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Spotlight on Payments Technology

Leveraging rich and structured ISO20022 payments data for efficiency gains and monetisation opportunities

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Introduction

After multiple delays and years of rigorous preparation, the migration to ISO 20022 for cross-border payments and reporting (CBPR+) officially began on 20 March 2023 (Day 1). The day marked an important milestone for the global payments industry. We are now in the coexistence period, where both MT and ISO 20022 messages will be supported, and financial institutions will focus on completing the migration to new standards by November 2025 (Day 2).

Apart from CBPR+, high-value payments systems in several key domestic markets, such as Australia (RITS), Canada (LYNX), Europe (EURO 1 and T2), and New Zealand (ESAS), have also started their ISO 20022 migration journey, with other domestic schemes set to follow over the next few months and years.

While financial institutions have undertaken different strategies to ensure ISO20022 compliance, one thing is a given for industry participants i.e., the availability of richer, better structured, and more granular data in the ISO 20022 payments messages. Along with the planning for full migration to ISO20022, the focus also needs to shift towards using this enhanced payments data to create competitive differentiation, enhance operational efficiencies, improve fraud prevention, ensure better compliance, and identify opportunities for data monetisation.

As financial institutions have completed the message translation earlier this year, this newsletter explores the possible efficiency improvements and payments data monetisation use cases. It also delves into the additional work required by financial institutions from a technology and operations standpoint to bring these use cases to life. It also explores potential challenges and avenues for value realisation from the enhanced and more structured and enhanced payments datasets.

Background

MT messages were launched in 1977 by SWIFT, as a message exchange and common communication mechanism for cross-border payments. These messages were designed to be data-light due to limitations in computing power and data exchange technologies. These fixed length/plain text MT message formats, with limited data resulted in operational challenges, such as lower Straight Through Processing (STP) rates (arising from lack of end-to-end message format standardisation/full compatibility across other systems), and data truncation/associated lack of adequate transparency (on matters such as payment status).

To overcome these challenges and ensure standardisation, there was a need for global adoption and implementation of a single uniform data standard for cross-border payments; ISO 20022 fulfils this need. This new, enhanced, and more enriched structured data model for payments messages has the potential to lower overall operating costs for industry participants, increase STP rates, and provide more transparency in the payments status and improve the overall time to market for payments processing.

The ISO 20022 data standard was thus finalised as the de-facto standard to be adopted for CBPR+ requirements and domestic schemes to ensure interoperability. ISO 20022 is an Extensible Markup Language (XML) format, which is hierarchical with logical groupings of data elements. The format enables transmission of rich payments data (i.e., carry significantly more transaction data fields compared with the older MT standard). These additional data fields can enable higher STP rates, increase automation opportunities, and support various use cases for data monetisation. To understand the power of this enriched message format, please see the comparison below.

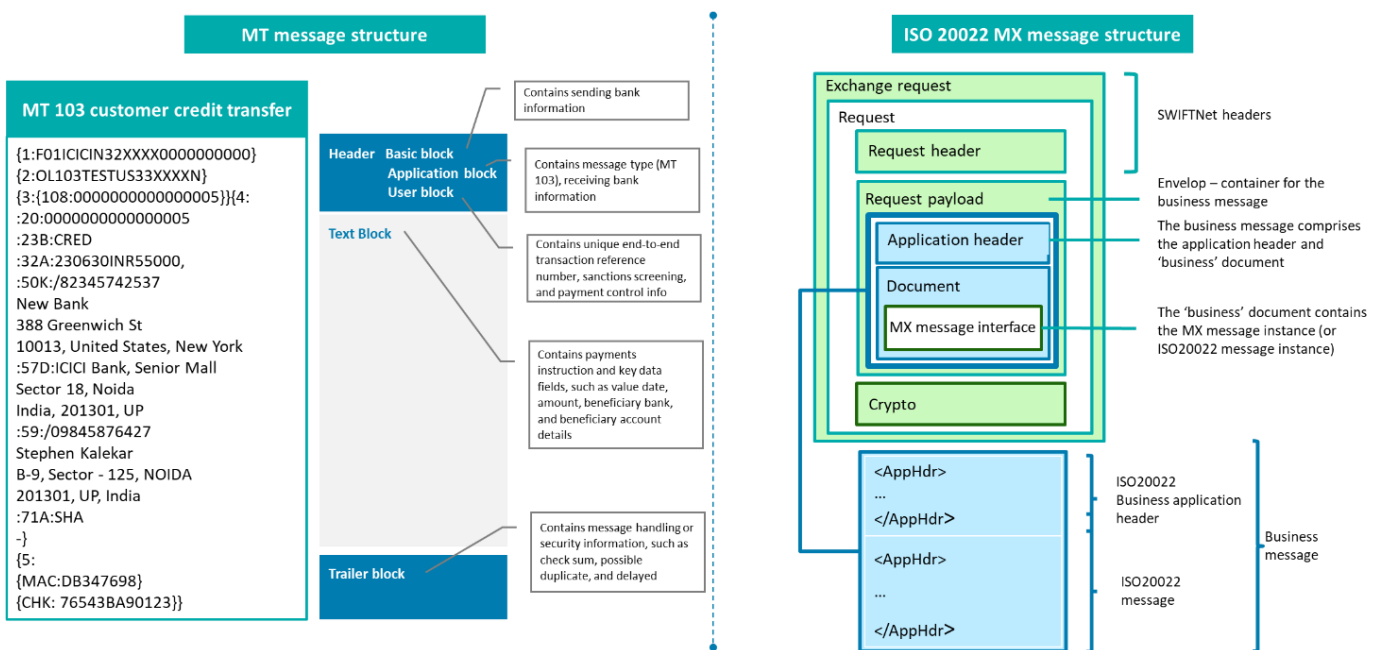
MT to ISO 20022 (MX) – What changed in the data model?

MT messages consist of a simple plain text format with limited transaction information carrying capacity. MT formats consist of five key blocks to carry the information – basic header, application header, user header, text block, and trailer block.

Compared with MT messages, the ISO 20022 format is built on the idea of a hierarchy, with the top layer including the most important business concepts and processes, the middle layer containing logical messages or message models, and the lowest layer addressing syntax.

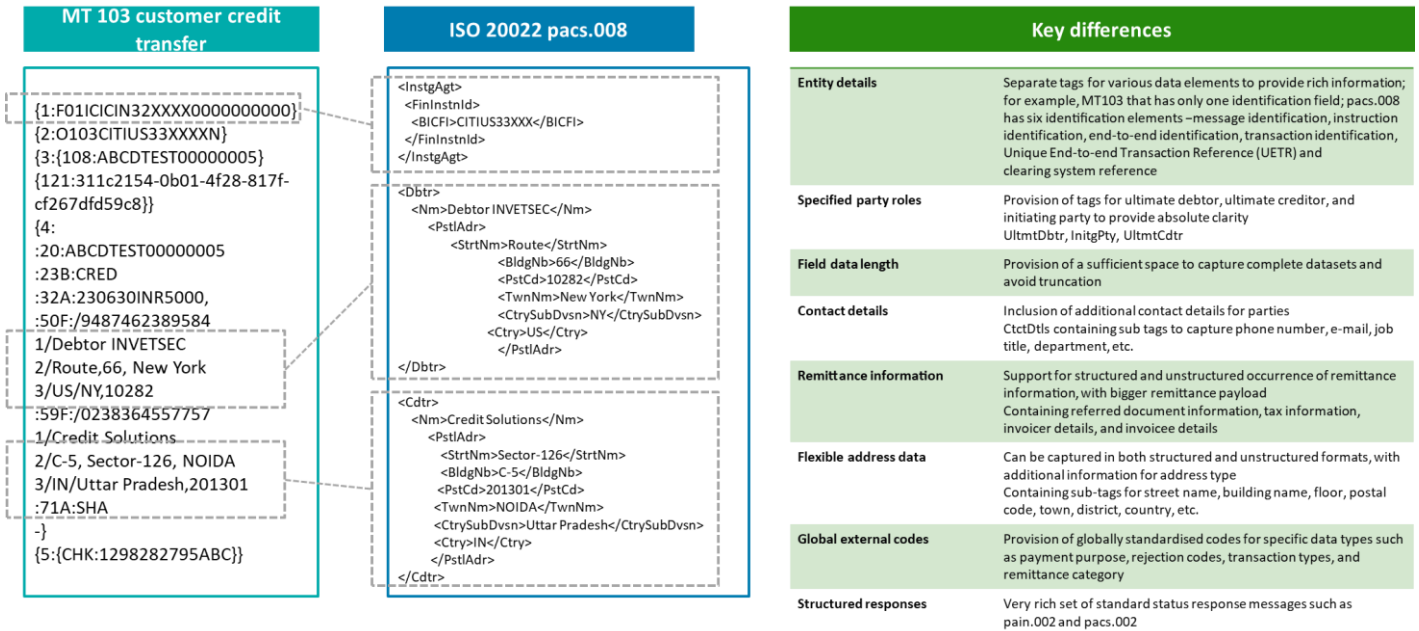
Illustrative: Comparison of message structure between MT and MX

