

A dark blue background with a complex network of light blue lines and dots, representing a global payment architecture. The dots are of varying sizes and colors, ranging from light blue to white, and are connected by thin lines, creating a dense, interconnected web.

Brave new world: be ready for Europe's new payments architecture



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Brave new world: be ready for Europe's new payments architecture

Banks must prepare for changes to the Eurosystem's core infrastructure while adapting to a dramatically changing global landscape for payments. SWIFT has the solutions to support you at every stage of your journey.

Payments market infrastructures (PMIs), including real time gross settlement (RTGS) systems, automated clearing houses (ACH) and the newer instant payments services are the rails on which payments and economies run. They route, clear and settle transactions between financial institutions (FIs) on behalf of institutional, corporate and retail customers. They ensure certainty, efficiency and security for payments and reflect and set the market practices on which their communities rely.

PMIs are important catalysts – and responders – in the current transformation of the payments market to meet the needs of 21st century digital economies¹. Many of these critical infrastructures (which in some cases are also market regulators) have re-imagined and re-designed their systems to foster greater openness, encourage more competition and enable the creation of new services. Now they are starting to implement the next generation of core payments architecture.²

PMIs are not making these changes in isolation. A common element of infrastructure renewal projects is the adoption of a single, open standardisation approach for financial business flows, ISO 20022 (see box, *Time to unlock the benefits of ISO 20022, on page 12*). Over the next five years, all major PMIs and their communities will migrate to ISO 20022 messaging.³ By 2025, ISO 20022 will dominate high-value payments, supporting 87% of transaction values worldwide.

And cross-border payment instructions and reporting over SWIFT will also adopt ISO 20022 over the same timeframe, completing the picture.

These complex, multi-year projects will demand much of PMI's communities, but the potential benefits are significant. The adoption of common message standards carrying richer and more structured data will enable payments providers to deliver more and new value added services to customers as well as improve compliance and straight-through processing, and reduce exceptions.

Next-generation technology platforms and APIs will enable powerful real-time processing, 24-hour availability, robust compliance and cyber-security and better data handling, making it possible to reduce total costs of ownership (TCO) for financial institutions and large corporates. Then there are the opportunities to achieve systems interoperability, interconnected cross-border digital eco-systems and frictionless payments account-to-account, anytime, anywhere.

The journey to this brave new world is now underway, and Europe is the first mover. In November 2021, in a "big bang" move, the Eurosystem will modernise Europe's leading real-time gross settlement (RTGS) system TARGET2, and optimise central bank liquidity management across all TARGET Services. In a coordinated move, EBA CLEARING's large value/RTGS-equivalent euro payment system, EURO1, will also migrate to ISO 20022 and introduce enhanced liquidity management tools.

This paper discusses the impact of these changes on financial institutions in the context of a transforming global market for payments. It describes the solutions and services SWIFT is putting in place to support market participants and explores the strategic choices to be made to manage the transition safely, efficiently and successfully.

¹ Across the EU, 69% of internet users ordered goods or services online for private use in 2018; UK and Denmark showed the highest penetration with 87% and 86% of internet users respectively. Source: Eurostat

² For example, the UK's central bank, The Bank of England: See [Enable, empower, ensure: A new finance for the new economy](#), Mark Carney, Governor of the Bank of England, Mansion House speech, June 20, 2019.

The Eurosystem's [TARGET Consolidation project](#), which will go live in November 2021 aims to meet changing market demands by replacing TARGET2 with a new real-time gross settlement (RTGS) system and optimising liquidity management across all TARGET Services. Switzerland's RTGS, Swiss Interbank Clearing, adopted ISO20022 in 2016

³ In Europe, TARGET2 and EURO1; In the US, Fedwire and The Clearing House; in the UK, CHAPS and Faster Payments. The Eurosystem's TIPS and T2S, EBA Clearing's RT1, Australia's NPP and a number of other instant payments services already use ISO 20022 messaging.

What's changing in Europe?

Both the Eurosystem and EBA CLEARING are modernising their infrastructure and migrating their TARGET2 and EURO1 high value payments services to the ISO 20022 standard. At the same time, instant payments are taking off and increasingly becoming the new norm.

2.1 TARGET Consolidation

TARGET Services are a number of services developed and operated by the Eurosystem which ensure the free flow of cash, securities and collateral across Europe. These financial market infrastructure services include TARGET2 (for settling payments), T2S (for settling securities) and TIPS (a service for instant payments). All of them settle in central bank money.

The Eurosystem also engages in a number of initiatives which aim to promote efficiency and innovation and ultimately achieve greater integration in financial markets in Europe. In line with its strategy, the Eurosystem is investigating ways to enhance its financial market infrastructure so that it continues to meet the needs of the market, stays ahead of cyber-security challenges and keeps up with the latest technological developments.

The Eurosystem's TARGET Consolidation project has been some years in the planning. By consolidating TARGET2 and T2S, in both technical and functional aspects, the objective is to meet changing market demands by replacing TARGET2 with a new real-time gross settlement (RTGS) system and optimising liquidity management across all TARGET Services. The new consolidated platform will be launched in November 2021 and is part of the European Central Bank's ambition to further integrate Europe's financial market infrastructure and help to realise a single market for businesses and citizens across the European Union.⁴

When changes to key shared infrastructures occur, the market has to move in synch to ensure success and minimise risk. After wide market consultation, the Eurosystem decided to go live with the T2-T2S consolidation project (which includes the migration of TARGET2 to ISO 20022 messages) in a "big bang" migration over a single weekend in November 2021. The consultation also showed the market preferred a migration straight to fully-fledged ISO 20022 messaging (rather than like-for-like), allowing TARGET participants to benefit from the data richness of ISO 20022.

