



Monetary Authority
of Singapore



ISO-20022 Adoption Study for The Monetary Authority of Singapore

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Glossary

Term	Description
CBPR+	Cross-Border Payments and Reporting Plus
FAST	Fast and Secure Transfers
HVPS+	High-Value Payment System Plus
ISO	International Organisation for Standardization
IBG	Interbank Giro
MEPS+	MAS Electronic Payment System
MEPS+ NextGen	MAS Electronic Payment System Next Generation
SCRIPS	Singapore Central Real-time Integrated Payment and Securities settlement system

1 Foreword

This report aims to share with other fellow central banks and market infrastructure owners and operators the decision, approach and framework used by the Monetary Authority of Singapore (MAS) in embarking on ISO 20022 adoption and harmonisation journey. In addition, MAS has published the resulting message schemas adopted on the MAS page in SWIFT MyStandards as a reference for the industry.

The consultancy study carried out by MAS was to establish the adoption approach and facilitate the development of the ISO 20022 message schemas for MEPS+ and MEPS+ NextGen¹, to be consistent with international market practices. Strategic decisions on the approach, overall schemas, harmonisation and industry engagement set the direction for and provide clarity to industry participants on the adoption of ISO 20022 message standards for real-time gross settlement of payment and securities transactions in Singapore.

The study was carried out in three phases – High-Level Impact Assessment (HLIA), High-Level Gap Analysis (HLGA) and ISO 20022 Mapping & Harmonization, using the same proven approach and methodology applied by SWIFT for other Market Infrastructures (MIs). The approach includes community engagement at an early stage of the study and importantly, aligning and harmonising the message schemas with the international market practices that will help achieve wider interoperability.

The MEPS+ Like-for-Like++ and full ISO message schemas were developed and harmonised with international market practices including High Value Payment Systems+ (HVPS+) and Cross-Border Payments and Reporting Plus (CBPR+). In addition, consideration of harmonisation with the FAST and SGX schemas have also shaped the specifications in the MEPS+ Message Usage Guidelines (MUGs). Following the review by the Industry Standards Workstream (SWS) and approval from the Project Steering Committee (PjSC), the message specifications for Like-for-Like++ and full ISO 20022 schemas were published in MyStandards.

Based on the HLIA and findings from the technical and standards gap assessment in the HLGA, it was recommended that adoption of ISO 20022 be carried out in a two phased approach :

Phase 1: Like-for-Like++ (Big Bang Adoption for Payments in MEPS+-)

Built on the existing MEPS+ platform, the Like-for-Like++ schema allows payments participants to progressively enrich the data using a common ISO 20022 message structure

Phase 2: MEPS+ NextGen (Full ISO for Payments and Securities)

Utilising the MEPS+ NextGen platform in the second phase provides for the mandatory adoption of a full data rich ISO 20022 schema across payments and securities flows. It will be a big bang migration from MEPS+ to MEPS+ NextGen

Another important consideration in the above adoption approach has been on the change in the global ISO 20022 adoption timeline, including SWIFT and global MIs. Considering these changes, as well as other factors, MAS announced the shift in migration timeline to June 2022. Further details are included in this report.

This report sets out a summary of the outcomes and final conclusion, including project scope and governance arrangement, HLIA and HLGA outcomes, ISO 20022 adoption approach, harmonisation with international standards and maintenance of the schemas on an ongoing basis.

This consultancy study was completed and signed off in December 2020.

¹ MEPS+ NextGen has been renamed to SCRIPS.

2 Project Governance and Scope

2.1.1 Project Governance

A Project Steering Committee (PjSC) was formed, which was represented by both MAS and SWIFT. Throughout the project, PjSC met monthly and the project team met weekly to communicate progress and align on joint activities.

2.1.2 Project Scope

In August 2019, MAS engaged SWIFT to provide expertise and consulting services in the form of an ISO 20022 study with the following vision and goals.

Vision:

To build an interoperable and operationally efficient MEPS+ NextGen through the adoption of ISO 20022 for payments and securities messages.