Figure 1: Message structure comparison between MT and MX



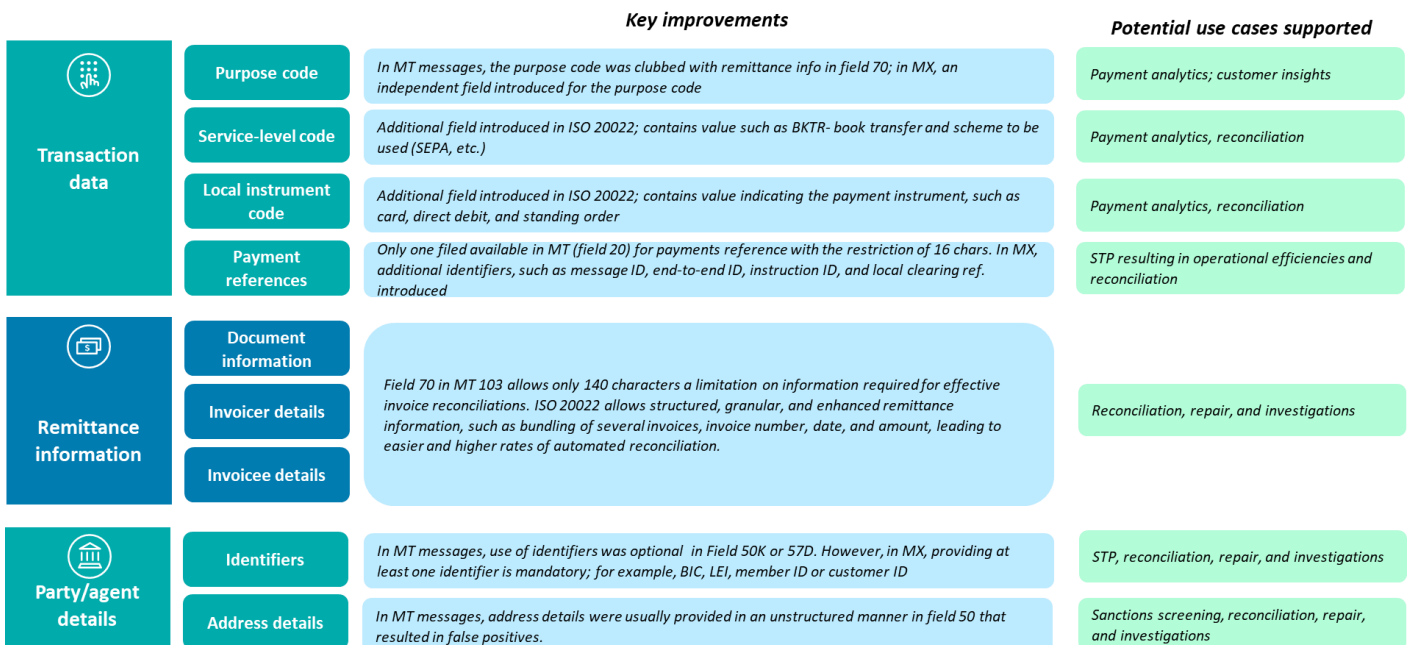
A comparison of MT to MX mapping and additional data carrying capacity in MX messages is explained below:

Figure 2: High level comparison between message structures



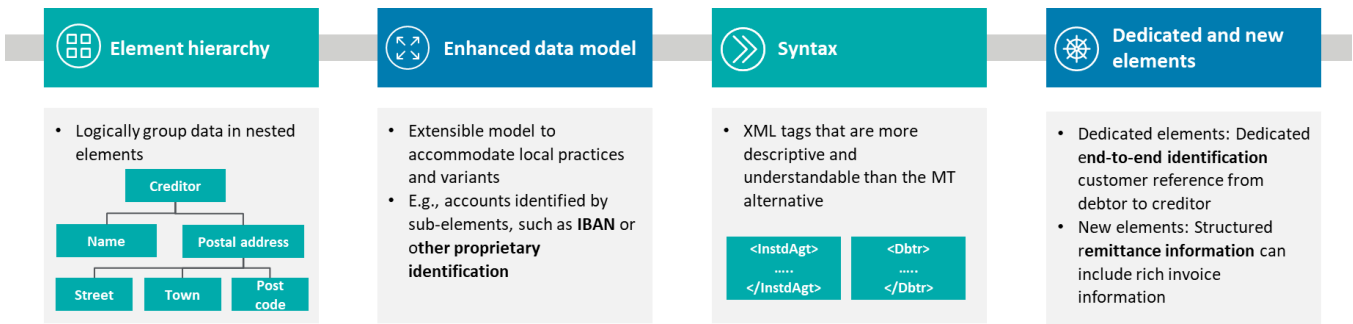
An illustrative list of fields depicting additional data carrying capacity is depicted below:

