



Common messaging standard for cross-border payments: The role of ISO 20022

Real time cross-border payments

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Introduction

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This paper aims to highlight ISO 20022 and the need for common messaging standards for cross-border payments which forms a part of a broader set of materials that aim to explore the challenges, initiatives and opportunities within the cross-border payments market.

Standardization is crucial for promoting innovation and can help address information asymmetries, particularly in the context of cross-border payments. By establishing a common language, standards can serve as a way to communicate adherence to quality standards, reduce language barriers, enhance transparency and efficiency, and ultimately lead to reduced costs and improved customer experience.

A number of payment messaging standards exist across regions and business areas that allow information to be exchanged between parties. However, many organisations still face the challenges of not having full control over the information exchanged due to inconsistent and poor quality of data in the messages.

As more businesses operate on a global scale, there is an increasing demand for cross-border payments. Customers are demanding faster, more reliable, and more cost-effective cross-border payment options.

As a result, Financial Institutions (FIs) are facing more challenges to comply with regulations over multiple jurisdictions which further emphasises the need to address this issue.

Legacy¹ payment systems and messages are outdated and:

- Do not capture majority of the business information.
- Are unstructured and have limitations which results in poor data quality. This can lead to slower payments due to the requirements for manual intervention and more importantly creates a higher risk of breaching regulatory requirements such as AML/Sanctions risks.
- Not able to adapt to the newer technologies and business needs.
- Majority of the payments and business data travel separately which involves additional effort for reconciliation.

1. Legacy message is referring to traditional methods of exchanging payment messages which often use outdated or proprietary formats which can make it difficult to interpret or process by other systems.

The two examples shown below provide the same information, but each uses a different standard.

SWIFT MT 103

:32A: 06042022USD12500

:50K:/87524219990

ACME NV. AMSTEL 344

NL/AMSTERDAM

:52A: EXABNL2U

Fedwire

{1520}20220406xxxxxxxxxyyyyyy
{2000}000001250000

{5000} 8754219990ACMENV.*
AMSTEL 344*AMSTERDAM*
NETHERLANDS*{5100}
BEXABNL2U

This creates a significant barrier(s) to having a common understanding of the structures and meanings of the information exchanged.

ISO 20022 aims to eliminate this barrier by introducing messaging standards which provide clear definitions of the information and data formats that can be exchanged.



ISO 20022

ISO is the International Organisation for Standardization – an independent, non-governmental international organization with membership of 167 national standards bodies.

Through the members, it brings together experts to share knowledge and develop voluntary, consensus-based, market relevant International Standards that support innovation and provide solutions to global challenges.

Some examples include:

- Currency codes (ISO 4217)
- Country codes (ISO 3166)
- Date and time format (ISO 8601)

ISO 20022 is becoming the de facto global payments messaging standard enabling more data, better quality data and one common language for payments in the industry.

Whilst there are plenty of benefits in the adoption of ISO 20022, there is still a lack of understanding of the standard and its full potential.



What is ISO 20022?

First published in 2004, ISO 20022 is an open standards framework for creating financial messages which defines the message structure and content to enable a common global "language" and understanding across the industry.

It provides a data library of business components from which messages can be defined and allows for more structured and meaningful information to be sent through payment system messages.

It is being adopted across all domains and regions by replacing legacy standards.

- Globally, 70+ countries are already using ISO 20022.
- Many major Payment Market Infrastructures (PMIs) are migrating or have already migrated (see diagram 1).

