

International Council of Payment Association Chief Executives

ISO 20022 Implementation best practices

Researched and written
by Lipis Advisors

Table of contents

Section	Page
Executive summary	4
Introduction	6
Implementation process	9
Reported advantages and disadvantages	14
Lessons learned and best practices	20
Recommendations	29
Case studies & appendices	34
Australia	35
Denmark	38
SADC	42
Japan	46
United Kingdom	48
Switzerland	50
SEPA and TARGET2	52
What is ISO 20022?	56
Interview guide	60
Glossary	62

The opinions expressed in this report represent the views of the authors, Lipis Advisors. Opinions and views have not been approved nor should they be read as the opinions or views of any payment association that participates in ICPACE or any individual association members.

Executive summary

There has been a steady rise in adoption of the ISO 20022 standard for payments messaging in recent years. The journey from deciding to use ISO 20022 to actually implementing the standard is an involved process. It is one that requires thorough planning, broad stakeholder involvement, suitable funding, and commitment from industry players. This report examines the best practices for implementing ISO 20022. This includes the advantages and disadvantages of adopting the standard, as well as lessons learned by systems and organizations that have implemented or are in the process of implementing ISO 20022. It is the result of several months of research which used Lipis Advisors' proprietary archive, public sources, and 26 executive interviews. These interviews were with high-ranking representatives from banks, clearing houses, IT vendors, payment processors, central banks, and payment associations around the world. The result is a set of recommendations on how to best implement ISO 20022 in a number of contexts.

Subjects we interviewed reported far more advantages than disadvantages to implementing ISO 20022:

- Global interoperability
- Rich remittance data
- Uniform and reusable messages
- Political neutrality
- Wide availability of IT fixes
- Lower overall operating costs after the initial investment
- Use as a strategic platform for innovation

Of these advantages, global interoperability was the most popular, followed by the standard's rich remittance data and uniform and reusable messages. The advantages of ISO 20022 were consistent among different interview subjects, with only minimal differences in responses from banks, clearing houses, and payment associations.

The disadvantages of the standard were also consistent among different respondents, who cited the following reasons:

- Difficulty of building a business case to adopt ISO 20022
- Different implementations of the standard within the same payments system
- Increased bandwidth needed for ISO 20022 messages

The difficulty of building a business case for ISO 20022 was the most cited disadvantage among all respondents.

The report also lists the lessons learned and best practices that came out of the interviews. As with the advantages and disadvantages, these responses were culled from a wide variety of geographies and organizations. A clear hierarchy of lessons learned emerged from our research. The results, ranked from most important to least important, are as follows:

- Centralize management, set clear goals, and provide clarity on the entire end-to-end process chain
- Secure broad stakeholder involvement and early buy-in for ISO 20022
- Leverage outside organizations
- Standardize the implementation of ISO 20022
- Set a mandatory end date with a limited migration period
- Migrate all old capabilities from legacy standard
- Use the opportunity of wider system uptake of ISO 20022 to update internal processes and add other new services
- Use conversion tools and validation portals

The formal document ends with a list of recommendations for implementing ISO 20022 based on our research and interviews. The recommendations are as follows:

- Focus on the strategy, not the business case
- Use ISO 20022 for new systems or link ISO adoption to a major IT upgrade
- Make the migration period as short as possible
- Create generic business processes to cover most use cases
- Draft tight technical specifications and implementation guidelines and provide validation tools
- Take future needs into account
- Engage with like-minded payment communities to create uniform, reusable message sets

While each individual payment system migrating or adopting ISO 20022 will have its own individual needs, these recommendations represent the most important aspects that should hold true for most systems.

Please note that the recommendations contained in this document reflect the views of Lipis Advisors based on their expertise and research and do not necessarily reflect the views of ICPACE member organizations.

Introduction

In early 2014, the International Council of Payment Association Chief Executives (ICPACE) asked Lipis Advisors to investigate the best practices for implementing ISO 20022, particularly for payment systems. The research was designed to focus on how a community proceeds after the decision to adopt ISO 20022 to the actual implementation of the standard. ICPACE is interested in learning the benefits and barriers of ISO 20022 adoption and the practical lessons of ISO 20022 implementation at varying stages, for multiple industry stakeholders, and covering a wide range of geographies and organizations. The following report takes as its starting point the assumption that a business case has been approved and a decision to move to ISO 20022 has already been made. While much of our research focused on low-value payment systems, we also looked into how ISO 20022 is being leveraged for high-value payment systems, and to a lesser degree card processing.

This paper details lessons learned from communities that have completed adoption or are in the process of migrating to ISO 20022. It examines the drivers and barriers to adoption and implementation. The paper gives insights into how the various jurisdictions harnessed the drivers and overcame barriers, the best practices for assessing the impact of ISO 20022 adoption, and the effects of ISO 20022 adoption on banks of different sizes. It discusses transferable lessons as to what industry stakeholders can do to secure adoption and effect successful implementation of ISO 20022 within their communities or payment systems.

The insights gleaned from the interview process were essential in giving us a comprehensive understanding of the major issues and best practices involved in adopting ISO 20022 from a wide variety of institutions around the world.

Methodology

In addition to considerable desk research that used both public resources and Lipis Advisors' proprietary databases, this project drew extensively on executive interviews. In all, we completed 26 interviews with high-ranking representatives from banks, clearing houses, IT vendors, payment processors, central banks, and payment associations from around the world. Before conducting the interviews, Lipis Advisors developed an interview guide based on the questions raised in the ICPACE Brief for Research on ISO 20022 Adoption and Implementation. After completing the interview guide and consulting ICPACE members, the interviews took place between January and April 2014. They lasted 60-90 minutes, and most were conducted via telephone, with any follow up questions asked via email. The interview guide was used as a prompt for the interviews, but additional questions came up and many of the conversations went "off script." Interviewees were generally very open about the process their system or organization went through in deciding and planning the implementation of ISO 20022. The insights gleaned from the interview process were essential in giving us a comprehensive understanding of the major issues and best practices involved in adopting ISO 20022 from a wide variety of institutions around the world.

The following organizations were interviewed for the project:

- Australian Payments Clearing Association
- Bacs (UK)

- Bank of Tokyo-Mitsubishi UFJ (Japan)
- Bankgirot (Sweden)
- Bankserv (South Africa)
- Canadian Payments Association
- Commerzbank (Germany/SEPA)
- Deutsche Bank (Germany/SEPA)
- Equens (SEPA)
- European Central Bank (SEPA)
- European Payments Council (SEPA)
- Faster Payments (UK)
- GEFEG (Germany)
- ICBPI (Italy/SEPA)
- Irish Payment Services Organisation Limited (Ireland/SEPA)
- ISO 20022 Registration Management Group
- JP Morgan Chase Bank (USA)
- KIR (Poland)
- NACHA (USA)
- Nets (Denmark)
- Nordea (Finland/SEPA)
- Payments Association of South Africa
- Payments NZ (New Zealand)
- SADC Banking Association
- SRC Security Research & Consulting GmbH/EPAS (Germany/SEPA)
- SWIFT
- Payments Council (UK)

The full interview guide can be found in the Appendix at the end of this document.

Sponsors

ICPACE is an international association of chief executives from payment associations of English-speaking countries. ICSPACE brings these national payment associations together to share ideas, exchange experiences, and progress work of mutual interest. ICSPACE participants include:

- Australian Payments Clearing Association (APCA)
- Canadian Payments Association (CPA)
- Irish Payments Services Organisation (IPSO)
- NACHA (United States of America)
- Payments Association of South Africa (PASA)
- Payments NZ (New Zealand)
- Payments Council (United Kingdom)

Steering group

The steering group for this project consists of:

- Brad Pragnell, Head of Industry Policy, APCA
- Bob Masina, Head of Technology & Operations, APCA
- Sajjad Jafri, Senior Researcher, CPA
- Martin James, Wholesale Payments and Risk, IPSO
- George Throckmorton, Managing Director, Advanced Payments Solutions, NACHA
- Arif Ismail, Executive, Strategy and Communication, PASA
- Chad Haighmark, Research and Development Analyst, Payments NZ
- Martin Quin, Senior Payments Advisor, Payments NZ
- James Whittle, Head of Industry Dynamics – Financial Services, Payments Council

Summary of ISO 20022 and its uses to date

Enthusiasm for ISO 20022 is high among those who dream of true global standardization in an age where national and regional barriers seem to be vanishing quickly. With business practices becoming truly global for more and more banks, corporates, and individuals, it is no surprise that efforts are being made to establish a data standard that is interoperable around the world. Many communities wonder whether they should migrate to the standard, and some believe its uptake as inevitable. While it is still unclear whether ISO 20022 will become the “standard standard,” there is no doubt that it is having profound effects on developments in the payments industry globally.

The following table provides a brief overview of select systems that have finished migration or that are in the process of migrating to ISO 20022. It details the message flows adopted, whether they were greenfield or brownfield implementations, the strategies for implementing ISO 20022, and when the projects were completed or when they are expected to be finished. A comprehensive case study of each system is available in the Appendix at the end of this document.

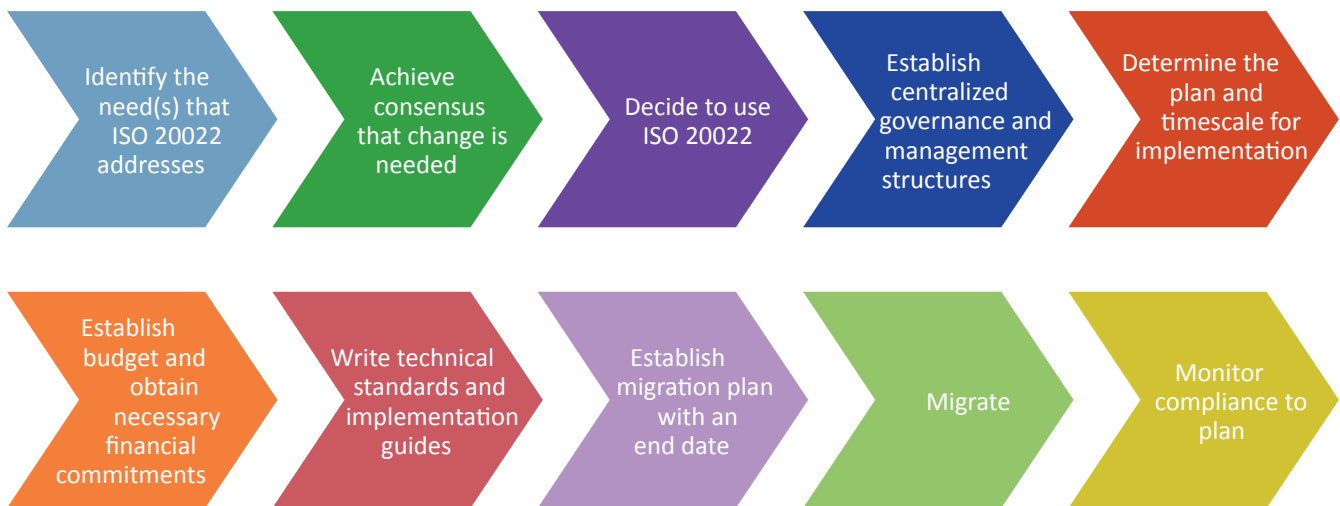
With business practices becoming truly global for more and more banks, corporates, and individuals, it is no surprise that efforts are being made to establish a data standard that is interoperable around the world.

Country/ region	Message flows adopted	When	Greenfield or brown- field?	Key strategy
Australia	Retail credit transfers	2016	Greenfield	Investment segmented among stakeholders over course of New Payments Platform program.
Denmark	Retail credit transfers and direct debits	Fall 2013	Brownfield	Essentially a “big bang” migration when moving from legacy standard to ISO 20022.
Japan	Retail credit transfers	2011	Brownfield	Coexistence of ISO 20022 with legacy standard with Zengin converting messages in the middle.
SADC	Retail credits under implementation	2014	Greenfield	Centralize program management and liaise with local work groups to affect a mandatory use of ISO 20022.
SEPA	Retail credit transfers and direct debits; RTGS and securities settlement to follow	2014	Greenfield, brownfield to come	Move from national legacy standards to ISO 20022-based SEPA standard over a lengthy migration period.
Switzerland	RTGS and retail payments and credit transfers	Mid-2018	Brownfield	Guidelines issued before 5-year testing and validation period.
UK	Account switching	Fall 2013	Greenfield	Development of new ISO 20022 account switching messages for Current Account Switch Service.

Implementation process

In our investigation of how ISO 20022 is being introduced across more than a dozen payment communities, a number of common steps emerged:

- Identify the need(s) that ISO 20022 addresses
- Achieve consensus that change is needed
- Decide to use ISO 20022
- Establish centralized governance and management structures
- Determine the plan and timescale for implementation
- Establish budget and obtain necessary financial commitments
- Write technical standards and implementation guides
- Establish migration plan with an end date
- Migrate
- Monitor compliance to plan



Identify the need(s) that ISO 20022 addresses

The first step in getting an industry on board with the standard is identifying a need or problem that ISO 20022 can help address. Whether it is the updating of an old system, the creation of an entirely new system, a desire for faster payment processing or decreased operational/settlement risk, enhanced remittance information, or the need for new or improved products or services, the adoption of ISO 20022 is never the end goal; it is a tool that can help a system or organization achieve a goal. Getting this last point across is essential, and often the most difficult initial hurdle that needs to be overcome. Although many stakeholders are aware of ISO 20022, knowledge of how it works and what it can help an industry achieve is usually low. Therefore, educating industry stakeholders on how utilizing ISO 20022 can help achieve a certain end(s), or how it can address a specific problem is extremely important from the outset. Some interviewees told us that without this education (for which outside experts and consultants are often brought in), these initial business discussions can turn into complicated technical discussions that can distract attention from the task of establishing how

ISO 20022 can (or cannot) help achieve a concrete business goal. An understanding of how ISO 20022 works can help address specific needs or problems across the broad market. Some of the benefits of ISO 20022 may be realized by using proprietary XML messages instead, but the value of ISO 20022 is in using standardized, reusable messages.

Achieve consensus that change is needed and decide to use ISO 20022

The next step toward implementing ISO 20022 involves making a decision to adopt the standard. This can be made within a single organization, among a group of stakeholders, or across an entire industry in a specific country or region. Arriving at the decision to move to ISO 20022 is itself a process that requires time, energy, knowledge, and buy-in from key stakeholders. This is especially true in environments where the business case is challenging or where benefits, risks, and costs accrue unequally to different stakeholders. The ultimate decision to move to ISO 20022 is usually achieved after getting buy-in from decision-makers of major industry stakeholders. It is not enough to convince mid-level representatives that ISO 20022 is the right standard for the future: that decision has to be made in the highest levels of an organization. Moving to ISO 20022 at an industry-wide level will require the further step of rallying enough important stakeholders to the cause to create a critical mass for widespread buy-in. This decision can be reviewed throughout the process as impact assessments are completed to allow for continued buy-in at different steps of implementation.

Establish centralized governance and management structures

Most interviewees stressed the importance of centralized management for any move to ISO 20022. This could be a group set up within a large organization such as a global bank, or an industry-wide group in the case of system-wide adoption. This centralized team can help facilitate buy-in from top decision-makers and may also help organize system-wide education on the standard. Even if it is not set up until the decision to move to ISO 20022 is made, a centralized entity is crucial for developing and coordinating the process. Part of this involves working with the industry to set up a detailed project plan that takes into account the necessary investments needed for the project, writing rulebooks, creating an implementation guide, and facilitating the steps taken along the way.

