified by SEC. Federal Reserve Chair Jerome Powell has said that “Stablecoins are a form of money,” adding that “crypto assets will continue to have power as an asset class.” These circumstances suggest that, at least in the United States, the current position of blockchain and crypto-asset technology and operations has been sorted out. It should be noted that the terms “money” and “assets” are used, and the term “currency” is not used. In other words, Bitcoin cannot be certified as a security in the Howey Test (a test of applicability as a security) and is classified as a commodity, and other coins are treated as securities. Both are positioned as an asset, not money or currency. On top of that, stablecoins are not currencies, but are positioned as money tied to a currency (US dollars).

Recall that the word “currency” does not appear in Bitcoin papers. Since Satoshi Nakamoto’s definition of Bitcoin is a payment system using distributed timestamps, many people feel that it behaves like money or currency, but there is still technologically unqualified and technical development is required to make it into a form of money or currency. What is happening now is no more than the fact that the results of 15 years of experiments have been sorted out following the 2008 Bitcoin paper. I believe that it is a little shallow to call this a “winter.”



The United States announced in its March 2022 Executive Order on Digital Assets that it will invest in large-scale research and development and standardization to make up for this inadequacy, and is currently developing its plan. It is expected that this funding will lead to the development of various technologies created related to blockchain and the advanced researchers and engineers who will support it. At the same time, multi-stakeholder discussions in which businesses and regulators, not just engineers and researchers, work to create such technologies, are currently progressing. The Blockchain Governance Initiative Network (BGIN), which I chair, was established in 2020 in response to the 2019 G20 communiqué and operates fortnightly weekly working group meetings and three annual plenary meetings, with more than 10 publications to date. The creation of these documents has involved regulators, businesses, researchers, and sometimes grassroots engineers who don't talk to the government. Coinbase, Circle, and others have also participated in the creation of documents that seek to address issues like the depegging that occurred during the Silicon Valley banking incident. The real stage for "winter is for development" is here. The last plenary meeting of BGIN was held in Croatia in May 2023, and the next will be held in Sydney in mid-November 2023. As with the IETF on the Internet, anyone can participate in the discussion and documentation at any time without the need for permission. Young Japanese engineers and regulators are already involved.

Again, it is more important to talk about how to make up for the inadequacy to generate more trust and new interest than to use the phrase "crypto winter" as a buzzword. The US move is also part of this, and it is moving toward solving problems on its own, including the entry of traditional financial institutions and the realization of executive orders. Various technical and business studies and experiments are being conducted at the Digital Currency Forum, and it is a valuable forum globally that is grounded and faces the issues of blockchain and digital currency head-on. I hope that the Digital Currency Forum will continue to work for the development of this field and make proposals for a multi-stakeholder governance forum such as BGIN, together with the movement involving US academia and the trend of innovation hubs in Europe.





Column

The potential of digital Regional Currencies

One phenomenon that is now attracting attention with the digitalization of finance is the increase in the number of “digital regional currencies” issued in Japan and overseas.

Many “regional currencies” have been issued in the past to promote the local economy and strengthen the community, such as Germany’s “Chiemgauer.” However, these have generally remained relatively small-sized or short-lived.

The theoretical reason for this is, first of all, the strong “network externalities” inherent in currencies and payment instruments. Since nation-wide payment instruments are likely to be more convenient than those that can only be used in a limited area, many people will choose to hold the national legal tender rather than regional currencies, especially if they are exchangeable one-on-one. In order to facilitate the use of a regional currency, it is necessary not only to link its value with that of legal tender but also to provide incentives such as “premiums” for its use in the region. The realization of such a mechanism, nonetheless, requires advanced information and data processing and the relevant costs. How to cover these costs is one of the big challenges to regional currencies.

However, digital innovations such as blockchain, distributed ledger technology, big data analytics, and AI are opening up new possibilities for regional currencies.

First, making digital currencies into digital forms instead of physical paper can save the cost for handling, storing, and conveying paper. It will also be possible to achieve high network externalities in a region by building a dense network of terminal devices in it. In addition to shopping in stores, digital regional currencies can be used also for the purchases of local specialties online through e-commerce. Moreover, through digitizing regional currencies, it becomes technically easier to realize a “Freigeld type” regional currencies proposed by German writer and philosopher Silvio Gesell, whose value is scheduled to decline over time in order to stimulate consumption by their holders.