The impact of this major project will be very wide and systemically important. The current TARGET2 is the Eurosystem's second-generation RTGS system for the settlement of large-value euro payments in central bank money across national borders in the European Union. In 2018 it processed 88.5 million transactions, representing 90% of the value settled in euros by high value payment systems (HVPS). More than 1000 direct participants use TARGET2 to settle transactions for themselves, for indirect participants or for customers world-wide.⁵

Importantly, some 32% of TARGET2 transactions begin or end their journey outside TARGET2 via correspondent banking.⁶

TARGET Consolidation will be a momentous event. The European payments market must

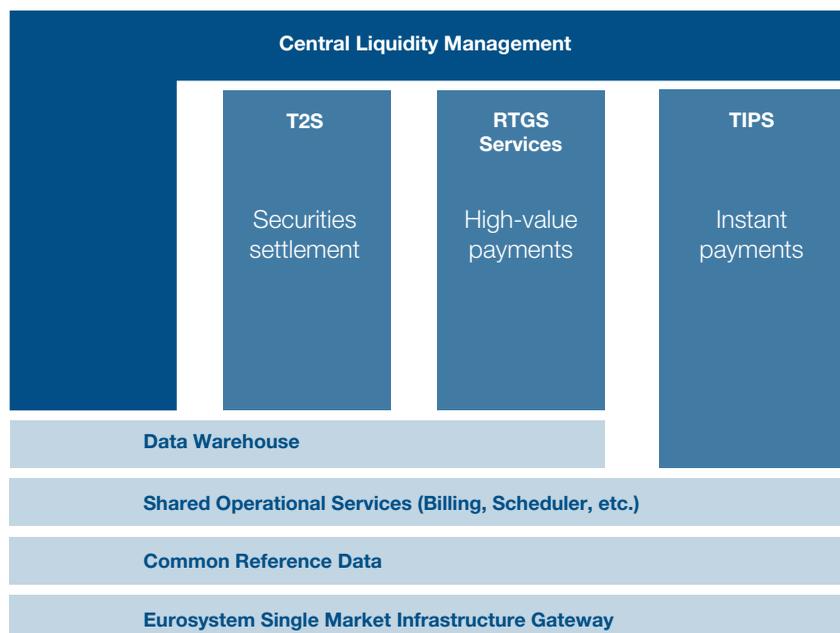
be ready for a "big bang" change to its core payments market infrastructure. At the same time, the change must be managed with an eye to the wider impacts for banks and their customers in an inter-connected, fast-changing global landscape.

The TARGET Consolidation project will deliver:

- **A new RTGS** based on fully-fledged ISO 20022 messaging
- **A central liquidity management system** for participants across the new TARGET Services. This will increase the efficiency of liquidity and collateral management
- **The Eurosystem Single Market Infrastructure Gateway (ESMIG)** – A harmonised interface and single entry point to TARGET Services
- **Common reference data, data warehouse and billing system**

T2-T2S consolidated platform

target
services



Source: ECB

⁴ See also The Eurosystem's Vision 2020

⁵ TARGET Annual Report 2018

⁶ SWIFT data

2.2 Migration of EURO1 to ISO 20022

EBA CLEARING is a private entity providing industry payment systems on a pan-European scale. EBA CLEARING's mission is to deliver market infrastructure solutions for the pan-European payments industry. The strategic aims of the company are to ensure a pan-European and country-neutral approach for the development and delivery of user-driven and highly robust infrastructure solutions, enabling cost minimisation for their users.

EURO1 is the only private-sector large-value payment system for single same-day euro transactions at a pan-European level. It offers an RTGS-equivalent net settlement system combining high liquidity efficiency with immediate finality of each processed individual transaction. On average, 1 euro of injected liquidity enables the processing of 110 euro in the system. EURO1 processed around 50 million transactions on behalf of 48 banks in 2018.⁷ EBA CLEARING also also operates the STEP1 service for indirect EURO1 participants, STEP2 for SEPA transactions, and RT1, a pan-European euro instant payments service.

In November 2021, EURO1 will also migrate to ISO 20022 from its current FIN-based messaging and “align with TARGET2 for full intraday switchability between the two payment systems”.⁸

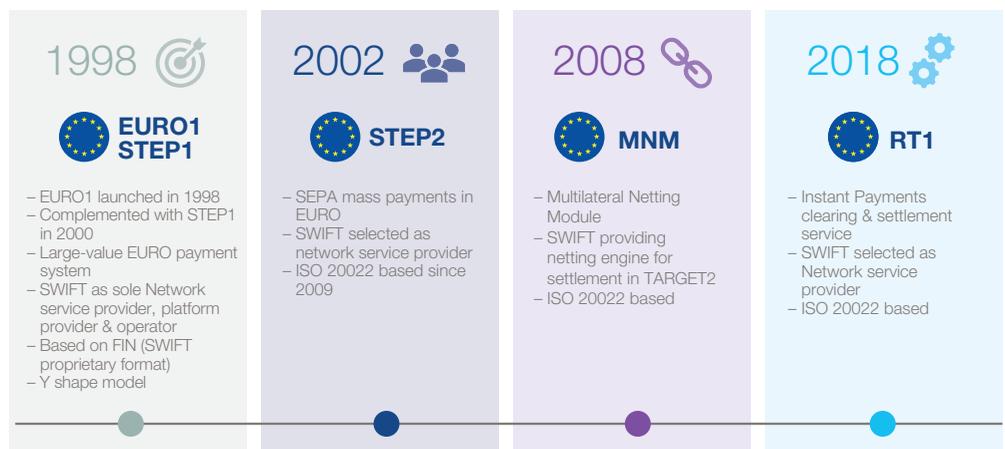


At SWIFT, we have an important role to support banks in their migration to ISO 20022 for TARGET Services, EURO1 and cross border flows. But it's more than that. All our assets are aimed at guaranteeing a smooth and future-proof infrastructure, so banks can focus on their core business with their customers across the payments landscape.”

Saskia Devolder, Head of Western and Central Europe, SWIFT

The European payments market must be ready for a “big bang” change to its core payments market infrastructure. At the same time, the change must be managed with an eye to the wider impacts for banks and their customers in an inter-connected, fast-changing global landscape.

