

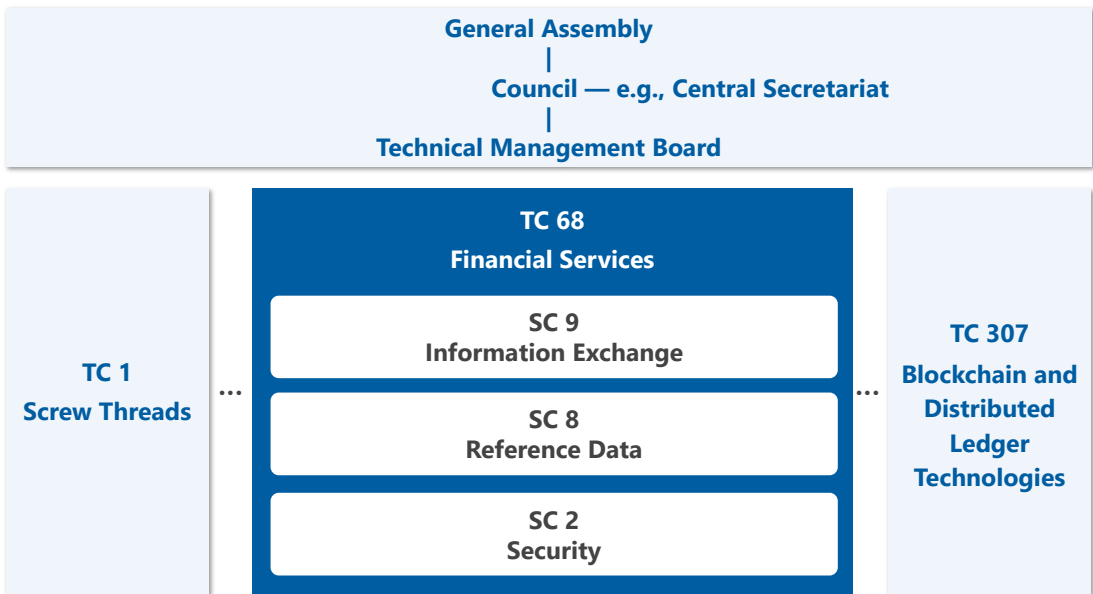
V. Standardization in Financial Services

A. Areas of Standardization in Financial Services

Standardization is the process of reducing the diversity of, simplifying, and bringing order to matters that would otherwise become disparate, complex, and disordered if left in a state of freedom. Starting with the obvious, such as weights and measurements, everything -- from the shoes we wear to the Wi-Fi networks that invisibly connect us -- has been standardized over the course of history. The International Organization for Standardization (ISO), of which Japan has been a member since 1952, is a non-governmental organization established in 1947 for such purposes as supporting the exchange of products and services between nations and promoting the development of standardization activities.

Published international standards broadly cover the safety, reliability, and quality of goods and services, production methods, organizational management, and more. Financial services are no exception: ISO currently has 349 technical committees, and of these, ISO/TC 68 (International Organization for Standardization, Technical Committee on Financial Services), established in 1972, is listed 68th in order of establishment. From the perspective of improving financial services, TC 68 is currently proceeding with standardization in three areas: information exchange, reference data, and security (Figure 37).

Figure 37. Organizational structure of ISO



B. Standardization Activities in Financial Services in Japan

Membership of ISO is limited to one organization per country. As Japan's representative, the Japanese Industrial Standards Committee (JISC), a council of the Ministry of Economy, Trade and Industry (METI), has acted as the national standardization body of ISO and has been a member of TC 68 since 1983. Its national deliberative body (secretariat) is the Bank of Japan's Payment and Settlement Systems Department, which has been entrusted with this role by JISC since July 2020. Prior to this, the role was assumed by other bodies including the Bank of Japan's Institute for Monetary and Economic Studies.

