



## Information Paper

### ISO 20022 Implementation Strategies

Introduction	3
Putting the community at the centre	4
Green-field versus migration	4
Many-to-MI versus Many-MI-Many	5
Generic best practice and risk mitigation	5
Implementation approaches	6
Phased versus big bang	6
Phased implementation	6
Big bang	8
Hybrid approaches	8
Standards maintenance	8
'Like-for-like' - benefits and pitfalls	8
ISO 20022 harmonization	9
Conclusions and recommendations	9
Appendix A - Case studies	11
Appendix B - Introduction to ISO 20022	28

Over the last 10 years, ISO 20022<sup>1</sup> has emerged as the key global standard for new or modernized financial market infrastructures (FMIs). There are various drivers for these initiatives:

- Compliance with regulation that mandates ISO 20022;
- Renewal of legacy technology;
- Provision of new infrastructures to improve market efficiency;
- Regional integration or internationalisation of domestic services;
- Harmonisation of legacy domestic standards;
- Enabling and encouraging new entrants in existing markets or schemes;
- Provision of new services in answer to new business needs;
- Realisation of efficient end-to-end business processes.

Although each case is different, ISO 20022 is typically chosen for a combination of the following reasons:

- An open standard, not controlled by a single commercial interest;
- Covers all financial industry business domains;
- Supports useful features, such as non-Latin characters or, for payments, Extended Remittance Information (ERI);
- Easy to integrate with modern computing platforms;
- Facilitates interoperability with other ISO 20022 FMIs;
- Enables re-use of existing industry investments in ISO 20022 infrastructure;
- 'Future-proof', as it can adapt to new technologies as they emerge.

At the time of writing (Q2 2017), several important industry FMIs have successfully migrated to or implemented ISO 20022 and others have declared implementation timelines for the years ahead, many in the period 2020 to 2022. The purpose of this paper is to gather in one place some of the experience gained by the industry implementing these initiatives; to understand what worked well; what perhaps worked less well, and to distil some high level best practice advice for the benefit of those still to make the change.

This material is illustrated and reinforced by a series of implementation case-studies from around the world. (See Appendix A.)

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<sup>1</sup> See Appendix B for an introduction to ISO 20022

## Putting the community at the centre

As noted above, there is a variety of different drivers that might prompt an FMI to adopt ISO 20022. In planning an implementation, it is important from the outset to be clear about which of these are the most important for the initiative, because this will influence many later implementation decisions. For example, if the motivation is to provide a competitive level playing-field for new participants, this will lead to an approach that emphasizes ease of access and implementation over extensive new functionality. Equally, if the purpose is to respond to competitive pressure by delivering or enabling new added-value capabilities, an approach that focuses on new functionality and easy extensibility will be preferred.

In any case, implementation of ISO 20022 by an FMI needs to be planned as a community effort. Decisions about the style, speed and scope of a project must consider the widest set of stakeholders: direct participants, but also indirect participants (institutions that access the FMI via a third party), regulators, vendors, service providers and consultants. Effective two-way communication and dialogue are critically important. Even where there is a strong overall business case, it is important to understand that the benefits of implementation may not be felt equally by all participants although all will likely bear some part of the cost. Campaigns need to set out a broad and compelling vision but also address the narrower concerns that might impact particular segments. Planners should also take the time to understand the practical implementation needs of the various different types of stakeholders in their communities and ensure that the deliverables of the project include the documentation, tools and other artefacts they will need to implement the standard correctly, on time, and at acceptable cost.

It should also be recognized that participants in an FMI's community will in many cases also interact with other similar FMIs. It is therefore important that FMIs work with their domestic and international peers to ensure that, as far as possible, a harmonized approach is taken to the implementation of ISO 20022.

## Green-field versus migration

A common distinction between projects that informs much of the planning is between green-field implementations and migrations, where *green-field* refers to entirely new FMIs, or existing FMIs expanding in a new area, and *migration* to situations in which existing FMIs and their communities switch from a legacy standard to ISO 20022.

In practice, this distinction is rarely as clear-cut as it may first appear. An entirely new system, such as an instant payments solution, rarely emerges in a vacuum. In this case, even though the service is new, transaction types that use older services, such as ACH, will still need to be migrated. Equally, when an FMI undergoes a major refresh it is often an opportunity for the operator to introduce new participants with no experience of the older system and no implementation to update. It is also common to introduce new capabilities for which there is no legacy equivalent, and will therefore be new for all participants. Overall, this means there may be useful techniques and experience gained in migration projects that are relevant to green-field and vice versa.

## Many-to-MI versus Many-MI-Many

Another consideration that dictates migration choices is whether the proposed ISO 20022 message flows are solely between individual institutions and the market infrastructure (Many-to-MI), or more than one participant, in addition to the FMI, is involved in each transaction (Many-MI-Many). In Many-to-MI scenarios, such as TARGET2-Securities interoperability between participants is less of a concern than for Many-MI-Many, such as a Real-Time Gross Settlement System (RTGS), where participants will have to interact with one another, as well as with the central service to complete a payment transaction.

## Generic best practice and risk mitigation

There are several approaches to implementing ISO 20022 in a community that will be covered in the sections that follow, but whatever the approach there are a number of basic recommendations that always apply:

- Involve participants from the very start of the project (migration strategy, preparation of specifications, etc.);
- Set clear goals, milestones and timelines for the community and communicate them, and the progress made towards them, broadly and regularly;
- Provide detailed and accurate business and technical specifications with a well-governed release cycle;
- Facilitate community testing – provide test services to allow participants to test against the central FMI implementation (or a simulation of it), and with their peers;
- Consider providing (or encourage the market to provide) 'connector' products: solutions that can be implemented by participants to ensure adherence to the standards and business rules of the service – ideally accessible to all participants in terms of both price and technology;
- Provide tools to ease the transition for participants, e.g. local or central translation; storage of overflow data;
- Where local translation (i.e. implemented by the participants) is proposed, publish standard translation rules to ensure all participants translate in the same way.

## Phased versus big bang

In practice, the vast majority of ISO 20022 implementations have been phased in some way. The alternative 'big bang' approach – where all participants go live at once for all functionalities - may in some circumstances be necessary. However, big bang depends on the FMI and all its participants being ready on the day with compatible implementations, which brings a number of challenges.

Phasing can take several forms. In some cases, all participants go live together but only for a subset of transaction types; the phases being the incremental addition of new transaction types, moving away from a legacy platform. Alternatively, phasing can be achieved by introducing batches or 'waves' of participants one at a time until the whole community is migrated. Often both are used in a single initiative, for example a wave-by-wave take-on of the community followed by incremental implementation of new instruments or transaction types.

Some projects combine the phased with the big bang approach.

## Phased implementation

### Many-MI-Many

In Many-MI-Many migrations, a phased approach brings the added complexity that participants need the ability to transact with one another during the transition in cases where one has migrated to ISO 20022 and the other has not.