Establish budget and obtain necessary financial commitments

Once the definitive scope of the necessary changes is known, a centralized budget can be established for managing the transition and/or introduction, and financial support can be sought from stakeholders if needed. There were divergent views among interviewees about whether the project funding should be monolithic in nature with complete funding sought from the outset, or whether a phased approach with spread out commitments over a longer period was

better. In community projects, stakeholders can also assess necessary budgets for making internal changes.

Determine the plan and timescale for implementation

Using the relevant governance structures, a plan must be established for the remainder of the migration. This includes the time needed for writing technical documents, making IT changes among all affected stakeholders, testing, going live, and decommissioning legacy systems, if needed. This is a complex and time-intensive effort, often involving dozens of stakeholders reaching compromises about when and how to make changes. A critical component of a timetable for the plan includes deciding if all parties in a market need to migrate or adopt at the same time, or if it will be done “at will” over a longer period of time with an agreed-to end date. This decision is important, as it will have an impact of whether or not a dual environment is maintained for systems potentially envisioned to be replaced, and it will impact the timing of benefits to parties that may choose to implement early in the process.

Interviewees stressed that it is important to take all capabilities from the old standard and map them onto ISO 20022.

Write technical standards and implementation guides

Whether ISO 20022 is being implemented as part of a brand new payments infrastructure or as part of a move from a legacy system to a new system, decisions need to be made regarding what capabilities and specifications will be taken from the ISO standard. ISO 20022 is a broad toolbox that works across many industries and business areas, so stakeholders need to decide which aspects of the standard to use and which ones not to use. In the case of a move from a legacy standard to ISO 20022, a decision needs to be made on what should be taken from the old standard. Many interviewees stressed that it is important to take all capabilities from the old standard and map them onto ISO 20022. Even if an industry does not think that all old capabilities will be needed, the fact that practices have been used for so long in the legacy standard mean that they should at least be included in the initial transfer to ISO 20022. If they turn out to be unnecessary, they can always be phased out in a later version of the standard.

After the capabilities taken from the old format and/or the new functions are decided and mapped to the XML format, it is essential to create an implementation guide that can be used by all stakeholders to ensure that ISO 20022 is employed in a standardized way. This requires looking at the market and how the standard will be used within the market holistically and creating a set of technical and business rules with enough depth to avoid vastly different implementations of the standard. The implementation guide should be comprehensive, but the centralized entity that issues and monitors the implementation guide should also be open to feedback from stakeholders, and to issuing a new version of the implementation guide at a later date to improve upon the original guide in light of any issues that arise during and after implementation.

Migrate

During the period leading up to the migration end date for ISO 20022, the use of testing and validation portals can be very helpful. There are a wide variety of such tools available from IT vendors that can illuminate and mitigate problem areas for banks and corporates. For a bank or corporate, being able to test whether their use of the new standard is in line with the implementation guide ahead of the end date is essential. Many validation portals can even point out exactly where problems occur by highlighting the data field and providing a direct link to the section in the implementation guide or rulebook that spells out how to fix it. Moving from a legacy standard to ISO 20022 is a massive undertaking, and utilizing software tools designed to aid ISO 20022 implementation can be extremely helpful.

The final step in implementing ISO 20022 is reaching the migration end date, which can either mean putting a new ISO-based system online or switching off a legacy system in favor of a new system. This requires a firm end date. Regulators often play a major role in setting this end date, but regardless of who decides it, the decision has to have teeth and the industry has to stick to the planned end date. Of course, the move to ISO 20022 does not end once an ISO-based system goes online. The industry needs to keep communication open and be flexible enough to fix or tweak problem areas even after ISO 20022 is already in use. After detailed planning with broad cooperation from a wide range of stakeholders, major changes after the final move to ISO 20022 should be kept to a minimum.

Monitor compliance to plan

Throughout the process, structures and metrics must be in place to monitor migration. In the most prominent case, SEPA, the European Central Bank required clearing houses to report rates of SEPA transactions as a proportion of total transactions. They were therefore in a position to know how quickly payment messages were being migrated from legacy schemes to SEPA. If migration is sluggish, steps can be taken to accelerate it, and if migration is rapid, legacy systems may be decommissioned more quickly, leading to cost savings. In cases where regulators have mandated migration, penalties may be applied to non-compliant entities.

The final step in implementing ISO 20022 is reaching the migration end date, which can either mean putting a new ISO-based system online or switching off a legacy system in favor of a new system.

Reported advantages and disadvantages

While ISO 20022 has not become the universal standard for financial messaging, adoption of the standard is rising around the world. As usage grows, banks and corporates in other geographies see more of an advantage to adopting ISO 20022. This helps explain why SEPA is such a driving factor for global adoption of ISO 20022. As one of the largest and most important markets in the world, the fact that doing business in Europe now means using ISO 20022 (at least partially) provides a major step for banks and corporates in other geographies to begin adopting the standard. Regardless of the order of adoption, there is sometimes an interplay between using the standard in payments and in other areas such as securities and trade finance, which can eventually lead to wider usage of ISO 20022.

Regardless of the order of adoption, there is sometimes an interplay between using the standard in payments and in other areas such as securities and trade finance, which can eventually lead to wider usage of ISO 20022.

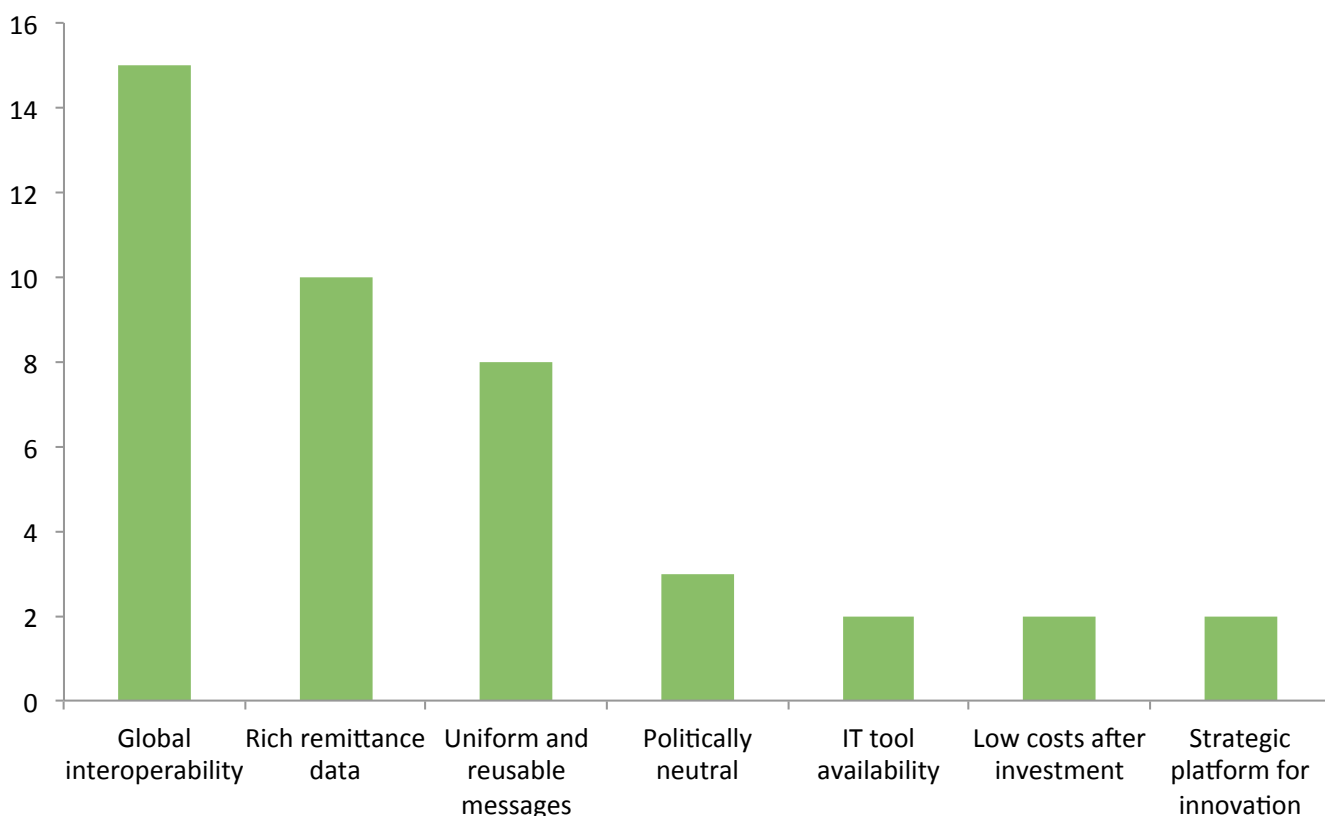
It is also important to distinguish between implementing ISO 20022 in “greenfield” and “brownfield” environments. Greenfield environments exist where an entirely new infrastructure is being built. Under these conditions, many systems we interviewed and researched have a much easier decision process for adopting ISO 20022. If a community is starting from scratch with a new system, it is not constrained by an existing legacy standard(s), and thus many of the hurdles or disadvantages to migrating to ISO 20022 are either less severe or non-existent. A brownfield environment is different because it involves updating a legacy standard that is already entrenched in the payment system. This naturally means that technical and business practices are well-established and thus more difficult to change. A brownfield implementation of ISO 20022 requires convincing stakeholders that moving from an existing standard (which often works quite well for existing products and services) to ISO 20022 is worth the time, effort, and cost. It means looking at the existing standard in detail and mapping its functionality to ISO 20022, upgrading technical requirements and businesses processes that have become entrenched. They then have to decide whether to introduce a migration period and how long that period will be, assess the inherent risk in such a large technical overhaul of an existing system. Introducing ISO 20022 in a brand new system does not face any of these difficulties: it merely requires a payments community to decide on ISO 20022 and go live with the standard from day one.

Organizations around the world are adopting ISO 20022 because it provides a number of advantages. It provides global interoperability, financial messages that can be used in a number of different business areas, and convergence from the hundreds of national standards already in use into one global standard. However, there are also a number of disadvantages that need to be overcome before an organization or market decides to adopt ISO 20022. These negative aspects include larger and more complex messages that require more processing capacity, the operational risk inherent in a move to a new data standard, and the lack of a clear business case to support migration in its own right. In some communities, these disadvantages still outweigh the improvements that could result in a move to ISO 20022. The following section will detail the advantages and disadvantages of ISO 20022 implementation.

Advantages

Interviewees reported a number of advantages stemming from ISO 2022 adoption. There was little difference in responses among the various groups surveyed. The only notable difference was that payment associations did not see as much of an advantage in ISO 2022's uniform and reusable messages as banks and ACHs did.

ISO 2022 advantages reported by interviewees



N=20, multiple responses possible

Global interoperability. ISO 2022 has created the possibility of the first truly universal financial industry message scheme. While adoption of the standard is growing dramatically, it has not yet reached widespread use around the globe. Full adoption of the standard around the world is not necessary for it to become a global standard. ISO 2022 can act as a single messaging model that can be used to convert between two different messaging standards, acting as a sort of “middle man” between the two. Other widely used data standards (such as EDI-FACT or TWIST) have been mapped to the ISO 2022 standard. With conversion possible between ISO 2022 and so many other standards, these standards need only link to ISO 2022 to enable communication with other standards that may otherwise be challenging to translate directly. ISO 2022 will eventually have the advantage of being a uniform format for domestic and cross-border payments as adoption increases in many countries around the world. Other advantages mentioned by interviewees related to global interoperability include simplified

messaging for global banks that are active in multiple geographies, the ability of global corporates to consolidate payment standards, and the possibility of adopting innovations from other geographies that use ISO 20022.

Rich remittance data and strategic platform for innovation. Theoretically, ISO 20022 allows for extensive remittance data to be included in a message. Extensive data helps avoid confusion over the purpose of a payment in comparison to data standards that only allow a very limited amount of data (e.g. tens of characters). Most data standards that offer such a limited amount of data were developed decades ago, when systems could not handle rich remittance information. As technology and payment products have evolved, such limited data can become a liability. In some markets, direct debit requests have actually been rejected or reversed because the limited data transferred with the request left it unclear exactly who wanted to debit the money from a customer's account. Many markets that have/are implementing ISO 20022 do set limits on remittance information (it is limited to 140 characters in SEPA), but the potential for more data in the future makes the standard more flexible. Hypothetically, ISO 20022 has the potential to enable innovative services by using the rich data fields to embed extensive information into payment messages (such as e-Invoicing, direct debit mandate management, etc.). Few current implementations, if any, take advantage of this functionality. The fact that the standard is extensible also enables future innovation. The ability to add new tags or new fields (or change the length of existing fields) enables the standard to carry different or larger payloads of data that can enable new services. Adding functionality in a system using ISO 20022 does not require a complete change in the data standard.

Uniform and reusable messages across multiple domains. ISO 20022 is not just a data standard for payment messages. In addition to message groupings for payments clearing and settlement, and payments initiation, ISO 20022 includes message types for cash management, securities trade and settlement, account management, trade services management, e-invoicing, and more. There have even been message types developed specifically for card acquiring and terminal management. The fact that ISO 20022 can be used across so many business areas means that the standard can help streamline diverse processes. This leads to more efficient communication between different stakeholders, and helps lower overall costs for banks, corporates, and clearing houses as they would no longer need to maintain and operate multiple standards at once. Many organizations also reorganize their internal processes (particularly cash management) using ISO 20022, thereby consolidating both external and internal communication in line with the standard.

Politically neutral. In systems like SEPA and SADC that consolidate the national payment systems of multiple countries, ISO 20022 is a politically neutral choice. Selecting one of the existing national standards would give some players an advantage over others. Choosing a new, internationally recognized, and modern standard requires everyone to change, but on a level playing field.

Wider selection of software providers and tools. One problem with national proprietary standards, and in particular proprietary standards that were developed decades ago, is that there is often very limited choice when it comes to software tools and software providers. If a standard is only used in one geography and was developed for older systems that are no longer widely used, any updates or fixes will be extra costly because the pool of potential software providers will be very small. This is not a problem with ISO 20022. As a modern, XML-based data standard that is not limited to one geography, there are a wide range of software providers developing tools and updates to the standard.

Lower operating costs after the initial investment. One reason that some systems have hesitated to adopt ISO 20022 is the initial cost of updating internal and external systems and practices. This cost can be even higher when developing a completely new system. Once ISO 20022 is in place, it lowers overall costs due to the wider availability of IT fixes and cheap system upkeep. It can also lower costs by obviating the need to run multiple standards if ISO 20022 is being used in multiple business areas. Lastly, overall standardization in the market can lead to fewer technical problems and less of a need to convert to or from different standards, all of which save time and money in the long run. Some of these cost savings could be realized by moving from legacy IT architectures to more modern and componentized architectures, without changing the data standard. Some systems have chosen, however, to update the data standard to ISO 20022 when undertaking a major system redevelopment because of the other benefits mentioned above.

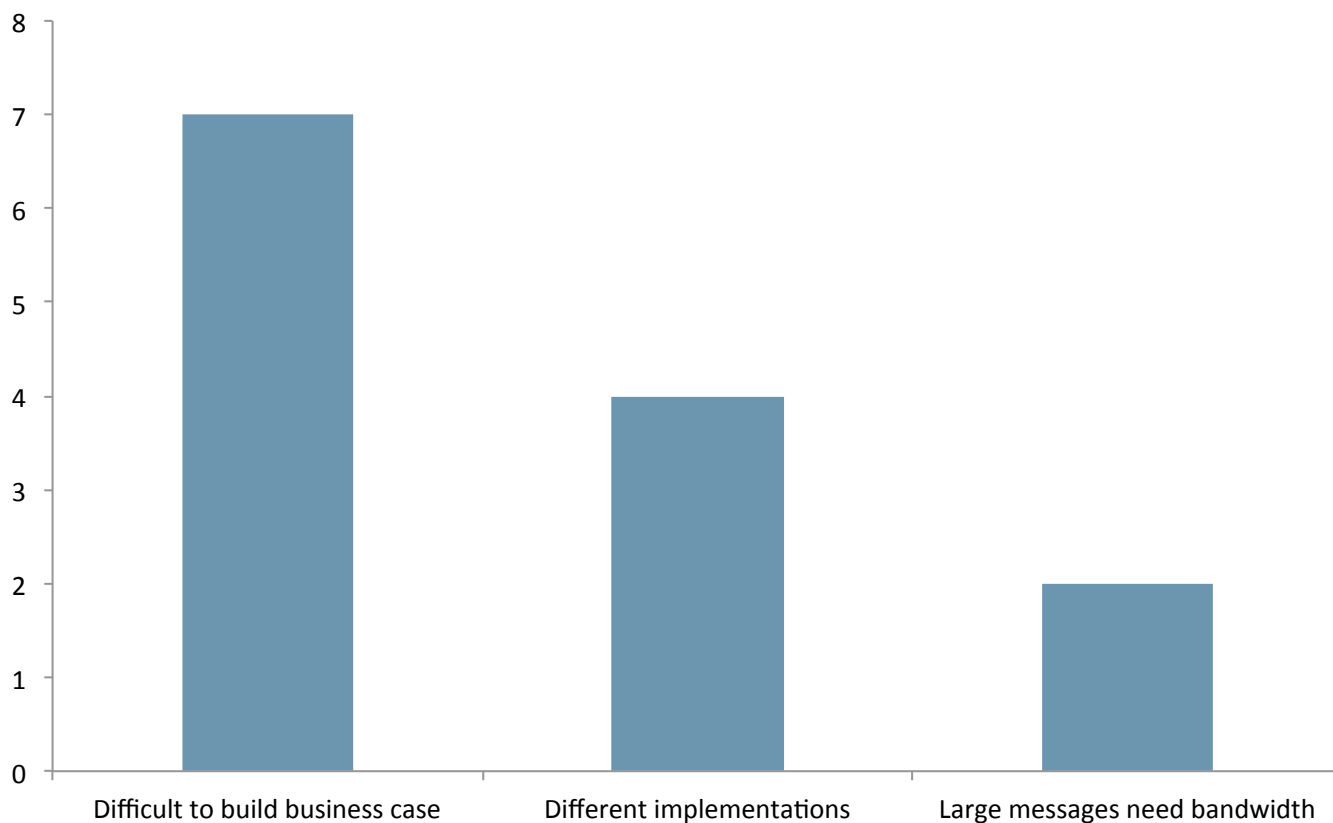
As a modern, XML-based data standard that is not limited to one geography, there are a wide range of software providers developing tools and updates to the standard.

Disadvantages

Interviewees reported a number of disadvantages stemming from ISO 2022 adoption, although fewer responses were received. Bank respondents cited the disadvantages of the standard more often than payment associations or ACHs (although banks also cited twice as many advantages than disadvantages during interviews). Overall, reported disadvantages were ranked similarly among all response groups, with ACHs citing different implementations of the standard more than other groups.

Difficult to build a business case for a broad implementation. While the benefits of ISO 20022 can be far ranging, they tend to accrue over the long term. In the short term, banks and other stakeholders are faced with considerable initial investments in IT and system upgrades. Additionally, there is the difficulty of the time and labor it takes to develop, test, and validate a new or updated system running on ISO 20022. The overhaul of business practices that goes along with ISO migration is costly in both time and money. This has been a huge stumbling block in many systems, even ones that acknowledge the ultimate benefits that would occur by adopting ISO 20022. Additionally, if an entire market does not adopt at the same time, or if adoption is just between certain trading partners, early adopters will gain only partial benefits while having the expense of running dual systems. The return on this initial investment takes time to accrue, and

ISO 20022 disadvantages reported by interviewees



N=12, multiple responses possible

some of the benefits (global interoperability, streamlined processes) cannot always be expressed in numbers. Add to this the fact that present IT and business practices tend to be well established, so if there is no pressing need to update these aspects anyway, it can be hard to convince industry players to move to ISO 20022: if it ain't broke, why fix it? Looking at ISO 20022 from a pure business case perspective can lead many to think it is not worth it.

Hard to avoid different implementations of the standard. One of the difficulties that has come up as SEPA has moved to ISO 20022 is that many countries have implemented the standard in a slightly different way, thus leading to “national flavors” of the SEPA ISO 20022 standard. This is when a “standard” is not a “standard,” not only for the payment itself, but also for the consistency required of remittance information. While some variation between countries and stakeholders can be expected with any data standard, the variations seen in SEPA so far are more far reaching. They are already presenting difficulties for banks and corporates in different countries that try to communicate with each other using the same SEPA standard. This is because the rules were interpreted by various communities within SEPA in different ways. Every implementation of ISO 20022 is different, but problems arise when different stakeholders or geographies that are supposed to implement the standard similarly end up with different versions of the standard. Benefits such as straight-through-processing of a payment and related information may not be achieved if the remittance information is not

uniformly adopted, or if business practices or rules do not support the varied adoptions.

Larger messages require more bandwidth and more processing capacity. ISO 20022's rich remittance data can also present problems due to the expanded capacity needed to process ISO messages. While this tends not to be a problem for new systems, some legacy systems that migrate from a proprietary standard to ISO 20022 may not be able to handle the large messages sent in the ISO 20022 format. This means that they have to purchase extra capacity or move data storage to external servers. While the cost of storage and increased bandwidth is not high, it can present operational difficulties and inefficiencies. The messages themselves are also much larger, and in retail payment systems with tens of millions of messages per day, these larger sizes can add up quickly. The extensive remittance data found in ISO 20022 can present problems for real-time message processing if there is no limit set on message data. This is less of a problem in batch payment systems, which process groups of payment messages at fixed times or intervals.

Operational risk in migration. Although not cited by interview respondents as a disadvantage, many mentioned that updating a legacy system to operate according to ISO 20022 can be a tricky proposition. On the one hand, it is necessary to keep legacy systems running/operational during a migration period in case any problems occur with the new ISO-based system. On the other hand, having a lengthy period with both legacy and ISO 20022 systems running side-by-side can result in low adoption of the new ISO standard. Moreover, the potential operational risk presented by migrating from one standard to another in a legacy system is great. Even the most well-planned migration can lead to operational problems related to both technical specifications and business practices. The use of conversion tools and validation portals during the testing period before a new system goes live can help mitigate those risks.

Lessons learned and best practices

Lipis Advisors conducted 26 separate executive interviews to find out the motivations, incentives, and lessons learned from ISO 20022 implementation. In all, the interviews covered systems in 13 separate countries or regions on five continents, as well as an additional five interviews with companies and organizations that operate on a global level. They provided us with a more high-level view of developments and challenges in ISO 20022 implementation around the world. We also had six separate interviews dealing solely with the SEPA region, which is the largest and most high-profile implementation of ISO 20022 in the world.

The executive interviews were extremely illuminating. There is very little public information that deals with implementation issues and best practices for ISO 20022. The breadth of interviewees and systems examined has given us a comprehensive picture of ISO 20022 as it is being put into practice, and has made clear a number of implementation trends that span the globe.

Motivations for adopting ISO 20022

There were a number of motivations cited by interviewees for adopting ISO 20022. For many, ISO 20022's status as a globally interoperable data standard makes it attractive. As an XML-based standard, there are also a wide range of software providers and IT solutions for the standard. ISO 20022 is also seen by many as a platform for future innovation that can enable new products and services that can help banks compete as customer payment demands evolve. Another important factor that was reported in interviews was ISO 20022's rich remittance data, which goes far beyond many legacy standards in a number of geographies. Lastly, ISO 20022 is seen as a politically neutral choice for regional implementations such as in SEPA or SADC. By choosing ISO 20022, no single country's standard is given preference.

Global interoperability

In recent years, ISO 20022 has been touted as the definitive globally interoperable payments standard. This fact was consistently mentioned by systems that are in varying levels of ISO adoption. Japan and Australia both cited global operability as a motivating factor in choosing ISO 20022, and Canada sees it as a plus as they look to update their system. In SEPA and SADC, an interoperable data standard that eliminates the need for correspondent banking relationships was a major reason for choosing ISO 20022.

Global interoperability in the case studies

In Denmark and Switzerland, interoperability with SEPA was a key factor in deciding to move to ISO 20022. Nearly all other systems examined cited interoperability as major advantage, even if concrete ways of exploiting that interoperability are currently limited.

In SEPA, every country had to migrate from legacy standards and infrastructure for credit transfers and direct debits. As a globally interoperable and modern standard, ISO 20022 was an obvious choice from both technical and political perspectives. It would be seen as unfair to require the entire SEPA region to migrate to one country's legacy standard. ISO 20022 had the added benefit of being a neutral choice that will also enable interoperability with other payment systems around the world. The decision to use ISO 20022 for the new SADC RTGS infrastructure was also driven by a mixture of political neutrality and regional/global interoperability.

However, global interoperability itself is seldom enough to motivate adoption of ISO 20022 on its own. Despite the ever-increasing globalization of business and labor, the vast majority of payments (at least 98% by many estimates) are still made domestically, and proprietary standards tend to do a good job at facilitating these payments end-to-end. This helps explain why it is so rare to see migration from a legacy standard to ISO 20022 in an existing system that is not in the process of being updated for other reasons. When a country does decide that their system needs updating, and especially when a completely new payments infrastructure is developed, ISO 20022 is often seen as the obvious choice.

Availability of IT solutions

XML-based systems like ISO 20022 have a wide range of IT solutions available that can enhance efficiency and improve services at a lower cost than legacy system IT updates. ISO-based messages can also be mapped to other standards, thereby ensuring interoperability even if one party does not use ISO 20022. This interoperability goes beyond ACH payments: ISO 20022 can also be used for foreign exchange trading, securities, investment funds orders, and card payments. As the barriers between industries and regions continue to dissipate, the importance of having a modern, efficient standard that can operate between countries and industries will grow as well.

Availability of IT solutions in the case studies

In the United Kingdom, the widespread availability of IT solutions was an important factor in choosing ISO 20022 for the new account switching service. Interviewees in the United States also cited the ease of working with XML-based ISO 20022 instead of proprietary standards.

Promoting innovation

Some markets are motivated to adopt ISO 20022 to foster future innovation. These markets tend to have a general forward-looking mindset among banks, corporates, and consumers. Although the move to ISO 20022 on the New Pay-

ments Platform is still a few years away, some of the large Australian banks are looking at their investments in the ISO-based infrastructure as an opportunity to create new products that utilize real-time payments and ISO's efficient messaging between industries. The Swedish payments community has a forward-looking mindset, which led to widespread support for the development of the BIR/PRT real-time mobile platform, which runs on ISO 20022. Denmark and Switzerland also share this mindset, with Denmark having already completed migration to ISO 20022 in its same-day clearing system. They are nearing completion of an ISO 20022-based real-time system that was specifically developed to meet customer demands for faster payments. Switzerland plans to migrate its RTGS and retail payment system by 2018.

ISO 20022 can improve existing capabilities. One of the reasons for this is directly related to its rich remittance data. In South Africa, BankServ saw unusually high return rates for its EDO direct debit products. As it turns out, South Africa's proprietary standard offers limited information about the originator of a direct debit. This leads to some rejections from customers that cannot tell who wants to debit their account from the information provided. The move to ISO 20022 is expected to eliminate this problem. South Africa also plans to benefit from ISO's rich remittance information in the KYC space. There has been a regulatory push to enhance KYC requirements in South Africa in the past few years, and the proprietary standard does not provide enough information to perform these checks. Banks have developed workarounds to provide the necessary documents within 24 hours of any investigation of domestic transactions. The increased remittance data in the ISO 20022 standard will both help enhance South African direct debit products and enable more efficient and reliable KYC procedures.

Promoting innovation in the case studies

A number of key regions believe that ISO 20022 offers them a platform for developing innovative payment products and services, including South Africa, Canada and Finland. Moreover ISO 20022 has already become the standard of choice for developing entirely new payments systems as in Australia, Poland, Singapore, Sweden and elsewhere.

Richer information

The flexibility of ISO 20022 is not limited to its ability to operate between different standards, countries, and industries. The standard also enables extensive remittance information, which has become a key driver of ISO adoption in some markets. Benefits to various markets will depend upon the amount of remittance information already available in their existing standard, and the degree to which the information can be utilized in a standardized manner. When the Australian payments industry was deciding on a data standard for their New Payments Platform that is currently in development, there was wide agreement that the 18 characters in the current proprietary standard would not be enough to enable

new products and services. The Canadian Payments Association also cited the richness of remittance information as a big motivator for their decision to move to ISO 20022 in the coming years. While most systems do set limits on remittance information when implementing ISO 20022, many systems see an increase in the amount of information that can be transmitted. Some national communities within SEPA experienced a reduction in the amount of remittance data as a result of migrating to SEPA. This was frequently cited as a disincentive to migration. Other systems are strongly advised to avoid this if possible.

Richer information in the case studies

The ability to carry rich data along with payment messages is seen as a primary motivation by most stakeholders, including banks and payment system operators. Those that cited it explicitly included stakeholders in Australia, Canada, Germany, Ireland, New Zealand, South Africa, and the United Kingdom.

Incentives for adoption

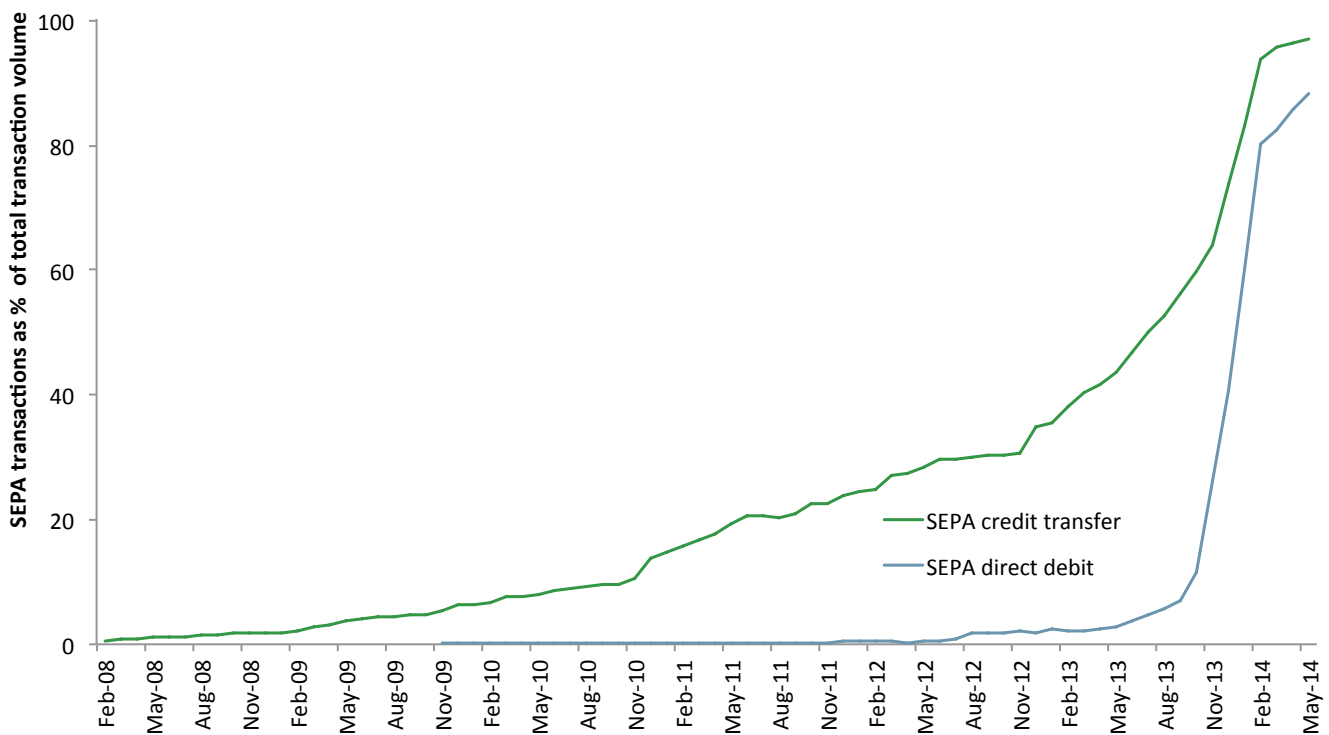
Migrating a payment system to ISO 20022 is a substantial undertaking that encompasses all stakeholders in the payment system: banks, clearing house(s), central bank, corporates, small businesses, and consumers. As such, broad cooperation among the payments community is essential when planning and implementing ISO 20022. Even if widespread support is achieved, very few concrete incentives have accelerated migration. In fact, the only effective method we found that has led to accelerated ISO transitions in countries with low adoption is when a regulator sets a mandatory end date for migration.

To see how ISO migration proceeds without an explicit regulatory incentive or consensus on adoption, one only needs to look to present day Japan or the first four years of SEPA migration. In 2011, the Zengin retail payment system was upgraded to ISO 20022 in an effort to enhance efficiency and interoperability. ISO adoption was not mandatory, and the banks can still submit and process files in Japan's legacy proprietary format, with Zengin performing any necessary data conversions. As a result, banks have been reluctant to invest to use the ISO 20022 capability. This could change in coming years as the BOJ-Net RTGS system will adopt ISO 20022 before 2016, but without a regulatory imperative, migration in the Zengin system has been slow.

In the SEPA region, migration to ISO 20022 is finally proceeding rapidly. Although the European Commission has announced a de facto extension of the SEPA credit transfer and SEPA direct debit migration end date from February 2014 to August 2014, European banks, clearing houses, and corporates migrated rapidly to the ISO 20022-based credit transfer and direct debit schemes in late 2013 and early 2014. The lengthy migration period from national legacy standards to the SEPA schemes illustrates the effectiveness of regulatory compliance as incentive.

The migration period for SEPA credit transfers (SCT) began in February 2008, while migration to SEPA direct debits (SDD) began in November 2009. The end date for migration in both schemes was set at February 2014 (which was extended six months in early 2014). As the chart below shows however, it took until the last quarter of 2013 for significant volumes of SCT to appear (60% of all European credit transfers by October 2013) and it was not until December 2013 that SDD volumes reached 40% of all European direct debit transactions.

SEPA migration rates, February 2008 - May 2014



Note: Includes only transactions cleared through clearing houses.

Source: European Central Bank

By March 2014, 95.65% of all European credit transfers were made using the SCT scheme and 82.60% of European direct debits were SDD. While the end date of February 2014 was ultimately successful in spurring migration (despite the six month extension), adoption of the ISO-based SEPA standards lagged for the first five and a half years of the six year migration period. This is because banks and corporates saw little incentive to move while they still had time to use their legacy standards. The lengthy migration period led to very low adoption rates until the last quarter before the end date.

Some banks in geographies that are developing or implementing ISO 20022 do see a benefit in getting a return on their investment when a new system is put in place. In Australia, the payments community is promoting innovative “overlay services” to drive volume to the New Payments Platform that is expected to go live in 2016. The banking industry has been deeply involved in developing the

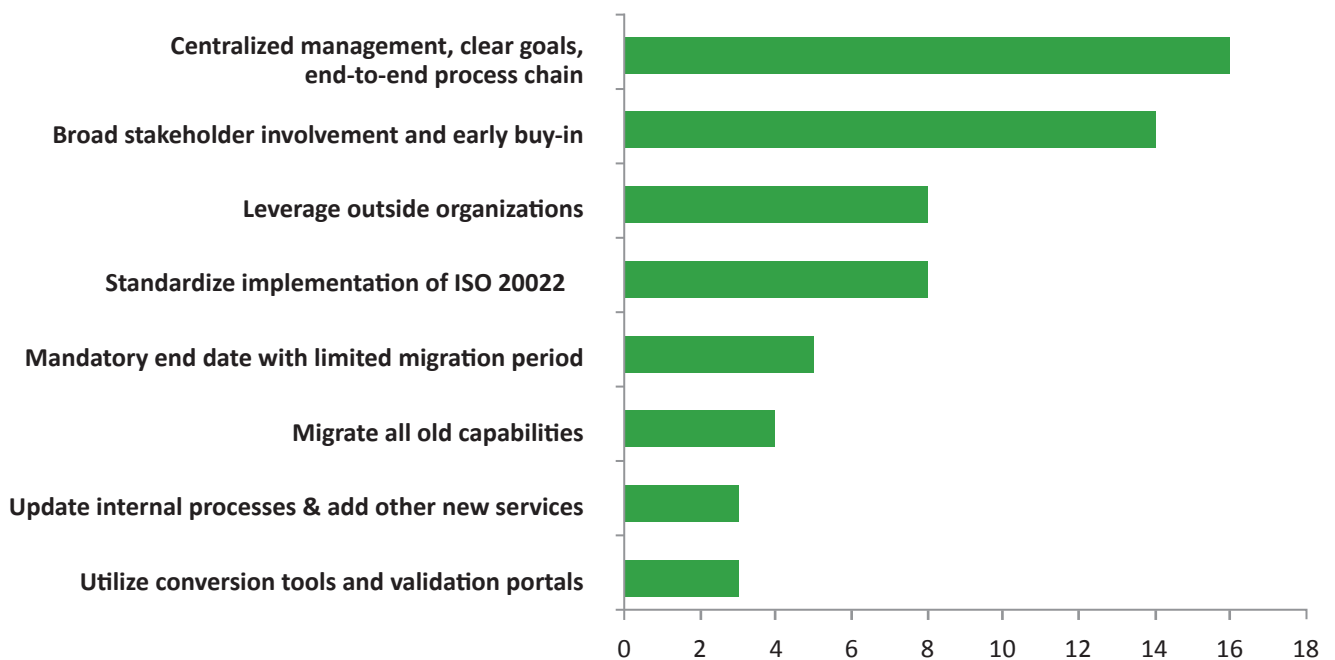
system and mapping out the ISO 20022 standard that it will run on, and this has involved major financial investments. It is believed that the Australian community will want to push volume through the NPP when it goes live through the creation of a new service that uses the NPP infrastructure, so that their significant investment in the system will be justified. If, however, the legacy system is still operating alongside the NPP for a lengthy period, it is possible that some stakeholders will hold off on full migration as long as possible. Evidence from other regions suggests that limiting the period of operating dual systems may be necessary.

Lessons learned

The progress of ISO 20022 migration in the organizations and systems we interviewed range from initial consultations with industry stakeholders, to project planning, to concrete implementation planning, to complete implementation. Throughout the interview process a number of best practices and lessons learned were mentioned regardless of the phase of adoption. These include:

- Having centralized management of the project
- Obtaining buy-in from important stakeholders early on in the process
- Setting clear goals and establishing the process chain
- Leveraging resources from outside organizations
- Standardizing implementation across the system
- Setting a mandatory end date with a limited migration period
- Migrating all capabilities from the old system
- Taking advantage of ISO 20022 adoption for external processes to reevaluate and update internal processes in line with the standard
- Utilizing conversion tools and validation portals

Lessons learned reported by interviewees



N=20, multiple responses possible

While there were differences among the different respondent groups (payment associations, banks, ACHs, etc.), the overall results were very similar. For lessons learned, individual group responses were in line with overall results, with ACHs prioritizing a standardized implementation of ISO 20022 more than other groups.

Set clear goals, establish the end-to-end process chain, and have centralized management of the project. Several interview subjects stressed the importance of having a comprehensive, end-to-end view of the entire marketplace when setting out on a project to migrate to ISO 20022. It is essential to understand corporate requirements, vendor requirements, bank requirements, and consumer requirements before laying out a plan for adoption. Once this is done, clear benchmarks and goals should be laid out so that there is transparency among the entire industry. Adopting ISO 20022 is rarely based on pure business case alone. Long-term goals such as enabling future innovation on the ISO platform and increased efficiency for all players should be stressed from the outset. Additionally, all of this planning should be managed by a centralized body. As members of the Southern African Development Community (SADC) began developing a shared RTGS system, having centralized management and setting clear milestones worked to eat away at skepticism among a diverse group of stakeholders.

Centralized management in the case studies

Implementing the SADC project required broad stakeholder involvement and necessitated centralized management to plan and carry out the project. A centralized entity, the SADC Banking Association, oversaw in-country working groups in ten different SADC countries, and coordinated rule making among diverse stakeholders in each SADC country for every payment stream included in the SADC payment system. Broad stakeholder involvement and centralized management were both key to obtaining buy-in from key SADC players.

Involve all stakeholders early to get buy-in from decision makers in these organizations before the migration process begins. The Payments Association of South Africa (PASA) says that getting senior management buy-in from the outset by explaining the long-term goals of ISO 20022 can help make them champions of the project. Whether the plan is to migrate from a legacy standard to ISO 20022, or to build a completely new system using ISO from the outset, it will be a multi-year process. The benefits of adopting the ISO standard will accrue over the long term. Having high-level advocates from the outset will help maintain commitment to the project over a lengthy adoption period. It may be necessary to bring in outside technical experts to explain how ISO 20022 works so that all stakeholders involved are clear on what the standard is and how it will benefit them in the long term. Without this guidance from technical experts, meetings that should be business discussions can turn into complicated technical discussions that end up negatively affecting support for the project from the outset.

Leverage the resources of outside organizations. Many interviewees found that using resources from outside organizations was helpful for developing an implementation plan in their geographies. SWIFT for example publishes *MyStandards*, an online database of implementation guidelines and technical specifications from systems that have adopted or are currently migrating to ISO 20022. This can help other systems gain insights and replicate technical specifications for their own ISO implementation. South Africa has pointed to its involvement in the International Payments Framework Association (IPFA) as helpful. It enables the South African payments community to network with and gain ideas from other countries and regions that have migrated to or are thinking about migrating to ISO 20022.

Standardize implementation of ISO 20022 across the system. ISO 20022 is a very open and ever evolving standard that can be implemented in myriad ways depending on a system's needs. One of the criticisms of ISO migration within SEPA is that different systems have implemented the standard in different ways, leading to a number of "national flavors" of the SEPA standards. Equens, a prominent SEPA payment processor and clearing house, has said publicly that they have over 100 different implementations of the SEPA standard. This can also happen within a single country system among various stakeholders. Some banks see a competitive advantage in differentiating their standard from their competitors. While some variations may occur, it is important that the rules are standardized enough to avoid the different "flavors" currently being seen within SEPA. The South African payments industry also suggests establishing a formal release cycle to keep everyone on the same version of the standard.

Set a mandatory end date and limit the migration period to drive volume and avoid the cost of running two systems indefinitely. As we explained in the previous section, it is essential to institute a mandatory migration end date to ensure that stakeholders actual use ISO 20022. Systems that adopt a "build it and they will come" model see limited uptake of the ISO standard. This not only defers the benefits of system-wide adoption of ISO 20022, but it also raises overall costs because it entails running two systems simultaneously instead of phasing out the legacy system and moving exclusively to one that is based on ISO 20022.

Mandatory end date from the case studies

Denmark has successfully migrated from a legacy bulk clearing system to an updated system that uses ISO 20022. The Danish payments community decided against a lengthy migration period with two bulk systems running simultaneously, and opted instead for a 4-week period to hedge against the operational risk of switching from one system to another. This was essentially a "big bang" migration, which required immediate uptake of ISO 20022 by Danish banks and corporates.

It can also be used within an organization and thereby provide even more efficient interoperability because there is then no longer a need to convert messages for internal use.

Be sure to migrate all of the capabilities from the old system. Reluctance to migrate to a new standard can sometimes occur when stakeholders fear that not all functions in the legacy standard will be migrated to the new standard. It cannot be assumed that even fringe elements of the legacy standard will not be necessary after adoption. Finland's legacy standard allowed for unlimited remittance data. This changed when they migrated to the SEPA standard, which is limited to 140 characters. To augment the core SEPA schemes, the Finnish banking community decided to use an additional optional service (AOS). Under the SEPA scheme rules, an AOS can be provided either by individual banks to their customers or by local, national, or pan-European banking communities. Finland created an AOS with 9 additional fields of unstructured data that all SEPA banks can agree to use. In this case, the flexibility of ISO 20022 and the SEPA rules allowing for optional AOSs enabled a work around. However, if the rules and operating guidelines of an ISO 20022-based system are not as flexible, problems for a payments community can occur. Moreover, too many AOSs used by distinct user groups have the effect of creating walled-off subsets of users and a fragmented implementation of the standard.

Take advantage of the necessary technical changes that occur when migrating to ISO 20022 by updating other internal processes within your organization.

Adopting ISO 20022 requires investment. Many organizations use ISO migration as a pretext to update internal processes so that they reap even more benefits of ISO's interoperability. The use cases of ISO 20022 are not limited to interbank or corporate-to-bank messaging. It can also be used within an organization, providing even more efficient interoperability because there is then no longer a need to convert messages for internal use. Many of our interviewees told us that customers who redesign internal processes to be ISO-compliant tend to be happier and see more overall benefits from the move to ISO 20022.

Use conversion tools and validation portals to ensure an efficient implementation, and ease reluctance about losing capabilities from the legacy standard.

There are a number of IT and software providers who provide conversion services for systems migrating to an ISO-based standard. One IT company told us that these tools could lead to increased adoption because it helps banks, corporates, and other community stakeholders realize they can retain the aspects of their legacy standard that work well for their payments market. The flexibility that these conversion tools provide (as opposed to completely migrating to the type of "standard of all standards") can ease some of the reluctance that naturally occurs when switching to a new data standard. Validation portals are also helpful tools early in the migration period because they allow banks, corporates, CSMs, and other players to test their messages and be informed of any problems immediately. These portals not only point out errors in messaging, but they also offer clear instructions on how to fix them. They often provide a direct link to the section in the rulebook or operating manual that shows the correct protocol for messaging.

Recommendations

The following recommendations can be applied to both brownfield and greenfield implementations. In a greenfield setting, using ISO 20022 is highly recommended. Its benefits as a modern, flexible, and globally interoperable standard with rich remittance information that can enable quick innovation should make it very attractive to most payment system participants. Using ISO 20022 from the outset helps avoid many of the obstacles to migration we observed in our research.

In a brownfield environment, it is more difficult to offer a clear recommendation of whether or not to adopt ISO 20022. The difficulty arises from the fact that the circumstances of each payments community are different. However, our research has uncovered certain commonalities among systems that have either completed or are in the process of completing migration to ISO 20022.

For brownfield environments that are undergoing a major technological redevelopment, adopting ISO 20022 is a wise decision. Many communities take advantage of a major system upgrade to upgrade the data standard in order to realize the benefits that are enabled from an ISO 20022-compliant system. When the decision is made to migrate to ISO 20022 in a brownfield setting, few systems opt for a “big bang” approach to ISO 20022 migration. Most systems opt for a migration period. It is up to each community to decide on the length of the period in which dual systems run at the same time. However, it is recommended that this period of time is as short as feasible for each community. In Denmark, the migration period only lasted 4 weeks because Danish banks were already accustomed to using the standard for C2B communication and for some internal processes. Switzerland’s planned migration period for SIC and euroSIC on the other hand is envisioned as a five-year process. While the optimal length of the migration period may be different for each payments community, the need for a migration end date is paramount. Otherwise, the evidence so far points to the fact that stakeholders either will not migrate at all, or that they will not migrate until the final few weeks or months before the end date. Systems should also be cautious about using centralized conversion tools, as this can create a disincentive to migration.

When the decision is made to migrate to ISO 20022 in a brownfield setting, most systems opt for a migration period.

Focus on the strategy, not the business case

Another serious barrier to ISO migration is the fact that there is seldom a direct business case for changing a standard. The significant costs to banks, corporates, and clearing houses in converting from a legacy standard are obvious, but the return on investment and benefits of the change are more difficult to quantify. Thus, any decision to adopt the standard needs to be made on a broader, more strategic basis.

There is no way to avoid the fact that technical migration to the ISO 20022 standard costs money. Depending on the state of a community’s legacy system and standards, this technical change could require significant financial investment from the payments community. Unfortunately, the resulting benefits experi-

enced by all stakeholders often cannot be neatly summed up in numbers the way the initial costs are.

Use ISO 20022 for new systems

While ISO 20022 seems to have become the standard when building a new system, it has been quite rare to see it replace a legacy standard in an old system. Legacy systems develop over time according to a market's specific needs, and most stakeholders see no need to undertake a significant and costly change in standards for a system that already works. As such, many systems have decided to introduce ISO 20022 in new systems only. Introducing a new system already requires considerable planning and IT changes, so many of the issues faced by migration from a legacy standard to ISO 20022 (i.e. creating a focused strategy, creating implementation plans, technical guidelines, and businesses processes, and taking future needs into account) will be necessary anyway. Basing a new system on ISO 20022 from the beginning will enable participants to reap the benefits of the standard without adding any major obstacles to implementation.

While a migration period is necessary from a risk management perspective, having an extended period with two systems running parallel usually leads to slow uptake of the new system.

Make the migration period as short as possible

The few systems that do elect to convert from a legacy standard to ISO 20022 in an existing system, generally elect to have a migration period where parallel systems (one on the legacy standard, one on ISO 20022) run at the same time. In Denmark, this period only lasted for 3-4 weeks. This provided enough time to mitigate the operational risks in the new system, but was not long enough to discourage adoption of ISO 20022. In SEPA, the prolonged migration period for SCT (6 years) and for SDD (5 years) is widely believed to have been too long and lacking a coordinated approach. With such a lengthy migration period, take-up of SCT and SDD did not begin to show significant progress until the later half of 2013, which was already years into the process. The fact that stakeholders throughout Europe only started catching up in the last few months of the migration period likely led to the European Commission extending the end migration date for six months in January 2014. While a migration period is necessary from a risk management perspective, having an extended period with two systems running parallel usually leads to slow uptake of the new system.

Create generic business processes to cover most use cases

One of the most fundamental hurdles in implementing ISO 20022 is the complexity of analyzing the process chain. The first issue is deciding how deep into the process chain one wants to go. Does it begin with payment initiation or the preparation of an invoice? Is ISO 20022 only being used for the payments process chain, or for internal processes as well? Both internal and payment practices vary by industry. The payment needs of an international shipping conglomerate are very different than those of a local chain of supermarkets. Another issue here is the extent to which banks find it necessary to take into account the business

processes of their customers. For larger banks, it is impossible to fully take into account the varied processes used by its customers. Most geographies that implement ISO 20022 try to create generic business processes that can apply to all, or at least most, businesses. These attempts will inevitably not apply in full to most businesses, which then brings up further complications.

Draft tight technical specifications and implementation guidelines and provide validation tools

Another difficulty in implementing ISO 20022 in a payments market is ensuring a uniform implementation of the standard. The ISO 20022 standard has a wide spectrum of uses and is constantly evolving. Any system that decides to implement ISO 20022 must first decide the aspects of the standard that fit to the needs of the market. Rules must be deep and clear enough so that segments of the market or individual stakeholders all implement the standard in the same way. In short, the standard needs to be standardized.

The flexibility of the approach to using ISO 20022 in SEPA has actually led to a number of national “flavors” of the SEPA standard. As stated earlier, this is where a “standard” is not a “standard.” There is still a large degree of standardization in the SEPA area, but these local flavors can lead to problems for banks, clearing houses, and corporates when processing payment messages or for users who experience rejected payment messages because one country has implemented the standard differently than others. There are a number of conversion tools and projects that can help overcome this differentiation. Nevertheless, the only way to ensure true standardization across markets is to have rules that go deep enough to limit the capacity of stakeholders to customize their implementations. Rules developed in parallel with standards help to define utilization by industry-specific applications, or by specific types of users, and can also aid cross-border expectations.

Take future needs into account

The interoperability enabled by ISO 20022 can lower the long-term costs of converting payment files for different customers and can decrease the need for correspondent banking relationships. Upgrading technical platforms to ISO 20022 can also enable future innovation and products. This in turn can lead to new or increased revenue streams. It is important to have a balanced view when implementing ISO 20022, and consider the impact on existing revenue streams as well as the new opportunities. Organizations that take a forward-looking view favor ISO adoption the most, while those focused on the short-term business case will not see the positive impacts as much and thus cannot justify the initial investments needed. If an entire market does not move forward with ISO 20022 adoption at the same time, early adopters may see initial revenue benefits

decrease as full adoption becomes a reality. Likewise, ISO 20022 will give corporate adopters more flexibility to move between financial institutions, increasing competition, while potentially reducing revenue.

Engage with like-minded payment communities to achieve greater standardization

Although not drawn explicitly from the interviews, the final recommendation draws on the spirit in which they were conducted. While ISO 20022 use is still not widespread, it has been accomplished by major payment communities and associations and there is much to be learned from them. Moreover, working with others and reusing the business processes and message types in the ISO repository increases the degree of standardization and makes ISO 20022 more useful. Organizations responsible for setting national or regional payment standards should consider working together to define common implementations to maximize the advantages of ISO 20022 and mitigate its disadvantages. By defining a uniform, reusable message set across multiple payment communities, stakeholders have the opportunity to realize greater efficiencies for themselves and others.

Appendix: Case studies

Australia: New Payments Platform

Need for change

Between 2008 and 2012, the Australian payments industry discussed the future of Australia's low-value payment system. The main stakeholders in this discussion were the Reserve Bank of Australia (RBA), the Australian Payments Clearing Association (APCA), and the banking industry (in particular the "Big Four" banks: National Australia Bank, Commonwealth Bank, Westpac, and ANZ). With a very high degree of concentration in the banking sector, payments in Australia are cleared bilaterally between banks without a clearing house.

In response to the RBA's strategic review of payments innovation strategic objectives, key payments stakeholders agreed to develop the New Payments Platform (NPP), a near real-time, multilateral clearing house. One of the key issues in this discussion was finding a messaging standard for the future of Australian payments. Two key factors arose in the conversation: the industry wanted a more modern and open standard, and the new messaging standard had to hold more detailed information than Australia's current standard.

What was done

In 2008, APCA released its Low Value Payments Roadmap, where following significant industry and stakeholder consultation, there was broad industry agreement to further explore the benefits of ISO 20022. In 2009, APCA conducted a gap analysis to figure out what the industry had, what it needed, and what its options were. From here, in 2011 APCA developed an ISO 20022 schema to use as a straw man for what an Australian payment system based on ISO 20022 could look like. Through this exercise, APCA helped educate the industry about the standard and the types of services that it enables. After that, the RBA conducted a review of innovation in payments. It was engaged in APCA's ISO 20022 activity and used APCA's sample ISO 20022 schema in its analysis, and later came out officially in favor of ISO 20022. After the RBA's official recommendation, the industry as a whole confirmed the choice to adopt ISO 20022 for the NPP. This was decided in part by ISO's rich remittance data and its status as a flexible and modern standard that is globally interoperable.

How it was done

The high concentration of the banking sector in Australia, combined with the general openness and cooperative relationship between stakeholders in the payments industry, made getting industry consensus on issues related to the NPP less problematic than in other geographies. The industry's previous work developing consensus on ISO 20022 and developing the initial non-binding schema assisted the recommendations of the RBA. The group went on hiatus while the RBA conducted its review of ISO 20022. The review eventually led to its recommendation to use ISO 20022 in what would become the NPP. Remaining industry concerns about ISO 20022 were to be addressed within the NPP program.

An industry working group was formed to look into ISO 20022 use cases in Australia, and this group actually created an initial schema to illuminate the opportunities the Australian payments industry would have if it adopted the standard.

The RBA's Payments System Board was integral in pushing for the NPP and ISO 20022, but the RBA did not try to drive the process itself. Instead, it set a timeline for launching the NPP and has let the payments industry develop solutions that can deliver on this objective. This allows banks to think through the products they will be able to offer in the new system and take ownership of the decision to move to near real-time based on ISO 20022. The process for industry participants appears formal and structured, with the overall proceedings being broken down into stages, allowing banks to recommit on a regular basis. This offers banks flexibility, and frees them to be actively involved and look across their entire organizations as they plan the migration to ISO 20022 and the NPP. Were the industry given a lump investment figure at the outset of the process, it is possible that there would be less enthusiasm, and more resistance to the large price. Instead, the gradual buy-in and long-term thinking about products and services that will enable banks to compete against third-party products gave the industry the room to migrate. The "Big Four" Australian banks appear committed to the NPP project, and commitment to NPP is synonymous with commitment to ISO 20022. A lack of commitment from the "Big Four" would be disastrous for the project, so the process of getting them to sign on was integral to its success.

Results

As Australia is still in the process of developing the NPP and adopting ISO 20022 for this new platform, the results of the endeavor are still unknown. Even so, there is already a lot of forward-thinking from banks about the products and services that will be enabled by a near real-time ISO-based payments platform. There are no plans to shut down the current bilateral bulk payments system when the NPP goes live. It is believed that most banks will want to use the NPP to see a return on their investment and add revenues with new products, particularly in the B2B space. There are also no plans to harmonize Australia's RTGS system using ISO 20022, as current efforts are purely focused on developing and testing the NPP.

The development of the NPP and concurrent adoption of ISO 20022 in Australia is a process that is well underway. There was confusion among the industry about what ISO 20022 is and what it is capable of, but many of those concerns were alleviated through close cooperation and education between the payments industry, APCA, and the RBA. The decision to adopt ISO 20022 was a gradual process that occurred after the industry agreed to move to a real-time payments platform. The process was broken down into formal stages, with banks given the opportunity to voice their concerns and overcome them with help from the RBA and APCA. Australia's concentrated banking sector meant that buy-in from a few key stakeholders has resulted in widespread industry support. It remains to be seen how much volume will move to the ISO-based NPP when it goes live. However, by allowing the development of the NPP to be driven by market forces, the RBA is confident that banks and corporates will be eager to use the opportunities presented by ISO 20022 and a faster payments platform when it goes live.

Australia

Key facts

- Greenfield implementation
- There is broad consensus from industry participants and regulators that a new, multilateral, real-time payment system needs to be developed.
- Development is underway and the system is expected to go live in 2016.
- ISO 20022 was chosen because it is modern, global, open, has rich remittance capabilities and will enable future innovation.

Lessons learned

- Establish broad industry consensus early.
- Break the process up into stages, allowing stakeholders to commit gradually.
- Think beyond simply changing a data standard and consider what products and services will be enabled.

Denmark: Nets brownfield migration to ISO 20022

While the use of ISO 20022 in new payment systems is gradually becoming the norm, it is to date very rare to see existing systems (so-called “brownfield” implementations) successfully complete a move from a legacy standard to ISO 20022. SEPA countries are currently nearing the end of this process for ACH payments, but full migration has not yet been achieved. The only example we have found of a successful brownfield implementation of ISO 20022 happened with Denmark’s Nets system.

Need for change

The decision to adopt ISO 20022 occurred as a result of the Danish central bank’s mandate that Nets move from one daily clearing to four intraday clearing cycles. Nets decided to add another cycle to make five clearings per day. The central bank was motivated by a political decision to make payments available intraday instead of D+1. The Danish banks made a commercial decision to develop a real-time system in addition to the updated legacy system. This allowed them to compete with third-party processors and card processors, as well as enable a mobile payments proposition. These decisions were independent of the 5 daily cycles and ISO 20022.

The central bank was motivated by a political decision to make payments available intraday instead of D+1.

Why ISO 20022?

Following the mandate to update the legacy system, the Danish payments industry also decided to update the data standard the system runs on. They agreed on ISO 20022 for a number of reasons. SEPA was a big motivating factor. Although Denmark’s domestic clearing was not mandated to migrate to ISO 20022 because it is not in the Eurozone, every bank in Denmark is SEPA compliant, and the Danish economy is well integrated into the EU economy. The Danish payments community also saw ISO 20022 as the future, and realized that it could help comply with the BIS/IOSCO Principles for Financial Market Infrastructures and general global payments developments. With the possibility that the central bank will recommend or mandate ISO 20022 in the future, it was seen as better to adopt it now to coincide with the general system update and introduction of real-time. As a small economy that is forward-looking and well integrated into the global economy, Denmark tends to go with global trends in standards instead of proprietary or purely national standards. ISO 20022 was also being used a lot in the C2B space in Denmark, particularly by corporates. Danish banks were thus familiar with the standard, and had even put together general guidelines for ISO 20022 with its corporate customers before the decision to migrate to ISO in the payment system was made. Overall, the decision to adopt ISO 20022 for the new bulk and real-time systems was an easy one to make, and the process of deciding proceeded very naturally.

Denmark

How it was done

Although the decision to adopt ISO 20022 for the new systems was an easy one, there were a number of challenges that had to be overcome in implementing the standard. Despite the relative familiarity with ISO 20022 in the C2B space, general knowledge about the standard, particularly among banks, was not high and in some cases was even non-existent. It was therefore very important to have a centralized entity (in this case, Nets) that was very familiar with ISO 20022. Nets facilitated banks' understanding of the standard and how to use it. ISO 20022 is quite different from other formats in the way it is structured, built, and used. Therefore, having a centralized organization to explain the standard and make the link between migrating data from the old format into ISO 20022 is integral. Implementation and conversion tools were also helpful for the Danish payments community, but were not as widely used as they are in other geographies.

Nets also wanted to ensure that Denmark avoided the problem of having different interpretations of the ISO standard. Nets recognized that in the SEPA region, the European Payments Council (EPC) guidelines did not go into a deep enough level of detail to ensure a consistent interpretation of the standard among different stakeholders and different countries. To avoid this, Nets made sure that the validation schemes were clearly defined for each message type. While there is still some potential for variation in Denmark, this is natural with any standard, and every stakeholder in the payments community has a harmonized and clear view of the payment types and offerings covered in the Danish implementation of ISO 20022. It also helps that Denmark is a small economy with a concentrated banking sector, as it simply may not be possible to have a similar degree of harmonization and clear understanding of any standard in an area as large and diverse as SEPA.

When the new intraday system went live in September 2013, the Danish banks had already mandated that all electronic account-to-account transactions would move to the new ISO 20022 standard. There was a short 4 week migration period when both the old and new systems ran simultaneously. This was done mostly for reasons of risk management and security. Once it was clear that the new system was reliable and working as planned, the old system was shut off, thus completing migration to ISO 20022. While the central bank did not mandate that all volume move to the new intraday system, the banks saw no value in maintaining the old single clearing cycle system. This decision facilitated buy-in from all banks, who wanted to see a return on their investment in the new system. Nets did not have to incentivize migration to ISO 20022 with favorable pricing: the banks simply saw no benefit in a lengthy migration period or in running the two systems simultaneously.

Results

Denmark's success in migrating payment flows from the legacy system to the updated intraday system is unique in the global ISO 20022 landscape. No other

Denmark

system has successfully migrated to ISO 20022 in a “brownfield” environment. As the Danish experience illustrates, it is important to know what you are migrating from, and what you want to migrate to before beginning the process of implementing ISO 20022. All old payment options must be brought into the new standard to avoid any difficulties in adapting from a legacy standard. It is also necessary to have a centralized entity with sufficient knowledge about ISO 20022. They must particularly know the rules that sit behind it and how the mechanics of the messaging hierarchy work. Throughout the entire process, it must always be made clear how adopting ISO 20022 will facilitate the ultimate goal of the payment system. The goals can be real-time or mobile payments, straight-through processing, new products or services, or something else. Standards are a means to an end, but not the end in itself. As Denmark prepares to go live with a real-time system based on ISO 20022 in Spring 2014, the Danish payments industry will no doubt keep these lessons in mind.

Key facts

- Successful brownfield implementation was completed in Fall 2013
- Clearing platform needed a major renovation to increase the number of daily clearing cycles and the frequency of SEPA payments in Denmark made ISO 20022 an easy choice.
- Migration period was 3-4 weeks and was only to ensure operational stability.

Lessons learned

- Enforce uniform implementations of ISO 20022 through rigorous validation and testing.
- Centralize migration management efforts and industry education efforts.
- Use ISO 20022 as a means to achieve other goals (in this case multiple daily clearings, real-time clearing, et al.), rather than as an end in itself.

SADC: A cross-border payments community for southern Africa

While much attention has been paid to the current implementation of ISO 20022 in the Single Euro Payments Area (SEPA), that is not the only transnational implementation of ISO 20022 taking place at the moment. Like SEPA, the Southern African Development Community (SADC) is also in the process of adopting ISO 20022, although unlike SEPA, its ISO implementation is occurring within a brand new payments infrastructure being jointly developed by the community. The 15 SADC countries have agreed to develop both high-value and low-value payments infrastructures, both of which will use ISO 20022.

Need for change

Many politicians, ministry officials, and regulators in a number of industries from the SADC region are keen to promote regional economic integration and development. They believe that a suitable financial infrastructure is needed to facilitate this goal. SADC central banks were asked to develop the infrastructure, and banks in SADC countries set up the SADC Banking Association to represent their views as the development process got under way. The high-value RTGS system is owned and run by the central banks of all 15 SADC countries collectively. The South African Reserve Bank acts as the initial utility and manager for the project. The drive to create a regional payments infrastructure came from regulators.

Why ISO 20022?

The choice to adopt ISO 20022 for the new retail payments infrastructure was driven by two main factors. Since the SADC system will be built from scratch (a so-called “greenfield” implementation), it makes sense to use the most modern and globally interoperable standard. ISO 20022 is also a politically neutral choice. Choosing a single SADC country’s national or proprietary standard would be too favorable to that country. It would leave others in the community at a disadvantage in trying to catch up and adapt to something another country has already used for years. With ISO 20022, every country can work together and develop the SADC version of the standard and implement it together.

How it was done

Although the plan is to have all participants using ISO 20022 in both the high-value and low-value systems, the participants are initially using SWIFT MT 103 and 202 messages in the RTGS system. It is more important to get all participants involved in the system at the outset than to have everyone using a uniform implementation of ISO 20022 within the system at the beginning. The desire to get everyone in the system, coupled with general caution among the participating central banks, has led to the use of the SWIFT messages that all SADC central banks are already familiar with. Once all SADC countries are hooked in to the RTGS system, the plan is to then to harmonize RTGS participants under the SADC ISO 20022 standard. This will coincide with South Africa’s domestic migration to ISO 20022 for both low- and high-value payments.

SADC

The process of developing the ISO 20022 standard for the SADC community involved centralized planning with broad involvement of stakeholders from each country. A small coordinating team was formed within the SADC Banking Association whose first task was to obtain funding from all the major banks in the SADC region for a four-year period up front. The team then met with the group of SADC central banks to determine what each group would be responsible for. The central banks are in charge of settlement and regulation and the Banker's Association is responsible for rule books, processes, agreements, and setting up a self-governing body to oversee the system when it goes live. Right from the start, a centralized team obtained necessary initial funding and drew clear lines around responsibilities for each organization. The coordinating team also had to manage expectations and allay fears that the SADC project would be dominated by South Africa, SADC's largest country by population and the group's largest economy. It worked to ensure that the entire process was open and featured broad participation by all countries involved.

The coordinating team then sat down and laid out 10 payment streams and products that would need to be addressed by the new standard. These included low-and high-value credits, direct debits, P2P payments, securities settlements, card payments, cheques, FX transactions, and interbank trades. At this point, all SADC countries were invited to decide if they would like to join the project and if so, which payment streams they wanted to be involved in. The coordinating team did not try to force any country's involvement, and in fact, one country decided to opt out at this stage.

The ten countries that agreed to move forward at this point each appointed an in-country payment leader. Below them was a representative for each individual payment stream that country wanted to take part in. These in-country working groups would come together in Johannesburg, where the central coordinating team would organize meetings, work on business models, and collect information about rule books and best practices from organizations such as the International Payments Framework Association (IPFA). The team took these best practices and then brought in representatives from the ISO organization to help construct the relevant messaging. External advice and guidance was brought in when needed to help develop rulebooks, agreements, and messaging standards. The in-country working groups then agreed to these standards and took ownership of the process. When it came time to begin the actual implementation process, all countries were involved, including the one country that opted out when the planning phase began. This combination of wide involvement and central management was key to bringing a diverse group of stakeholders together to tackle the challenge of developing ISO 20022 for an entire region.

Developing the ISO 20022 standard for the SADC community involved centralized planning with broad involvement of stakeholders from each country.

Regulators in SADC countries were initially cautious about mandating use of the new RTGS infrastructure because their first concern was developing it and bringing it online. Regulators have begun an effort to convince commercial banks in SADC countries to wind down correspondent banking relationships and begin migrating cross-border payments to the new SADC payments infrastructure. The group of SADC central banks have even drafted a notice to commercial banks about what payments they want to begin seeing processed through the SADC infrastructure. Driving cross-border volume into the new infrastructure will entail a change of mindset among commercial banks in southern Africa that have, until now relied exclusively on correspondent banking relationships for cross-border payments. Overcoming this mindset will take time, thus adoption of the new ISO-based infrastructure will be driven by regulators forcing it.

Results

The same will likely be true with the low-value infrastructure being developed for SADC. Bankserv, which will operate as the initial CSM for the service, will be ready in October 2014. At this point, the service will likely be switched on for all SADC countries in October 2014. There will be a transition period for the low-value service, and regulators will expect progress from commercial banks in SADC within the first six months. They will want commercial banks to show the percentage of payments being processed in the new system. Depending on the progress shown in the first six months, regulators (particularly the SADC Payments Oversight Committee) will determine how much pressure needs to be exerted to drive a successful migration. As with the high-value system, a regulatory push will be essential.

The success of developing a new payment system based on ISO 20022 for SADC was due to a number of factors. Broad involvement among stakeholders in different SADC countries was key, but the project also required centralized management. The SADC Banker's Association coordination team, which managed the individual country working groups and worked closely with SADC central bankers, was able to create a structured process that went forward in stages. This resulted in buy-in from key stakeholders as they mapped out the SADC ISO 20022 standard allowing for ownership of decisions by the working groups. The coordination team's efforts to obtain funding from major SADC banks at the outset was also integral. It provided the necessary resources to move forward with the project and also fostered ownership from the banks from the outset. SADC's relationship with international organizations such as the IPFA, as well as help from the ISO organization itself, allowed it to identify best practices and rules from other geographies that it could adopt or adapt for SADC. While it is still too early to fully assess the results of the project, the centralized management and realization that a regulatory push may be needed to spur migration from SADC banks make it likely that the project will proceed as planned as everything goes live later this year.

Key facts

- Greenfield implementation for cross border payments in southern Africa, driven by political motivations.
- ISO 20022 was chosen because it is politically neutral and globally interoperable.
- A centralized planning and management team advised local teams in each of the SADC countries.
- The first system to go live was RTGS in 2013. Retail payments are currently in the implementation phase.
- There is no date by which migration to SADC infrastructures is mandatory, but regulators are beginning to apply pressure.

Lessons learned

- Centralize management and obtain commitments for project support early in the process.
- Use external consultants and technical experts to educate stakeholders.
- Re-use message types, implementations, and documentation from previous efforts.

Japan: BOJ-Net and Zengin

The case of Japan's implementation of ISO 20022 illustrates the difficulties faced by the "build it and they will come" model. Japan's Zengin system for low-value payments was one of the first real-time low-value payment systems ever built. Launched in 1973, the system is operated by the Japanese Banker's Association to provide real-time credit transfers for Japanese consumers. The system is overhauled every 8 years, and is currently in its 6th generation, which went live in November 2011. It was during the 2011 overhaul phase that ISO 20022 was implemented alongside Japan's 30 year-old proprietary data standard in the Zengin system. The Zengin system automatically forwards payments exceeding ¥100 million to the Bank of Japan's BOJ-Net RTGS system. The current standard used for processing messages in BOJ-Net will be replaced with ISO 20022 in phases between 2014 and 2016.

Need for change

The Bank of Japan (BoJ) spurred the introduction of ISO 20022 in Zengin and BOJ-Net. BoJ cited ISO's role as a globally interoperable standard as a main reason for the introduction of the standard. The XML-based standard can also increase interoperability between different systems and lead to greater efficiency in the development and maintenance of systems. This is a process that Japan goes through every eight years with Zengin. Using ISO 20022 is also attractive to BoJ because it increases the amount of remittance information available in payment messages from 20 characters to 140 characters. Despite these benefits, support for this decision was not widespread in the payments industry. Corporates and banks were reluctant to bear the costs of implementing the standard, and support was (and remains) low among the Japanese banking community for a mass migration to ISO 20022. Therefore it was decided that ISO 20022 would be implemented alongside the proprietary standard with centralized conversion to and from legacy formats.

How it was done

The application of ISO 20022 in Japan involves the use of two message types: pacs.008.001.01 for customer credit transfers and pacs.009.001.01 for FI credit transfers. The mapping of the XML format for Zengin and BOJ-Net was finalized in March 2010, with testing taking place over the next fiscal year in the lead up to going live in November 2011. Zengin is capable of converting between the two standards depending on what standard the sending and receiving banks prefer. During this conversion process, any data that does not exist in the legacy format is deleted during the conversion from ISO-based messages to legacy format messages.

Results

Although ISO 20022 messages are accepted in Zengin (and will be accepted in BOJ-Net within 2 years), use of the ISO standard is very low in Japan. Banks and

Japan

corporates have had little reason to justify the cost of changing from the proprietary standard and Zengin converts between ISO 20022 and legacy for them. Banks have little reason to perform data conversion on their end.

Although use of ISO 20022 remains very low in Japan, there are still useful lessons to take from the country's implementation of the standard in Zengin and coming implementation in BOJ-Net. From the outset, corporates and banks were skeptical of moving to the standard. It may have been helpful to provide a broad forum for senior stakeholders to express their views and alleviate their worries, or shape the implementation based on industry doubts. There also seems to have been a missed opportunity to look at the larger process chain for banks to see what other uses ISO 20022 could have, such as corporate-to-bank communication. This may have resulted in more widespread buy-in to the project and possibly would have led to wider use and benefits from using the standard. It remains to be seen whether the Bank of Japan or another entity will provide an incentive or regulatory push to increase use of ISO 20022 in Japan.

Key facts

- Brownfield implementation in Zengin low-value payment system. RTGS system implementation to follow by 2016.
- Introduction of ISO 20022 in Zengin took place during a major IT update in 2011.
- ISO 20022 was chosen for its global interoperability and increased ability to carry remittance data.
- Migration has not been mandatory. Zengin converts to and from legacy standards, which continue to be widely used.

Lessons learned

- Establish broad consensus through a compelling business justification.
- Limit the duration operating of two standards with centralized conversion services.

United Kingdom: Current Account Switch Service

ISO 20022 can also enable value-added services beyond sending payment messages for domestic and cross-border payments. The payments community in the United Kingdom has used ISO 20022 to develop an account-switching platform. The Payments Council has set a long-term goal of moving to ISO 20022, and the Current Account Switch Service is the first step toward that goal.

Reason for change

The Current Account Switch Service came about as a result of a report by the Independent Commission on Banking (ICB) published in September 2011. The ICB recommended an improved account switching service that would transfer accounts within seven working days. It would also redirect payments for over a year afterwards, and be free to consumers in an effort to ease account switching and increase competition in the current account market. The recommendations were taken up by the industry and the new account switching service went live in September 2013.

How it was done

The Current Account Switch Service provides convenience for consumers. It allows them to switch their bank accounts from one bank to another within seven working days. Due to the scope of the new service, it was clear that an entirely new infrastructure would be needed to enable the seamless messaging between banks required during and after the switch takes place. Stakeholders in the payments community had three options: develop the system in line with legacy data formats (as the ToDDaSO service used), use ISO 20022 exclusively, or use a hybrid of the legacy standard and ISO 20022.

There were a few key reasons for the decision. For starters, the UK payments community as a whole has included adoption of ISO 20022 in its strategic vision for the future. For its part, Bacs has stated that it plans to adopt ISO 20022 for all greenfield initiatives, and has expressed a willingness to migrate to ISO 20022 for current systems if they undergo a technology change. Using ISO 20022 also enables future innovation, which can provide more return on the initial investment needed to develop the service. Technical support and software is also more widely available from a larger number of vendors than with legacy standards. ISO 20022 also provides the advantages of global interoperability as well as interoperability with domestic services such as the ISA (a tax-advantaged savings account) transfer service.

The Current Account Switch Service required significant and comparable investments in infrastructure and back office processes regardless of which standard the UK chose. In order to use ISO 20022 for the new account switching service, the Payments Council submitted a Business Justification for generic account switching messages to be added to the ISO 20022 repository. The messages were

United Kingdom

approved by the ISO 20022 organization, and are now available to other payment systems interested in using them for their own account switching services.

Results

The Current Account Switch Service went live in September 2013. The service includes all four large banks and a number of smaller banks and building societies. This covers virtually the entire consumer and SME current account market in the UK. In its first six months, over 600,000 Britons have used the account switching service.

Key facts

- Greenfield implementation to facilitate current account switching among UK consumers. The system went live in November 2013.
- ISO 20022 was chosen for its ability to promote innovation, the ease of software support, and global interoperability.

Lessons learned

- Broad consensus on the scope and purpose of the change.
- Use ISO 20022 as a means to an end, rather than as an end in itself.
- Be willing to add new messages to the ISO 20022 message repository if the existing messages do not meet your needs.

Switzerland: Capital market and retail payments migration

Switzerland's SIC system for Swiss franc payments has been in operation since 1987. It was followed by the introduction of the euroSIC system for euro-denominated payments in 1999. The Swiss payments community has come to the realization that the combined architecture for SIC/euroSIC is no longer up to the task of fulfilling the requirements and goals of Swiss and international financial institutions. Therefore, they decided to upgrade its technology platform. A major aspect of this upgrade, which will be completed in mid-2018, will be the introduction of mandatory ISO 20022 messaging in place of the old SIC proprietary standard.

Reason for change

The decision to update the SIC and euroSIC systems was driven primarily by a need to modernize the infrastructure. The SIC architecture was developed using technology from 1982 and has been in operation since 1987. The euroSIC system went live in 1999 as part of the RTGS infrastructure that includes SIC. The system does not have the capacity to process XML-based messages such as ISO 20022, which it must do as SEPA CT and DD replace old national CT and DD standards for euro payments. The new system (called "SIC4") will also change from a monolithic architecture (in which SIC, euroSIC, and communications protocols are all part of one overarching architecture) to a modular architecture where the core applications (SIC and euroSIC), user interfaces, SWIFT gateways, and frontend and backend services are all separate components. This ensures greater flexibility, configurability, and interoperability. It will also mean less downtime during software fixes, in addition to the wider variety of software options for an XML-based architecture.

How it will be done

The process of updating both SIC and euroSIC to include ISO 20022 capabilities has been envisioned as a five-year process. In 2012, the Swiss Payments Council set up the Payments Committee Switzerland (PaCoS) to make recommendations on developing and implementing new standards for payments and cash management for the Swiss community based on ISO 20022. The recommendations resulted in two documents: the Swiss Implementation Guidelines, and the Swiss Business Rules, both of which were completed in mid-2013. A validation platform was then put in place in mid-2013. This will be followed by an external testing system for the new infrastructure that should begin concurrently with the rollout of the new software for SIC and euroSIC in mid-2014. The actual migration to ISO 20022 will begin in July 2015 for euroSIC, and in July 2016 for SIC. The old system will be shut down in mid-2018, at which point all participants in SIC and euroSIC will have to use ISO 20022 messages exclusively. As of Q4 2013, the project is on schedule and there are not expected to be any delays.

The Swiss ISO 20022 standards encompass all of the elements laid out by the European Payments Council (EPC) in the SEPA Core Requirements, as well as ad-

Switzerland

ditional optional data elements specific to the Swiss payments community. The Swiss ISO standard uses “pacs” and “camt” messaging elements. Some of these individual data elements, such as the pacs.002 messaging for payments acknowledgement, will end up replacing up to 4 separate message elements that exist in the current SIC standard.

The development costs for the New SIC Architecture (NSA) project are expected to reach 40 million CHF (45 million USD). The project is being financed by all participants in the system via a 0.3 Rp. charge on every SIC/euroSIC transaction for the next nine years. This charge was approved by the Swiss National Bank and the board of SIX in 2011.

Key facts

- Brownfield implementation to be completed by mid-2018, a five-year process.
- A major system renovation was necessary to modernize the clearing infrastructure.
- ISO 20022 was chosen because of Switzerland’s frequency of SEPA payments and its flexibility to deal with future developments.
- Planning has been managed by a central payments committee that includes all relevant stakeholders.

Lessons learned

- Use rigorous validation platforms and testing to ensure common interpretations of implementation guides before the end date is reached.
- Establish a central migration management entity that enjoys the broad support of the industry.

SEPA and TARGET2

The migration to ISO 20022 within the Single Euro Payments Area (SEPA) has been the most high profile and largest case of ISO adoption in the world. The establishment of SEPA came about due to the fragmented market for payments in Europe and the desire to simplify cross-border payments within the continent. As such, it is part of the larger project of European unity that led to the establishment of the euro as a common currency. The project to create a unified payments market in Europe meant that the dozens of national payments standards in Europe would need to be unified. The industry chose ISO 20022 as the common standard, which was later mandated by regulators.

Why ISO 20022?

The choice of ISO 20022 as the SEPA standard came about for three main reasons: it is the newest globally interoperable standard; it is richer than many national data standards; and it was a politically neutral choice that would not give any one country an unfair advantage by having their national standard taken up as the unified European standard. While different stakeholders were consulted, it was impossible to integrate all of their input. Ultimately, SEPA was mandated by regulators with the intent of consolidating the European payments market, fostering competition among banks and payments processors, and enabling customers to make cross-border euro payments as if they were domestic payments.

How it was done

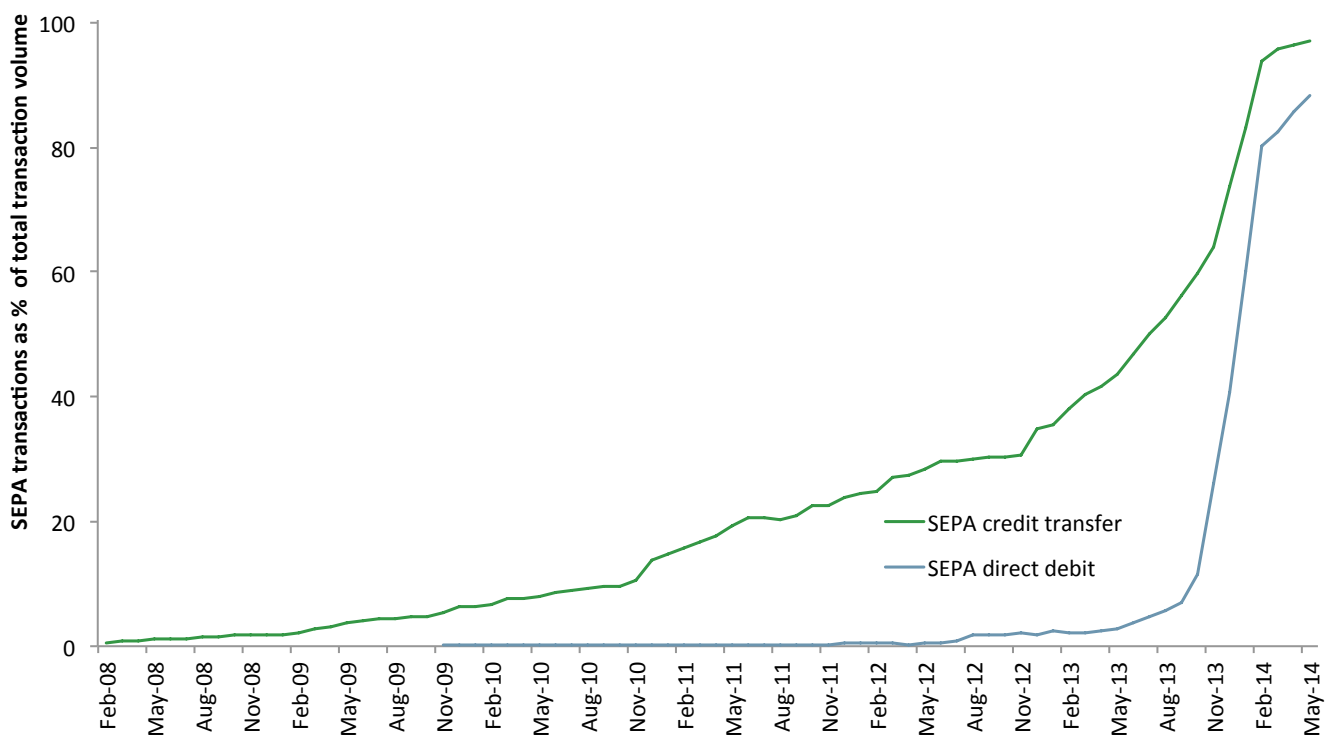
In 2002, the European Payments Council (EPC) was established as a centralized entity to coordinate decisions within the European payments market on behalf of the banking industry. It developed the rulebooks for SEPA credit transfers (SCT) and SEPA direct debits (SDD) in close consultation with European payments stakeholders. The introduction of SCT came in January 2008, with SDD coming in November 2009, the same year that the Payment Services Directive (PSD) took effect. In 2012, the end dates for both SCT and SDD were set for 1 February 2014. In January 2014, a six-month grace period was announced in which national CT and DD formats would still be accepted. The grace period ended on 1 August 2014, and since then only SCT and SDD are accepted in Europe.

The implementation of ISO 20022 in SEPA has seen a number of difficulties, none of which has seriously threatened the success of full ISO 20022 migration. One problem that has arisen is that the rulebooks for SCT and SDD did not go into enough detail to ensure a uniform implementation of the standard in different SEPA countries. The flexibility of the rules has allowed different European countries to adapt the CT and DD standards to be more in line with their pre-existing CT and DD protocols. This has resulted in different “national flavors” of the SEPA standard, which has led to difficulties for banks and CSMs in processing SEPA payments from different countries.

SEPA and TARGET2

Some have also charged that the migration period for SCT/SDD was too long. After the adoption of Regulation 924/2009 by the European Parliament and the Council of the EU in February 2012, an end date of 1 February 2014 was set for both SCT and SDD schemes. With the SCT scheme launched in January 2008 and the SDD scheme beginning in November 2009, this means that the migration periods have lasted 6 and 4.5 years respectively. As recently as October 2013 (four months before the migration end date), SDD migration rates in SEPA countries were just over 10%, and the number did not exceed 50% until January 2014. While SCT migration rates rose faster than SDD rates (mostly due to the operational complexity of DD transactions in general), SCT migration rates were only around 50% of total CT transactions in October 2013, with a sharp rise coming in January 2014 for both products as the end date neared.

SEPA migration rates, February 2008 - May 2014



Note: Includes only transactions cleared through clearing house.

Source: European Central Bank

Ultimately, the low migration rates in late 2013 compelled the European Commission to announce a six-month delay in the final deadline to 1 August 2014 in which CT and DD payments made in national formats would still be accepted. The lengthy migration period for SCT and SDD led banks, corporates, and customers in many SEPA countries to put off migration for years and resulted in many stakeholders rushing to make up lost ground in the last 4-5 months before the February 2014 end date. A shorter migration period may have exerted the necessary pressure on all stakeholders to commence migrating CT and DD products

SEPA and TARGET2

more promptly. It also would have lowered costs, due to a shorter time period in which two systems would have had to be running simultaneously.

The six-month extension period itself has led some to wonder whether the 1 August 2014 end date will actually be binding. Some see a need to draw a line in the sand to actually force stakeholders in SEPA countries to migrate or face penalties if they fail to comply. However, the EC did not announce the transition period until January 2014, at which point most entities were already far into the process of migrating. Extending the deadline was of little consequence to those that had not yet started migration planning, because six months would not be enough to plan and complete a large migration program.

Future plans

Europe is also planning on leveraging ISO 20022 to harmonize both low-value and high-value payment systems. The migration of TARGET2 and EURO1, the high-value systems for the Eurozone, will follow and be strongly influenced by ISO 20022 adoption in Europe's low-value payment systems. Another driving factor for migration is the development of the new TARGET2-Securities (T2S) project by the Eurosystem (the Eurozone's monetary authority that consists of the ECB and all central banks of Eurozone member states). T2S will be a single infrastructure, set of rules, and standard that will consolidate the settlement of securities for all EU member states and that will use ISO 20022 messages. The T2S project is expected to go live in June 2015, with the migration period lasting for 18 months. The T2S infrastructure is a greenfield project that will connect CSDs from all European countries. ISO 20022's global interoperability and rich data made it a clear choice for the project, particularly since it is a completely new system. The importance of communication between TARGET2 and T2S has resulted in a push to move TARGET2 to ISO 20022. The operators of TARGET2 and EURO1, the European Central Bank and the EBA Clearing, have established a coordinated plan to move both systems to ISO 20022 simultaneously.

How it will be done

Planning for the migration of TARGET2 to ISO 20022 began in 2010 when the Eurosystem worked with the European banking industry to create a strategy for ISO adoption in the high-value payment system. It was decided that all TARGET2 messages would use ISO 20022 messages by November 2017. It was also decided that there would be no migration period; it would be done as a "big bang" migration. SWIFT MT messages will be completely replaced by the ISO 20022-compliant MX messages as of November 2017. The technical specifications for migration were released in January 2014, giving banks four years to plan and adjust their internal processes to meet the November 2017 deadline.

It is important that the switch from MT to MX messages is a "like for like" switch that uses ISO 20022 mandatory fields to guarantee interoperability with other payment systems around the world while allowing for seamless translation be-

SEPA and TARGET2

tween MT and MX messages. The MX messages are part of the ISO 20022 subset for high-value payment systems. They contain the exact same data elements that are found in the SWIFT MT messages. SWIFT is already working on a set of business rules to sketch out how this “like to like” translation will be implemented. The change from MT to MX may require banks to use conversion tools to switch between the standards. These conversion tools will also eliminate the need for a costly migration period, as messages received in the MT format can be easily converted into MX messages and vice versa.

Interest in ISO 20022 will not end after the November 2017 end date. The Eurosystem will be heavily involved with the industry in looking at any further changes or additional capabilities required of the ISO 20022 standard for Europe’s high-value payment system. Additional optional fields of the ISO 20022 standard will be explored in light of experiences with the next version of TARGET2 as well as other global high-value payment systems.

Key facts

- SEPA was a greenfield implementation, creating a single payment system to replace all systems for processing euro-denominated payments in the EU.
- SEPA was driven by political reasons – to harmonize the various domestic payment systems that operated in the countries that share the euro.
- ISO 20022 was chosen because it is politically neutral.
- Initial migration was slow because the business case was weak. Regulators stepped in and mandated migration to achieve political goals.
- The high value payment systems for the Euro, TARGET2 and EURO1, will be migrating to ISO 20022.

Lessons learned

- Minimize the duration of the migration period.
- Establish unambiguous implementation guides and provide tools for validating messages and files for compliance to ensure a uniform implementation of the new standard.

What is ISO 20022?

ISO 20022 is a financial services messaging standard that was developed within the International Organization for Standardization (ISO). The goal of the standard is to become a universal messaging scheme for the financial industry around the world: the first globally interoperable messaging standard. ISO 20022 encompasses both a syntax (a format for structuring data) and semantics (the meaning behind the data). All messages (semantics) are stored in a common repository and can be used across a number of different business areas. The syntax (structure of the data) uses the eXtensible Markup Language (XML), an international, open text-based format that uses tags to identify information that is both human- and machine-readable. The use of text-based tags can lead to larger messages, but compression tools can limit the size of each XML message. XML schemas define the structure of each XML-based document. This includes the different message elements, the order they appear in the message, and which ones are mandatory and which are optional.

Unlike most legacy data formats and standards, ISO 20022 is not rigid and prescriptive in its design. It allows the use and reuse of messages and fields in different ways, as long as those ways are described using appropriate syntax to allow them to be interpreted correctly by all users. The messages are open and extensible, therefore ideal for being applied to new business processes.

To add new messages to cover new use cases, an organization oversees and verifies new additions to the standard and maintains the repository of messages. The ISO 20022 organization is divided into four bodies: the Registration Management Group, the Registration Authority, the Standards Evaluation Group, and the Technical Support Group.

Organizations that seek to develop new ISO 20022 messages must first submit a Business Justification to the Registration Management Group (RMG) that describes the use case and meaning of the new messages. The RMG then reviews and either approves or rejects the new set of messages. The RMG is the highest registration body for ISO 20022. In addition to its role as the approving body for new messages, it also oversees the entire registration process and allocates new message groups to one or more of the Standards Evaluation Groups.