Diagram 1 – ISO 20022 migration timeline

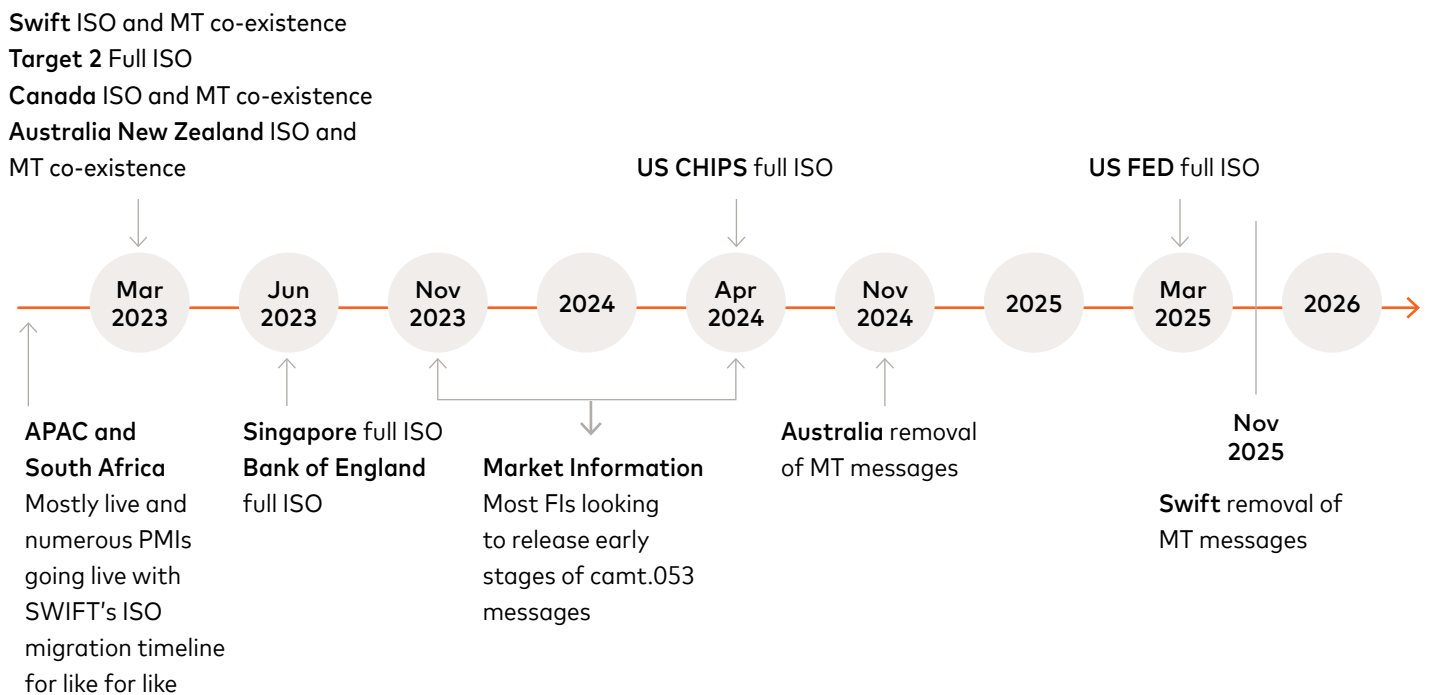
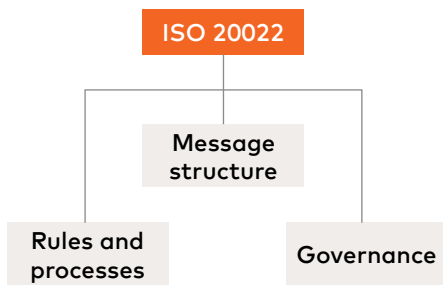