SWIFT – a long standing partnership with EBA CLEARING

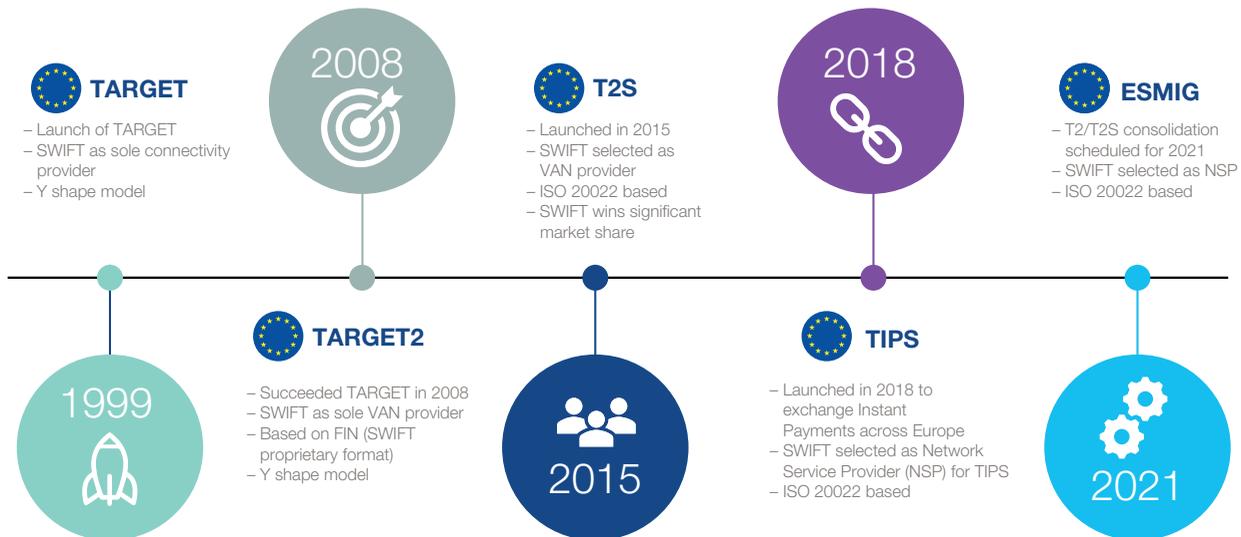


⁷ EBA Clearing Annual Report, page 18

⁸ Ibid page 21

⁹ For example, initiatives are underway in Australia, Brazil, Canada, Hong Kong, Singapore, the UK, the US and many other jurisdictions. For more information see <https://www.iso20022.org/adoption.page>

SWIFT – a proven track record of working with the Eurosystem



2.3 The move to instant

Digitisation in all industries is driving more frequent and faster financial transactions. This 21st century experience is dramatically shaping our expectations of payments and payment providers to ensure the money can follow the goods at the same velocity. As consumers, investors, merchants and business people, we are starting to see payments as just one step of a transaction chain that must be fast, frictionless and embedded. Payments are increasingly expected to be instant, 24/7/365.

Market infrastructures around the world have accelerated the development of instant payment solutions in response to this trend.⁹ In Europe, the introduction of the SEPA Instant Credit Transfer (SCT Inst), which caters for domestic payments and sets a

standard for transfers across the 36 SEPA countries, has laid the foundations not only for a proliferation of domestic instant payments schemes, but also for the Eurosystem's Target Instant Payments Settlement (TIPS) and EBA CLEARING's RT1, both of which offer instant payments on a pan-European level. The use of instant payments has until now been largely restricted to the retail and peer-to-peer sectors, given the restrictions on transaction amounts imposed by most instant payment schemes. The European Payments council has announced that the limit for SCT Inst will be increased from €15,000 to 100,000 as of 1 July 2020. Another example is in the UK, where, since its launch in 2008, the Faster Payments Service (FPS), for example, has gradually increased the maximum amount for transactions, which currently stands at £250,000 and is likely to increase even further over time.

As transaction limits increase and instant payments become a viable payment method for businesses, more and more corporates are integrating them into their payments processes to benefit from increased visibility over funds, as well as certainty and finality of payments. The advantages of instant payments go well beyond the treasury and enable other benefits such as tighter procurement processes, improved customer experience, faster delivery of goods and quicker refunds.

Joining the dots: European payments in an interconnected global payments landscape

The changes taking place in Europe are part of an unprecedented global renewal of payment market infrastructures.

There are several main drivers for payment market infrastructure renewal:

- Customers are demanding faster, friction-free payments.
- Regulators and central banks want to encourage innovation, open their infrastructures to new participants, enable interoperability and give customers control of their valuable data.
- Markets are ever more inter-connected. As digital technologies and the internet deliver information, products and services to us regardless of geography, time-zone or currency, central banks have responded to ensure domestic businesses and currencies can participate fully in the new digital economy.
- Since the financial crisis, regulators and central banks have worked together to ensure the stability of financial markets and this has stimulated industry collaboration at various levels.
- Next-generation technology and international acceptance of ISO 20022 standards have provided the opportunity for more efficient processing of transactions with richer, structured data end-to-end, across the value chain.

Planning successfully for TARGET Consolidation and EURO1 migration demands careful consideration of the wider changes affecting the global payments landscape and the inter-dependencies and opportunities that will result. Understanding the pathways to future interoperability – and what will be required to fully participate in the future payments eco-systems – is an important part of the picture.

3.1 The shift to instant demands back-office re-engineering

In the near future, instant (close to real-time) payments will become the norm for consumer, business and cross-border transactions worldwide. The shift to instant is an important strategic, investment and operational challenge for banks. There are decisions to be made about which

Market Infrastructure (CSM – Clearing and Settlement Mechanism) to join and when, but more fundamentally, legacy batch-based processing systems will need to be replaced and compliance, fraud protection and customer service re-engineered to operate in a continuous, close-to-real time environment.

3.2 Cross-border payments will be instant too

International cross-border payments and traditional correspondent banking are also transforming. In 2017, SWIFT and its community delivered the global payments innovation (gpi) initiative, a new convention for international cross-border payments. The aim was to make international payments faster and trackable – and provide transparency on fees.

Take-up of gpi has been rapid. Over 56% of SWIFT cross-border payments, representing more than US\$ 300 billion of value each day, use gpi. Half of all these payments reach end-beneficiaries in minutes, many in seconds – and the vast majority in 24 hours. Gpi is built on three key innovations:

- **A unique end-to-end reference**, UETR¹¹, accompanies each payment on its journey. This allows it to be traced from sender through correspondents to ultimate beneficiary accounts and with no loss of data.
- **The tracker**. Payments are tracked by the gpi tracker which reports the status of messages along their journey, on demand.
- **A new cross-border service level convention**. Banks commit to process payments in tight timeframes, which are tracked and visible to their correspondents and respondents. There is also full visibility on fees.

Gpi will become the norm for cross-border payments by 2020,¹² and fast payments will become faster as SWIFT, in agreement with its members, will continue the journey towards global instant cross-border payments. Once real-time back office

processing is in place, we can expect cross-border payments to become instant, account-to-account, everywhere – with all the benefits of end-to-end tracking and transparency.

3.3 A phased migration of cross-border payments to ISO 20022 is underway

As gpi ramps up, a parallel initiative is underway to migrate MT cross-border payments and cash management messages to ISO 20022. The migration will begin in November 2021, to coincide with the Eurosystem TARGET Consolidation, but it will be phased – not “big bang”. There will be a four-year co-existence period until 2025, enabling banks to plan the timing of their migration. SWIFT will provide extensive support during the migration period, including in-flight translation of messages from ISO 20022 to MT formats, and testing capabilities.¹³

However, there are three good reasons why financial institutions should migrate their cross-border payments to ISO 20022 at the same time as the TARGET2 and EURO1 migrations:

- **Impact on systems**: Reduce the costs and risks of opening internal systems for multiple re-engineering – do it once, do it right.
- **Compliance**: Around a third of all cross-border payments have one leg via TARGET2. Regulators will be keen to ensure that intermediary banks carrying cross-border payments in euros pass on and manage additional data received with an incoming ISO 20022 message.
- **Early benefits**: ISO 20022 will deliver many benefits for payment providers and their customers – including end-to-end visibility on payment flows, easier reconciliation and transmission of more data to the final customer. (See box, Time to unlock the benefits of ISO 20022, on page 12).