One approach is described in Case Study 1 (SIX Interbank Clearing). This is a migration from a local domestic standard to a richer ISO 20022 format. In this case, migration is phased by institution. The central FMI provides two migration services: translation between legacy and ISO 20022, and a repository in which legacy format users can look up data lost in the transformation from rich ISO 20022 to legacy. It works like this: at the beginning, all banks use the legacy format. When each bank's migration slot comes up, it is required to send and receive ISO 20022, and can immediately start to use the additional features of the standard. Messages from un-migrated banks are converted centrally to ISO 20022 before receipt. Messages sent to un-migrated banks in ISO 20022 are converted to legacy format before delivery. In case this results in data truncation or loss, the original ISO 20022 message data is stored by the FMI or a messaging service, and a 'truncation flag' in the legacy format alerts the receiver that more payments data is available in the central system. Once the final bank has migrated, and all participants are exchanging ISO 20022, the central translation and data storage services are decommissioned.

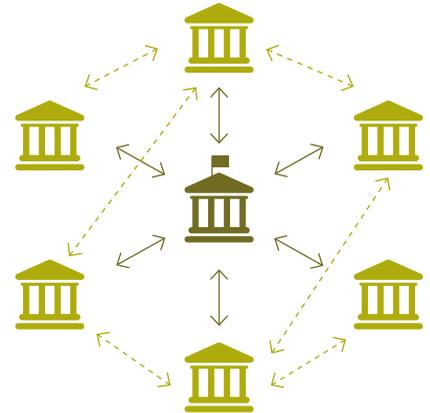


Figure 1: Many-MI-Many

Another approach to phasing a Many-MI-Many migration is to require all banks to be able to receive ISO 20022 but introduce sending of ISO 20022 in phases. There is no obligation initially to send ISO 20022, but all participants are required to switch to sending ISO 20022 before the end of the transition. During the transition, ISO 20022 content is limited to ensure backward compatibility with the legacy format it replaces ('like-for-like'), but the moment the migration is over, participants are free to use a fuller version of ISO 20022 with new features enabled. The length of the transition period, and the ultimate requirement that all participants be able to receive and send ISO 20022 is communicated continually before and during the transition, and the migration of individual users to sending status is monitored and managed. SEPA (Case Study 6) is a variation of this approach.

These proposals successfully address issues uncovered in earlier migrations in some markets. In one example, central translation was implemented to ease the transition, imposing a 'like-for-like' ISO 20022 implementation on users. The long-term plan was to offer translation services as a temporary measure while participants upgraded to 'native' ISO 20022, then switch translation off. However, no formal end-date was announced for the translation service, and no clear roadmap setting out the benefits and specifications of a native ISO 20022 implementation was communicated. Because like-for-like ISO 20022 offered few business benefits, and central translation obviated the need for any development, most banks continued to use the legacy format, and the migration stalled.

### Many-to-MI

Many-to-MI implementations are in principle more straightforward than Many-MI-Many because interoperability between participants is less of a challenge. The focus for the FMI is on on-boarding its community with as little risk as possible. A phased approach allows on-boarding to be controlled and any operational issues with the new system to be addressed while volumes are low. TARGET2-Securities is a new infrastructure in Europe, so a green-field implementation. The approach followed by T2S was an implementation in waves, starting with lower-volume participants, and building up to the largest in later waves. This allowed the operators to gain experience with the new system and identify and address processing and operational concerns before having to contend with high volumes.

### How long should a phased implementation take?

Although phased implementations aim to reduce risk, they can introduce risks of their own if they take too long. It is difficult to add new capabilities to a system while a migration is on-going; maintaining technical co-existence measures during a migration introduces cost and operational risk; and there is also the danger of simply losing community momentum. So although all projects will vary, the clear recommendation is to make phased migration periods *as short as possible* while still consistent with the goal of implementation risk reduction.

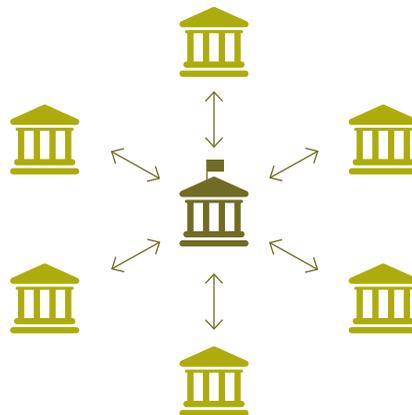


Figure 2: Many-to-MI

## Big bang

### Many-MI-Many

Big bang migration may be required in a Many-MI-Many scenario if all participants need to interoperate, and the FMI wants to move directly to an ISO 20022 implementation that functionally exceeds the legacy standard it replaces. It can also be imposed by a regulation. Because it requires the FMI and all participants to be ready on the same day, this approach introduces more operational risk than a phased implementation. However, it does have the advantage that elaborate and costly co-existence measures like central translation and storage of overflow data are not required. The Eurosystem's Target high-value payments system is expected to follow a big bang migration.

The inherent risks of big bang can be mitigated by introducing a strong readiness testing regime and certification programme, mandatory training, and by practicing implementation through dry-runs and exercises. Nevertheless, operators should plan for high levels of exceptions and investigations in the early days of operation, and ideally have in place contingency plans to fall-back to the legacy system in case of a major failure.

## Hybrid approaches

The US Federal Reserve (Case Study 2) originally proposed a phased implementation similar to SEPA, but now plans a hybrid approach, in which the initial migration is phased but new features are introduced big bang. In the first phase of the project, participants join in waves, where within the wave it is mandatory to send and receive ISO 20022. During this period functionality is restricted to like-for-like. Once all users are migrated, phase 2 begins (big bang) where all banks are expected to be able to receive enhanced ISO 20022 messaging, and may also opt to send.

## Standards maintenance

It is important to maintain the consistency and stability of a new service during an extended phased implementation. Many FMIs therefore opt to 'freeze' the version of ISO 20022 messages they deploy until all participants are on board. However, communities should be forewarned that a 'catch-up' release will be required once all participants are live, and this may represent a significant upgrade, skipping several previous message versions.

In general, SWIFT recommends FMIs implement regular standards upgrades once fully live (see [process](#)), ideally aligned with the SWIFT MT standards release [process](#). There are clear community benefits to this approach, particularly for global banks that would otherwise have to manage multiple versions of the same standard with multiple unsynchronized upgrade cycles.

## 'Like-for-like' - benefits and pitfalls

As discussed above and in some of the case studies, 'like-for-like' refers to an implementation approach that implements a subset of ISO 20022 that is limited to the same functionality as the standard it replaces. This approach enables users or a central infrastructure to translate without loss between ISO 20022 and legacy, and this can be very helpful to ease the transition from one standard to another. Creating like-for-like specifications can also be useful to check that important use cases are not forgotten and that the full functionality of the legacy system is supported by ISO 20022.

However, like-for-like does have some serious pitfalls. One potential problem is that making a community business case for ISO 20022 can be difficult, if not impossible, if only like-for-like is discussed, because participants cannot foresee the business value ISO 20022 will bring. A second is that if a large part of the community is relying on like-for-like translation post-migration, introducing new ISO 20022 features can be a challenge. Effectively it requires a second migration, from like-for-like to 'native' ISO 20022. This is not to dismiss the like-for-like approach. There may be circumstances in which it is valid, for example if the principal objective of the ISO 20022 project is to achieve a technology migration, or to make it easier for new entrants to enter a market by providing an open standard interface. But if the aim is to introduce significant new functionality using ISO 20022, like-for-like should be handled with care.