The ISO/TC 68 National Committee, the meeting body of the national deliberative body, consists of experts from the financial sector, finance-related industries, central bureaus, and academia, as well as liaisons and observers. It also comprises a chairperson and the head of the secretariat. The organizational structure of the committee is aligned as much as possible with the international deliberation structure of TC 68. It is a framework under which TC 68 national committee members (international experts and domestic members) confer with one another and exercise their expertise in developing international standards. As the secretariat, the Bank of Japan's Payment and Settlement Systems Department compiles comments, regarding which it consults the committee, and conveys Japan's comments through international votes based on the deliberation results.

Taking into account the insights gained through such standardization activities, the national committee is also tasked with the crucial role of making contributions, through international ballots, to important decision-making related to the standardization of financial services. In fiscal 2023, there were 52 international ballots in ISO/TC 68 and its subcommittees.¹

¹ In addition to commenting on draft standards that have already become projects, for example, Japan has commented on whether to start formulating a new international standard or to revise an existing one, as well as on associated tasks such as organizational changes and the selection of a project leader.

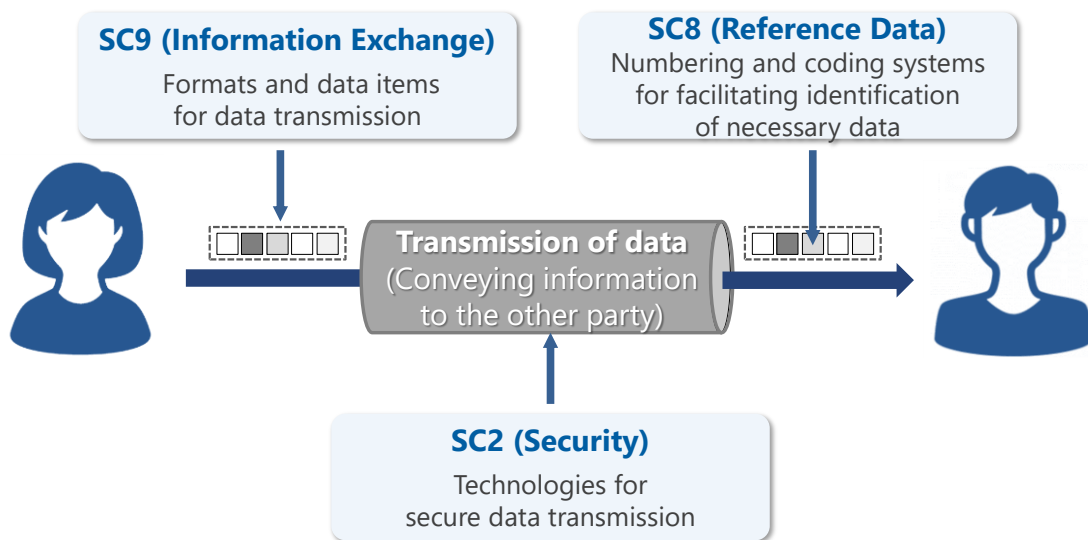
C. Importance of the Three Areas of Standardization

We engage in daily economic activities through the exchange of goods and services for remuneration. Shopping at retail stores or international trade transactions involving products and raw materials represent exchanges of goods for remuneration, while working for compensation or staying at a hotel and paying for accommodation represent exchanges of services for remuneration. Financial services are inextricably linked to all economic activities through the transfer of value, in other words, the transfer or lending of, for example, funds (cash and deposits) and securities such as stocks and bonds.

In cross-border commercial transactions, it is important to ensure interoperability and reliability through the international standardization and utilization of relevant information technology in the payment systems of different countries.² As a result of many years of discussions in ISO/TC 68, standardization areas for this purpose have converged on (1) formats and data items for data transmission (Information Exchange Subcommittee), (2) numbering and coding systems to facilitate identification of necessary data (Reference Data Subcommittee), and (3) technologies for secure data transmission (Security Subcommittee). The subcommittees have standardized the constituent technologies necessary for the smooth and secure exchange of information between systems that provide financial services (Figure 38).