¹¹ The unique end-to-end transaction identifier (UETR)

¹² By end of 2020, all financial institutions receiving MT103 messages must confirm when a payment has been credited to a beneficiary's account via the gpi tracker.

¹³ For more on the migration of MT payment and cash management messages to ISO 20022, please visit <https://www.swift.com/standards/iso-20022-migration-study>

Time to unlock the benefits of ISO 20022



Today ISO 20022 is globally accepted by domestic and international market infrastructures and market participants as the *de facto* standard for financial services. This is the result of years of collaborative standards work and industry investment. Its success is due to a standards approach that is open, but well-governed.

Now the Eurosystem and other domestic and international infrastructures are moving to implementation and market participants must migrate to the new standard. Large investments will be needed, but the outcome will be transformative.

A consistent way of doing business

With ISO 20022, a common global standard end-to-end for high to low value, cross-border and domestic, instant and batched payments will become a reality.

- Payments providers will be able to exchange data seamlessly between systems and deliver a consistent customer experience across markets and payment rails.
- ISO 20022 will offer the opportunity to consolidate technology, make processing more efficient and reduce operational costs. ESMIG offers a good example here: participants will access all TARGET Services using a single gateway and will benefit from centralised liquidity management across their TARGET Services operations.
- A common approach means data can easily be reused in other contexts where ISO 20022 is being adopted, such as regulatory reporting.

More data, more intelligently

ISO 20022 messages deliver more and more structured data. This will improve efficiency and add value for customers.

- **Improved compliance:** SWIFT estimates that some 10% of international payments are stopped for compliance reasons, either because data is missing, or because incomplete, unstructured or truncated data creates a false-positive in sanctions screening filters. More complete data and structured identifiers such as LEIs¹⁶ will significantly reduce this problem, reducing failed payments and processing costs and improving customer service.
- **Better customer service:** With ISO 20022, complete remittance details may be carried with a payment so customers can more easily automate account reconciliation, or manage payments “on behalf of” other entities. For gpi payments, rich data can be carried and viewed in the tracker.
- **Data services and handling:** ISO 20022 will help to deliver the requirements of open banking by making it easier for data to be exchanged with other service providers, technology partners and customers. ISO 20022 messages can also accommodate non-Latin character sets.

Open – and interoperable

ISO 20022 is an open standard. Anyone can contribute new candidate models and messages for approval by the ISO 20022 registration bodies. And the standard operates across both legacy and emerging technologies.

SWIFT is leading cross-industry work to ensure implementations of the standard are harmonised. Two market practice groups have been established: The High Value Payments Systems+ Task Force (HVPS+) creates guidelines for the use of ISO 20022 for high value payments, while the Cross Border Payments and Reporting+ Task Force (CBPR+) is developing global usage guidelines for ISO 20022 for cross-border payments and cash management on the SWIFT network. Both groups meet regularly to ensure that their specifications remain fully aligned. Global market practice groups create specifications for other use cases, including Common Global Implementation (CGI) for Corporate-to-Bank flows and ISO 20022 Real-time Payments Group (RTPG) for real-time/instant payment schemes.¹⁷

¹⁶ Legal Entity Identifier – an ISO standard that enables identification of legal entities participating in a financial transaction.

¹⁷ For more detail, ISO 20022 and Global Payments, Isabelle Bouille and Tanja Haase, Journal of Payments Strategy and Systems

3.4 The promise of true interoperability

Once all these building blocks are in place, interconnected, global digital ecosystems will quickly emerge. Scenarios are not far distant where it will be possible to channel instant payments across borders and through domestic systems to beneficiaries' accounts anytime, anywhere – with complete certainty and rich information.

Indeed, we are almost there.

In a recent trial, 11 banks in several continents sent payments via gpi instant to six banks in Singapore for processing in Singapore's FAST domestic instant payments system. The results are definitive¹⁴:

- The fastest payment in the trial, from Australia into Singapore, took only 13 seconds
- The fastest payment into Asia Pacific from Europe took only 15 seconds
- All payments were processed end-to-end within 25 seconds

The European Central Bank and SWIFT have now launched an initiative to extend the reach of instant cross-border payments deeper into the European market by enabling SWIFT gpi in the TIPS system. A group of 19 pilot banks worldwide will carry the cross-border legs of the payments, which they will then settle through TIPS, allowing for instant crediting of accounts at ultimate beneficiary banks across Europe.

3.5 Compliance challenges and wins

As payments become faster and markets more inter-connected, regulatory oversight of financial transactions necessarily tightens and fraud prevention must accelerate.

Round-the-clock, instant payments processing will present a new challenge for banks' compliance and fraud prevention operations. When funds clear instantly, the window to halt suspicious payments (for example, "push scams") is squeezed. As technology solutions deliver instant data, banks will also have to respond in the

same time frame to investigate rejections and provide customer service. But new technologies are putting new tools in the armoury.

ISO 20022, with its rich and structured data, is a real win for transaction screening. It will dramatically reduce false-positive rejections, improve STP rates and enable tighter tuning of sanctions engines.

APIs are enabling faster, more flexible compliance, and reducing the cost of delivering solutions. SWIFT has been piloting pre-validation checks for gpi payments. This enables banks to connect to ultimate beneficiary banks via API to check and correct destination data before a payment is initiated, reducing failed payments.

Artificial intelligence is also playing an increasingly important role in the compliance area. According to money laundering (AML) experts, analysts spend as much as 80% of their time finding data instead of fixing problems, so there's plenty of scope for new solutions to speed up the information gathering process. SWIFT is looking at areas where artificial intelligence and machine-learning can help banks to detect fraud and improve their compliance processes. One of these areas is the use of machine learning to infer structured definitions and identities for payments parties, based on unstructured transaction data.

Universal confirmation of cross-border payments via gpi will also aid compliance by providing certainty of delivery across the payments chain.

Cyber-security is an ever-present concern. SWIFT users are supported by the Customer Security Programme¹⁵, which is a mandatory implementation on local SWIFT infrastructure for all users. Institutions must self-attest compliance on a shared database, the KYC Security Attestation application. The framework is regularly updated to align with information security industry standards and meet evolving threats, ensuring community-wide best practice.