The digitalization of regional currencies will also greatly facilitate the utilization of information and data utilization. By using the platform of digitized regional currencies, it will become possible to automatically collect and accumulate the information and data attached to people’s daily transactions. Consequently, the digitized regional currency platform will facilitate to analyze them while ensuring their anonymity, and to utilize them for regional businesses and public policies in the region. This could help cover the cost of operating the regional currencies and giving out premiums to their users.

Moreover, the utilization of digital regional currencies by regional governments for public policies enables targeted support for specific purchasing behaviors by specific entities within a certain period of time. For example, digitized regional currencies facilitate regional governments to subsidize the expenses for the purchases of childcare-related goods and services within a certain period of time.

Digital regional currencies are expected to function as a data infrastructure that contributes to the development of the local economy. Furthermore, by making various digital platforms interoperable, it is possible to connect multiple digital regional currencies in order to enhance the benefits stemming from network externality.

The Digital Currency Forum is carrying out “Proof of Concepts” (PoCs) on digital regional currencies using the digital currency platform “DCJPY.” In the “Regional Currency Subcommittee” and “Administrative Affairs Subcommittee” in the Forum, PoCs have been carried out in Aizuwakamatsu City and Kesenuma City to pay the benefits for the child-rearing



generation through digital regional currencies based on DCJPY. The Forum has also implemented experiments on using digital currencies obtained through the purchases of green energy for the payments and settlements of regional bus fares. In Aizuwakamatsu City the Forum tried to utilize digital regional currencies for health projects and food and agriculture matching. In Tokyo the Forum implemented the experiment of using digital regional currencies for granting of subsidies to businesses. Through these PoCs and experiments, it has been evidenced that new digital technology such as blockchain and DLT can contribute to the reduction of costs and utilization of data, the granting of incentives to users that have been the challenges for regional currencies. Also, digital regional currencies will enable regional governments to stimulate targeted consumptions in line with the purpose of public policies.

In the Japanese government's "Digital Garden City Nation Initiative" along with the promotion of cashless settlements, marketing support using settlement data while avoiding "digital divide" is one of the key policy targets. The Digital Currency Forum will continue to work on the revitalization of local economies using the digital currency platform DCJPY from the perspective of creating the best-possible financial infrastructure incorporating cutting-edge digital technologies to contribute to economic developments and people's welfare in regions.

Hiromi Yamaoka
Chairperson,
Digital Currency Forum





Conclusion

We appreciate reading Progress Report No.3. As I wrote in the “Conclusion” of Progress Report No. 1, I have participated in the Digital Currency Forum with the feeling that “I wish to support the development of digital currency backed up by blockchain as a socio-economic infrastructure and the development of businesses related to digital technologies based on the infrastructure.” However, I feel that the areas of PoCs covered in this report, namely “regional currency,” “administrative affairs,” “security tokens,” “Electric Power Transaction” and “wallet security,” are areas where their social implementation is becoming more realistic among the activities of several subcommittees.

In March this year, I also had the opportunity to participate in the PoC of the Regional Currency Subcommittee held in Aizuwakamatsu. The content of the PoC is described in the main text, but many stakeholders, mainly financial institutions interested in the implementation of regional currencies, rushed to the Forum from all over Japan. I talked with these participants at the evening standing social gathering and I felt truly reassured listening to their enthusiasm about revitalizing their local economies by building an ecosystem based on digital currency, and those who expressed a strong desire that “something interesting should be able to be done with digital currency.” With the support of these people, I wonder if the worldview of the “regional currency” subcommittee will develop not only in Aizuwakamatsu but also in many regions across Japan. It was a night that gave a glimpse of the future.

The discussion of “regional currencies” is closely linked to the subcommittee on “administrative affairs.” In October last year, I visited the former Yamakoshi Village in Niigata Prefecture with a former colleague at FSA (Financial Services Agency), and I was strongly aware of the cooperation between regional administration and digital. Yamakoshi Village was severely damaged by the Chuetsu Earthquake in Niigata Prefecture in October 2004, and population declined from 2000 to 800 by continuously outflow from the village. Against this background, the village is taking on the challenge of a new form of regional reconstruction with the power of digital, centered around a female leader of the Local Revitalization Cooperation Group. It is an attempt to enliven the region by issuing an NFT with a Nishikigoi (colored carp) design, a specialty of the region, and positioning owners of the NFT as digital villagers, utilizing not only real-world activities but also the metaverse space. The weekend I visited Yamakoshi was the day of the Niigata Prefecture Chuetsu Earthquake Memorial Ceremony. Digital villagers participated as avatars in the metaverse space installed at the venue together with the villagers and visitors. Some of the digital villagers were IT engineers who visited Yamakoshi in person for the first time, and during the day, they were working right away to improve the accuracy of the metaverse. Now Yamakoshi Village has merged with Nagaoka City, and under the leadership of the mayor and deputy mayor who are very enthusiastic about digitalization and the use of IT in government, regions other than Yamakoshi are also taking on various challenges.