Figure 3: Key improvements in ISO message structures

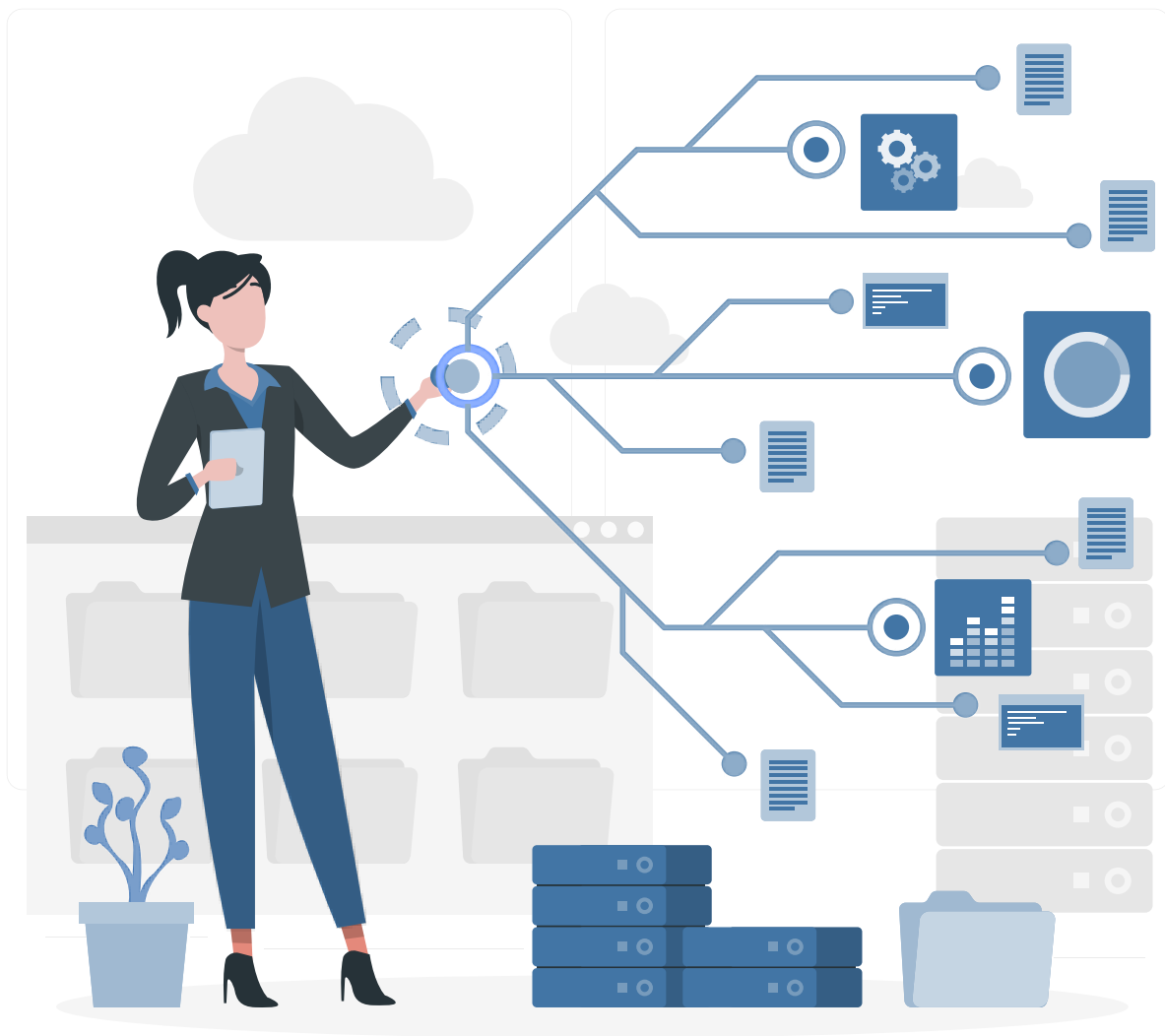


Apart from additional data carrying capacity, the ISO 2022 standard brings several improvements over MT messaging, including an element hierarchy. This enables nested elements for logical grouping of data, and dedicated elements for vital data fields. It also offers new elements and an enhanced data model to enrich the scope of messaging.

Figure 4: Improvements from MT to ISO 20022 MX



The element hierarchy and syntax (XML, JSON, etc.) aid in faster processing, automation, and speed; the enhanced data model and data elements enable differentiated use cases for efficiency gains and data monetisation. A few such use cases are covered below.

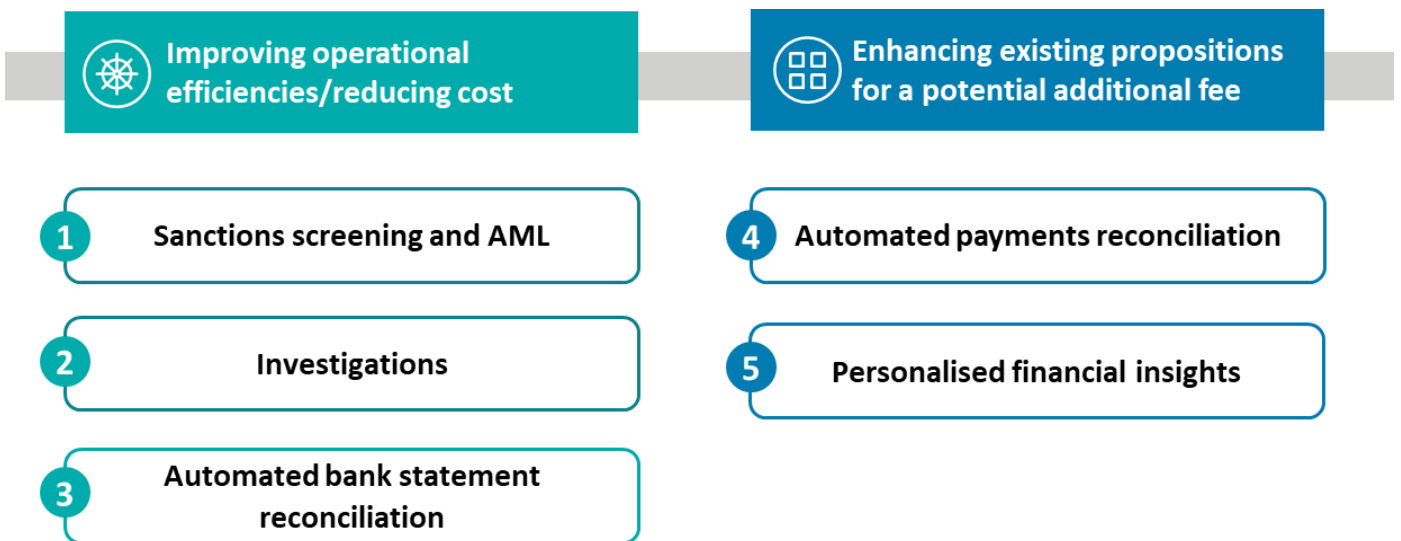


Efficiency gains and data monetisation – Deriving value from enhanced ISO20022 data

Ensuring compliance to the ISO 20022 format requires industry participants, including banks to make new investments in their payments systems. To recover some of these investments, banks have an opportunity to use the rich dataset available in ISO20022 messages, revamp their existing offerings, such as reconciliation (offered to clients for a potential additional fee), and optimise propositions such as sanctions screening, repairs, and investigations, to reduce overall operational costs.

A non-exhaustive list of such use cases focused on improving operational efficiencies/reducing costs and enhancing existing propositions for a potential additional fee is given below.

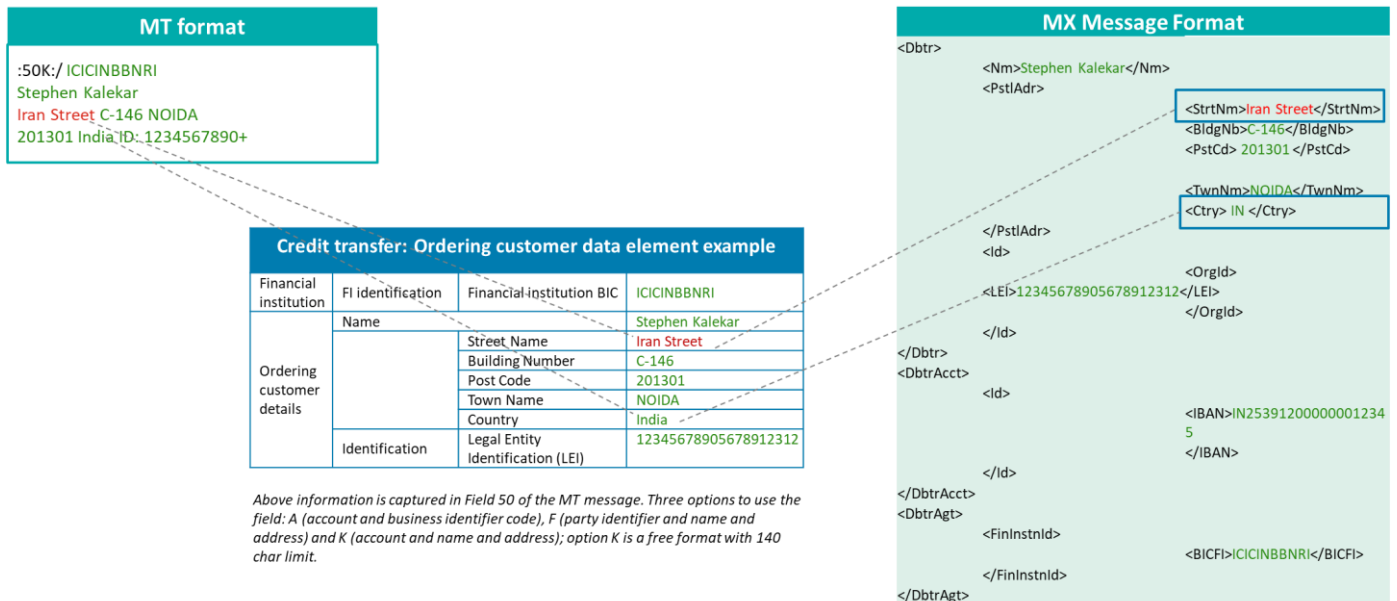
Figure 5: Potential data monetisation use cases