² Standardization efforts for a country as a whole are referred to as national standards, and one representative set of such standards in Japan is the Japanese Industrial Standards (JIS). The JIS standards are also required by the Agreement on Technical Barriers to Trade, which came into effect in 1995, to conform to standards published by ISO and the International Electrotechnical Commission (IEC) (although modifications due to regional characteristics and business practices are permitted). Thus, given the nature of international standards, i.e., having a strong influence on national standards, their scope of standardization covers fundamental technologies that support interoperability from one end of the world to the other. In other words, technologies required only by a single country are not eligible for standardization. (In the case of ISO/TC 68, only when five or more countries participate in the development process are efforts approved as international standard development projects).

Figure 38. Three standardization areas of ISO/TC 68



1. International standards for information exchange

Since financial transactions require a large volume of information to be handled for the exchange of funds and securities, it is essential to standardize the data format and other items to ensure that information is transmitted accurately and smoothly. In addition, standardizing information on senders and receivers of funds and making the information easier to use will also help prevent fraudulent money transfers, such as money laundering and remittance fraud.

Subcommittee 9 (Information Exchange for Financial Services) oversees 35 international standards that contribute to facilitating the exchange of information between systems used in financial services.

A classic example is the ISO 20022 series entitled "Financial Services -- Universal Financial Industry Message Scheme" (the collective name for eight international standards that form a comprehensive framework), an ISO standard series that specifies rules and procedures for message formats used in the transmission of

information related to financial transactions.³ Major payment systems around the world have been introducing message formats compliant with ISO 20022. The Society for Worldwide Interbank Financial Telecommunication (Swift), the communication network used for cross-border payments between banks, has entered a transition period (from March 2023 to November 2025), during which the message formats used for cross-border payments are scheduled to migrate to ISO 20022.⁴ If the use of ISO 20022 spreads further and messages used in payment systems and financial institutions across the globe are standardized to ISO 20022, the new system is expected to reduce business risks and streamline processing, leading to improved efficiency in financial transactions and cross-border payments.

2. International standards for reference data

When transmitting information on financial transactions, a numbering and coding system is indispensable for enabling the identification of necessary information. To support this, Subcommittee 8 (Reference Data for Financial Services) oversees 21 relevant international standards.

These numbering and coding systems are called "identifiers" and include ISO 9362 (Business Identifier Code: BIC), which is used mainly for identifying financial institutions, ISO 17442 (Legal Entity Identifier: LEI), which is used mainly for

³ With the progress in online processing of financial services, standardization of message formats has advanced in various fields. Traditionally, field-specific standards were mainstream, such as ISO 8583 for credit card transactions, which involves messages exchanged between merchant terminals and card-issuing institutions, and ISO 15022 for securities delivery, which stipulates rules for the creation of data fields and definitions for securities messages, for example. However, in 2004, a universal financial industry message standard, ISO 20022, was published, and since then the development of international standards for message formats in the financial industry have come to be generally considered under the framework of ISO 20022.

⁴ Meanwhile, various efforts are underway in High Value Payments Systems Plus (HVPS+), a global forum for operators of major high-value payments systems (HVPSs) across the globe, including central banks' RTGS systems. These include putting together a guideline for utilizing ISO 20022 message elements in HVPSs, in which the Bank of Japan is participating. For details, see the HVPS+ website (<https://www.swift.com/ja/node/309447>).

identifying legal entities (corporations and funds participating in financial transactions) for the purpose of reporting over-the-counter (OTC) derivatives transactions, and other international standards such as those for currencies, bank account numbers, transactions, and securities.⁵

3. International standards for security

To ensure the reliability of financial services, it is important to maintain a high level of security for these services as a whole, including the linking of individual systems in transmitting information, on the assumption that the security requirements of the individual systems are met.⁶ Since financial transactions involve the transfer of value, such as the settlement of funds and the delivery of securities, conducting such transactions in a secure manner requires information to be stored and managed securely in individual systems on a regular basis, and vulnerabilities at customer contact points (e.g., via ATMs and smartphones) and communication lines to be minimized. To support this, Subcommittee 2 (Financial Services, Security) oversees 19 relevant international standards.

ISO 9564 (Personal Identification Number: PIN) is utilized for managing PINs, which are used for identification at bank ATMs, for example. Recently, in response to the spread of various devices and the development of constituent technologies, international standards such as those for online Know Your Customer (KYC) processes using smartphones (ISO 5158, eKYC) and security technologies for blockchains and distributed ledger technology (DLT) (ISO/TR 24374, Public Key Infrastructure) have been published.