What I learned again during my visits to Yamakoshi and Nagaoka City is the high affinity between improving government services and digitalization, the importance of building an open platform that cooperates with the private sector rather than closing



it down to only government agencies, attracting human resources with meaningful skills to build a platform that resonates with people, and bringing together human resources to create new business and entrepreneurial seeds that have the potential to grow into a large economy with the power of digital.

I have talked about my experience with “regional currencies” and “administrative affairs,” but I think that the enthusiasm and practical experience of the participants have accumulated through the activities of the other subcommittees too. Let’s deepen the discussion and cooperate with everyone who has read and resonated with this report to realize a new society supported by digital currency.

Toshihide Endo

Digital Currency Forum
Senior Advisor
(former Commissioner of FSA)





Appendix 1

Forum member

Chairperson

Hiroimi Yamaoka, Director, Future Corporation
(Former Head of the Payment and Settlement Systems Department, Bank of Japan)

Participating from the Digital Currency Forum

- Aioi Nissay Dowa Insurance Co., Ltd.
- Aizuwakamatsu City
- Accenture Japan Ltd.
- Asukoe Partners, Inc.
- ABeam Consulting Ltd.
- AEON Co., Ltd.,
- AEON Financial Service Co., Ltd.
- Internet Initiative Japan Inc.
- Industry One, Inc.
- INTEC Inc.
- Intelligent Wave Inc.
- ANA Group (ACD Inc.)
- SBI Holdings, Inc.
- ENERES Co., Ltd.
- NTT Group
- Future Innovation Group, Inc.
- au Kabucom Securities Co., Ltd.
- au Jibun Bank Corporation
- au Financial Holdings Corporation
- Osaka Digital Exchange Co., Ltd.
- Kao Group Customer Marketing Co.,Ltd
- KATAOKA & KOBAYASHI LPC.
- The Kansai Electric Power Company, Incorporated
- Keychain GK
- Payments Japan Association, Incorporated
- Kyushu Financial Group, Inc.
- QTnet, Inc.
- KYOCERA Corporation
- Kumamoto Prefectural Government
- xID Inc.
- KDDI CORPORATION
- Kesenuma city
- CYBERLINKS CO.,LTD.
- SATUDORA HOLDINGS CO.,LTD.
- JCB Co., Ltd.
- JPX Market Innovation & Research, Inc.
- SIGMAXYZ Inc.
- Super City AiCT Consortium
- SUMITOMO CORPORATION
- SUMITOMO LIFE INSURANCE COMPANY
- Securitize Japan K.K.
- SECOM CO., LTD.
- Seven Bank, Ltd. (Seven & i Holdings Co., Ltd.)
- SOHGO SECURITY SERVICES CO.,LTD. (ALSOK)
- SocioFuture, Ltd.
- Sony Bank Incorporated
- Sony Payment Services Inc.
- SoftBank Corp.
- Sompo Holdings, Inc.
- DAIICHIKOSHO CO., LTD.
- DAIDO LIFE INSURANCE COMPANY
- Dai Nippon Printing Co., Ltd.
- Daiwa Securities Group Inc.
- Daiwa Institute of Research Ltd.
- Chubu Electric Power Co., Inc.
- TSURUHA HOLDINGS INC.
- TIS Inc.
- DENTSU INC.
- Tokio Marine & Nichido Fire Insurance Co., Ltd.
- Tokyo Kiraboshi Financial Group, Inc.
- Tokyo Financial Exchange Inc.
- TOKYO METROPOLITAN GOVERNMENT
- Toppan Inc.
- TOPPAN Edge Inc.
- THE NISHI-NIPPON CITY BANK, LTD.
- West Japan Railway Company
- NS Solutions Corporation
- The Mortgage Corporation of Japan, Limited
- Japan Securities Clearing Corporation
- NEC Corporation
- Nomura Research Institute, Ltd.
- Nomura Holdings, Inc.
- HashPort Inc.
- Panasonic Holdings Corporation
- Hamamatsu City
- Hankyu Hanshin Holdings, Inc.
- PwC Consulting LLC
- East Japan Railway Company
- Hitachi, Ltd.
- BIPROGY Inc.
- The Hiroshima Bank, Ltd.
- FamilyMart Co., Ltd
- Fintertech Co. Ltd.
- BOOSTRY Co., Ltd.
- Future Architect, Inc.
- Payroll Inc.
- Mizuho Bank, Ltd.
- MITSUI KNOWLEDGE INDUSTRY CO., LTD.
- Mitsui Sumitomo Insurance Co., Ltd.
- Sumitomo Mitsui Banking Corporation
- Sumitomo Mitsui Trust Bank, Limited
- Mitsubishi Corporation
- MUFG Bank, Ltd.
- Mitsubishi UFJ NICOS Co., Ltd.
- Mitsubishi UFJ Research and Consulting Co., Ltd
- MIRAI Inc.
- Meiji Yasuda Life Insurance Company
- Mori Hamada & Matsumoto
- YAMATO HOLDINGS CO., LTD.
- JAPAN POST BANK Co.,Ltd.
- Rakuten Edy, Inc.
- Resona Holdings, Inc.
- Lawson, Inc.
- Laurel Bank Machines Co., Ltd.