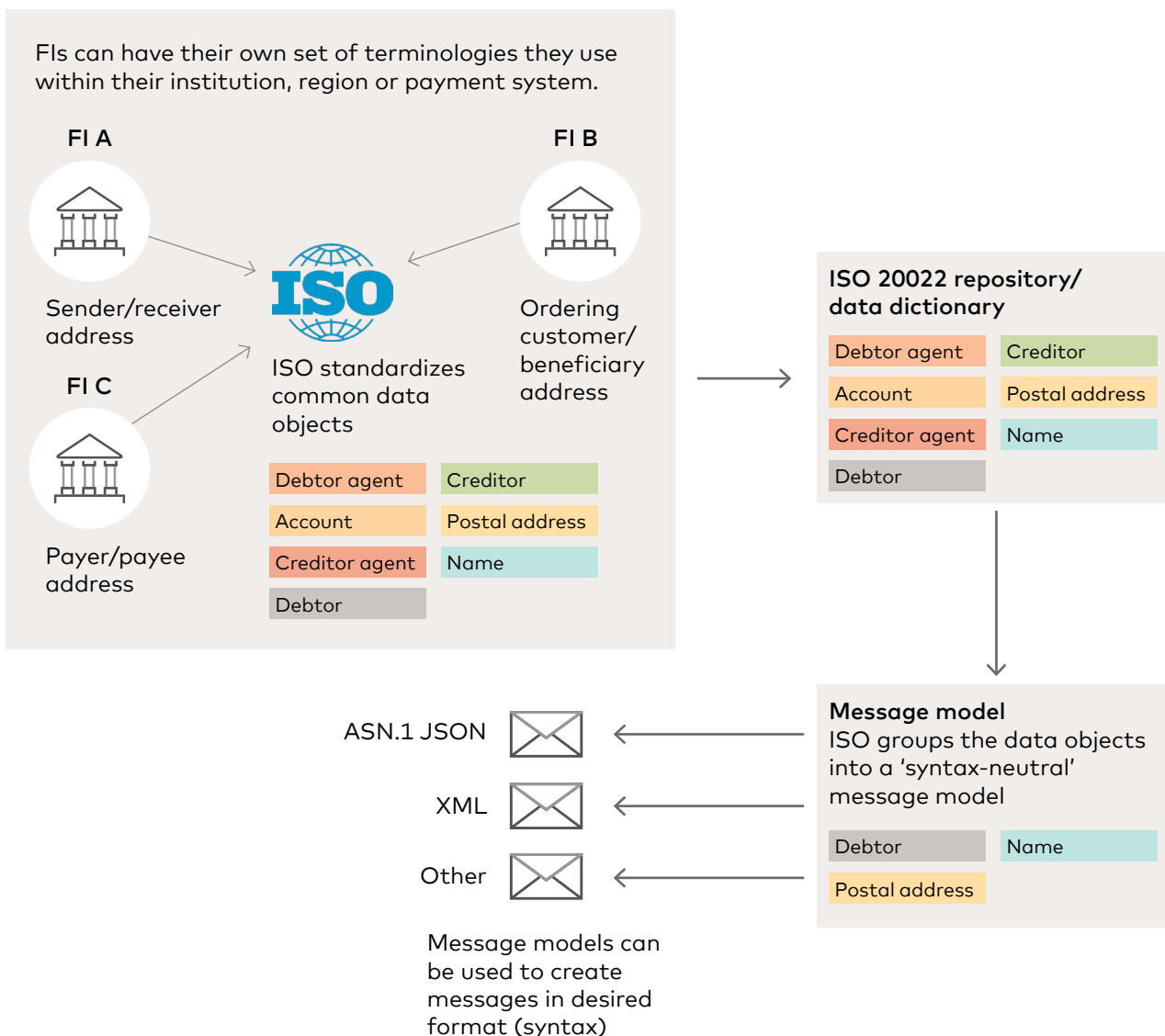
Diagram 2 – ISO 2022 structure



ISO 2022 is the standard that provides rules for how to develop financial messages and the documentation of the messages

- It is supported by a data dictionary and a catalogue of messages which is stored and accessible to all in a common repository www.iso20022.org
- It can be created in multiple formats such as XML, ASN1 and JSON enabling APIs to create structured messages to identify specific message detail and enable straight-through-processing.
- Various different terminologies used across regions, FIs and PMIs can refer to the same concept. ISO 2022 aims to standardize this and promote greater consistency and reducing the likelihood of errors and increase interoperability between different systems. For example, using the term 'debtor' instead of sender, payer, ordering customer and etc. See diagram 3.
- While ISO 2022 addresses the technical inconsistencies, there remains an unresolved issue regarding differences in business language.

Diagram 3 – example of the standardization of terminologies



ISO 20022 hierarchy

ISO 20022 covers all types of financial transactions and not restricted to only payments.

With the capability to create over 700 different message types, ISO 20022 catalogue messages begins with the "business domain", which contain a various sets of "message definitions", which in turn contain a variety of "message sets".

Business domains in ISO 20022

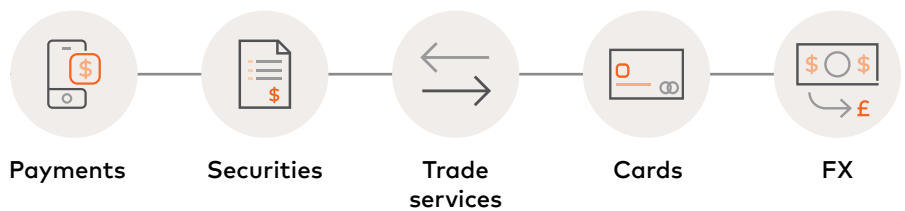
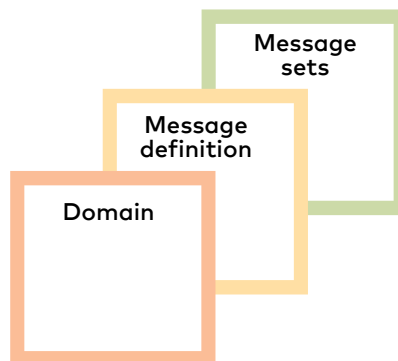


Diagram 4 – ISO 20022 hierarchy



For example:

- Payments and cash management
- Payments clearing and settlement
- FI to FI customer credit transfer (pacs.008)