SWIFT Standards has written extensively in the past about the dangers of fragmentation of the ISO 20022 standard, and the need to combat this tendency by insisting on information sharing, creation and adoption of global market practice and regular upgrade cycles for FMIs (see ISO 20022 Harmonization Charter). SWIFT continues to pursue its FMI harmonization initiative, which is focussed principally on cross-border harmonization. However, implementers should also consider harmonization in domestic markets, particularly if, as has been seen in countries like Switzerland and the UK, there is coordinated convergence of legacy domestic platforms onto ISO 20022 as a common standard.

## **Conclusions and recommendations**

There are many ways for an FMI to implement ISO 20022, and the best way will always depend on multiple factors: the size and maturity of the community, the nature of the service, the regulatory environment, and the business objective of the implementation. This paper is an attempt to bring some structure to these factors and to provide some commentary on the pros and cons of different approaches. The key recommendation that emerges every time is the need to communicate, starting with a clear vision of the initiative, its business drivers and advantages, and continuing through all stages of the project to keep stakeholders informed and on-side.

SWIFT Standards has played a key supporting role in many of the initiatives described in this paper, and more generally in the development and deployment of ISO 20022. If you would like to comment on this paper or talk to SWIFT about ISO 20022 implementation, please contact **[stephen.lindsay@swift.com](mailto:stephen.lindsay@swift.com)**.

## Appendix A

### Case studies

ISO 20022  
Implementation Strategies

Case study 1 - SIX Interbank Clearing	12
Case study 2 - Fedwire® Funds Service	14
Case study 3 - Euroclear	18
Case study 4 - Australian Securities Exchange	20
Case study 5 - The Clearing House	22
Case study 6 - SEPA	24
Case study 7 - CLS	26

# SIX Interbank Clearing

## Project scope

**Applicable business domain(s) (high-value payments, low-value payments, real-time payments, securities, foreign exchange, other):** The Swiss RTGS platform processes all kinds of real-time payments in Swiss francs (SIC) and euro (euroSIC) (high-value and low-value payments; interbank-, customer-to-bank- and third-party-system-payments).

**Is this green-field (new FMI in a new business area) or migration? Were there any particular circumstances for the project?:** The Swiss RTGS platform was replaced and functionally enlarged in 2016 as the former one reached the end of life cycle. All payments are now being processed using the ISO 20022 standard. The migration of the participating banks and third party systems will be finished by November 2017 (from proprietary Swiss payments standards) and by November 2018 from SWIFT FIN (less than 1% of Swiss franc transactions), respectively.

**Number of participants (direct and indirect):** Numbers of direct participants: SIC = 338 euroSIC = 182.

**Expected volumes (messages or transactions):** Numbers of transactions per 2016: SIC = 450 million; euroSIC = 8 million.

**Complexity (number of message types, number of flows, number of different participant types):** 20 message types including customer payments, bank payments and third party systems payments and special payments messages for the system manager (Swiss National Bank).

**Expected migration date:** euroSIC already life since April 2015, SIC already life since April 2016.

## Criteria for implementation approach

**Which of the following adoption drivers are relevant for your adoption?**

- **Regulatory context:** Fulfilment of FATF, etc.
- **Local (domestic) and global alignment/dependencies:** Harmonization of all Swiss payments as a strategic decision of the Swiss financial center; supporting SEPA; prepared for supporting standardized high-value payments.
- **Desired end-state and main strategic goals to be achieved (system renewal, international standards, regional/local/global initiatives, interoperability, richer data, new services, other):** All criteria have been relevant and are fulfilled with the new RTGS platform: systems renewal, international standards, regional/local/global initiatives, interoperability, richer data, new services.
- **Operational impact (back-office readiness, implementation cost, implementation timeline, business impact, operational risk, solution readiness, other):** After end-to-end implementation of ISO 20022 in Switzerland we expect lower production costs for all participants and improvement of time-to-market for new services.

## Chosen implementation approach

**Like-for-like (as an initial intermediary step? – for how long? ) or enhanced ISO 20022 message capabilities deployed:** Enhanced ISO 20022 for all messages.

**Big bang (all participants at the same time) or phased with gradual transition (coexistence):** The Swiss community decided to migrate on a gradual transition approach with dedicated migration windows for the participants with a given end date (see above).

**Format translation used (central, at end-points, none):** Central translation of three standards until the given end date.

**Single or multi-network solution:** SWIFT network and proprietary access solution.

### Tools and guidelines applied

- **Harmonisation Charter, (global) market practice:** Development of Swiss market practices by bank working groups managed and published by SIX Interbank Clearing as Implementation Guidelines, XML-Schemas and examples .
- **Converter or other tools (MyStandards or similar tool):** Portal to validate ISO 20022 messages.
- **Testing infrastructure and processes:** Testing infrastructure and test cases for participating banks and software providers.

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## Community involvement and 'change management'

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**Please describe any actions you have carried out relative to your adoption project. Do you have plans in place for ongoing activities?**

- **Communications with community:** Working groups, events/workshops for banks and software providers, central contact point for individual support, brochures, media conferences and public websites (e.g. [www.paymentstandards.ch/en/home.html](http://www.paymentstandards.ch/en/home.html)).
- **Community consultation process:** Working groups (see above).
- **Community 'buy-in', alignment and support:** Communication with all affected stakeholders (see above).
- **Community 'change management' process:** N/A

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## Lessons learned

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**What worked well, what did not?:** Very well: Strong project focus when it came to replace the existing RTGS platform; successful involvement of the swiss banks.

**Things you would do differently:** N/A

**Recommendations to others who still have to implement:** Start to communicate as early as possible; involve all affected stakeholders; a strong commitment by the decision makers (Board of directors of SIX Interbank Clearing) is substantial.

# Fedwire® Funds Service

## Project scope

**Applicable business domain(s) (high-value payments, low-value payments, real-time payments, securities, foreign exchange, other):** The Federal Reserve Banks will implement ISO 20022 messages for the Fedwire® Funds Service, which is the central bank's high-value real-time gross settlement system in the United States. The implementation will cover both domestic and cross-border funds transfers, as well as all inputs and outputs from the Fedwire Funds Service (i.e., all message types, inquiries, reports, etc.). The Fedwire Funds Service's ISO 20022 implementation is also expected to include enhancements based on customer feedback, including new fields for additional persons identified in payment messages, purpose codes to help explain the business purpose of funds transfers, and structured address components, including a country code.

**Is this green-field (new FMI in a new business area) or migration? Were there any particular circumstances for the project? This is a migration.** The Federal Reserve Banks are adopting the ISO 20022 messages for the Fedwire Funds Service as a strategic imperative. We believe modernizing the message formats for the Fedwire Funds Service represents an investment for the future. Adopting the ISO 20022 message formats should help the Federal Reserve Banks meet increasing demands by participants for richer data, help participants more easily comply with evolving regulatory requirements, help improve the service's interoperability with other payment systems given the interconnected, global economy, and help participants provide enhanced services to their clients.

**Number of participants (direct and indirect):** The Fedwire Funds Service has about 5,300 direct participants that send Fedwire funds transfers for their own purposes or on behalf of their customers (i.e., indirect participants). The Federal Reserve Banks do not maintain information about the number of indirect participants.

**Expected volumes (messages or transactions):** On an average business day in 2016, the Fedwire Funds Service processed about 590,209 funds transfers valued at \$3 trillion. These figures do not include nonvalue messages.