(Total 104 companies, local governments, and organizations)

Observers

- Financial Services Agency, Japan
- Ministry of Internal Affairs and Communications, Japan
- Ministry of Finance, Japan
- Ministry of Economy, Trade and Industry, Japan
- Bank of Japan

Advisors

- Masakazu Masujima Partner, Mori Hamada & Matsumoto
- Tetsuya Inoue Chief Researcher, Nomura Research Institute, Ltd.
- Shuji Kobayakawa Professor, School of Political Science and Economics Meiji University
- Kenji Saito Professor, Graduate School of Business and Finance Waseda University
- Chikako Suzuki Certified public accountant

Senior Advisor

- Toshihide Endo
(Former Commissioner of Financial Services Agency)



Appendix 2

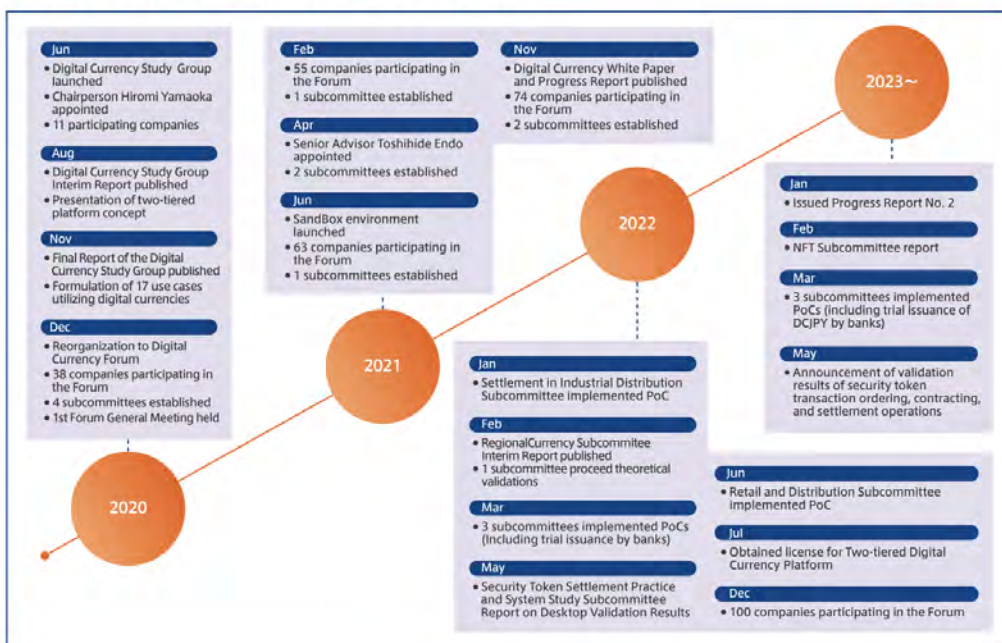
PoC in 2022

Introduction to PoCs Implemented in 2022

Subcommittee name		Participating companies	Overview
Regional currency		TIS Inc., Mitsubishi UFJ Research and Consulting Co., Ltd., TOPPAN Edge Inc. and others	PoC pertaining to "the delivery of coupons using digital currency" assuming temporary special benefits for child-rearing households. Validate whether printing/mailling/individual settlement/paper storage at municipalities, and paper aggregation/submission/funding at member stores using benefits will no longer be necessary if DCJPY is used to digitize benefits
Administrative Affairs			
Electric Power Transaction	Subgroup A	The Kansai Electric Power Company, Incorporated and others	Purchase of products at convenience stores using DCJPY obtained from Electric Power Peer to Peer (P2P) transactions
Settlement in Industrial Distribution		Mitsubishi Corporation, NIPPON TELEGRAPH AND TELEPHONE CORPORATION and others	Validation of settlement by DCJPY using smart contracts, based on settlement of demurrage charges, etc. incurred in marine transport accompanying Mitsubishi Corporation transactions
Retail and Distribution		Seven Bank, Ltd. and others	Validate the effects of using blockchain technology for the series of business transactions from order to payment between retailers and wholesalers, and completing the transactions on the system while ensuring the authenticity of the data, for improved efficiency and sophistication of operations related to the supply chain