More than

700

different message types exist

Message definitions

camt –
Cash management

pacs –
Payments clearing and settlement

pain –
Payments initiation

Message sets (examples)

camt.052 – Bank to customer account report
camt.053 – Bank to customer statement
camt.054 – Bank to customer debit credit notification

pacs.002 – FI to FI payment status report
pacs.004 – Payment return
pacs.008 – FI to FI customer credit transfer

pain.001 – Customer credit transfer initiation
pain.002 – Customer payment status report
pain.013 – Creditor payment activation request

Benefits of ISO 20022



Richer and structured data quality

- Up to 10 times more data² (compared to Swift MT messages) can be exchanged and retained end-to-end in a message.
- Supports non-Latin character sets
- Structured remittance data
- Purpose of payment codes
- Structured address



Interoperability and harmonization

- With a large number of domestic payment systems that are already live or in progress of going live with ISO 20022, messages will be harmonised across payment systems around the world.
- They will be compatible and payments should flow no matter the rail – Fedwire, CHIPS, TCH, CHAPS.



Open standard

- The standard is publicly available and can be used by anyone without restriction or licensing fees.
- Anyone can request changes for maintenance or development of new ISO 20022 messages, codes and more.



- **Analytics:** Richer and more structured data will lead to better analytics which can help make improved and informed decisions. and help **reduce** the overall **operational cost**.



- **Transparency:** More granular and quality data can be provided such as 'exchange rate' when dealing with multiple currencies, or separately showing the 'instructed amount' and 'settlement amount' improves transparency.



- **Automation:** Reduces the need for and costs associated with manual intervention since messages will be compatible and understood across all payment systems enabling straight through processing, generating valuable alerts and handling investigations.
- For example, structured remittance information for reconciliation with invoices will be valuable for corporates and offers FI's the possibility to provider further value added services.



- **Compliance:** Richer data will allow FIs to better meet regulatory requirements and structured data will enable efficient AML/ Sanctions screening processes.
- For example, FATF recommendation 16 which requires accurate and information on debtor and creditor to remain unchanged throughout the payment chain.



- **Flexibility:** Due to the way ISO 20022 standards are created, it can adapt to changes in business needs, technology and innovation much easily in comparison to legacy messages.

All of these benefits can significantly improve **efficiency, user experience** and help **reduce** the overall **operational cost**.

2. "How to unlock the power of enhanced data post ISO 20022"

Like for like comparison of the beneficiary details

MT103: Free format option

```
{1:F01CITIUS33AXXX1234012345}{2:O1021511010606UBS
WCHZHXXX00000130850105141149S}{4:
:20:987654321/DEV
:23B:CRED
:32A:011521GBP10551,50
:33B:GBP10441,50
:50K/122267890
BIODATA GMBH
HOCHSTRASSE, 27
8022-ZURIXH
SWITZERLAND
:59:/1234567890
JOHN SMITH
Floor 02 Room 2758 11 Rue de
Teheran 75008 Paris France
:71A:SHA
```

MT103: Free format option

Unstructured data can cause confusion when processing the payment as the system would fail to differentiate between name, address and country.

It is highly likely the payment would be alerted by a sanctions screening filter due to the word 'Teheran' as it appears in the name and address field.

There can be a loss or truncation of data, for example, the field 59 in the message above only allows for 35 characters over four lines. As a result, Rue de Teheran had to be split into two separate lines causing further ambiguity.

ISO 20022 XML example for creditor

```
<?xml version="1.0"?>
<Document xmlns:xsi="http://www.w3.org/2001/
XMLSchema-instance" xmlns="urn:iso:std:iso:20022:tech:xsd:p
acs.008.001.08">
<FIToFI CstmrCdtTrf>
...
<CdtTrfTxInf>
<Cdtr>
<Nm>John Smith</Nm>
<PstlAdr>
<StrtNm>Rue de Téhéran</StrtNm>
<BldgNb>11</BldgNb>
<Flr>02</Flr>
<Room>2758</Room>
<PstCd>75008</PstCd>
<TwnNm>Paris</TwnNm>
<Ctry>FR</Ctry>
</PstlAdr>
</Cdtr>
...
```

ISO 20022 XML example for creditor

Structured and rich data identifies the country that John Smith is based in, is in France, and it is also clear that 'Teheran' is a part of the street name. Therefore, the payment will not be alerted and can be processed smoothly, increasing the speed and avoiding unnecessary operational cost of manual processing.

The issue of truncated data and special characters (diacritics like é) are no longer a problem and there is a field for each piece of information.