⁵ Specifically, these refer to ISO 4217 (Codes for the representation of currencies), ISO 13616 (International bank account number: IBAN), ISO 23897 (Unique transaction identifier: UTI), ISO 6166 (International securities identification number: ISIN), etc.

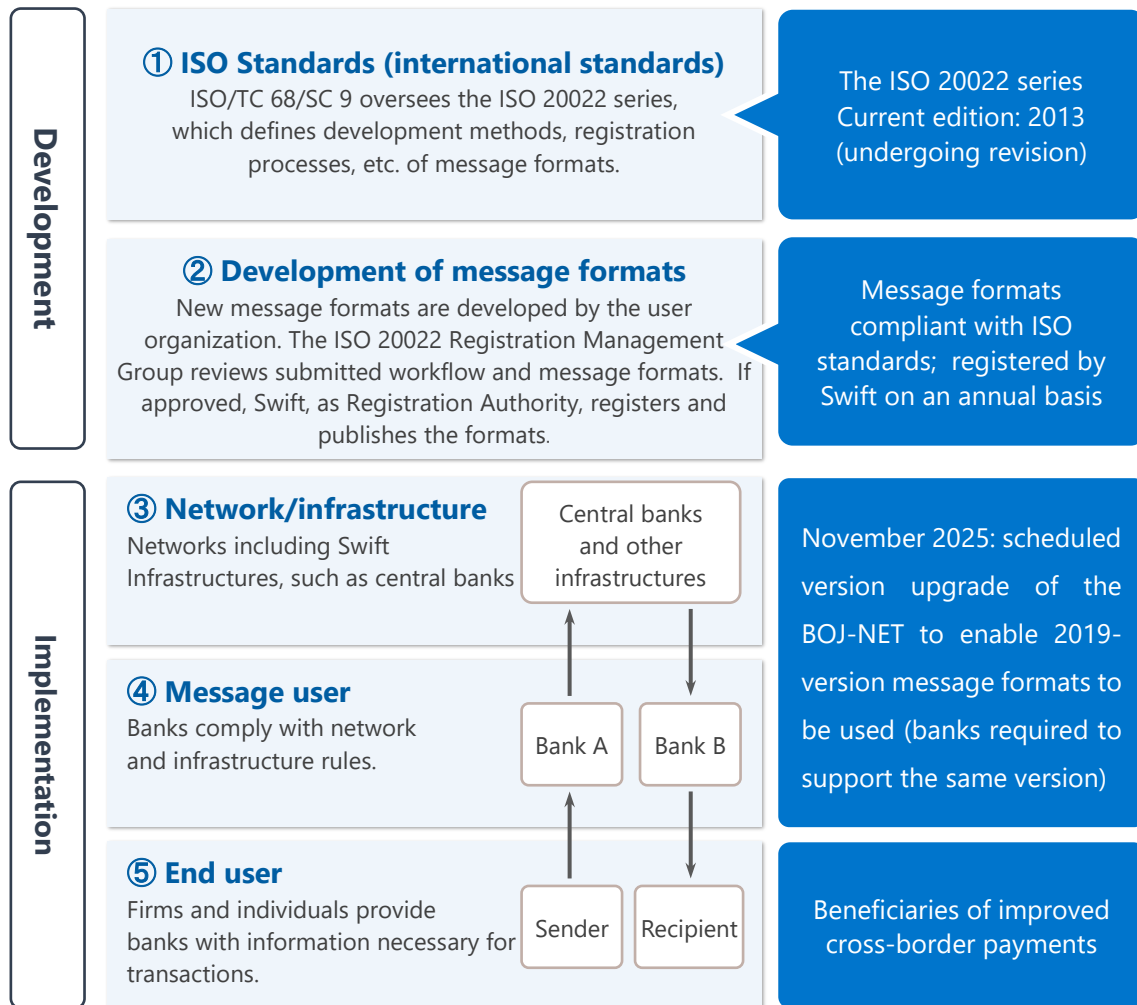
⁶ ISO/IEC JTC 1/SC 27, a subcommittee under a joint technical committee in liaison with ISO/TC 68, oversees standards for information security. ISO/TC 68 is responsible for standards that specify security related to system management requirements for financial services (PIN management, KYC, biometrics in financial services, QR code security, etc.), while referring to more versatile standards for general information security.