Details are provided on pages 12 to 33 of the Progress Report of the Digital Currency Forum No. 2 (https://www.decurret-dcp.com/assets/forum_20230131pr.pdf).

History of the Digital Currency Forum



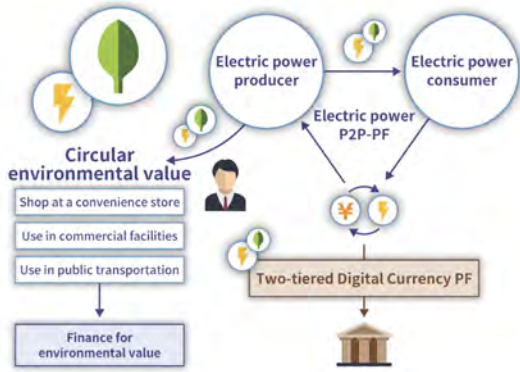
For details of each publication, please visit <https://www.decurret-dcp.com/dcforum/>.



Electric Power Transaction Subcommittee (A)

Use of DCJPY obtained from electric power purchase at convenience stores

- Validation of the case of using digital currency obtained by buying and selling surplus electric power on an electric power P2P platform that matches electric producers, such as solar power producers, with electric consumers for payment at retail stores (convenience stores)



Payment at convenience stores using DCJPY



- The customer passes the item to the cashier
- The cashier shows the QR code to the customer
- The customer reads the QR code in the digital currency app and proceed payment
- The customer receives the item
- Payment is confirmed in the app

PoC results

The purchase of goods using digital currency obtained through electric power trading is workable. (Issuance of digital currency was simulated)

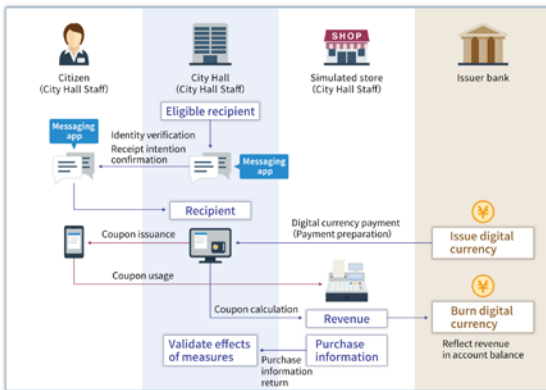
Participating companies

Kansai Electric Power (Secretariat), Chubu Electric Power, MUFG Bank, Lawson, Hankyu Hanshin Holdings

Regional Currency Subcommittee/Administrative Affairs Subcommittee

Using digital currency in temporary special benefits for childcare in Aizuwakamatsu City and Kesennuma City

- Implemented PoC on "the delivery of coupons using digital currency" assuming temporary special benefits for child-rearing households
- City Hall issues coupons and implements post-purchase coupons and sales settlement in digital currency to confirm whether the results can contribute to improved efficiency of administrative affairs



Challenges

Challenges to improving the efficiency and speed of administrative procedures involving the transfer of funds such as the payment of taxes, various benefits, and subsidies