Goals of ISO 20022 Development:

- To develop a set of ISO 20022 message specifications for payments that is harmonised across MEPS+, FAST, IBG, and international standards (CBPR+, HVPS+).
- To develop a set of ISO 20022 message specifications for securities that is harmonised with SGX.
- To support MAS' supervisory work by facilitating enriched data in the exchange of payments and securities messages.
- To have the ISO 20022 message specifications for payments and securities in time for the design phase of the new MEPS+ NextGen.
- To determine the best ISO 20022 adoption approach based on the readiness of the participants and existing MEPS+ as well as taking into consideration the timeline in ISO 20022 adoption announced by SWIFT and in major markets.

Project Scope

High-level business and technical impact assessment between the MAS As-Is situation and operating model towards the MAS target ISO 20022 schema and technical solution.

- Key project objectives includes an implementation roadmap for MEPS+ and participants, gap analysis on messages, including identifying additional message fields to support data analytics, compliance, reconciliation and straight-through processing, and to deliver the ISO 20022 message specifications that is harmonised with global market practices.

3 HLIA and HLGA outcomes summary

In this study, SWIFT applied its High Level Impact Assessment (HLIA) and High Level Gap Analysis (HLGA) methodology to document the optimal approach to achieve the MAS MEPS+ vision.

3.1 High Level Impact assessment (HLIA) and High Level Gap Analysis (HLGA)

HLIA is a high-level business and technical impact assessment - between the MAS as-is situation and operating model towards the MAS target ISO 20022 implementation solution.

The assessment consists of:

a) As-Is Snap Shot

A study of the current (As-Is) model of MAS' MEPS+ technical and business flows was conducted. The findings of this study informed the future state (To-Be) model as well as the optimal path to get to the future state (Roadmap).

b) To-Be Situation

With a view on the current state as well as the MEPS+ community's ISO 20022 readiness and gaps, the future state was created with a focus on creating new value for MAS and MEPS+ participants using ISO 20022 standards.

c) Suggested Roadmap

Following the study of the current (As-Is) model and findings on the future state (To-Be) model, SWIFT recommended an optimal path to get to the future state (Roadmap).

Various models and migration paths were considered and compared with other market adoption approaches, resulting in a more detailed comparison of the following options:

Option 1. Big Bang with MEPS+ NexGen

Option 2. Two phased approach

- a) Big Bang Like-for-Like++ adoption for Payments in MEPS+
- b) Full ISO for Payments and Securities in MEPS+ NextGen

Option 3. Three phased approach

- a) Like4Like++ for Payments in MEPS+
- b) Full ISO for Payments in MEPS+ NextGen
- c) Full ISO for Securities in MEPS+ NextGen

Considerations were taken across all three options. *Option 1* was considered too high risk, and *Option 3* did not provide sufficient benefit to counter the additional costs and complexity of a drawn out adoption exercise. A conclusion was reached to adopt *Option 2 - Two phased approach* to balance community readiness, costs, global trends and MAS' Strategy.

Further details on the developed roadmap available in Section 4 Adoption approach.

After HLIA, a HLGA was performed on current messages against the target ISO 20022 messages in order to assess possible change requests or new message development required to maintain compatibility with the target ISO 20022 messages and flows.

3.2 Community engagement & ISO 20022 knowledge transfer

MAS, with the support of The Association of Banks in Singapore (ABS) and SWIFT's project team, engaged the participant community in an awareness campaign on the planned adoption of ISO 20022 approach and the message specifications.

These engagements include:

a) **Community Readiness Survey**

SWIFT conducted a survey to determine the level of ISO 20022 Familiarity and Readiness of the MEPS+ Participants. The findings helped in the formulation of the strategy and roadmap for MEPS+ adoption of ISO 20022.

The survey achieved an excellent response rate of 88%. The participants responded with their respective management's endorsement, providing insights on the banks' familiarity with ISO 20022, their readiness as well as possible challenges and concerns raised by the banks.

b) **Community Briefings**

During the course of this study, the participants were engaged through a number of meetings and communications with SWIFT's involvement and support covering:

- Dissemination of the result of the survey
- Proposed roadmap and timings
- Message Usage Guidelines (MUGs) development
- MyStandards tool and accessing the specifications
- Final migration and implementation roadmap

c) **ISO 20022 Training and Knowledge Transfer**

SWIFT conducted a series of training sessions on the use and user administration functionalities of the MyStandards platform to equip end-users with the knowledge on the use of MyStandards to maintain and develop the message specifications and MUGs.