**Complexity (number of messages types, number of flows, number of different participant types):** The Federal Reserve Banks plan to implement the following 13 ISO 20022 messages for the Fedwire Funds Service:

- head.001
- pacs.002
- pacs.004
- pacs.008
- pacs.009
- pain.001
- camt.035
- camt.052
- camt.056
- camt.060
- admi.002
- admi.004
- admi.006

For some of these messages, the Federal Reserve Banks will need to create multiple usage guidelines for specific business purposes, resulting in 24 usage guidelines in total. For example, for the camt.052 message, there will be six different usage guidelines representing various Fedwire Funds Service reports.

**Expected migration date:** To prepare for and simplify the ISO 20022 implementation, the Federal Reserve Banks will implement changes to the legacy format for the Fedwire Funds Service in November 2020; the November 2020 legacy format software release will also include changes to the align with the format changes to the SWIFT ordering customer and beneficiary fields in SWIFT's MT format, which will be effective in November 2020. The Federal Reserve Banks will announce the dates for the ISO 20022 implementation phases for the Fedwire Funds Service after detailed planning has been completed.

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## Criteria for implementation approach

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The Federal Reserve Banks determined the ISO 20022 implementation approach for the Fedwire Funds Service based on the following factors:

- The end-state of the ISO 20022 implementation should include optional enhancements.
- The implementation approach should limit operational risk to the Federal Reserve Banks and Fedwire Funds Service participants.
- While a “big bang” approach for the entire industry is too risky given the number of direct Fedwire Funds Service participants (over 5,300), the implementation approach should allow individual Fedwire participants to cut over to sending and receiving ISO 20022 messages at the same time.
- The implementation timeline should provide sufficient lead time for participants and their software vendors to make necessary changes and to test those changes in the Federal Reserve Banks’ test environment.
- The implementation approach should include a mandated sunset date for the legacy format.

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## Chosen implementation approach

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The Federal Reserve Banks have finalized the following phased implementation approach and are currently evaluating the timeline for implementation; the timeline is expected to be announced once detailed planning has been completed.

### Phase 1 (Legacy format ISO preparation)

In November 2020, the Federal Reserve Banks will make changes to the legacy format for the Fedwire Funds Service to prepare for and simplify the ISO 20022 implementation by “cleaning up” the legacy format (e.g., by removing obsolete fields). This legacy format software release will also include changes to the Fedwire Funds Service’s originator and beneficiary fields to align with changes that SWIFT is making in November 2020 to comparable fields in the SWIFT MT format.

### Phase 2 (ISO “like for like”)

The Federal Reserve Banks will migrate Fedwire Funds Service participants in waves to send ISO 20022 like for like messages (i.e., the ISO 20022 version of the legacy format) and receive ISO 20022 messages that contain fields to support enhancements that will be enabled in Phase 3.

- During the migration period, the Fedwire Funds Service will translate the legacy format into the ISO 20022 format and vice versa when necessary to accommodate Fedwire senders and receivers that are not using the same format.
- Although Fedwire Funds Service participants will need to be capable of receiving ISO 20022 messages that contain fields to support enhanced data, they will not be permitted to start sending enhanced data until Phase 3.

- This phase will not be completed until all Fedwire Funds Service participants can send and receive messages in the ISO 20022 format.
- The Federal Reserve Banks will sunset legacy message format at end of this phase.

### Phase 3 (ISO enhancements)

The Federal Reserve Banks will enable all Fedwire Funds Service participants to send ISO 20022 messages that include optional enhancements on a specific date to be determined. In other words, this will be a “big bang.”

### Benefits

- Making changes to the legacy Fedwire Fund Service message format to remove obsolete fields in advance of the ISO 20022 implementation will simplify the migration to the ISO 20022 message format.
- The ISO like-for-like phase permits Fedwire Funds Service participants to send **and** receive messages in the ISO 20022 format at the same time, which might provide a greater incentive for them to integrate ISO 20022 message formats in their backend systems and databases.
- During the ISO like-for-like phase, Fedwire Funds Service participants will not need to know which format other participants are capable of receiving because the Fedwire Funds Service will convert ISO 20022 messages to the legacy format and vice versa depending on which format the receiver is capable of receiving.
- Migrating in waves reduces risks associated with a big bang conversion because it allows a participant to fall back to legacy format if it encounters problems during or after its conversion to the ISO 20022 format in Phase 2 without affecting other participants.

- A phased approach allows participants that don't plan to send ISO 20022 messages with optional enhancements to complete their migration to ISO 20022 during the ISO like-for-like phase.

### Cons & Risks

- The Federal Reserve Banks and internal interfaces have to support both the legacy and ISO 20022 formats until the ISO enhancement phase is complete.
- Participants cannot send ISO 20022 messages with enhancements until Phase 3.
- Participants that cut over to send ISO 20022 like-for-like messages in Phase 2 may never make the changes necessary to send the optional enhancements in Phase 3.
- Participants that want to start sending ISO 20022 messages with enhancements in Phase 3 will need to make additional changes to support sending those enhancements.
- Fedwire Funds Service participants that receive ISO 20022 messages with enhancements once Phase 3 goes live may encounter interoperability issues for messages that they need to convert to another format (e.g., SWIFT MT message format) to deliver to downstream institutions that are not capable of receiving the ISO 20022 format with enhancements.

### Mitigation Strategies

- The Federal Reserve Banks plan to conduct significant internal testing even before participants and their software vendors begin testing in the Federal Reserve Banks' test environment.
- The Federal Reserve Banks plan to provide sufficient time (i.e., at least one year) before Phase 2 begins for participants and their software vendors to test in the Federal Reserve Banks' test environment.

- The Federal Reserve Banks will impose a stability period (approximately 2 to 3 months) after all participants have successfully completed Phase 2 of the migration to ensure participants can send and receive ISO 20022 like-for-like messages without issues before enabling the enhancements in Phase 3.
- In advance of the ISO like-for-like phase, the Federal Reserve Banks plan to make changes to the legacy Fedwire Funds Service message format to eliminate obsolete fields, which will simplify the coexistence of, and conversion between, legacy and ISO 20022 formats during Phase 2.
- The Federal Reserve Banks will include a workstream in their ISO 20022 project plan to address interoperability issues that may occur in Phase 3 when Fedwire Funds Service participants begin receiving ISO 20022 messages with enhancements that need to be converted to another format (e.g., SWIFT MT) to deliver to downstream institutions that are not capable of receiving ISO 20022 messages that include enhanced data.

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### Community involvement and 'change management'

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The Federal Reserve Banks have been working with The Clearing House Payments Company L.L.C., which operates the CHIPS® wire-transfer system, to collaborate on ISO 20022 implementation plans for the major U.S. high-value funds-transfer systems. They jointly chair a Format Advisory Group to assist in the detailed planning activities. The Format Advisory Group is made up of global and regional banks, all of which are participants in one or both systems. Most participate in both the Fedwire Funds Service and the CHIPS wire-transfer system.

The Federal Reserve Banks have also created a webpage to provide information about the ISO 20022 implementation for the Fedwire Funds Service. The webpage includes information about ISO 20022 strategies for ACH payments as well.

See: The Fed's Resource Center for Adoption of ISO 20022 for Wire Transfers and ACH Payments.