1. Using structured ordering customer data to improve sanctions screening and AML processes through system enhancements

The structured and detailed dataset of ISO 20022 enables an efficient approach to sanctions screening, AML, and fraud monitoring. The MT format contains limited ordering customer and ordering institution information, which could result in increased false positives and manual investigations of payments. Below is an example of how a structured ISO 20022 message can help reduce false positives:

Figure 6: Structured and enhanced dataset reducing false positives




In the above example, when the address of the ordering customer is mentioned in the MT free text format in field 50K, this would result in the message being non-STP, requiring manual intervention. The message will get pushed into the sanctions queue, as it will be difficult to determine if Iran is referred to as a street name instead of a country name (assuming Iran is a potential sanctions list country). This is a false positive as the information relates to the street name and not the country name.

However, when the same message is transferred in MX-structured ISO 20022 format, "Iran Street" will be in the xml tag "street name" and not in the country name. This will help the message pass through without raising a false positive and improve STP rates.

ISO 20022 messages also provide rich data on the transaction's parties (ultimate debtor, debtor, initiating parties, etc.) and their relationships covering actual and on-behalf-of information. The messages also contain extended remittance information and purpose code, along with Legal Entity Identifiers (LEIs) and other organisational identifiers. These datasets can be added to AML verification processes to identify individuals and entities. Data elements, such as LEI, coupled with purpose code, will make it easier to identify the destination and reason for payments. This will in turn help improve AML processes.

Thus, the ISO 20022 data format offers lower false positives, reduction in manual interventions, and an increase in STP rates, resulting in efficiency gains and overall cost reductions. However, this benefit cannot be realised simply by migrating to ISO 20022 using message translation applications/services. Banks need to follow through with more transformative actions. See "How to realise value."



How to realise value from improved screening/AML processes

- To be able to reap the benefits of the enhanced datasets, we recommend that banks evaluate the following change actions:
- Enhancements in core technology applications (screening, AML, fraud) to support enhanced data, such as transaction party, remittance info, purpose code, and LEI
 - Enhancements in peripheral applications that interface with core applications and changes in database structure to store, process, retrieve, and archive additional datasets
 - Updating existing process manuals, SoPs/policies for operation's team members to take appropriate actions depending on the additional incoming datasets
 - Potential review of the underlying technology infrastructure to support the additional data storage requirements

2. Using structured payments data to make the investigation process more effective through enhanced automation

According to SWIFT, 2–5 percent of the payments per day result in an inquiry. Resolving these investigations is a manual and time-consuming process, which is often hindered by the limited and unstructured data available in the MT messages and due to the use of free-format MTn99 message formats. In addition, the delay in resolving inquiries can lead to a suboptimal experience for clients. Payments-related investigations can be broadly classified into the following:

1. **Request to cancel the payment** – It is raised by the party that initiated the payment to request for the cancellation of that payment. It can eventually entail a request for debit authorisation.
2. **Request to modify payment** – It is raised by the party that initiated the payment to request for the modification of that payment. It can eventually entail an additional payment information message.
3. **Unable to process the payment** – It is initiated by a party instructed to make a payment or by the beneficiary of the payment as that party is not able to execute or reconcile the payment.
4. **Non-receipt claim** – It is initiated by the party that expects a payment and it does not arrive.

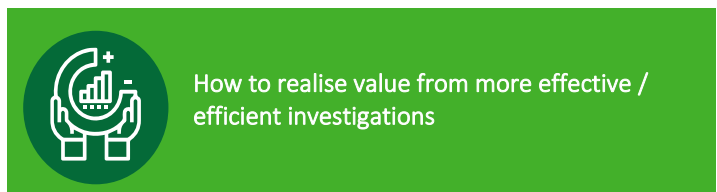
For most of the above-mentioned inquiries, MT199 free format messages are used that result in manual interventions and longer resolution timelines (multiple information requests/responses required by back-office operations staff to get the missing/incomplete information). Most of these free format inquiries are handled on the first-in-first-out basis with no provision for prioritising certain investigation requests, which are urgent and pertain to potential frauds or regulatory requirements.

ISO 20022 will replace the free-format MTn99 with more structured "CAMT" (cash management) ISO messages for investigations. "CAMT" messages are message types sent by banks to their customers to inform them of the status of an initiated transaction, the arrival of incoming transactions, or their account statements.

Each CAMT message is designed to support specific investigation queries, which will result in faster resolution of investigations. The structured nature would require fewer manual interventions by back-office operations teams. Financial institutions will also get the ability to define rules on these structured tags, which can help prioritise inquiries related to frauds or regulatory requirements.

This also presents an opportunity to further automate the investigation process, such as pre-populating certain data elements (e.g., original references) of the response message (camt.111) based on the request message (camt.110), which will help reduce manual interventions. In addition, workflow can be built for sending automatic status updates to team members working on the case to further streamline the overall process. Thus, leveraging CAMT messages for reconciliation will make it easier for corporate

customers to predict their balances and take informed decisions around their working capital management. Thus, the ability to resolve investigation requests faster and more efficiently can reduce operational costs and improve customer satisfaction levels for financial institutions. Once again, though, this benefit cannot be realised simply by migrating to ISO 20022 using message translation applications/services. See "How to realise value from more effective/efficient investigations."



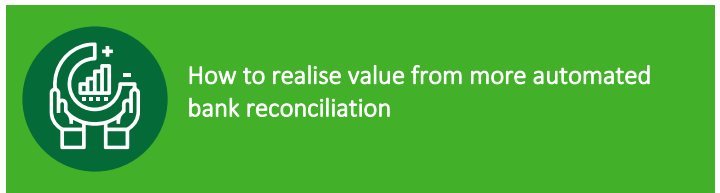
To enable the automation of the overall process and reap the efficiency gains, we anticipate the following requirements:

- Enhancements in core technology applications (exception management and investigations) to support the structured CAMT message formats
- Enhancements in external interfaces to support the transmission of CAMT messages (incoming/outgoing)
- Review potential customer facing/internal graphical user interface (GUI) for enhancements to support the structured message formats
- Set-up of intelligent bots/changes in BPM solutions to support the investigation process automation
- Training of contact centre staff and operations team members on the structured message formats, updating process manuals, SoPs, policies, and changes in the core operating model to re-align team members based on the revised automated process and customer communication requirements

3. Leveraging enhanced ISO 20022 statement messages for automated bank statement reconciliation by upgrading existing integrations with corporate customers

Corporate customers rely on account statements sent by banks via SWIFT MT940/942 messages either at the end of the day or intraday, respectively. These are uploaded in ERP systems for bank statement reconciliation. There are multiple challenges with this approach and some of these are mentioned below:

- **Need to support multiple standards:** There are multiple prevalent standards for bank-to-customer statements. For example, SWIFT MT940/942, BAI2 in the US, CADO in Belgium, and CFONB120 in France, due to differences in local in-house clearing systems and use of bank proprietary formats, which need to be supported by corporate customers.
- **Limited datasets and data quality concerns:** MT940 statements have limitations on data carrying capacity. The use of free-format unstructured data in BAI2 formats can lead to data quality concerns, making it difficult for corporate customers to complete their reconciliation activities.
- **Technology limitations:** Many corporate customers run legacy ERP systems that have limitations in supporting auto-matching, rules-based logic, and the ability to process proprietary reporting formats.