D. Efforts toward Standardization and the Role of the Bank

The importance of standardization has recently been the focus of attention in various international discussions attended by central banks. As experiments are being conducted worldwide on payment platforms using DLT and other novel technologies, there is a growing awareness of the need to consider international standardization in advance to ensure the interoperability of payment systems. The spread of ISO 20022, a message format compliant with ISO 20022, standards under ISO/TC 68/SC 9, is considered key to achieving the G20 goal of improving cross-border payments. The standardization of payment information around the globe is expected to help improve the speed, cost, and transparency of cross-border payments by organically linking the data processing of various systems.

While international standardization brings great benefits, it takes a considerable amount of time for a standard to spread from one end of the world to the other and become an international standard in a true sense. Steady efforts are thus required for the diffusion of a standard and ultimately for it to achieve a global network effect (Figure 39). In that sense, international standardization efforts, taking into account the development period of the standard itself, are forward-looking work that will help shape the future in five to ten years' time, and are also vital work that requires intellectual rigor to withstand challenges that may arise in the process of diffusion.

Figure 39. A stylized overview of international standards permeating our everyday lives: The case of cross-border payments



In terms of shaping the future, a project launched in 2023 to establish a new part, Part 9, for ISO 20022,⁷ can be said to be highly future-oriented: It places importance on the versatility to respond to both recent trends, such as API connections between systems, and future trends yet to be seen. In the area of digital currencies, which is closely related to the work of central banks, TC 68/AG 5 (Digital Currencies Advisory Group) has taken charge of formulating and supporting standardization policies, examining the applicability of existing TC 68 standards to digital currencies, and recommending standard development projects when existing standards are insufficient. Through such discussions, it was decided to develop an international vocabulary standard for digital currencies in 2024. In addition, TC 68/AG 6 (Artificial Intelligence [AI] Advisory Group), which was launched in 2023 and has begun full-scale activities in 2024, is also expected to discuss the need for standardization to support the use of generative AI and other technologies in the financial industry.

As mentioned above, at the Bank of Japan, the Payment and Settlement Systems Department serves as the TC 68 national committee secretariat. In order for Japan to contribute to various standardization activities in financial services with an eye to the future, the secretariat encourages the participation of experts in ISO international discussions on their respective fields of expertise. As financial services continue to diversify and new standardization needs arise, it is important to encourage as many experts as possible to take part in the activities of the national committee and to expand the base of participants in standardization activities. The Bank will continue with its efforts to disseminate relevant information by holding ISO panels to introduce and discuss trends in standardization in financial services, as well as through publishing papers and other written contributions in this area.

The ISO philosophy is that the world should work together to realize a better society through mutual sharing of advanced technologies. Based on this philosophy, it is

⁷ This project defines "meta-rules" at a higher level of abstraction to define "message generation rules for specific syntaxes" such as those for the other constituents of ISO 20022 (Part 4: XML, Part 8: ASN.1). Part 9 adopts an approach that allows message generation rules to be defined not only for JSON, which is often used for API connection, but also for various other syntaxes that may emerge in the future. This is expected to accelerate the incorporation of new technologies into ISO 20022.

hoped that if large numbers of experts in Japan make international contributions, this would naturally create more opportunities for Japan to incorporate the world's sophisticated technologies and expand openings for perspectives unique to Japan to be reflected in international standards. Standardization activities are not only the foundation for the advancement of financial services, such as funds and securities settlements, but also a platform for constructive competition on the technical front. The continuous participation of Japanese experts in standardization activities, and their regular efforts to maximize their expertise from a technical standpoint, while being conscious of whether the technology is desirable for Japan and the rest of the world, will ultimately lead to the realization of the ISO philosophy and a society that enables people to utilize financial services more safely and conveniently.