PoC results

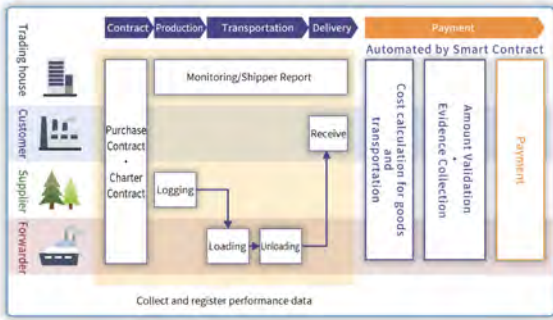
- Immediate and efficient delivery of coupons through the digitalization of benefit practices
- Use of coupons can be limited to the purpose of the policy
- By returning purchase information, it is easy to confirm the results of the measures and their effects
- Realize immediate coupon settlement and expect improved financing

Participating companies

Aizuwakamatsu City, Kesennuma City, IJ, Super City AICT Consortium, Sumitomo Life Insurance, Seven Bank, DAIDO LIFE INSURANCE, TIS, Tokio Marine & Nichido Fire Insurance, Toppan, TOPPAN Edge, etc.

Settlement in Industrial Distribution Subcommittee (Improving the efficiency of BtoB payment procedure)

- Carried out a PoC on automatic calculation and automatic settlement in maritime transportation transactions for biomass fuel
- Data related to a series of operations from contracting to shipping, loading, billing and settlement is recorded on the blockchain, and recorded bills are automatically calculated and settled



Challenges

The settlement of various fees between trade transaction counterparties faces various issues such as duplication of work between contracting parties, complexity of operations from billing to settlement, and long-time lag for financing

PoC results

Not only all communication history and performance data can be checked and managed on one platform, but also expecting to reduce the back-office work related to settlement by up to 80%

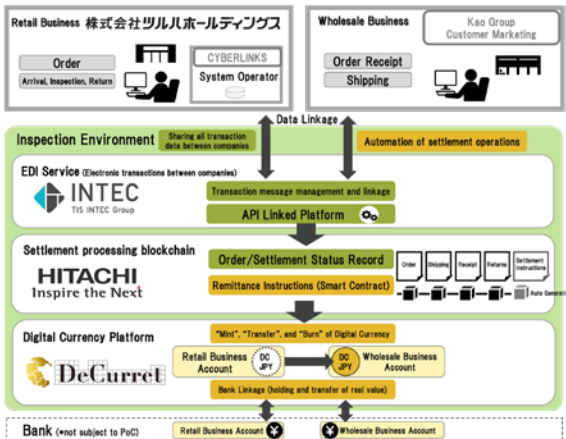
Participating companies

Mitsubishi Corporation, NTT, Industry One*

*Joint venture established by Mitsubishi Corporation and NTT to promote industrial DX

Retail and Distribution Subcommittee (Improving the efficiency of BtoB payment procedure)

- Use real transaction data between retailers and wholesalers to leverage digital currency for intercompany settlements linked to existing systems
- Automatic execution of daily settlement by digital currency after receipt of the product (payment each time)



Challenges

- Manual payment procedures due to the different mechanisms of business flow and the cash flow
- Long fund transfer cycle

PoC results

- ① Confirmed the unmanned operation and labor-saving effect in payment operations
- ② Payments from the retailer to the wholesaler that used to take 30 to 120 days were completed in 1 working day
- ③ Perspectives ① and ② are feasible using existing technologies and digital currencies

Participating companies

Seven Bank (Seven & i Holdings) (Secretariat), Aeon Financial Service, Hitachi, TSURUHA HOLDINGS, Kao Group Customer Marketing, INTEC, Mizuho Bank, MUFG Bank, etc.

(Source: Press release of May 31, 2022 "Starting PoC using digital currency in the distribution supply chain")



Appendix 3

Previous report



デジタル通貨フォーラム世界観

2021

Progress Report of the Digital Currency Forum

https://www.decurret-dcp.com/assets/forum_20211124pr_en.pdf

Digital Currency DCJPY (tentative name) White Paper

https://www.decurret-dcp.com/assets/forum_20211124wp_en.pdf

2022

“Regional currency Subcommittee” (Interim Report) -The Potential of Digital Regional currencies-

https://www.decurret-dcp.com/assets/chiiki_report202202.pdf

2023

NFT Subcommittee Review Report - Discussion on the Usefulness of DCJPY in NFT Trading and Exploration of Realization Methods -

https://www.decurret-dcp.com/assets/NFT_report202302.pdf

Progress Report of the Digital Currency Forum No.2

https://www.decurret-dcp.com/assets/forum_20230131pr_en.pdf