3.6 SWIFT will support you through industry-wide change

With so much change underway, and so much at stake across European payments businesses, a tactical approach to the TARGET Consolidation and EURO1 migration projects – however perfectly planned – will be a missed opportunity. Banks' strategic planning must take into account future payments system migration plans and options for participation as well as the impact on back-office operations, compliance and security. It must also focus on how to realise the potential of digital eco-systems to deliver new services and develop sustainable revenue streams.

Our solution for ESMIG connectivity has been designed to help you realise your strategy efficiently and cost-effectively, using your existing SWIFT infrastructure footprint. Along with a turn-key technical solution, we also have unmatched standards expertise and professional services, and compliance and business intelligence tools, to support you operationally and strategically through TARGET consolidation, EURO1 and ISO 20022 migrations – and position your business for the future payments landscape.



The landscape is changing very fast. There's a lot to do, but none of it can be done in isolation. SWIFT will continue to work on solutions that mutualise the cost and effort of change for the industry, so the benefits can be unlocked."

Harry Newman, Head of Banking, SWIFT

¹⁴ Full results here

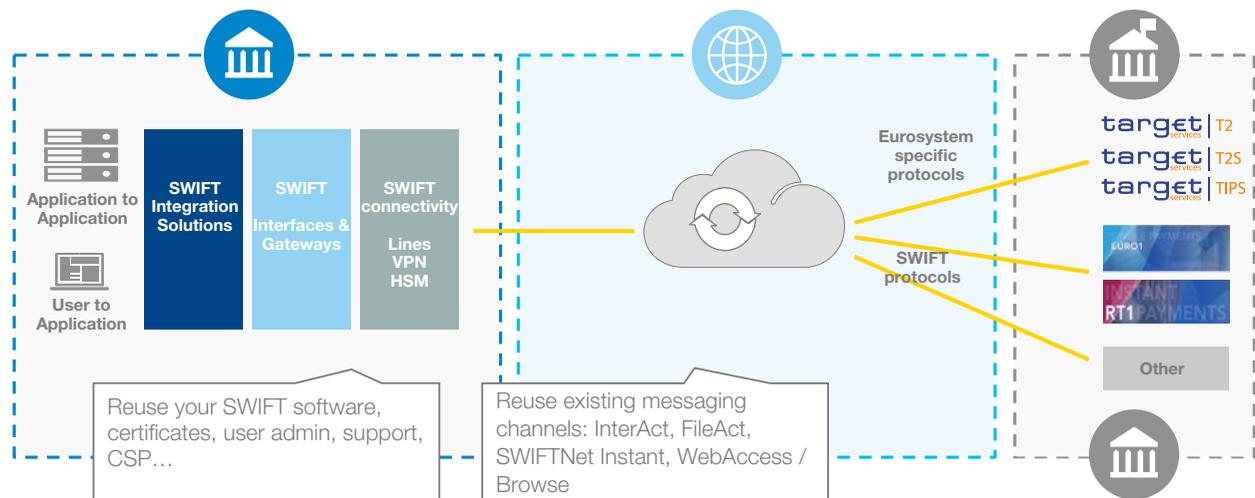
¹⁵ Find more information on the SWIFT Customer Security Programme here

SWIFT's solution for ESMIG

The Eurosystem has licensed SWIFT as a network service provider for connectivity via the ESMIG gateway to TARGET Services from November 2021. We will provide high quality, competitively priced connectivity for access to TARGET2 for high value payments, TIPS for instant payments, T2S for securities settlement and the future Eurosystem Collateral Management System.

4.1 Migrating to the new Eurosystem infrastructure – the SWIFT solution

Reusing your SWIFT infrastructure



*Alternatively the ESMIG connectivity can also be deployed in a dedicated standalone setup

We want to help minimise cost and disruption, and maximise the efficiency of participants' migration projects. We also want to help our customers meet the challenges and manage the complexities of wider banking transformation as described earlier in this paper.

So we will also offer an **end-to-end turn-key solution** which will enable SWIFT customers to re-use their SWIFT technology footprint as a **single window** to connect to ESMIG, to EURO1 and RT1, to the correspondent banking network and to more than 250 market infrastructures world-wide. With SWIFT at the core of your business, end-to-end visibility across the transaction life-cycle is finally within reach.

Our existing cloud and on-premises infrastructure will be fully ESMIG-compliant¹⁸ and we will manage updates and changes, future-proofing your operations and your investment. You will be able to use your existing messaging channels: InterAct, FileAct, SWIFTNet Instant, WebAccess / Browse.

Low cost connectivity solutions will be available for TARGET customers not yet connected to SWIFT or for any specific request, both for manual and automated flows.

By selecting SWIFT connectivity services for ESMIG, your critical ESMIG flows will continue to benefit from the highly secure SWIFT environment and the security standards imposed by the Customer Security Programme.

As you would expect, we have also built full resiliency into the solution at every level. In particular, a secure, user-to-application alternative can be used to connect to our servers via any internet connection, should issues occur with your local infrastructure.

Our solution for ESMIG connectivity is supported by a number of specific value-added services to smooth the migration process and your operations after change-over.

SWIFT users can also benefit from the full range of SWIFT technical and advisory services including impact assessments, bespoke integration services, project management and training.



By selecting SWIFT as their Network Service Provider for ESMIG, banks will reduce their TARGET consolidation projects costs, effort and risk at the same time as ensuring consistency with the migration to ISO 20022 of cross-border payments and other market infrastructures."

Alain Raes, Chief Executive, EMEA & Asia Pacific, SWIFT

¹⁸ Alliance Lite2 users will be invited to migrate to Alliance Cloud. Other financial institutions connecting to TIPS and/or RT1 require an Alliance Gateway Instant set-up.

What is the impact of TARGET Consolidation on commercial banks?

- A “big bang” migration with challenging timelines, involving more than 1200 direct participants. There are significant commercial and regulatory risks for banks which do not meet the migration timetables.
- Will bring fundamental change to the market: for example, a new way of managing collateral; 24 x 7 operations; new data requirements and business opportunities.
- There are key differences in how the new TARGET2 will operate:
 - To access the new TARGET Services via ESMIG, users will need to sign up to a licensed network provider and integrate the proposed messaging protocols into their back offices. SWIFT has been awarded a licence to provide ESMIG connectivity and will enable its clients to re-use the SWIFTNet generic messaging services for all TARGET services.
 - The ISO 20022 messages that will be used by TARGET2 and EURO1 as of November 2021 support more data and more fields, so it will not be possible to simply translate old FIN MT messages into ISO 20022 and vice versa. The new message formats will need to be integrated into banks' systems.
 - The new TARGET2 requirements also include some specific protocols for transmission. For example: The Business Application Header which must be included as part of the business payload must carry an end-to-end signature.
 - The new TARGET2 will no longer support network validation of flows.
 - Y-copy message flows will be replaced by V-shape message flows. This will force TARGET2 customers to review their payments workflows and booking logic.
 - Like TARGET2, EURO1 will move from Y-copy to V-shape, but will keep the network validation.
 - Banks receiving payment messages from TARGET2 for onward delivery will feel **obliged to pass on all the data received in the structured ISO 20022 message**. Consequently, these banks will need to consider migrating to ISO 20022 for cross-border in the same time-frame as TARGET2 migration.