Key materials include the following:

- ISO 20022 Business Case Assessment Summary
- Sibos® conference presentations in 2015 and 2016
- ISO 20022 use cases for U.S. wire transfer systems

Finally, the Federal Reserve Banks will host a number of educational outreach events (i.e., in-person sessions and webinars) to provide Fedwire Funds Service participants and software vendors an in-depth walk-through of the ISO 20022 format specifications.

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## Lessons learned

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Below is a list of lessons learned related to the ISO 20022 implementation for the Fedwire Funds Service to date:

1. Be prepared for the unexpected (e.g., legal issues reconciling the ISO 20022 message format with U.S. funds transfer law).
2. Plan for sufficient dedicated resources to support implementation planning and execution.  
The Federal Reserve Banks retained SWIFT as a consultant to supplement their own resources to complete the detailed implementation work.
3. Engage legal representatives early on and throughout the planning of the implementation strategy and with detailed work.
4. Educate and engage the industry (i.e., participants and software vendors) early, frequently, and broadly to ensure awareness and readiness:
  - Don't overestimate the user community's knowledge and understanding of the ISO 20022 format.
  - Work closely with software vendors to help facilitate adoption of ISO 20022 by the user community and engage vendors to help validate the detailed work.
  - Clearly identify the scope (i.e., like-for-like versus enhancements, payment messages versus reports or both).
  - Develop a customer communication strategy (e.g., letters, newsletters, webinars, in-person educational sessions).
- Establish an advisory group - The Federal Reserve Banks and The Clearing House established a format advisory group to work closely on the detailed work (e.g., review ISO 20022 messages, validate enhancement items).
- Consider collaborating with peer operators (e.g., The Clearing House for the U.S. wholesale funds-transfer market) so your participants can benefit from efficiencies and to help ensure major payment systems can interoperate effectively.
5. Leverage the work already completed and currently underway by the High-Value Payment Systems Plus (HVPS+) Group to encourage a harmonized implementation of ISO 20022 messages by market infrastructures globally.
6. Be open to revising the implementation approach and timeline as they are socialized with the industry, governance bodies, and internal technical teams.
7. Don't announce implementation timeline and milestones until after detailed work has been completed.  
Even if you announce a "preliminary" timeline, it may become the de facto date, which could create expectations for your participants and the broader industry.
8. Market infrastructures that use a proprietary format will require more detailed work than those that use a SWIFT-based format.
9. The ISO 20022 project can provide an opportunity to streamline processes by identifying:
  - Obsolete or unused features, which could be eliminated.
  - New messages, rules, or guidelines that could promote best practices.
10. Develop a plan and administrative process for sharing the ISO 20022 format documents with participants and software vendors (i.e., public or closed user group).
  - The Federal Reserve Banks will use SWIFT's MyStandards website to make their ISO 20022-related format documents available to a closed user group (i.e., participants and vendors)
11. True global interoperability will never be achieved until ISO 20022 messages are adopted in the correspondent banking space.
  - Even when market infrastructures adopt ISO 20022 messages for domestic payments, correspondent banks will need to convert cross-border payments to the SWIFT MT format thereby limiting the full potential of ISO 20022 formats (e.g., additional persons identified in the message, purpose codes).

# Euroclear

## Project scope

**Applicable business domain(s) (high-value payments, low-value payments, real-time payments, securities, foreign exchange, other):** Funds.

**Is this green-field (new FMI in a new business area) or migration? Were there any particular circumstances for the project?:** Funds ISO 15022 – ISO 20022 migration.

**Number of participants (direct and indirect):** More than 200.

**Expected volumes (messages or transactions):** 800.000/Month.

**Complexity (number of message types, number of flows, number of different participant types):** 20 message types used with different specification in over 10 business flows.

**Expected migration date:** We completed the migration to ISO 20022, but we must ensure interoperability because some market players have not yet migrated.

## Criteria for implementation approach

**Which of the following adoption drivers are relevant for your adoption?**

- **Regulatory context:** N/A
- **Local (domestic) and global alignment/dependencies:** Funds ISO 15022 – ISO 20022 migration.
- **Desired end-state and main strategic goals to be achieved (system renewal, international standards, regional/local/global initiatives, interoperability, richer data, new services, other):** To comply with funds ISO 15022 – ISO 20022 migration program.
- **Operational impact (back-office readiness, implementation cost, implementation timeline, business impact, operational risk, solution readiness, other):** Implementation cost.

## Chosen implementation approach

**Like-for-like (as an initial intermediary step? – for how long? ) or enhanced ISO 20022 message capabilities deployed:** due to coexistence, we have constraints to ensure interoperability; therefore, it is mainly a like-for-like but ISO 20022 has also allowed to enhance the business process.

**Big bang (all participants at the same time) or phased with gradual transition (coexistence):** coexistence (still going on).

**Format translation used (central, at end-points, none):** N/A

**Single or multi-network solution:** N/A

**Tools and guidelines applied:**

- **Harmonisation Charter, (global) market practice:** SMPG market practice for investment funds.
- **Converter or other tools (MyStandards or similar tool):** N/A
- **Testing infrastructure and processes:** N/A

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## Community involvement and 'change management'

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**Please describe any actions you have carried out relative to your adoption project. Do you have plans in place for ongoing activities?**

- **Communications with the community:** We have supported market players in their migration to ISO 20022.
- **Community consultation process:** N/A
- **Community 'buy-in', alignment and support:** N/A
- **Community 'change management' process:** We have supported market players in translating the existing business process to the new ISO standard.

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## Lessons learned

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### What worked well, what did not?:

Worked well:

- There was a series of SMPG Market Practices already available.
- Available SWIFT trainings.
- Effort to ensure interoperability between ISO 15022 and ISO 20022.

Did not work well:

- Difficult business case when you are already using existing MTs due to the heavy initial investment costs.
- Costs of coexistence for institutions who have to support all the different standards.
- Impact of the standard releases: Unlike ISO 15022, there is always an impact (technical) even when it is a standard release with only optional business changes as a new XML schema with the new version must be implemented.

### Things you would do differently:

- Need for a clear migration strategy, unlike funds ISO 20022 migration, for which the deadline has been postponed several times, resulting in a loss of credibility.
- Set-up an active advisory group from day 1.

**Recommendations to others who still have to implement:** Today there are powerful tools to help the migration such as:

- SWIFT MyStandards Readiness Portal, which was not available when we migrated and which we use today with Clients who have not yet migrated.
- MyStandards: to be able to publish message specifications and compare them with others, such as Clients, SMPG, etc.

# Australian Securities Exchange

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## Project scope

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The replacement of ASX's equity post trade clearing and settlement system (CHES), including holding sub-register.

Applicable business domains include: account management, administration, authority, cash management collateral management payment clearing and settlement, reference data, securities clearing securities event, securities management securities settlement, securities trade.

CHES is a twenty+ (20) year old system that performs efficiently with rich functionality, but is based on proprietary message formats with significant change overhead. ASX is seeking a more contemporary and flexible system to meet the needs of its own and customer's requirements, with the associated adoption of ISO 20022 standards.

Over 130 clearing and settlement participants connect to CHES directly, as well as payment banks, and share registries on behalf of over 2200 issuers. A number of software vendors currently support customer's back office systems and connectivity to CHES.

