ISO 20022 -
A simple guide to a complex subject

Considerations for ISO 20022-based message integration

The ISO 20022 catalogue of messages consists of in excess of 450 XML Schemas that cover a range of business domains. Since the first ISO 20022-compliant XML message definitions were registered and published in 2005, the subject of ISO 20022 itself has taken up thousands of pages of printed and web-based media.

Some of the coverage has been positive in nature, some negative, often superficial and occasionally misleading. The sheer volume of information available, however, has counter-intuitively made it harder for the potential consumer to access the facts they need to make competent business and technical decisions.
Whilst it is important to know what ISO 20022 is and where it can help a financial services business, it is equally important to understand what it is not and why it is therefore not necessarily a “cure all” for every message-based information exchange.

This short paper attempts to extract out the salient points from the ocean of content available on the Web and provide the reader with the basic information that will hopefully provide the background necessary to navigate effectively the more detailed information that they may require. It is not meant to replace book-sized documents like the ISO 20022 for Dummies publication available from the ISO 20022 web site, which can facilitate very in-depth understanding, nor is it meant to be a detailed introduction to XML, of which there are many W3C-based documents and tutorials on the web.

The document assumes no prior knowledge of the ISO 20022 subject matter but does presuppose a basic understanding of message standards-based data integration in the financial services industry. To that end, the initial part of the paper will cover the history, operation, architecture and typical syntax related to the standard. The middle section of the paper will approach the nuances of the standard and the last section will address considerations when implementing an ISO 20022-based integration solution.

First a few terms to explain

Whilst the aim of this paper is to, as far as possible, avoid technical jargon and acronyms, it is unavoidable that some are required in order to fully understand the standard and the implications of implementing it. So whilst many readers will know these, it is briefly worth explaining them for those new to the subject matter.

Firstly, the term ISO 20022 (generally pronounced “twenty-oh-two-two”) itself is constructed from two parts. The first stands for the name of the body that owns the standard. Because “International Organization for Standardization” would have different acronyms in different languages (“IOS” in English, “OIN” in French for Organisation internationale de normalisation), its founders decided to give it a short, all-purpose name. They chose “ISO,” derived from the Greek isos, meaning “equal.” Whatever the country, whatever the language, the short form of the organization’s name is always ISO. It is the international body for standards and its members are largely the domestic standards organizations such as the British Standards Institute (BSI) or American National Standards Institute (ANSI). The standards that they publish cover everything from quality standards such as ISO 9001, currency codes ISO 4217 through to engineering, electronics, manufacturing and pretty much everything we come across in our daily lives. The ISO 20022 standard defines a methodology for the development of financial message standards. It relies on UML (Unified Modeling Language) models representing financial business processes, flows and transactions in a neutral notation. These business transaction models are then subsequently converted into physical messages in the desired syntax, like XML (eXtensible Mark-up Language). It should be noted that although there is a common belief that ISO 20022 is synonymous with XML, in fact ISO 20022 defines the methodology for encapsulation business transactions and the data dictionary that is required to support those transactions. For example, a financial message can be completely compliant with ISO 20022 but be expressed as fixed width record layouts or API-based constructs such as JSON.

The ISO number simply indicates a unique identifier for the standard itself. Indeed, the latest 20022 standard is a logical evolution of ISO 15022, which itself was a successor to ISO 7775. These standards and how they relate to each other will be addressed in more detail later in the document.

1 http://www.iso20022.org/
2 http://www.w3.org/
3 http://www.uml.org
Two words that are vitally important in the context of any message standard are “syntax” and “semantic.” Syntax means the physical structure of the message in terms of what the fields or elements in a message are, in what order, their structure (length/possible values/allowable characters, format) and the cardinality (mandatory, optional or multiplicity). Semantic pertains to the meaning of the information being conveyed by the content formatted according to the syntax. So for example, two date fields may have their syntax defined as being bounded by a start and end element because they are XML compliant. The syntax also enforces that they are both compliant to ISO 8601⁴ (the date format standard). The following shows a very simple syntax that supports this.

The structure above is syntactically correct. Each element has a start and end, e.g. Date1 and Date2 and the dates are formatted according to ISO 8601. Syntax validation would check this and highlight errors. Semantics on the other hand, relates to what the data means and how one piece of information relates to another. Rules which then impose restrictions on data are therefore referred to as semantic validation rules or more colloquially “cross field validation rules.”