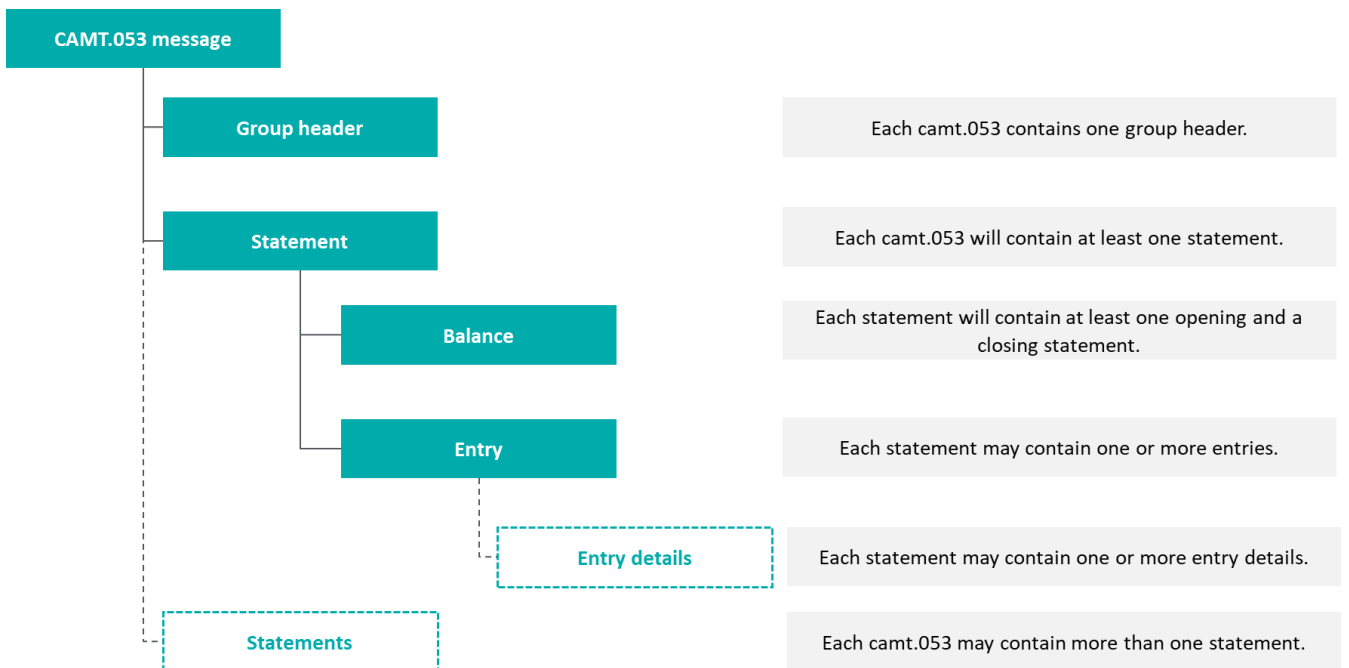
How to realise value from more automated bank reconciliation

To enable the automation of bank statements reconciliation and reap the efficiency gains, we anticipate the following requirements:

- Enhancements in integrations with ERP systems of corporate customers. Review and re-design existing interfaces to accommodate new data fields, revised data mappings, and new statement message structure
- Review potential customer-facing/internal GUI for enhancements to support new statement messages
- Training contact centre staff and operations team members on new statement message formats, and updating process manuals and SoPs to manage customers

With the introduction of CAMT.052/0.53 formats in ISO 20022, which provide structured and rich datasets for one or more accounts with more than 1500 fields, a number of challenges listed above can be resolved. This makes it easier for corporate customers to complete their bank statement reconciliation requirements. Thus, leveraging CAMT messages for bank reconciliation will make it easier for corporate customers to predict their balances and take informed decisions around their working capital management. Once again, this benefit cannot be realised simply by migrating to ISO 20022 using message translation applications/services. See “How to realise value from more automated bank reconciliation.”

Figure 7: Structured and rich dataset for statements



4. Leveraging rich remittance information to improve the invoice to payments reconciliation process through system enhancements

Reconciliation of payments with invoices is a tedious task for corporate customers and financial institutions. This is because of the challenges with different corporate ERP systems/standards they follow, potential data truncation challenges during cross-border payments, and missing remittance information in unstructured message formats.

In MT messages, the remittance information is carried in Field 70, and only 140 characters of information is allowed. This information restriction leads to potential data truncation and makes the reconciliation process tedious and ineffective for banks and their corporate customers.

The ISO 20022 format enables the transmission of structured and comprehensive remittance information, along with detailed invoice information. This enables seamless and effective end-to-end reconciliation.

The structured remittance information in ISO 20022 messages is nested in nature, which allows up to 9,000 characters of business information to be carried, for one repetition. The ISO 20022 format allows transmission of several elements, such as reference document number, amount, creditor reference, and location, which allows both banks and corporate customers to improve the invoice to payments matching rates. The possible remittance information carrying capacity in the ISO format is mentioned below.