In addition, SWIFT provided a number of knowledge transfer sessions to both ABS and the Standards Working Stream (SWS) on the use of MyStandards and MUGs that were available for review. These briefings help in enhancing the efficiency and speed in the review and acceptance of MUGs.

4 Adoption approach

Further to the assessment conducted in the High Level Gap analysis, and the community inputs from briefing sessions, it was decided that a two phased – approach be adopted:

Phase 1: Like-for-Like++ (Big Bang for Payments on MEPS+-)

Phase 2: MEPS+ NextGen (Full ISO for Payments and Securities)

In Phase 1: Like-for-Like++, the ISO messages contain the mandatory fields with the same attributes as the existing MT, and additional optional fields, though not mandatory, may be filled by Participants that are ready. In this phase, MEPS+ payment messages will switch from MT to MX, there will be no co-existence of both message types. All MEPS+ participants must send and receive Like-for-Like++ ISO 20022 messages.



In Phase 2: MEPS+ NextGen, the migration to rich ISO 20022 messages occurs alongside the upgrade to the updated MEPS+ platform, providing rich data for both payment and securities messages.

Over the course of the study, there has been a significant growth in the number of MIs announcing plans to adopt ISO 20022 with a majority of global market players in payments and securities committed to adopt the data rich standard. The planned adoption of ISO 20022 in the major markets were in line with SWIFT's plan to migrate cross-border payments to ISO 20022 (CBPR+) in November 2021.

However, after considering feedback received from the global financial community, SWIFT announced to move the commencement date of migrating cross-border payments to ISO 20022 from November 2021 to November 2022. This would also coincide with the first release of SWIFT's transformed transaction management platform. With change in the timeline for the implementation SWIFT CBPR+, many global MIs started to revise their adoption timelines.

As a consequence of the changes, as well as taking into account feedback from the community, and weighing the pros and cons in revising the timeline, MAS decided to shift the migration timeline to June 2022. Some key decision factors were:

The key decision factors for the timing of the Phase 1 implementation before SR2022 are described in the table:

 Pros	 Cons
More Time Allow more time to prepare for the MEPS+ participants' preparation	Increased Efforts MAS and its participants will have to support SR2021, T2/Euro1 and MEPS+ migrations.
Separates Implementation risk Implementing with a different window to SR2022 reduces the likelihood of impact from other changes	Availability of Banks Resources Malaysia, BoT, CBPR+, Target2 and EURO1 migration in similar timelines may put a strain on some of the MEPS+ Participants
Technology Fall-back If there are unforeseen problems then you could fall back to MT SR2021	Partial y-copy available Interact partial y-copy goes live in Nov 2021, MEPS+ would be one of the first to implement for production usage
gpi tracker Participants will be able to track MX payments from Go-Live	

5 ISO-2022 Mapping, Harmonisation and Maintenance

SWIFT performed a detailed mapping exercise between the existing MEPS+ payments & securities messages and the target ISO 2022 messages, including the production, publishing and review of more than 100 message type mappings. This process included, but not limited to, the elaboration of MEPS+ business processes and message exchanges/flows, detailed mapping of data requirements and creation of the ISO 2022 specifications.

MAS engaged the Industry Standards Workstream (SWS) over a period of 8 months to review the suite of messages. During this period, SWS conducted various review sessions/meetings to deliberate and confirm message usage guidelines. It was subsequently approved by PJSC and published in the MyStandards web portal which makes available the schema automatically to requesting users worldwide.

MyStandards is a collaborative web-based platform that facilitates the management of global and regional MT and ISO Standards and the underlying related market practices. It helps MAS to:

- 1) Centralise all MAS standards-related information in a single, easy-to-use platform.
- 2) Improves MAS standards release management as MEPS+ participants would be able to refer to the version in MyStandards as the single source to implement and develop their schemas.
- 3) Streamline MAS market practice management

In addition, a detailed harmonisation exercise was conducted in the development of the ISO 2022 MUGs for MAS' use in MEPS+ and associated platforms. This had provided MUGs which are both aligned to best practice, industry norms and local usage conventions.