4.1.1 The Connectors

The Connectors are at the heart of our solution for ESMIG connectivity. The TARGET2 Connector manages the specific message protocols for TARGET2 and EURO1, including creating the mandated signature for the Business Application Header (for a single payment message) or Business File Header (for a file of messages).

It will also create InterAct/FileAct requests and handle compression/decompression, timeout and oversize management for your messages.

If you participate in T2S, protocols are handled by the Connector for T2S in the same way.

All Connector for T2 functionalities will be embedded in your existing SWIFT infrastructure and activated as needed. This protects your back-office application from the requirement for customised protocols – but it will still need to handle the ISO 20022 business payload.

4.1.2 Other value-added services

To assist with the impacts of TARGET consolidation on message standards, connectivity and flows, SWIFT is also providing a suite of value-added services.

4.1.2.1 Validation

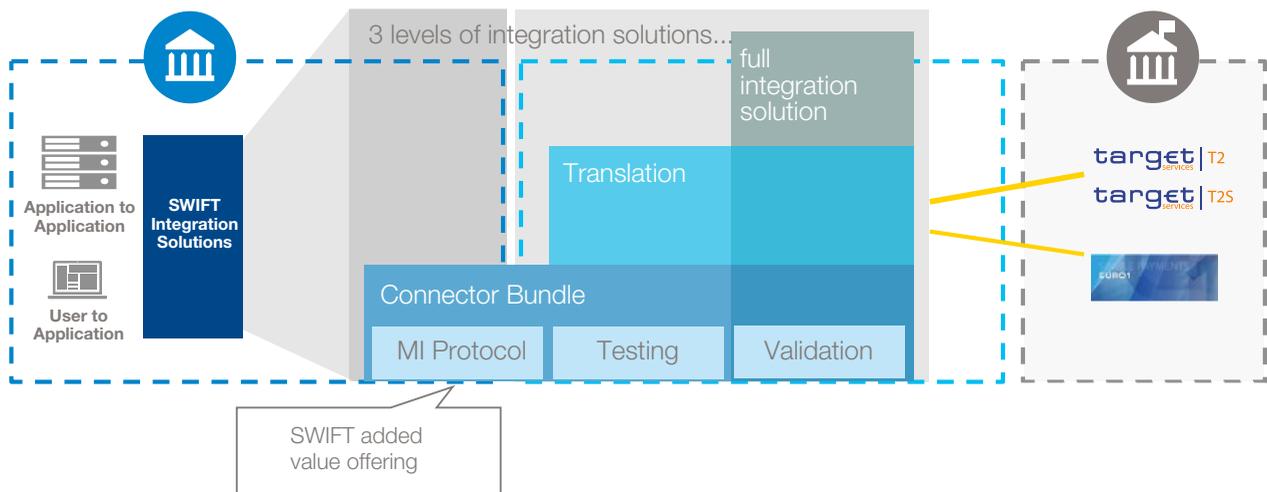
The new TARGET2 will not support validation of flows on the network, as it does today. To help ensure the quality of in-bound and out-bound messages and minimise rejections and issues, we offer a validation service locally within your SWIFT connectivity layer that can be integrated at any level in your workflow.

The validation service allows you to:

- Validate against message syntax and semantics
- Validate against TARGET2 market practice. This is available in machine readable format through MyStandards.

Going beyond secure connectivity

How SWIFT can help integrating with your back-office



4.1.2.2 Translation

The new TARGET2 will use fully-fledged ISO 20022 with additional data and fields compared to MT formats. Messages must leave the sender's premises in 20022 format with the TARGET2-specified signed Business Application Header. Because of this, in-flight translation will not be possible and like-for-like translation from MT will not be sufficient.

We recommend standards gap analysis and detailed messaging mapping at project planning stage, so that back-office and upstream systems are ready to handle the new message formats.

Given the scale and tight timetable for the migration and the large number of systems impacted, a translation service can be useful as an interim solution and for applications not using the richness of the ISO 20022 messages.

Our API-based translation service enables local translation against a set of TARGET2 message libraries to/from MT or any format. Validation of the messages before and after translation is included in the translation service.

The tool underlying this service, SWIFT Translator, can be re-used for other MI migrations and businesses.

4.1.2.3 Testing

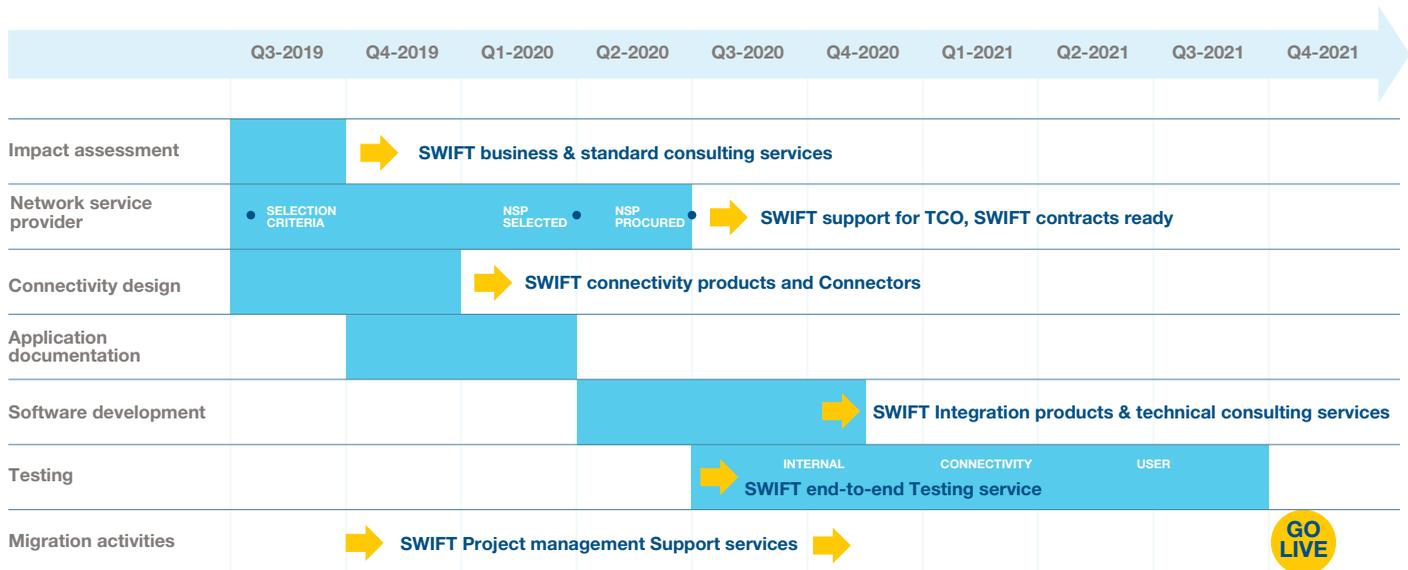
According to the ECB's timetable,¹⁹ internal testing is to be completed by December 2020, ahead of connectivity testing (starting from January 2021) and user testing (starting from March 2021).

Considering the criticality of this project, early testing is essential.

Testing is a key element of our value-added services for ESMIG/TARGET2 migration. We will make available (via SWIFTNet) an automated test "sparring partner" for the exchange of ISO 20022 payment and reporting messages, so you can test your end-to-end readiness in a closed/private environment. The service will be available from July 2020, more than six months before the Eurosystem Testing period, with more than 35 different scenarios for both outgoing and incoming flows. The SWIFT testing tool will validate the message (header, signature, payload) and reply with a positive or negative message. It will also allow users to trigger incoming payments and will simulate TARGET2 feedback. The testing tool will then also send an email with the testing results.

¹⁹ See Overall key milestones to ensure a successful big bang migration in November 2021, European Central Bank, October 4, 2018.

High level TARGET Consolidation project timeline & SWIFT support at every stage



4.1.2.4 A cost-effective solution

Challenging timelines call for straight-forward solutions. Re-using your existing SWIFT technology for ESMIG connectivity safeguards you from the risks of a complex new implementation and provides future-proofing against other infrastructure changes. With a single window, you can connect to ESMIG for all TARGET Services and to EURO1, RT1 and other infrastructures of choice.

Our solution is highly cost efficient. The necessary security framework and resilience for your operations is built in, so there are **no hidden costs**.

When fully implemented, you should achieve a **significant reduction in overall operating costs** as a result of no or limited additional infrastructure costs and attractive ESMIG traffic prices.

“
We have worked closely with our customers to determine the products and services needed to help them manage the impact of these projects on their back-office systems and realize the benefits of ISO 20022 for their operations and for their clients.”

Isabelle Olivier, Head of Securities and Payments Initiatives, SWIFT

Planning your migration

The big bang migration to ESMIG, ISO 20022 and the new TARGET Services in November 2021 calls for tight, industry-wide coordination and planning.

The Eurosystem has set a rigorous timetable, with each participant responsible for ensuring its own readiness.

In order to be ready for external testing from January 2021, internal software development and testing must be completed by the end of 2020. It is an ambitious timetable for any financial institution, especially considering the parallel changes and impacts on systems described earlier in this paper.

Given the scale of the changes, each financial institution will need to make strategic decisions about their business model going forward, based on their scale, customer base and product strengths. While many financial institutions will choose to connect directly, some may choose to connect indirectly, for cost or other reasons.

This is a business-critical, can't fail project which will require senior management buy-in and visibility across your organisation. A clear strategy, good internal communications, expert planning and project management – and the right technology solution – will all be essential.

SWIFT can support you at every stage.

5.1 Draw on unmatched standards, technical and project management expertise

SWIFT's standards expertise is unmatched. As the Registration Authority for ISO 20022 and the guardian of the ISO 20022 financial repository of messages, we have been deeply involved in the development, adoption and implementation of the standard, and have actively facilitated harmonisation of market practices through the high-level industry task forces HVPS+ and CBPR+.

We also work closely with PMIs such as TARGET2, EURO1/STEP2 and CHAPS and provide highly secure and resilient messaging and connectivity services for these and other systemically important market infrastructures.

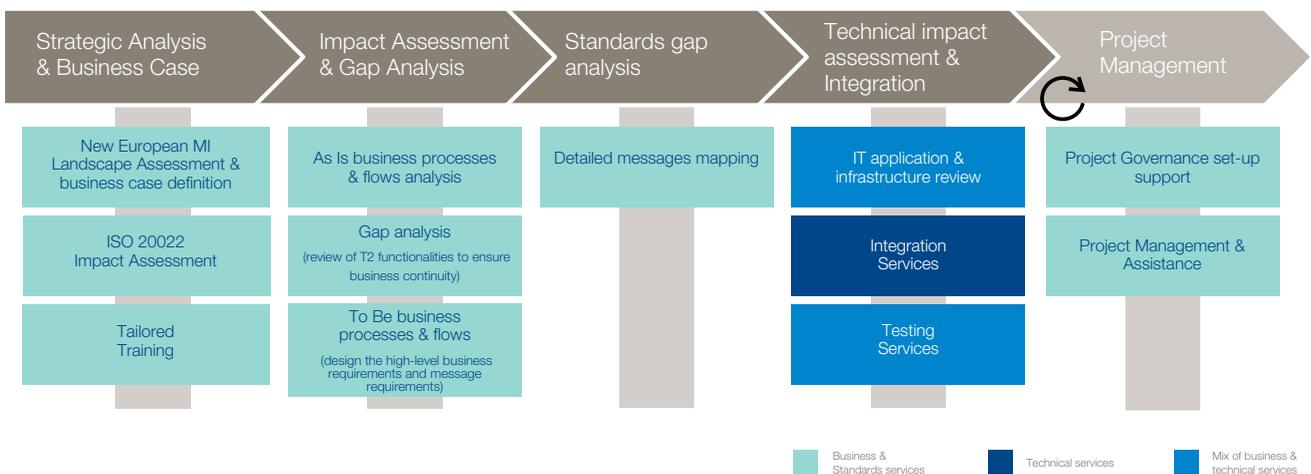
Our business and technical consultants can draw on this well of knowledge to advise and guide you at every stage of your planning and implementation for ESMIG connectivity, from strategic analysis and building a business

case, through process analysis and message mapping to technical integration and testing. Our Professional Services teams are also able to provide full project management support and governance for SWIFT users.

With SWIFT as your partner, you can be ready to reap the benefits of Europe's new payments architecture.