Figure 8: Structured remittance information in ISO20022

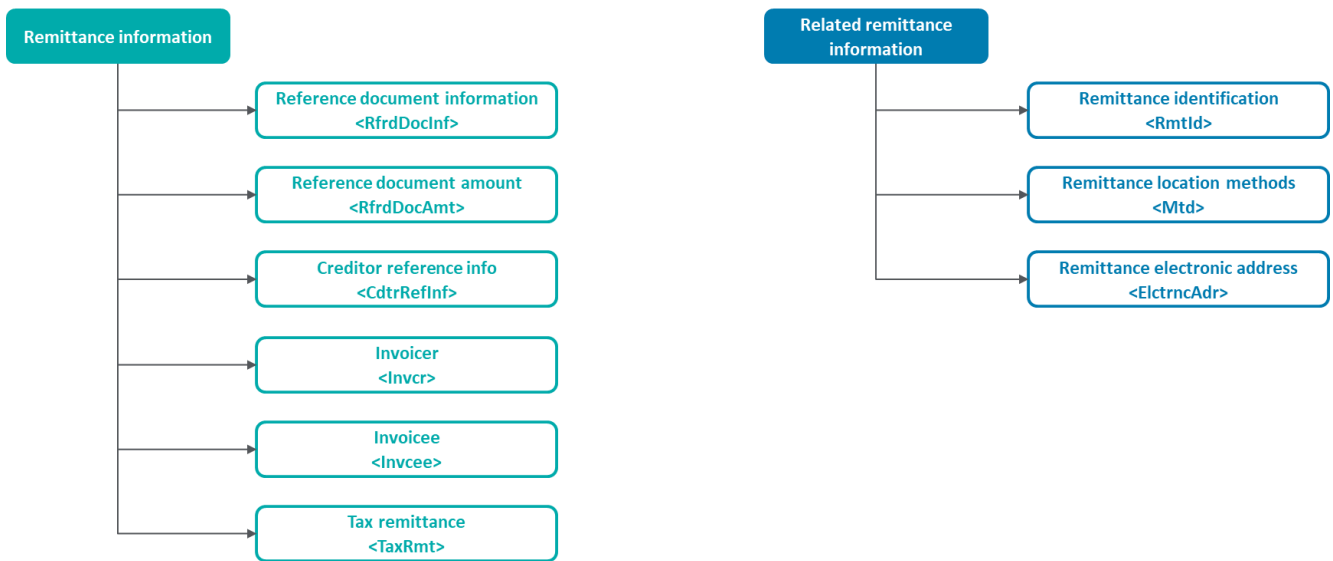
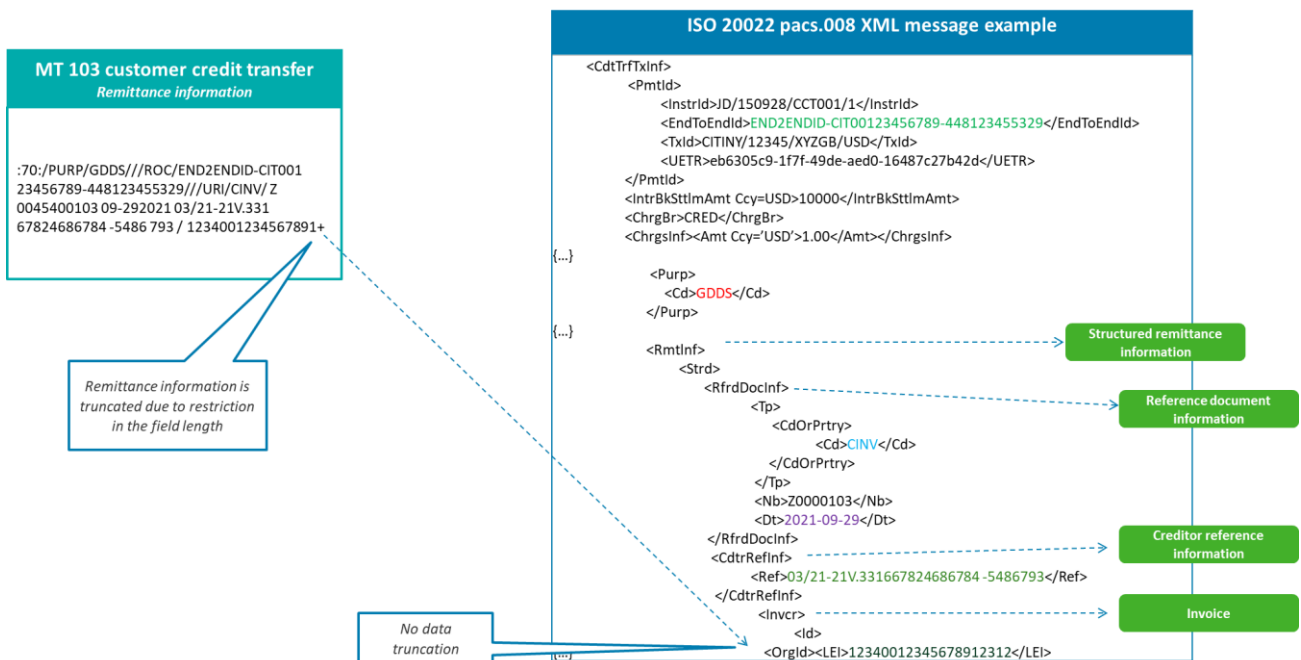



Figure 7: Enriched remittance information without any data truncation in MX messages



In addition, information in fields such as "End to End Id" can help uniquely identify the payments and match them with the relevant invoice details in remittance information, such as invoicer details, invoicee details, and invoice number. This can help increase automated reconciliation of payments and invoices and improve overall operational efficiencies. On the back of rich payments data, coupled with detailed remittance information, financial institutions can offer reconciliation services to corporates for additional fees, thus opening additional avenues for monetisation. Again, this benefit cannot be realised simply by migrating to ISO 2022 using message translation applications/services. See "How to realise value from more automated invoice reconciliations."

 **How to realise value from more automated invoice reconciliation**

- To enable the automation of the reconciliation process and potential monetisation opportunities, we anticipate the following requirements:
- Enhancements in core reconciliation engine to consume the enhanced remittance information and develop the reconciliation services based on this dataset
 - Enhancements in peripheral applications that interface with above core reconciliation engine and changes in database structure to store, process, retrieve, and archive additional datasets
 - Review potential customer facing/internal GUI for enhancements to support showing the additional remittance information
 - Updating existing process manuals and SoPs/policies to re-align team members based on the revised reconciliation process

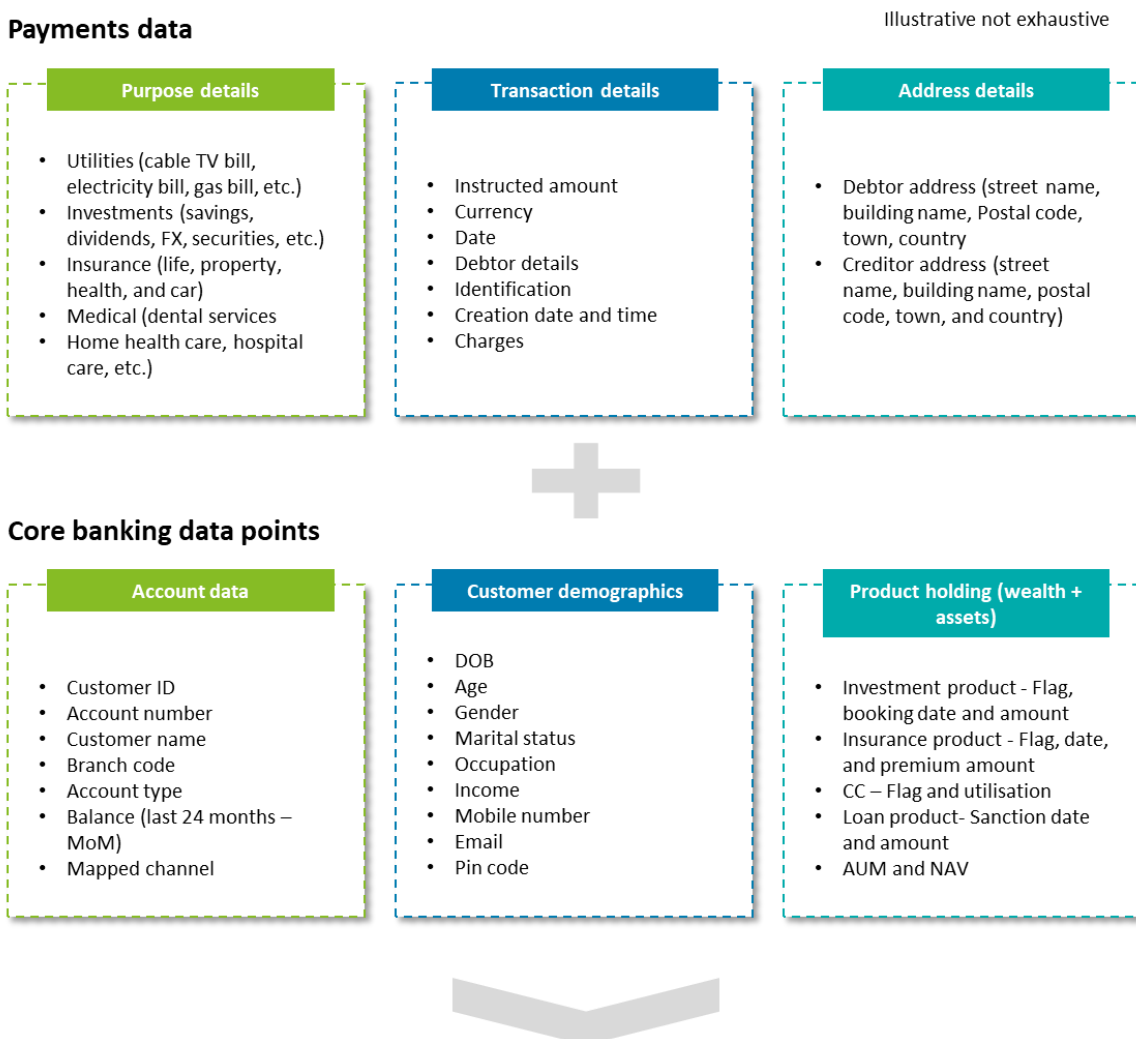
5. Leveraging structured data to provide personalised financial insights to customers by enhancing data models and analytics capabilities

The wealth of structured and additional data present in the ISO 20022 messaging standard can be used by financial institutions to understand the highly personalised financial needs of their customers. Payment patterns and relevant insights can be drawn by analysing the "Transaction Data", "Remittance Information", and "Purpose Code" and understanding the co-relation between different datasets.