An example of this would be where Date1 is a creation date of a transaction, <CreDtTM> and Date 2 is the settlement date, <IntrBkSttlmDt> and a semantic rule would check that the latter cannot be before the former.

As previously acknowledged in this document, ISO 20022 is not expressly linked to XML notation and not only can the resultant messages be exchanged in any format that adheres to the data dictionary, for example, tag=value

⁴ https://www.iso.org/iso-8601-date-and-time-format.html
or fixed width, but the definition of the messages can also be described in other syntax such as ASN.1. However, for the purposes of this document we will assume XML notation as it is by far the most common notation.

For most XML-based standards, the syntactical definition of what a compliant message must look like is provided by a "Schema" file which can be differentiated from the "Instance Document" by the fact that it has an ".XSD" file extension and not an ".XML" one. For the purposes of this paper an "instance document" will be referred to as a "message." The schema itself is in fact an XML file which simply uses a predefined set of elements to describe the syntax of another file. An XML message can therefore be "well-formed," which means that it complies to the grammatical rules by which XML has to be constructed by, for example, start and end element tags in the correct nested order where the end tag is the same as the start tag but with a preceding "/" after the "<". In order to be "valid" however, the XML message must itself refer to the schema that for example describes what the order of elements is and what constraints there are on the content.

The schema that describes the message above, which is a financial institution to financial institution Credit Transfer Instruction, is named pacs.008.001.06.xsd and an excerpt can be seen below.

```
<xs:simpleType name="CreditDebitCode">
  <xs:restriction base="xs:string">
    <xs:enumeration value="CRDT"/>
    <xs:enumeration value="DBIT"/>
  </xs:restriction>
</xs:simpleType>
```

A major concept in schema definitions is that of "types," which can be "simple," i.e. defining a single atomic piece of information such as the `<IntrBkSttlmDt>`, which in this case is based on the underlying "ISODate" "built-in type." The term built-in just means that it is a definition and understood throughout any XML schema. Simple types can also be defined just for the purposes of a single schema or group of schemas that another project or organization would either have another definition of, or would not be relevant. A base type is common to anyone writing schema. In this example, one can also see the definition of the "Cardinality" of the `<IntrBkSttlmDtl>` element in this context; in this case the convention of "maxOccurs="1" minOccurs="0"" means that it is optional.

Another important concept in schema is that of the "Enumeration," which is a way of restricting the values that a simple type can have. In non-XML message standards, these are often referred to as "valid values" lists. In the example above the "CreditDebitCode" simple type is being restricted so that it can only have the values of "CRDT" or "DBIT."

5 https://www.itu.int/en/ITU-T/asn1/Pages/introduction.aspx
The other type is "Complex," which simply means that it is made up of other types that could be a mixture of simple and complex ones. In the example above, a complex type called "CreditTransferTransaction25" is being defined. It is in this case a "Sequence," which means that the following elements must appear in the order specified and according to the cardinality. Another type is a "Choice," where for example one element or another must be present or not both. In the example below, "FinancialIdentificationSchemeName1Choice" can either be a Code or Proprietary. (NB: With the publication of the ISO 20022 2013 version, the "Choice" is no longer contained within a "Sequence" group).

Elsewhere in the schema, this "CreditTransferTransaction25" complex type is then used as the base type for the <CdtTrfInf> element which, as can be seen from the cardinality declarations, is mandatory but can repeat an unlimited amount of times.

Using these and a few other more complicated concepts such as substitutions and derivations, highly complex data structures can be created. Thankfully ISO 20022 has been designed to be relatively straightforward in its use of XML schema constructs, so for most purposes little more than the brief introduction above is required to understand an ISO 20022 schema and map it onto the structure of an associated XML message. The same cannot be said of much more complicated XML-based financial services standards such as FpML, which use the power of XML schema notation to its full extent.

The ISO 20022 Standard

The previous section has introduced the basic concepts of XML and XML schemas and used ISO 20022 messages as the examples. It is, however, important to understand how these messages are arrived at, maintained, extended and restricted to fully understand the usage and potential impact on general financial services data integration.