This process has created a strong foundation, with minimal or no conflicts in the message types or specifications and it also facilitates future harmonisation opportunities across different business sectors.

The activities comprise of:

a) **Harmonisation Overview**

The MEPS+ MUGs have been created leveraging on the latest base International Standards Organisation (ISO) message formats using SWIFT MyStandards. Additionally, Industry Market Practices and best practice guidelines including CBPR+, HVPS+ and SMPG have informed the descriptions and field usage.

These harmonisation efforts increase alignment and reusability with other payment and securities systems including Cross Border financial transactions and regional Market Infrastructures.

The effort was initially focused on developing ASEAN Baseline MUGs to facilitate regional harmonisation. ASEAN states should consider adopting HVPS+ as the base standard, given that the ASEAN Baseline is closely aligned to HVPS+.

In addition, consideration of (should be "in"?) harmonising with the FAST and SGX definitions have also shaped the definition of the MEPS+ MUGs through further refinement and usage annotations.

b) **Standards Governance and Maintenance**

The MEPS+ MT standards model are aligned to the SWIFT MT Standards, which allowed the MEPS+ community to adopt the annual SWIFT Standards Release (SR) without the need to conduct further analysis or to make additional changes to the MEPS+ standards.

Likewise, as the MAS MEPS+ ISO 2022 specifications are aligned with the International Standards Organisation (ISO) HVPS+, and CBPR+, there would be operational efficiency in maintaining schemas for cross border and domestic financial transactions on an ongoing basis.

A recommendation is being considered to establish a Singapore based advisory group to assist future alignment and harmonisation of the specifications and regular updates, similar to the group which ABS facilitated for the MEPS+ Specifications review.

As for the process to maintain the MEPS+ MUG, it should follow the standard process that SWIFT does today, with a defined model and cadence for the ongoing releases of the specification to respond to changing business, security and operational needs.

6 Participants' Readiness Testing

This provides early information on the testing tool – SWIFT MyStandards Readiness Portal which MAS will provide to the MEPS+ Direct Participants to support their internal readiness for the MEPS+ ISO 20022 adoption.

MyStandards Readiness Portal will become available for MEPS+ Direct Participants to begin validating and testing their MEPS+ payment messages against the published Like-for-Like++ and Full ISO schemas published in MyStandards. The tool will enable Direct Participants to validate test messages to ensure compliance of the schemas and format defined. MAS can also use this tool for monitoring the progress of the testing by the participants using Readiness Portal, as part of their approach to assuring industry readiness for the migration.

The Readiness Portal will be available throughout the migration project timeline.

About the Monetary Authority of Singapore

The Monetary Authority of Singapore (MAS) is Singapore's central bank and integrated financial regulator.

As a central bank, MAS promotes sustained, non-inflationary economic growth through the conduct of monetary policy and close macroeconomic surveillance and analysis. It manages Singapore's exchange rate, official foreign reserves, and liquidity in the banking sector.

As an integrated financial supervisor, MAS fosters a sound financial services sector through its prudential oversight of all financial institutions in Singapore – banks, insurers, capital market intermediaries, financial advisors, and stock exchanges. It is also responsible for well-functioning financial markets, sound conduct, and investor education.

MAS also works with the financial industry to promote Singapore as a dynamic international financial centre. It facilitates the development of infrastructure, adoption of technology, and upgrading of skills in the financial industry.

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 regulatory 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. While SWIFT does not hold funds or manage accounts on behalf of customers, we enable our global community of users to communicate securely, exchanging standardised financial messages in a reliable way, thereby supporting global and local financial flows, as well as trade and commerce all around the world.

As their trusted provider, we relentlessly pursue operational excellence; we support our community in addressing cyber threats; and we continually seek ways to lower costs, reduce risks and eliminate operational inefficiencies. Our products and services support our community's access and integration, business intelligence, reference data and financial crime compliance needs. SWIFT also brings the financial community together – at global, regional and local levels – to shape market practice, define standards and debate issues of mutual interest or concern.

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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