Using these payment patterns, financial institutions can proactively extend recommendations and explore cross-sell opportunities. For example, if a customer has started making payments to a new country for a certain business purpose, can be determined by analysing the transaction data, invoice data, and payments flows. Trade and working capital products can then be offered to customers, opening up new cross-sell opportunities for financial institutions.

Another example can be an SME customer sending multiple payments during the last week of the month based on the incoming payments during the third week of the month. Any delays in the incoming payment can create a need for an overdraft to cover the shortfall. With this insight, banks can offer targeted products to SME customers, for overdraft at an appropriate time with a high probability of conversion. Thus, payment data, coupled with the existing banking data of customers, can lead to multiple innovative use cases with the potential to generate additional revenue for financial institutions. Again, this benefit cannot be realised simply by migrating to ISO 20022 using message translation applications/services. See “How to realise value by drawing more customer insight.”

Figure 10: Enhanced and structured data set for potential analytics use cases



Customer spend analytics	<ul style="list-style-type: none"> Financial institutions can provide customers a spending summary by category for personal finance management. Predictive analytics and suggestions can be provided on the basis of past historical transactions, spends, and lifestyle of customers to predict future spend and cash flow prediction.
Personalised offers	<ul style="list-style-type: none"> By analysing the purpose codes, financial institutions can offer personalised products and services to customers. For example, a customer is making the payment of a house purchase. The purpose code "PCOM" can be used to offer house insurance or home improvement loans.
Peer insights	<ul style="list-style-type: none"> Financial institutions can analyse the payments data (purpose code) and core banking data to provide information about similar customers and their spending and investment preferences and habits. For example, alert customers of higher-than-average bill payments than their peers.
Market insights	<ul style="list-style-type: none"> Geographical information from the ISO 20022 data can reveal whether spending patterns differ based on location. This information can help financial institutions tailor their services to different regions. Financial institutions can segment customers into different groups based on spending behaviour and analyse spending patterns to understand consumer preferences.



How to realise value by drawing more customer insights

To be able to reap the benefits of the above-mentioned enhanced datasets, we anticipate the following requirements in the overall data and integration landscape

- Review the data strategy covering data extraction, storage, data models, and data analytics to maximise the gains from the enhanced dataset
- Enhancements in the operational data storage and data marts/data lake to facilitate storage of enhanced dataset of ISO 20022 messages
- Enhancements in the integrations to manage a new dataset for retrieval, visualisation, and reporting
- Review potential customer-facing/internal GUI for enhancements to support in showing the additional data
- Enhancements in analytics engine to consume new data model, along with the continued support of old data model of MT messages, to support analytics on historical data
- Updating existing process manuals, SoPs/policies to re-align the team members based on the revised reconciliation process

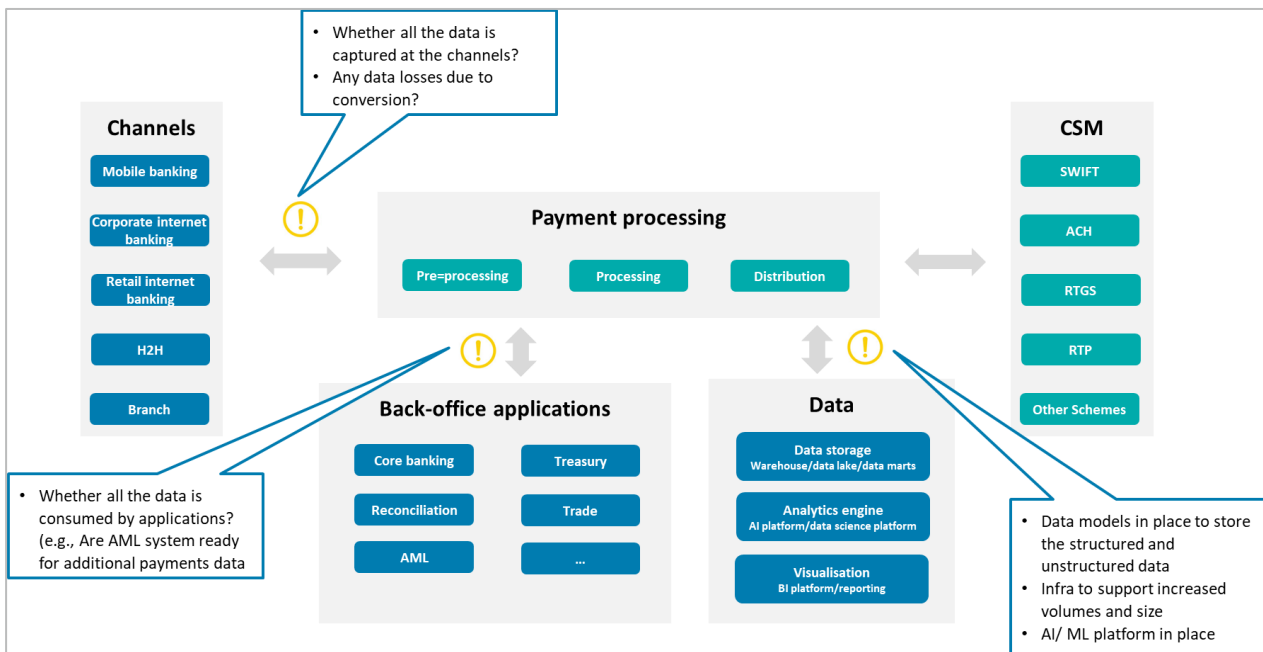
There are additional use cases leveraging the structured and enhanced payments data. We also anticipate financial institutions to be ready to address various challenges across their business, technology, and operations teams to support these additional dataset requirements. The section below briefly covers these challenges.

6. Potential challenges for managing structured and enriched ISO 2022 payments data

To comply with domestic scheme compliance with ISO 2022 messages and for CBPR+ Day 1 requirements, various financial institutions have leveraged tactical message converters and pre-processing wrappers to support MT to MX conversion. This offers limited efficiency gains and monetisation opportunities since the full support of ISO 2022 datasets across bank applications is still far away.

In addition, considering each domestic scheme across the globe are in distinct stages of readiness to support ISO 2022 formats from a cross-border perspective, banks can take a measured approach for adoption of rich data standards. SWIFT anticipates potential challenges regarding data truncation during cross border to domestic scheme transition. This is because there are possibilities that data in a rich ISO 2022 cross-border instruction (e.g., pacs.008) may not get accommodated in the legacy domestic CHIPS or Fedwire formats, leading to data integrity and quality challenges. However, in geographies such as India, where the remittance business is large and local high-value rails are on ISO 2022, there would be a low risk of data truncation and a strong business case for changes.

In the long run, to realise the full potential of rich data, the entire data journey would need to support ISO 2022 datasets. Industry participants must ensure that the data is captured correctly (Customer facing applications, payments initiation applications), processed without data loss (processing engine, back-office applications, and side-stream applications), and stored appropriately (data warehouse, data lakes, and analytical engines) to support the use cases discussed in the preceding section.