ISO 20022 is the ISO standard for financial services messaging. It describes a "Metadata" (data that describes data) repository containing descriptions of messages and business processes, and a maintenance process for the repository content. The process is driven by the Unified Modelling Language (UML), which is used to specify,
visualize, modify, construct and document the artefacts of an object-oriented software-intensive system under development. UML offers a standard way to visualize a system’s architectural blueprints, including elements such as:

» activities
» actors
» business processes
» database schemas
» (logical) components
» programming language statements
» reusable software components

In simple terms this means taking a business process such as a payment or securities instruction between parties and breaking it down into the flow of information between the parties and/or systems (the actors) involved in the business process. For example, an instruction sent (an activity), followed by status updates, a notification of settlement and a final end-of-day statement. The following shows this process for a Customer initiated payment instruction to a bank as described in the ISO 20022 documentation as a very simple example of a UML Sequence diagram.

Next, this is broken down into the components that define the information required, for example what is a currency, what is an account, etc. This leads to the definition of the logical components that can then be used as the basis of physical components. So for example, you only need one logical component called currency, which you can define as being based on ISO 4217 codes. This can then be used as the base of, let’s say, credit and debit currency components. In a similar fashion, account can perhaps be defined as either a standard IBAN 2007 format (ISO 13616) or a proprietary format of a maximum of up to 34 alphanumeric characters. That underlying account definition can then be used, for example, as the basis for the beneficiary and charges account numbers respectively.
The result of the exercise is that you end up with a “Repository” of base business definitions that underpin all compliant messages that adhere to the standard. The advantage of this is that anyone who wants to create a compliant message is at liberty to call the elements what they like, but by linking them to the base types in the repository you can be sure that all parties involved in the processing of the message will have a common understanding of what a currency or account is and what its format is. This represents a major building block for effective inter-organization STP (Straight-Through-Processing) of information.

There is a standard process defined by ISO 20022 for submitting proposals for adoption as additions to or enhancements to, the existing message set and these are generally the result of work by other standards bodies such as SWIFT, ESMA, nexo (formerly EPASOrg), IFX or industry utilities such as Euroclear or CLS. A full view of the status of submissions to ISO is available on their website.

The ISO 20022 Registration Authority (RA) is the guardian of the ISO 20022 Financial Repository and the www.iso20022.org website.

The RA mission is to ensure compliance of developed repository items with the approved technical specifications and to publish the Financial Repository on www.iso20022.org, on behalf of ISO. In the case of ISO 20022, SWIFT acts as the RA, so in many cases they are the Registration Authority and the submitter.

The Registration Management Group (RMG) is made up of senior industry experts and is the highest ISO 20022 registration body; it monitors the overall registration process and reports directly to ISO TC68, which is the technical committee within ISO that looks after Financial Services.

The RMG defines the scope of necessary Standards Evaluation Groups (SEGs), approves business justifications for new messages and allocates them to one or more SEGs.

The ISO 20022 Standards Evaluation Groups (SEGs) are made up of industry experts in specific business domains of the financial industry as defined by the ISO 20022 Registration Management Group (RMG). SEG members are nominated by ISO TC68 member countries and liaison organizations.

The role of a SEG is threefold:
1. To ensure that the right industry groups are informed of proposed developments to ensure all business requirements will be addressed.
2. To validate the newly developed message definitions from a business perspective as representative of future users. This is to ensure that what will be posted in the ISO 20022 repository by the RA really addresses the needs of future communities of users as described in the business justification accepted by the RMG in the first place.
3. To approve changes to existing message definitions.

The RMG has to date defined the scope of five SEGs covering distinct business areas:
- Payments {1,3,7,12,13,15}
- Securities and Derivatives {1,3,7,10,14,16,17,18,19,20}
- FX (Foreign Exchange) {2,7,11,14}
- Trade Services {3,21,22,23}
- Cards and Related Retail Financial Services {4,5,6,8,9}

6 https://www.iso20022.org/status_of_submissions.page
These SEGs have then validated and approved messages in the following categories:

- acmt [1] – Account Management
- admi [2] – Administration
- auth [3] – Authorities
- caaa [4] – Acceptor to Acquirer Card Transactions
- cain [6] – Acquirer to Issuer Card Transactions
- colr [10] – