



Info Paper

**ISO 20022 for
Financial Institutions**

Best Practice for
Successful Implementation

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As part of SWIFT's wider effort to assist the market in its evaluation and/or adoption of the ISO 20022 standard, and based on extensive experience having delivered 150 standards consulting projects, this information paper outlines best practices for implementation of the standard, aimed at financial institutions.

It provides a framework that allows organisations to:

- understand how different market infrastructure adoption approaches have an impact on the implementation options for financial institutions
- evaluate the relative merits of a tactical versus strategic implementation
- make informed decisions about the implementation roadmap, based on business and technology impact assessment and to create an enterprise architecture that is as 'future-proof' as possible
- understand how SWIFT can help throughout the process, from evaluation to design and implementation phases

The ISO 20022 standard

ISO 20022 is a global and open standard, not controlled by a single interest, open to anyone in the industry who wants to participate, and free for anyone to implement on any network. In addition, it has mature and fully established processes for maintenance, evolution and governance.

ISO 20022 is a methodology that can be followed to create financial messaging standards. In addition, ISO 20022 is a body of 'content' — meaning a collection of 'message definitions' and a process of how these can be applied to specific business domains.

Benefits

Availability of rich and comprehensive information

ISO 20022 is a financial message standard which covers the full end-to-end transaction cycle for payments, securities and specific trade transactions. In comparison with MT business flows, ISO 20022 also covers a full range of data sets and messages for investment funds. In addition, ISO 20022 transactions offer extra functionality, such as enhanced remittance, longer references, support for non-Latin characters and the possibility for 'extensions'. As a result, ISO 20022 transactions are comprehensive and information-rich.

Supports interoperability and harmonisation

More than just a set of messages, ISO 20022 is a methodology that allows for harmonisation of previously non-interoperable formats, which drives operational efficiency and reduces risks and costs.

Accommodates both global standards and local usage

ISO 20022 allows communities to define global market practice and use this as a basis to define further local implementation guidelines, meeting specific local business requirements and services.

Allows for easy data consumption

ISO 20022 uses structured XML as its underlying syntax, making implementation and data consumption easier given the availability of cost-effective and advanced XML capabilities in modern IT platforms.

Growth of ISO 20022 adoption

Currently, there are about 200 initiatives around the world that have either implemented, or are planning to implement, ISO 20022 across payments, cash management, securities, trade finance and treasury domains.

The adoption of ISO 20022 is growing rapidly. Whilst corporate organisations are exerting pressure on financial institutions to implement ISO 20022 for cash management, the majority of ISO 20022 initiatives are being driven by market infrastructures which sit at the centre of their respective user communities, typically connected in a 'one-to-many' configuration.

As a result of this growth, ISO 20022 has become the financial industry's preferred standard for new initiatives, and the clear choice for market infrastructures around the world.

Market infrastructures act as both catalysts and organisers for the adoption of ISO 20022 within their respective communities. Adoption triggers differ widely from project to project, but the underlying impetus to migrate to ISO 20022 is typically based on one or more of the following internal and external factors: regulatory reform; pan-regional market integration; automation and cost-efficiency; international expansion; new end-to-end services; or the replacement of legacy systems.

Regardless of the trigger, market infrastructures tend to plan over longer time frames than most commercial businesses, and the appeal of a well-managed, technically advanced and adaptable standard is self-evident.

The ISO 20022 Registration Authority maintains a global overview of all initiatives adopting ISO 20022. This information is published as an 'app' for iOS tablet devices, available for free from the Apple App Store. The ISO 20022 adoption 'mApp' tracks initiatives that adopt official ISO 20022 messages registered on www.ISO20022.org, and publishes message types and project status, covering all regions and business segments. A sample is shown in figure 1.



▲ Figure 1 - The mApp showing major ISO 20022 initiatives

As they define their ISO 20022 roadmaps, market infrastructures may choose different adoption approaches which impact their participant communities in different ways.