Modular approach for professional services

How SWIFT can assist you with the new European MI evolution adoption/readiness



5.2 Benefit from cost-effective industry solutions for compliance and business intelligence for your future TARGET flows

Our range of shared services, compliance portfolio and business intelligence tools provide cost-effective responses to shared industry challenges. For example, the SWIFTRef database is a central, shared repository of standardised reference data. It provides a highly efficient, single source of data for payments processing, regulatory reporting, counterparty risk analysis and due diligence.

We have developed a comprehensive portfolio of compliance products and services to help you meet the on-going challenges of sanctions and KYC compliance, risk detection and fraud prevention. As well as a range of local and cloud-based screening options, our analysis and reporting products can monitor your SWIFT data for compliance risks and data quality issues. For example, Payments Controls helps to protect against fraudulent attacks by monitoring your

payments for high-risk or out-of-policy transactions and enabling validation of internal records against actual activity on the network.

SWIFT's Business Intelligence tools provide insights into activity, costs, share of market and other key business data through analysis of your institution-wide SWIFT message data. Traffic Analytics is one example – it allows you to monitor and measure your operational flows over SWIFT and evaluate the level of activity with counterparties and business partners to assist your business decisions.

API connectivity makes it easy and cost effective to add these services to your SWIFT infrastructure and expose your data for screening and analysis.

In this way, SWIFT offers a growing range of wrap-around services to make your business more secure and more responsive.²¹

Our collaborative solutions meet the challenges of financial crime compliance, and help to reduce cost, complexity and risk.

How SWIFT is supporting the EU payments transformation

 <p>Single Window</p> <p>Reuse established technology footprint in IT back-office and operations front-office</p> <p>Reuse messaging protocols for MI's in Europe and worldwide</p> <p>Multiple levels of resiliency for A2A and U2A Operational excellence, Best in class cyber-security</p>	 <p>ISO 20022</p> <p>SWIFT is registration authority for ISO20022</p> <p>Migration is orchestrated by SWIFT (CBPR+ and MI support)</p> <p>Maintains standards in regional and global working groups</p>	 <p>End-to-end</p> <p>Keep end-to-end view on payment transactions across MI & correspondent banking</p> <p>Track payment transit times and fees via the gpi tracker</p> <p>Value Added Services (validation, translation, integration & testing) to support your projects end-to-end</p>	 <p>Bank governed</p> <p>SWIFT is a bank-owned cooperative</p> <p>Not for profit, governed by members and with working groups, national member and user groups etc</p> <p>The place to address industry concerns</p> <ul style="list-style-type: none"> – Open banking – Regulation – Utilities (KYC...)
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²¹ For more information on SWIFT Shared Services, Business Intelligence and Compliance Portfolio, please visit our website.

Be ready for Europe's new payments architecture

Migration to Europe's new payments architecture will be a significant market event demanding careful planning and implementation.

In this paper, we have outlined how SWIFT is ready to support you with technical solutions and advice at every stage of your project.

Beyond the technical challenges of this major project lie tangible benefits: a 21st century payments market infrastructure for high value payments; information-rich, standard, ISO 20022 messaging; always-available cross-border euro instant payments settling in central bank money – and flexible, integrated collateral management across T2, T2S, TIPS, EURO1, STEP2 and RT1.

These changes are just one feature of a dramatically transforming payments landscape in Europe and worldwide, as PMIs adapt to meet the changing payment needs of our societies and harness the benefits offered by new technologies.

At SWIFT, we want to help the market deliver this new world of payments efficiently, safely and fully. Our development teams are constantly listening, evaluating and working on the future solutions the industry needs, be that instant cross-border payments, request to pay functionality for gpi, real-time compliance services, cyber-security defences and much more.

As your partner for ESMIG, we offer unique and proven strengths:

Operational excellence and resilience

If you already use our on-premise, cloud and platform interfaces and messaging solutions you will know they are matched to the structure, volumes and strategy of your business.

Our networks deliver 24/7 with 99.999% reliability and industry-level message security and integrity. Our ESMIG connectivity solution benefits from this proven operational excellence and resilience.

Best-in-class cyber-security

When you connect to ESMIG via SWIFT, you are protected by the same SWIFT Customer Security Programme that wraps around your entire SWIFT footprint plus the protocols that ESMIG demands. No need to double up or replace.

Deep expertise in standards making and implementation

SWIFT is the Registration Authority for ISO 20022 and the guardian of the ISO 20022 financial repository of messages. We oversee the maintenance of standards in regional and global working groups, provide the MyStandards platform for collaborative standards management, and coordinate industry discussion to harmonise market practices through two cross-industry market practice groups: The High Value Payments Systems+ Task Force (HVPS+) and The Cross Border Payments and Reporting+ Task Force (CBPR+). These groups develop and publish global usage guidelines to ensure common practice and interoperability of standard messages. So when it comes to standards implementation and community-wide migration projects, we really are the experts.

Exceptional reach across markets and infrastructures

We connect our members to 254 market infrastructures and more than 11,000 financial institutions and corporates worldwide. We understand the requirements of systemically important payment systems for the highest standards of operational

performance and resilience. We have supported MIs in numerous specific projects and developments, including messaging and connectivity services for PMIs such as TARGET2, EBA EURO1/STEP2 and CHAPS and others.

Now we are working to build connectivity between domestic and regional instant payments system and SWIFT gpi for cross-border payments, helping to accelerate the global digital payments ecosystem.

End-to-end visibility across the transaction life-cycle

With SWIFT at the core of your business, end-to-end visibility across the transaction life-cycle is finally within reach. For example, a payment initiated in Singapore can be transmitted across your correspondent banking network via gpi and on to its final destination in, say, Germany, via TIPS or RT1, with full visibility on payment transit times and fees via the gpi tracker. All in close to real-time, 24/7/365.

As a not-for-profit industry body we exist to serve our communities

SWIFT is a global member-owned cooperative and that makes us a little different from commercial companies. We exist to support our communities with neutral solutions to improve efficiency and reduce their total costs of ownership. And we provide a forum for the world's financial institutions to address industry-level threats, issues and opportunities. At SWIFT, we think and act long-term. So when you choose SWIFT for ESMIG, we'll support you operationally and strategically today – and into the future.

SWIFT is your best strategic partner for ESMIG connectivity, ISO 20022 migration and payments transformation.



About SWIFT

SWIFT is a global member-owned cooperative and the world's leading provider of secure financial messaging services.

We provide our community with a platform for messaging and standards for communicating, and we offer products and services to facilitate access and integration, identification, analysis and financial crime compliance. Our messaging platform, products and services connect more than 11,500 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.

Disclaimer

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To find out more

If you need help planning your migration project, are looking for an NSP for TARGET Services or need help with any specific area related to the changes described in this paper, please reach out to your SWIFT account manager or email us at EU.Payment.evolution@swift.com.

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