At a high level, we anticipate the impact on technology applications and operational processes, as covered below to support the additional datasets in ISO 2022 messages.

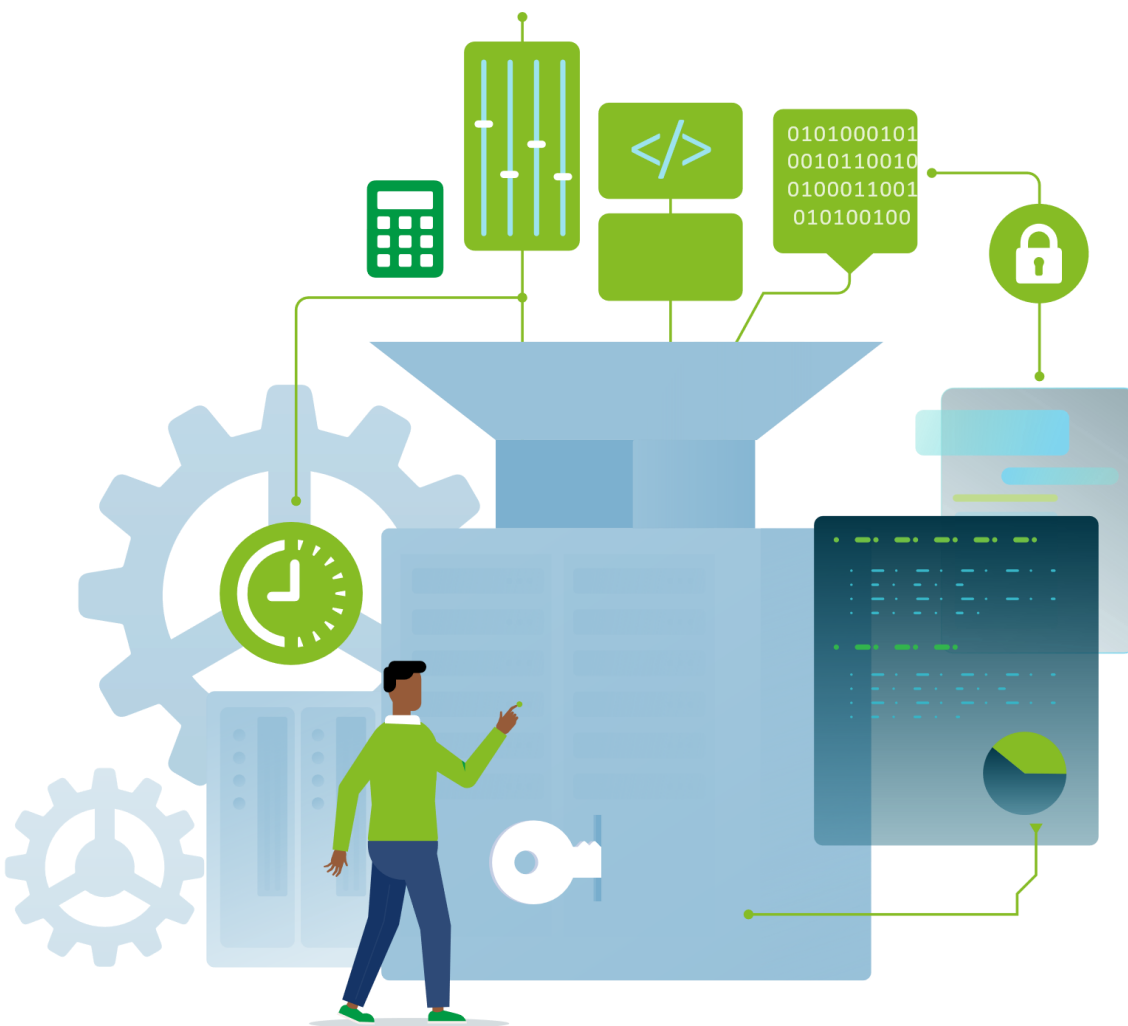
- Applications interfacing with payments processing engines, such as channels, AML systems, and accounting systems, might not be capable of accommodating the enhanced ISO 2022 dataset and might require enhancements.
- ISO 2022 messages are significantly larger in size compared with MT messages. Financial institutions will need to upgrade their data infrastructure (e.g., through investments in data storage, processing, and analytics technologies) to effectively manage the increased volume and complexity of data emerging from ISO 2022 messages.
- New data models need to be built to store the old and new ISO 2022 data, along with changes to the data retrieval and reporting layers, to ensure seamless investigations and reporting.
- Financial institutions will need to embrace advanced business analytics and Artificial Intelligence (AI) technologies.
- Potential changes to customer facing/internal GUI for enhancements to support the structured message formats.
- Ensuring compliance with data privacy and security regulations will be crucial while dealing with Personal Identifying Information (PII) data.
- Contact centre staff and operations team members need to be trained on the structured message formats and updating process manuals, SoPs, and policies.

Key takeaways

The global acceptance of ISO 20022 messaging standards as the de-facto standards for both domestic and cross-border payments, will result in the generation of a rich and structured payments data. This will open new avenues for industry participants to explore additional revenue-generation services and increase operational efficiencies with a data-driven approach.

To reap the benefits of ISO 20022, industry participants will need to ensure their systems and processes are equipped to manage rich ISO 20022 datasets.

While the industry participants are already exploring the avenues for data monetisation and efficiency gains based on the MT to MX migration, more innovative use cases can be expected in the near future after the schemes are migrated to ISO 20022 messaging standards.



How can Deloitte help?



Impact assessment of the ISO 20022 dataset on current applications, interfaces, and data layer to identify the quantum of change required



Formulate the target state and develop an implementation roadmap



Create customer journeys and document the changes in processes and SOPs



Support in programme management to implement changes



Support the implementation of system changes in the capacity of payments SME, business analysis, development, and quality assurance

Connect with us



Vijay Mani
Partner
Asia Pacific Payments Leader
Mobile: +91 9619525854
Email: vijaymani@deloitte.com



Jitin Sehgal
Partner
Mobile: +91 9899362005
Email: jitsehgal@deloitte.com



Neeraj Shrivastava
Director
Mobile: +91 9560375454
Email: neerajs@deloitte.com

Contributors

Diksha Gupta

Naman Jain

Nitin Jain

Shubham Lad

References

<https://www.celent.com/insights/564441441>

<https://www.swift.com/standards/iso-20022>

<https://www.citibank.com/tts/sa/flippingbook/2021/The-Importance-of-Data-Structure-ISO-20022-and-the-Future-of-Payments/14-15/>

https://www.swift.com/sites/default/files/documents/swift_pmpg_guidelines_exceptionsandinvestigations.pdf

<https://corporates.db.com/publications/flow-briefing/>

<https://www.swift.com/swift-resource/8751/download>

Glossary

AML: Anti Money Laundering

BAI: Bank Administration Institute

BPM: Business Process Management

CAMT: Cash Management related ISO20022 messages

CBPR: Cross-border payments and reporting plus

CFONB: Comité FrançAis D'Organisation Et De Normalisation Bancaire

CODA: Coded Statement of Account

ERP: Enterprise Resource Planning

ESAS: Exchange Settlement Account System

ISO: International Organization for Standardization

JSON: JavaScript Object Notation file format

LEI: Legal Entity Identifier

PACS: Payment Clearing and Settlement related ISO20022 messages

RITS: Reserve Bank Information and Transfer System Australia

SME: Subject Matter Expert

SOP: Standard Operating Procedure

STP: Straight Through Processing

SWIFT: Society for Worldwide Interbank Financial Telecommunication

T2: Target 2

XML: Extensible Markup Language

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