There are two principal approaches

- 1. 'Like-for-like adoption'** replicates existing business functionality, but does not enhance it. As ISO 20022's rich functionality is matched to the legacy capability, and as no new functionality is introduced, this facilitates end-to-end transaction interoperability. Typically, 'like-for-like' is seen as an intermediate step towards full implementation of ISO 20022. It enables market infrastructure participants to first become ISO 20022 enabled, and then to evolve towards full implementation of ISO 20022, with richer services, at a later stage. This approach is currently being adopted by a significant number of high-value payments market infrastructures around the world.
- 2. 'Full implementation'** is the approach taken by market infrastructures that want to leverage the full richness of ISO 20022 messages, with the goal of offering additional and/or improved services, that take advantage of additional message flows and data elements that are inherent with ISO 20022. Alternatively, market infrastructures select a 'full implementation' approach when a 'like-for-like' approach is simply not practical, for example where replicating legacy functionality would be too restrictive or too limited.

In addition to the two adoption approaches described above, another factor that will impact the implementation for financial institutions is the market infrastructure's approach to customer rollout.

Customer rollout

The timing of customer rollout tends to be either 'big bang', where all customers are migrated at the same time, 'phased', where customers are migrated in segmented batches, or 'free', where customers can choose when to migrate:

- 1. 'Big-bang' approach** is characterised by a single, mandatory migration deadline which must be adhered to by all participants, and where all functionality and message formats are simultaneously switched. Although simple in concept, the market infrastructure must manage the testing and migration of the entire community in one go, and also needs to devise alternative strategies for those institutions that may not be ready by the deadline.
- 2. 'Phased' approach** is characterised by multiple migration phases, each with its own deadline. This phasing separates the overall migration into a small number of batches or 'waves' - either by incremental functionality or by a set number of participants. Financial institutions typically find this approach easier to manage but it requires the market infrastructure to operate multiple 'live' and 'test' environments, each supporting a different standard, to cater for the full range of functionality and/or customers.
- 3. 'Free' transition approach** allows individual customers to decide when they migrate, based on their internal readiness and preferences. If the market infrastructure's ultimate goal is to migrate all participants by a pre-defined deadline and then maintain only one standard, it is important that it manages the participants throughout the transition period, to ensure complete customer migration by the deadline.

Adoption drivers for financial institutions

As part of everyday business, financial institutions are connected with numerous counterparties - other financial institutions, correspondent banks, service providers, corporate customers, as well as market infrastructures.

As market infrastructures adopt ISO 20022, each imposes their own set of functional priorities, message versions, implementation guidelines and timetables.

For financial institutions which have a global footprint, the collective impact of multiple ISO 20022 initiatives, staged across multiple market infrastructures, needs to be evaluated.

In addition to these external drivers, financial institution may also have internal reasons to adopt ISO 20022, linked to either platform renewal, centralisation, the offering of differentiated services, regulatory requirements, or the optimisation of their internal data architecture.

As a result of market infrastructure adoption, local regulation or commercial necessity, financial institutions are examining how ISO 20022 should be implemented within their messaging, transaction processing and back-office environments.

Implementation approaches for financial institutions

For financial institutions, there are typically two implementation approaches, as shown in figure 2:

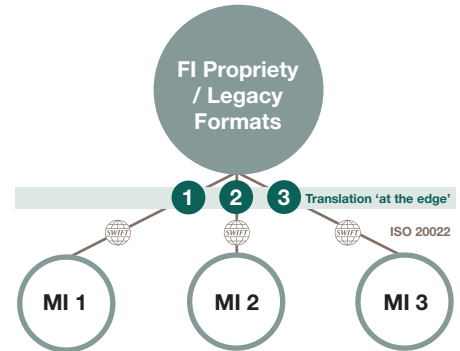
1. Tactical or ad-hoc ‘translation’ approach where the financial institution undertakes the integration with each market infrastructure separately. To minimise implementation effort, the organisation may undertake a ‘translation-based’ approach, which takes the ISO 20022 messages received from the market infrastructure and converts them to and from legacy/proprietary formats, leaving the application environment untouched. This simple translation-based ‘at the edge’ approach minimises the implementation effort, but is typically only viable where the market infrastructures adopts a ‘like-for-like’ strategy and there is no inclusion of new ISO 20022 functionality, flows, data elements, formats or rules.