The Standards Evaluation Groups (SEGs) are groups made up of industry experts in each of the five business areas currently defined by the RMG: payments, securities, foreign exchange, trade services, and cards and related retail financial services. The SEG's role is to keep industry groups aware of proposed developments to the standard, validate new messages and ensure that they meet the goal set by the business justification, and approve changes to existing messages.

The Registration Authority's (RA) role is to maintain the ISO 20022 Financial Repository that contains all ISO 20022 messages and to maintain the www.iso20022.org website. The role of RA is currently filled by SWIFT. The Technical Support Group (TSG) provides technical support to the other ISO 20022 registration bodies, and submitting organizations, and user communities if needed. It is made up of experts in the technical implementation of the ISO 20022 standard.

By overseeing and advising on the different technical implementations of the standard, the TSG seeks to ensure a consistent implementation of ISO 20022 across different geographies and industries.

How it can be used and how it is being used

ISO 20022 can be used in a number of different industries. Within payments, the standard encompasses customer-to-bank, interbank, and payments reporting functions, and it can be used for both low- and high-value payments. There have also been recent developments in card payment messaging using ISO 20022. Moreover, the standard goes beyond the payments industry to include investment funds, securities clearing and settlement, trade services, and foreign transaction messaging. As a flexible and open international standard, new message types and business cases continue to be submitted to the ISO 20022 Registration Management Group (RMG). Its uses could continue to grow as the standard gains acceptance.

ISO 20022 can be used for both external and internal processes. During the SEPA migration period, many European banks took advantage of the change involved in moving to new business rules related to SCT and SDD by redesigning some internal processes related to cash management as well. Many of the largest European banks were already using ISO 20022 in a limited capacity for corporate-to-bank communication. The move to SEPA gave added impetus to use ISO 20022 for internal purposes as well.

The development of ISO 20022 has enabled global standards convergence. Although more and more systems and individual organizations are adopting the standard, it has not become the one global norm in financial messaging standards. However, ISO 20022 was designed to be interoperable with other widely used standards, and this interoperability has made it a valuable tool for international financial communication. Since ISO 20022 has been mapped to a number of other standards, it can be used to convert between two separate standards without the need for a standard to map itself to dozens of other standards. If two separate standards are both interoperable with ISO 20022, they can use it as a go-between of sorts to communicate with each other. This premise has led to the installation of payment hubs within banks that use ISO20022 mappings to translate to and from various internal message formats.

ISO 20022 is widely used in new low-value payment systems or major overhauls of them. This has already happened in Denmark and is nearing completion in SEPA. It is also available in Japan along with the proprietary standard. Australia, Switzerland, Canada, South Africa, and SADC have all decided to move to the standard. In Europe, the new T2S system for settling securities transactions will be based on ISO 20022. This development, along with SEPA, is driving ISO migration for TARGET2 and EURO1, the high-value payment systems for euro-denominated payments. The UK is using ISO 20022 for its new account switching service, and has expressed a general desire to move to ISO 20022 for its low-value

systems in the future. Many global banks and corporates also use ISO 20022 for corporate-to-bank communication as well as for some internal processes such as cash management.

Related standards developments

There are a number of prominent standards developments related to ISO 20022. Some seek to define information standards for specific areas such as B2B or C2B communication, while others seek to harmonize the use of ISO 20022 for novel use cases. The following standards developments either use ISO 20022 or XML, and all share the goal of cross-border/global standardization in different fields and business areas.

The **Common Global Implementation - Market Practice** (CGI-MP) is an initiative that provides a forum for banks and non-banks to discuss issues related to C2B messaging using ISO 20022. It aims to simplify and standardize C2B ISO 20022 implementation in the payments space on a global level. The CGI-MP initiative includes four working groups that focus on different message types: credit transfers and payment status, bank-to-customer reporting, direct debits, and electronic bank account management. The working groups produce a set of common ISO 20022 payment initiation messages for corporate-to-bank (C2B) communication that can enable corporates and banks to utilize similar message structures and thereby promote wider acceptance of ISO 20022 globally. CGI-MP is overseen by SWIFT, and its members include representatives from global banks, corporates, IT vendors, and ACHs.

The Berlin Group is a group of major stakeholders from the payment card industry in Europe that came together in Berlin in 2004 to discuss creating a common card payment framework within SEPA. The Berlin Group defined a common set of standards for communication between card acquirers and card issuers that was independent of the rules in place for any one national debit card scheme in Europe. In 2005, another initiative was started under the coordination of the Groupement des Cartes Bancaires (the French debit card scheme) to discuss interaction between electronic payment terminals, and other players in the cards ecosystem. This group later evolved into EPAS, a non-profit organization that has developed a series of protocols aimed at fostering interoperability between card acceptance and acquiring, terminal management systems, and other retail payment solutions. EPAS protocols are designed to be compliant with ISO 20022 in an effort to bring further convergence to payment standards within Europe. EPAS has submitted a number of new message types to the ISO 20022 organization that deals with acceptor-to-acquirer messaging and terminal management.

ISO 9735/EDIFACT is a widely used international standard for electronic data interchange (EDI), which is the standard format for exchanging business data. EDIFACT was developed by the United Nations, and was approved by the International Organization for Standardization (ISO). EDIFACT includes both a standardized syntax to structure data as well as standard message definitions to ensure

common understanding across different geographies. It also includes an interactive exchange protocol (I-EDI). EDIFACT was developed in the 1980s, and an XML-compliant version of the standard (XML/EDIFACT) was created in the 2000s as XML grew in popularity to allow EDIFACT messages to be read using the XML syntax.

RosettaNet is a non-profit consortium of electronic and telecommunications firms that aims to set standardized processes for sharing web-based business-to-business (B2B) information. The standard defines guidelines, implementation frameworks, and businesses processes for supply chains, manufacturing, product data, and service processes. Like ISO 20022, the RosettaNet standard is based on XML. The standard is widely supported by major players in the IT industry around the world. This has fuelled expectations that the RosettaNet standard will achieve widespread adoption.

Collectively, these developments point to an increasing enthusiasm for international standardization, and the decreasing reliance on national or proprietary standards. Regardless of scope, the implementation process – i.e, how to go about introducing and driving adoption of the new standard within a given community of users – is similar.

Interview guide

Motivation for migration

What was the major motivating factor for ISO 20022 migration in your jurisdiction?

- What (if any) part did the regulator, financial institutions, businesses, government, international counterparts play in influencing migration to ISO 20022?
- Was ISO adoption the result of your jurisdiction adding new services, increasing the speed of processing, or something else?
- Did ISO adoption coincide with a major update to legacy payment systems? If so, which decision came first?

In the implementation of the ISO 20022 standard, which stakeholder interests were given primary consideration? How were conflicts resolved?

How much remittance data was available in the old standard? How much is available in your implementation of ISO 20022?

- For the countries that have adopted ISO 20022 but have limited the remittance information, what (if any) are the plans for expansion?

If remittance data was the prime motivator for the ISO 20022 initiative, please identify the most critical key fields of structured data that are common across the majority of stakeholders/business customers.

What (if any) discussions took place around leveraging ISO 20022 to harmonize low-value and high-value payment systems from a clearing and settlement perspective? What are the actual or anticipated impacts (technical, financial, stakeholder, etc.) associated with harmonization?

For non-ACH type payment systems, did the ISO 20022 adoption design and implementation take into consideration an eventual move to ACH?

Incentives for adoption

What are the major obstacles that need to be addressed to create the right environment for adoption and how have these been tackled (e.g. need for FI investment)?

What benefits and incentives accrued, or are expected to accrue to FIs and stakeholders from the implementation of ISO 20022? How do these differ by FI size?

Were explicit incentives put in place to encourage ISO20022 adoption? If so, what were they and how successful were they?

Is it possible to assess separately the adoption of ISO 20022 for interbank clearing and for corporate-to-bank communication?

Was broad cooperation and support sought and readily available from the stakeholder community? If so, how?

- Was the central bank, both in its capacity as an overseer and payment originator, generally in support of the ISO initiative? If not, what were its concern(s)?
- Were major corporates generally in support of the ISO initiative? If not, what were their concern(s)?

Lessons learned

What tactics and strategies were used to ensure a broad adoption of ISO 20022 and facilitate an efficient implementation?

- If full adoption was not achieved, how did this impact the expected benefits?

What is the critical mass of participation required to ensure that ISO 20022 gains a broader adoption?

Did all FIs simultaneously move to ISO 20022 or was the migration phased-in?

- If phased in, what requirements were placed on FIs to ensure interoperability?

During the transition period, what were the incremental costs and benefits and who incurred them?

What are the performance metrics that can be developed to monitor major milestones along the way to full ISO 20022 adoption? How did you develop these and what factors did you consider when developing them?

How are you managing the ISO 20022 standards within your jurisdiction? Have you established a formal release management cycle? How do you engage the community (FIs and users) when considering modifications to the payment messages?

Were there specific functions or processes in the payment value chain that realized the greatest benefit?

- What tools and methods were used to assess the impact in advance and measure it after implementation?

Based on your experience, what percentage of the overall costs associated with the ISO 20022 project would you attribute to implementation cost vs. ongoing cost?

What would you say are the top 3 lessons learned that would significantly increase the chances of success?

Glossary

AOS

Additional optional services

Berlin Group

Group of major stakeholders from the European payment card industry that defined a common set of standards for communication between card acquirers and card issuers independent of any one national debit card scheme in Europe.

BOJ-Net

Japan's RTGS system for high-value payments, which is operated by the Bank of Japan.

Brownfield environment

An environment where a pre-existing system or standard already exists, thus requiring a system/standard update or full migration.

CGI

Common Global Implementation. A set of common ISO 20022 payment initiation messages for corporate-to-bank (C2B) communication. Currently overseen by SWIFT, CGI also provides a forum for banks and non-banks to discuss implementation issues related to C2B ISO 20022 payment messages in an effort to simplify and standardize ISO 20022 implementation in the C2B payments space on a global level.

Component architecture

A system where the core applications, user interfaces, and communication protocols, are all separate components. Component architectures are modular and support the reuse of parts of the application logic. They ease maintenance by enabling repair or replacement of parts of the application.

EPAS

A non-profit organization that has developed a series of protocols aimed at fostering interoperability between card acceptance and acquiring, terminal management systems, and other retail payment solutions. The EPAS protocols are designed to be compliant with ISO 20022 in an effort to bring further convergence to payment standards within Europe.

EC

European Commission, the European Union's executive body responsible for proposing legislation and implementing decisions. It was responsible for the passage of the Payment Services Directive, which laid the legal foundation for SEPA.

EPC

European Payments Council, the decision-making and coordination body of the European banking industry. The EPC developed the standards for SCT and SDD.

Greenfield environment

An environment where an entirely new infrastructure is built from scratch.

Implementation guide

A set of rules and technical specifications that guide the implementation of a standard in a payment system.

IPFA

International Payments Framework Association

ISO

International Organization for Standardization

ISO 20022

A financial services messaging standard developed within the International Organization for Standardization that aims to become a universal messaging scheme for the financial industry around the world. It is based on XML, and encompasses both a syntax (a format for structuring data) and semantics (the meaning behind the data).

ISO 9735/EDIFACT

A widely used international standard for electronic data interchange, which is the standard format for exchanging business data.

Legacy standard

A data standard developed for a technology platform that is no longer used.

Migration period

A period during which stakeholders in a system move from one standard to another.

Monolithic architecture

A system where the core applications, user interfaces, communications protocols are all part of one overarching architecture. Monolithic architectures lack modularity and do not support reuse of parts of the application logic. They complicate maintenance by preventing repair or replacement of parts of the application.

MyStandards

An online database of implementation guidelines and technical specifications from systems that have adopted or are currently migrating to ISO 20022. It is published by SWIFT.

New Payments Platform (NPP)

The new multilateral payments infrastructure being developed to enable near real-time payments in Australia, which is due to go live in 2016.

NSA

New SIC Architecture project to migrate the SIC/euroSIC RTGS systems in Switzerland from legacy standard to ISO 20022 by mid-2018.

Registration Authority (RA)

One of the bodies that makes up the ISO 20022 organization. The RA maintains the ISO 20022 Financial Repository that contains all ISO 20022 messages and maintains the www.iso20022.org website. The role of RA is currently filled by SWIFT.

Registration Management Group (RMG)

The highest registration body that makes up the ISO 20022 organization. The RMG reviews and either approves or rejects a new set of messages submitted to the ISO 20022 organization. The RMG also oversees the entire registration process and allocates new message groups to one or more of the SEGs.

Remittance data

Information provided by the sender of a payment to the receiver of a payment for an agreed purpose. Most often, the remittance data indicates the invoice being paid, but extensive remittance data fields can also be used for other purposes, such as supply chain management, purchase order data, or other uses.

RosettaNet

A non-profit consortium of electronic and telecommunications firms that aims to set standardized processes for sharing web-based business-to-business (B2B) information.

SADC

Southern African Development Community

SEPA

Single Euro Payments Area. Since August 2014, SEPA is the largest payments region in the world using the ISO 20022 standard, which it uses for SEPA Credit Transfer (SCT) and SEPA Direct Debit (SDD) payments.

SEPA Credit Transfer (SCT)

Format for credit transfer payments within SEPA.

SEPA Direct Debit (SDD)

Format for direct debit payments within SEPA.

SIC/euroSIC

SIC is Switzerland's RTGS and retail payment system for payments in Swiss francs. euroSIC performs the same function for euro-denominated payments. It also interfaces with TARGET2 for payments in euro made to or from Switzerland. Both systems are operated by Swiss Interbank Clearing (SIX).

SIX

Swiss Interbank Clearing, a clearing house for high-value and low-value payments in Switzerland.

Standards Evaluation Group (SEG)

One of the bodies that makes up the ISO 20022 organization. The SEGs are groups made up of industry experts in each of the five business areas currently defined by the RMG: payments, securities, foreign exchange, trade services, and cards and related retail financial services. The SEGs keep industry groups aware of proposed developments to the standard, validate new messages and ensure that they meet the goal set by the business justification, and approve changes to existing messages.

SWIFT

Society for Worldwide Interbank Financial Telecommunication

SWIFT MT messages

A widely used standard for payment transaction messaging developed by SWIFT. MT messages are slowly being replaced by MX messages, which are ISO 20022 compliant and can carry the same information.

T2S

TARGET2-Securities infrastructure being newly developed by the European Central Bank to settle securities transactions between SEPA countries.

TARGET2/EURO1

TARGET2 is the high-value RTGS system for euro-denominated payments that is operated by the European Central Bank. EURO1 is a privately-operated high-value netting system for euro-denominated payments operated by EBA Clearing. All euro payments (including those made via EURO1) settle in TARGET2.

Technical Support Group (TSG)

One of the bodies that make up the ISO 20022 organization. The TSG provides technical support to the other ISO 20022 registration bodies and to submitting organizations and user communities if needed in an effort to ensure a consistent implementation of the standard across different geographies and industries.

TWIST

Transaction Workflow Innovation Standards Team. A non-profit industry standards group that aims to create non-proprietary XML-based financial messaging standards.

XML

eXtensible Markup Language, an international, open text-based format that uses tags to identify information that is both human- and machine-readable. ISO 20022 uses XML for both schema (structure of messages) and semantics (the messages themselves).

Zengin

The Japanese real-time system for clearing low-value credit transfers.