Challenges of ISO 20022

Cost of upgrading legacy systems

ISO 20022 migration is not mandatory from a regulatory perspective, but those that do not migrate risk being excluded from international payment systems as Swift will decommission their MT payment messages by the end of November 2025.

Outdated legacy systems may not be able to support or process ISO 20022 format and require mapping and/or translation tools or a completely new system. This will require significant investments in technology and resources to adopt and realize the full benefits of ISO 20022.

FI's whether global, regional or local will need to consider the complexity of the upgrade, their risk appetite and cost of implementation and whether how they would like to upgrade their systems: Big bang approach³ or in multiple phases.⁴

Mapping and translation

Systems that use legacy messages will need to map and translate the information to ISO 20022 and vice versa. This can be significantly difficult if multiple data is inputted in the same field (e.g., name and address in the same line).

There can also be a complete **loss or truncation of data** during the conversion from legacy to ISO 20022 or vice versa.

Different market infrastructure implementations

Although ISO 20022 standard is used, there can be important differences between the implementation guides for different payment schemes. Therefore, consideration should be given to aligning it with the global standard as much as possible with differences documented, for example, HVPS+⁵ and CBPR+.⁶

Data management

Due to the rich and structured data which allows up to 10 times more data than legacy messages, there needs to be a consideration on how an organisation handles all this new data.

3. Big bang approach is a migration method that involves getting rid of the existing system and transferring all users to the new system on the same day. Implementation is faster with big bang approach than other methods.
4. Rather than one big go live date for the entire system, a phased approach migrates to the new system sequentially in phases. It has several smaller go live dates for each phase of the project and gradually introducing the new system piece by piece.
5. HVPS+ High Value Payments System Plus is a market task force formed by Swift, major global banks and payment market infrastructures. Their aim is to work with the industry to define best practices and guidelines on how to use ISO 20022 messages for high-value payments and to ensure that all high-value payments are processed in a consistent and efficient way.
6. CBPR+ - Cross Border Payments Reporting Plus is a working group of payment experts from a wide range of banks and countries whose mission is to create a global ISO 20022 Market Practice and Implementation guidelines to ensure a common roll-out and implementation of ISO 20022 by financial institutions. The usage guidelines define how ISO 20022 messages are to be used for cross-border payments and cash reporting on the Swift network.

Swift CBPR+

Cross Border Payments Reporting Plus (CBPR+), formed in 2019, is a working group of international payments experts who aim to define a common best global market practice, usage guidelines and translation rules for the adoption of ISO 20022 over the Swift network.

CBPR+ timeline

2023	2025
<ul style="list-style-type: none"> • Swift migrates to ISO 20022 • MT messages will co-exist with ISO 20022 • All FIs are obligated to receive and process ISO 20022 messages • FIs have the option to send MT or ISO 20022 messages • all usage guidelines are published on MyStandards at Swift's website 	<ul style="list-style-type: none"> • MT messages decommissioned • FIs are obligated to send, receive and process ISO 20022 messages

The CBPR+ framework focuses to bring standards by providing guidelines and creating a common set of data elements to be used for cross-border payments that can be adopted by financial institutions and regulatory authorities around the world.

CBPR+ specifications are a subset of the base ISO 20022 standards and aligns with PMPG high value payment systems (HVPS+) guidelines which include U.S. Federal Reserve, The Clearing House (TCH), Bank of England (BoE), Euro Banking Association (EBA) and Eurosystem to ensure consistency of data for end-to-end payment processing.

By using CBPR+, FIs can improve the efficiency, accuracy and transparency of their cross-border payment processes and reduce the risk of non-compliance with local regulations.

Everyone should consider using CBPR+ guidelines as a baseline standard for cross-border payments.

Summary

- Real time cross-border payments has various challenges and ISO 20022 plays a significant role in addressing the technical hurdles.
- Standardization for cross-border payments can help the industry as it brings transparency, interoperability, efficiency, reduce costs, and enhance the overall customer experience.
- It is important not just for compliance, but also innovation, such as getting enhanced customer insights, automate reconciliation process(es) and strengthening corporate treasury activities.
- ISO 20022 has the capability to capture more and structured data which addresses the different challenges faced by the current legacy messages and systems.
- CBPR+ is an important development in the area of cross-border payments and by adopting the framework, FIs can reduce the compliance burden and improve the accuracy and completeness of payments data for regulatory reporting.
- ISO 20022 standardization, along with how they address the potential challenges for real time cross-border payments will be explored in more detail in a follow up paper.





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