2. Strategic or ‘native’ approach where the financial institution adapts its infrastructure and application environment to accommodate new ISO 20022-specific capabilities. This ‘native’ functionality can be re-used across multiple market infrastructure initiatives and across multiple internal back-office systems. This approach results in a more ‘future-proof’ architecture which can accommodate potential new business flows if/when these become ISO 20022-enabled.

Larger financial institutions that participate in multiple market infrastructures may need a combination of these tactical and strategic approaches to accommodate different timelines, market infrastructure strategies, and internal infrastructure dependencies.

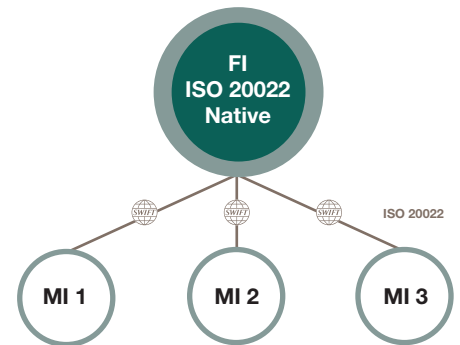
APPROACH 1

FI undertakes tactical translation ‘at the edge,’ one per MI, leaves central system untouched, minimising implementation effort



APPROACH 2

FI adapts its infrastructure and application environment to accommodate new ISO 20022-specific capabilities



▲ Figure 2 - Different approaches for ISO 20022 implementation for financial institutions

SWIFT has been involved in major initiatives in multiple geographies, encouraging harmonised adoption and sharing best practice insights. Based on this close collaboration with the community, SWIFT has observed a number of best practices for the implementation of ISO 20022.

In order to make an informed decision on the best implementation approach, it is best practice to perform a full impact assessment. This comprises a business analysis that identifies the institution's current and projected ISO 20022 requirements, and also a technology impact that defines a practical implementation roadmap.

Business impact assessment

This stage reviews the institutions' current ISO 20022 landscape from an external business perspective, and summarises unilateral/bilateral dependencies, business flows and message types with external financial institutions, corporate customers, third-party service providers and market infrastructures. Typically, it addresses the following questions:

- Which market infrastructures will I need to support and by when? Which features will I be required to use? Which functions might I want to use in order to provide better service or increase my efficiency?
- What customer requirements would need to be supported? What business capabilities will I need to address for my corporate and financial institution clients?

Technology assessment

This stage reviews the institutions' current ISO 20022 landscape from an internal application perspective and summarises business flows, message types and interface specifications with all internal applications within the organisation, including the possible new functions that will be needed. Typically, it addresses the following questions:

- Which existing applications will be affected? What are the requirements to produce or consume ISO 20022 data? Will these applications manage these requirements directly within the application, or indirectly via an integration or middleware solution?
- What new application capabilities will be required?

'To-be' business architecture and 'roadmap'

Whether the project is an organisation-wide, multi-year process, or simply a tactical implementation limited to a specific internal business process, this stage outlines the proposed business scope, phasing and the expected organisational impact by business area, system or geography, and addresses any items raised during the impact assessment.

The proposed roadmap should list, by phase, all impacted external organisations, internal business applications, message flows, message types and versions, as well as the specific business benefits, all of which should be set against a high level timetable. It is important for this roadmap to be agreed by all impacted stakeholders so that the broader interdependencies are fully understood, and the need for action is recognised.

Business case

This stage assesses the expected costs and benefits of the proposed roadmap, across all the stakeholders, by phase. Ideally, 'costs' should aim to quantify the one-off and recurring costs, and 'benefits' should aim to quantify cost savings, incremental revenues as well as summarise the strategic benefits.

The ISO 20022 ‘impact assessment’ provides the financial institution with a clear roadmap of the expected scope, timing and business impact of ISO 20022.

The subsequent ‘solution design’ outlines the enterprise architecture needed to deploy the business-focused ‘roadmap’. It will cover a number of technical aspects of the initiative and can be visualised as a set of four interdependent architectural layers.

Business layer

This layer covers business process flow design and market practice guideline definition. For ISO 20022 tactical ‘translation’ or ‘like-for-like’ approaches, the impact on the business layer may be limited, whereas a ‘full’ implementation may impact numerous business processes.

Data layer

The data layer covers message development, data mapping, transformational rule definition and alignment with the ISO 20022 open business model and the existing ISO 20022 Data Dictionary. Scope also includes an inventory of all the underlying ISO 20022 data elements to be used in the new initiative.

Application layer

It defines the requirements for new software tools (either custom or off-the-shelf) as well as requirements for existing applications that will produce or consume ISO 20022, for example middleware, interfaces, connectors and converters. These requirements should ensure harmonisation across applications.

Technology layer

This layer ensures the adequacy of the underlying networks and processing systems, in terms of speed, capacity and bandwidth, including differing provisions due to protocol, message size or syntax differences. Scope may also include recovery and resiliency procedures.

ISO 20022 Impact Assessment

Business Assessment	Technical Assessment	Roadmap	Business Case
External Impact Unilateral/bilateral dependencies, business flows and message types with external institutions	Internal Impact Business flows, message types and interface specifications with all internal applications	Roadmap <ul style="list-style-type: none"> High level scope businesses, systems, geography Message flows and message types Phasing/timetable 	Costs <ul style="list-style-type: none"> One-off investments Annual costs Benefits <ul style="list-style-type: none"> Revenues Strategic benefits

ISO 20022 Solution Design

Business Layer	Data Layer	Application Layer	Technology Layer
Business Flows <ul style="list-style-type: none"> Business Process Flows Market Practice Guidelines 	Data Design <ul style="list-style-type: none"> Message development Data mapping transformation rules Data elements 	Off the Shelf / Custom Tools <ul style="list-style-type: none"> Middleware Interfaces Connectors Convertors, etc 	Performance Requirements <ul style="list-style-type: none"> Speed Capacity Bandwidth Recovery and resiliency, etc

▲ Figure 3 - Best practice ISO 20022 assessment and design approach

Take a holistic view across business lines

Depending on the approach, the initial scope of implementation may be limited to a specific business line, but, as ISO 20022 spans many business domains, active dialogue with and/or involvement of other business areas is strongly recommended to ensure the roadmap addresses all organisational inter-dependencies.

Ensure balance of business and IT stakeholders

Successful ISO 20022 implementations recognise that message flows are based on the needs of business processes, and the underlying data representation is a technical reflection of the business requirements. Typically, the project should have a balance of business and IT stakeholders, each with different roles — the business side of the organisation should provide the functional requirements and the IT side should run the project and hold the budget.

Ensure a single, central view of all the data

Information and data is often dispersed and/or replicated over several business lines and application owners. Successful ISO 20022 projects build a single, central and complete view of all data fields, standards and work flows across all impacted business processes, and their interdependencies. Typically, undertaking the 'as-is' and 'to-be' data analysis, across existing and future data and business flows, is one of the first tasks to be undertaken. Building a single, central view across all of the data ensures that design, integration, implementation and on-going maintenance is accurate, fast and efficient.

How SWIFT can help

SWIFT supports its customer community by standardising financial transactions, thereby lowering costs, reducing operational risk and eliminating inefficiencies from operations.

It also acts as the catalyst that brings the financial community together to work collaboratively on shaping market practice and defining standards.

For ISO 20022, SWIFT is driving the industry towards a more harmonised and consistent use of the standard, per market segment.

It has a wealth of ISO 20022 experience, having delivered over 150 standards consulting projects, to more than 70 clients across multiple geographies.

SWIFT has packaged this deep expertise into a unique combination of specialised tools, products and services that share best practice, increase automation and drive efficiencies, providing a one-stop-shop for all ISO 20022-related requirements.

For more information on SWIFT's services and value propositions to help financial institutions design their ISO 20022 adoption plans, contact your SWIFT relationship manager.

Conclusion

As no two organisations are the same, SWIFT recognises that there is ‘no one-size-fits-all’ approach to the implementation of ISO 20022. However, given the extent of ISO 20022 global adoption, it is likely that other communities have undertaken similar implementations within similar domains.

Based on lessons learned from other communities, the guidelines and recommendations outlined in this paper provide a solid basis for the practical and future-proof implementation of ISO 20022 for financial institutions.



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, 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.

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