CHES has an existing proprietary message set of over 500 unique messages. A high level gap analysis vs. ISO 20022 standard messages indicate that the unique message set may be reduced to about 120 ISO 20022 messages, with one or more usage guidelines/business scenarios associated with each of these messages. ASX is considering opportunities for adopting more standardised processes, consolidation and rationalisation of the message set.

The target implementation date for the project is expected to be announced by ASX end of 2017, together with an announcement on the expected technical solution for the system replacement. ASX is currently assessing the suitability of Distributed Ledger Technology (DLT) for this system replacement. The bulk of ASX's review and definition of equivalent ISO 20022 messages is expected to be complete by mid-2018.

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## Criteria for implementation approach

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Key drivers for the adoption

- System renewal.
- Adoption of global standards.
- Allow for future interoperability.
- Facilitate greater innovation, flexibility in delivery and time to market for new services.
- Achieve operational efficiencies and reduce costs for ASX and its customers.

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## Chosen implementation approach

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- The business scope of the implementation for Day 1 is currently in definition, in consultation with ASX's customers. It is likely to be a minimum of like for like with enhanced or changed functionality.
- The implementation approach is yet to be determined, and will be considered closer to the transition date in consultation with customers. Preliminary consultation with customers has indicated mixed views on big bang vs. progressive transition.
- Network and connectivity options are yet to be determined.
- ASX is utilising the following resources and guidelines as part of its ISO 20022 adoption process:
  - SWIFT Standards consultants to assist with best practice, message mapping, new message and change request management.
  - Harmonisation Charter
  - SWIFT MyStandards to develop and publish usage guidelines for its community, and ongoing maintenance.

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## Community involvement and 'change management'

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ASX is conducting an extensive engagement plan with its customers and other stakeholders including regulators. This includes:

- Consultation on business requirements – formal consultation papers, working group and bilateral meetings;
- Establishment of an ISO 20022 Technical Committee with key stakeholders to allow ASX to recommend to and seek agreement with key principles for the adoption of ISO 20022 and review of draft to final usage guidelines. The Committee is also considering the education and training requirements of the community.
- Dedicated demonstration venue to showcase the potential DLT solution, and opportunities for the future, including the adoption of ISO 20022.
- Information sessions for stakeholders via industry forums, conferences, webinars.

Over time this engagement will transition to include project delivery, industry wide testing, and implementation management.

# The Clearing House (CHIPS)

## Project scope

**Applicable business domain(s) (high-value payments, low-value payments, real-time payments, securities, foreign exchange, other):** CHIPS is the largest privately-owned, high value US Dollar clearing and settlement system in the world. Processes, on average 43% of USD wire payments daily.

**Is this green-field (new FMI in a new business area) or migration? Were there any particular circumstances for the project?:** The Clearing House decision to migrate CHIPS (TCH's High Value Payments System) legacy proprietary messaging to ISO20022 was determined in consensus with the broader U.S. community and coordinated within the ISO 20022 U.S. Stakeholder Group.

**Number of participants (direct and indirect):** 48 Direct Participant Banks.

**Expected volumes (messages or transactions):** CHIPS processes approximately 900k payment and payment related messages on an average day.

**Complexity (number of message types, number of flows, number of different participant types):** Payments send 449.5k, Payments receive 449.5k, 1k proprietary payment related.

**Expected migration date:** (TBD) TCH has completed message mapping and is in the early stages developing user guidelines and specifications. Further analysis and development are required. Once we complete these phases of this program, we will be in a better position to provide a target implementation date.

## Criteria for implementation approach

**Which of the following adoption drivers are relevant for your adoption?**

- **Regulatory context:** Bank Secrecy Act/FinCEN, 'Travel Rule' requirement for transmitting transaction related information for funds transfers and transmittal of funds involving FI's is one of the criteria for ISO20022 adoption.
- **Local (domestic) and global alignment/dependencies:** CHIPS processes approximately 43 % of USD HVP payments and 95% of U.S. cross border payments and shares the USD market with FedFunds Services, Fedwire. Alignment is essential for our shared participant constituency. Restrictions due to interoperability related to the cross-border transmittal of rich ISO20022 data is also a primary consideration to our implementation approach.
- **Desired end-state and main strategic goals to be achieved (system renewal, international standards, regional/local/global initiatives, interoperability, richer data, new services, other):** Desired end-state is the enhanced version of ISO20022. One of the main business case drivers by our owner banks is the expectation of a renewed messaging format with richer data capacity and mining capabilities and interoperable with their global ISO20022 implementations in other global markets.
- **Operational impact (back-office readiness, implementation cost, implementation timeline, business impact, operational risk, solution readiness, other):** TCH (CHIPS) has been designated as a SIFMU under Title VIII of the U.S. Dodd-Frank Act. As such a program of this size presents a

potentially significant impact to TCH and the U.S. HVP Clearing and Settlement system warranting both Regulatory and Ownership approval of this effort. ISO20022 is expected to be a multi-year initiative involving company-wide resources and considerable financial allocation.

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## Chosen implementation approach

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### **Like-for-like (as an initial intermediary step? – for how long? ) or enhanced ISO 20022 message capabilities deployed:**

TCH is employing a combination approach including both Like-for-Like and Enhanced ISO20022 messaging. TCH will consider migrating to the full Enhanced messaging when the industry solves the current interoperability issues associated. While this approach is driven by the need of the industry to resolve the “interoperability” issue, TCH (CHIPS) is envisioning the enhanced solution. with cross-border payments.

### **Big bang (all participants at the same time) or phased with gradual transition (coexistence):**

Big Bang. Due to the comparatively small number of CHIPS Participants ( 48 direct participants) a Big Bang approach to implementation will be employed. This will be coordinated with Fedwire.

### **Format translation used (central, at end-points, none):**

TCH does not have a plan to provide a translation utility.

**Single or multi-network solution:** N/A

### **Tools and guidelines applied**

- **Harmonisation Charter, (global market practice):** Throughout the CHIPS message mapping sessions the ISO20022 working team has relied on the best practices defined by the HVPS+ Task Force. TCH is supportive of the objectives of the Harmonization Charter.
- **Converter or other tools (MyStandards or similar tool):** It is TCH's plan to employ the use of MyStandards in the development, testing and communication of ISO20022 message schemas and message usage guidelines.
- **Testing infrastructure and processes:** N/A

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## Community involvement and 'change management'

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**Please describe any actions you have carried out relative to your adoption project. Do you have plans in place for ongoing activities?**

- **Communications with community:** TCH proprietary communications and marketing mechanisms.
- **Community consultation process:** SWIFT Consulting Services.
- **Community 'buy-in', alignment and support:** ISO20022 US Stakeholders Group, CHIPS and Fedwire Format Advisory Group, CHIPS Business Committee.
- **Community 'change management' process:** N/A

# SEPA

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## Project scope

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**Applicable business domain(s) (high-value payments, low-value payments, real-time payments, securities, foreign exchange, other):** Retail payments in euro. As from November 2017 also real-time payments in euro.

**Is this green-field (new FMI in a new business area) or migration? Were there any particular circumstances for the project?:** N/A

**Number of participants (direct and indirect):** Approximately 4.400 payment service providers (PSPs). Number of enterprises in the EU non-financial business economy: 24,4 million (Eurostat 2014).

**Expected volumes (messages or transactions):** The primary task of the EPC is to manage four payment schemes (i.e. SEPA Credit Transfer (SCT) scheme; SEPA Instant Credit Transfer (SCT Inst) scheme (effective as from November 2017); SEPA Direct Debit (SDD) Core scheme; SDD Business-to-Business scheme), that facilitate some 37 billion transactions in 34 countries each year (note: the geographical scope of the SEPA schemes currently covers 34 countries and territories: the 28 EU Member States plus Iceland, Norway, Liechtenstein, Switzerland, Monaco and San Marino).

**Complexity (number of message types, number of flows, number of different participant types):** Message types used include: pain.001; pain.002; pain.007; pain.008; pain.009; pain.010; pain.011; pacs.002; pacs.003; pacs.004; pacs.007; pacs.008; pacs.028; camt.029; camt.056.

**Expected migration date:** EPC is using ISO 20022 since January 2008 for its SCT and

since November 2009 for its SDD schemes. In November 2016 the EPC also published the SCT Inst Scheme (effective as from November 2017).

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## Criteria for implementation approach

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The EPC's role is to support and promote the integration and development of European payments.

It was a decision of the EPC (back in 2006) to make the use of the ISO 20022 mandatory in the interbank space and recommended in the C2B space for SCT and SDD scheme participants. The rationale for selecting ISO 20022 was that it allowed the EPC to leverage global standards that at the time were increasingly being taken up by PSPs and their business customers.

In February 2012, the EU co-legislators, i.e. the European Parliament and the Council of the EU representing EU governments adopted the 'Regulation (EU) No 260/2012 establishing technical and business requirements for credit transfers and direct debits in euro and amending Regulation (EC) No 924/2009' (the SEPA Regulation), which defined 1 February 2014 as the deadline in the euro area for compliance with the core provisions of this Regulation. In non-euro countries, the deadline was set to 31 October 2016. As of these dates, existing national euro credit transfer and direct debit schemes had to be replaced by SCT and SDD. The SEPA Regulation details, among other things, the use of the ISO 20022 message standards by Payment Service Providers (PSPs) and payment service users (PSUs). Article 2 (17) of the SEPA Regulation defines the meaning of the ISO 20022 XML message standard as follows: "ISO 20022 XML standard means a

standard for the development of electronic financial messages as defined by the ISO, encompassing the physical representation of the payment transactions in XML syntax, in accordance with business rules and implementation guidelines of [European] Union-wide schemes for payment transactions falling within the scope of this Regulation." The SEPA Regulation only mandates the use of ISO 20022 for corporate PSUs when sending "bundled" instructions (i.e. Article 5 (1)(d) of the SEPA Regulation states that payment service providers must ensure that where a payment service user "that is not a consumer or a micro-enterprise, initiates or receives individual credit transfers or individual direct debits which are not transmitted individually, but are bundled together for transmission, the message formats specified in point (1)(b) of the Annex are used").

As from November 2017, following a recommendation of the Euro Retail Payments Board (ERPB), the EPC C2B IGs will become 'mandatory', which should be interpreted as follows: the Originator/Creditor Bank is obliged to accept C2B credit transfer/direct debit instruction messages at the request of the Originator/Creditor which are based on the ISO 20022 XML message standards described in the SCT/SDD C2B Implementation Guidelines (i.e. this means that a scheme participant is obliged to accept at least but not exclusively the messages described in the SCT and SDD C2B Implementation Guidelines).

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## Chosen implementation approach

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**Like-for-like (as an initial intermediary step? – for how long? ) or enhanced ISO 20022 message capabilities deployed:** N/A

**Big bang (all participants at the same time) or phased with gradual transition (coexistence):** Please see previous section.

**Format translation used (central, at end-points, none):** N/A

**Single or multi-network solution:** N/A

### Tools and guidelines applied

- **Harmonisation Charter, (global) market practice:** Yes.
- **Converter or other tools (MyStandards or similar tool):** GEFEG is the tool that is used to create the SEPA EPC Implementation Guidelines.
- **Testing infrastructure and processes:** N/A

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## Community involvement and 'change management'

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The EPC SEPA payment schemes are updated every two years to reflect market needs and evolutions in the technical standards developed by international standards bodies (e.g. ISO). This evolution is guided through a transparent change-management process, open to all stakeholders.

To further enhance the involvement of scheme end-users and technical players, the EPC created two forums:

- The Scheme End-User Forum (SEUF) which is formed by representatives of European associations of end-users of the schemes, such as consumers, (e-) merchants and corporate treasurers.
- The Scheme Technical Forum (ESTF) which is made up of the representatives of technical players who provide services facilitating the processing of transactions under the Schemes.

For further information: <https://www.europeanpaymentscouncil.eu/what-we-do/sepa-payment-scheme-management/evolution-schemes>.

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## Lessons learned

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- Early communication with and involvement of all stakeholders is key as well as effective planning (e.g. via the development of a step-by-step migration work plan).
- It helps when migration is mandated by the regulator.

# CLS

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## Project scope

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**Applicable business domain(s) (high-value payments, low-value payments, real-time payments, securities, foreign exchange, other):** Foreign Exchange, Cash Management and Administration messages as a service provider to the market. High Value Payments as a consumer i.e. a participant of multiple RTGS systems.

**Is this green-field (new FMI in a new business area) or migration? Were there any particular circumstances for the project?:** Our initial implementation of ISO 20022 was a migration. Previously, the majority of our inbound and outbound flows used a proprietary message format. These messages were retired and were replaced by standard ISO 20022 messages. All new services that are currently in the pipeline will also support standard ISO 20022 messages.

**Number of participants (direct and indirect):** 60+ (direct) Members. 20,000+ indirect participants. Note only Member institutions interface directly to CLS using ISO 20022 messages.

**Expected volumes (messages or transactions):** High hundreds of thousands to low millions.

**Complexity (number of message types, number of flows, number of different participant types):** There are 17 ISO 20022 message types supported some of which have multiple versions. A variety of business flows are supported including Instruction input, real time Instruction status notifications and cash management/reconciliation flows. High value payment flows are also supported for our connections to the various ISO 20022 enabled RTGS systems.

**Expected migration date:** Migration for FX settlement service was completed in 2016.

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## Criteria for implementation approach

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**Which of the following adoption drivers are relevant for your adoption?**

- **Local (domestic) and global alignment/dependencies:** We are defining and aligning with the global strategy for ISO 20022.
- **Desired end-state and main strategic goals to be achieved (system renewal, international standards, regional/local/global initiatives, interoperability, richer data, new services, other):** Cross compatibility, reuse, standard / best practice setting, richer data.
- **Operational impact (back-office readiness, implementation cost, implementation timeline, business impact, operational risk, solution readiness, other):** Our primary driver for adopting a global messaging standard was to reduce complexity and cost to our customers. Our migration has provided the opportunity for customers to simplify their interfaces to CLS and to standardise across multiple services.

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## Chosen implementation approach

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### **Like-for-like (as an initial intermediary step? – for how long? ) or enhanced ISO 20022 message capabilities deployed:**

Like for like with the FX Settlement service but future implementations will take advantage of new capabilities

### **Big bang (all participants at the same time) or phased with gradual transition (coexistence):**

Our approach was designed to provide maximum flexibility to our customers. As such we adopted a phased approach and supported both the old and new messages (both inbound and outbound) in parallel for the duration of the migration period. This introduced additional levels of complexity to our implementation, but as a critical market infrastructure, we determined that a big bang cutover was not appropriate for our service.

### **Format translation used (central, at end-points, none):**

Our system supported both old and new messages types and communicated to our customers in the appropriate format (or indeed in both formats) based on how they had been centrally configured by CLS.

**Single or multi-network solution:** Single for customer connectivity (SWIFT). Multi-network if you include our RTGS connectivity.

### **Tools and guidelines applied**

- **Harmonisation Charter, (global) market practice:** Yes.
- **Converter or other tools (MyStandards or similar tool):** MyStandards / XML / SWIFT MX Model Developer tool.
- **Testing infrastructure and processes:** Joint acceptance test environment. Internally developed bespoke tools.

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## Community involvement and 'change management'

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Existing governance framework and technical user groups were used gain a consensus that a migration from a legacy proprietary messaging set to global standard was in the best interest of our Members and the wider industry.

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## Lessons learned

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Items for consideration

- Early Market Engagement – Member and vendor education was a critical part of the process. We initially reached out to Vendors and Members in 2012, almost 4 years prior to the completion of the migration.
- Providing support and managing the migration and coordinating the cutovers was a significant undertaking: 60+ ISO 20022 migrations in only just over 40 weekends. It was essential therefore to establish a dedicated programme team.
- Concurrent running of both the legacy proprietary channel and ISO 20022 channel to support our migration strategy introduced additional levels of complexity, and in some cases, influenced our design. But as stated above, a big bang cutover was determined not to be a suitable option for our service.

# About ISO 20022

There are two key aspects to ISO 20022. It is a methodology, a 'recipe' to be followed to create financial messaging standards; and it is a body of content, the message definitions themselves and other content required by the methodology to explain the underlying concepts and processes in the business domain in which the messages will be used.

## Methodology

The ISO 20022 methodology is in part described by a formal meta-model – a precise definition of what kind of information can be captured. The methodology distinguishes 3 layers:

### Business / Conceptual

Defines financial concept, e.g., 'Credit Transfer'

### Logical

Defines e.g. credit transfer messages, to serve the business process

### Physical

Defines physical syntax, e.g. XML

The business/conceptual layer contains formally defined financial concepts and the relationships between them (e.g. a cash account is a kind of account; accounts have servicers and owners; or a bond is a kind of security; a bond has an issuer and holders). This content is not messaging-specific.

The logical layer defines logical message definitions that can be used by one actor in a business process to instruct or inform another. The data elements specified in logical messages refer to concepts in the business/conceptual layer for their definitions, which ensures that the semantics of the logical message are well-defined, stable and consistent from one logical message definition to another. Logical layer content is messaging specific, but does not impose a particular format or messaging technology.

The physical layer is the technical realisation of the logical message, which can be generated mechanically from the logical definition. Several physical layer implementations

are possible, which allows ISO 20022 logical definitions to be decoupled from implementation technology.

## Content

The ISO 20022 methodology allows key concepts and message definitions to be formalized, which ensures that the technical format of the specifications is well-defined and consistent. This is a great advantage for anyone implementing specifications, because it ensures easier analysis and enables automated consumption of specifications.

Specifications in the form dictated by the standard, can themselves be standardised; formally published as part of the standard. For any process that will be implemented more than once, this is a great advantage, because it brings global consistency to the way business processes are automated, reducing overall costs and allowing best-practice distilled from one implementation to be re-used in others.

ISO 20022 published content consists of business/conceptual definitions and logical message definitions that are defined according to the methodology and maintained according to a strict maintenance process. For example, the ISO 20022 Financial Institution to Financial Institution Customer Credit Transfer (pacs.008) specification defines the data that one Financial Institution sends to another to instruct a customer credit transfer (a payment). The data elements in the pacs.008 specification, such as 'Creditor', or 'Instructed Amounted', refer to the semantic content in the business/conceptual layer above for their definitions. ISO 20022 also specifies roles – 'Instructing Agent', 'Ultimate Creditor' etc. and which role should send and receive which message in which business context.

## **Governance**

There are two aspects to ISO 20022 governance, linked to its two roles as a methodology and a repository of content. The standard itself – effectively the methodology – is governed by the ISO maintenance processes. A revision of the standard is requested by its users, a working group under ISO Technical Committee (TC) 68 is convened, which works to deliver a new version of the standard (the present version is ISO 20022:2013). A draft is submitted to TC 68 for approval. Once approved the standard is handed over to the Registration Authority (RA) (currently operated by SWIFT under contract to ISO) for implementation. The RA is responsible for the technical implementation of the standard, which involves maintaining the standard's content. Ensuring the business relevance and consistency of this content is the second aspect of ISO 20022 governance. Any user can propose to create new ISO 20022 messages (including new content in the business model required to define the concepts, terminology and relationships needed to understand them). Each proposal is formalised in a Business Justification – a standard document that captures in detail the context and motivation for the development. The RA checks this document for completeness, then hands it over to one of several domain-specific Standards Evaluation Groups (SEGs), who are required to judge whether the proposed development is justified in business terms. If so, development can begin. On completion the proposed messages are submitted to the RA for consistency and quality checks, then to the appropriate SEG for review. The SEG may request changes, which the submitter is required to implement, before the messages are again submitted to the RA for publication. A similar process applies for maintenance. Any user, or prospective user, can submit a change request for an existing message. An annual process operates where change requests are referred to the SEGs for approval

or rejection. Approved change requests are applied to the messages, usually by the initial submitter, and a new version of the message is published by the RA.

## **SWIFT, Standards and ISO 20022**

SWIFT has been at the forefront of financial industry standardisation for over 40 years. SWIFT Standards developed the original MT standard, which remains the dominant standard in international cross-border payments, and covers many other business areas, including securities settlement and reconciliation, corporate actions, trade finance and treasury. SWIFT is also a key contributor to ISO 20022. SWIFT contributed to the working group that defined the standard, is the single most significant contributor of message definitions, and publishes the content, under contract to ISO, in its role of ISO 20022 Registration Authority (RA). SWIFT also operates as RA for a number of other key industry standards, including ISO 15022 (securities messaging), ISO 9362 (Business Identifier Code, BIC), ISO 10383 (Market Identifier Code, MIC), and ISO 13616 (International Bank Account Identifier, IBAN).



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## About SWIFT

SWIFT is a global member-owned cooperative and the world's leading provider of secure financial messaging services. We provide our community with a platform for messaging and standards for communicating, and we offer products and services to facilitate access and integration, identification, analysis and financial crime compliance.

Our messaging platform, products and services connect more than 11,000 banking and securities organisations, market infrastructures and corporate customers in more than 200 countries and territories, enabling them to communicate securely and exchange standardised financial messages in a reliable way.

As their trusted provider, we facilitate global and local financial flows, support trade and commerce all around the world; we relentlessly pursue operational excellence and continually seek ways to lower costs, reduce risks and eliminate operational inefficiencies.

Headquartered in Belgium, SWIFT's international governance and oversight reinforces the neutral, global character of its cooperative structure. SWIFT's global office network ensures an active presence in all the major financial centres.

For more information, visit [www.swift.com](http://www.swift.com)

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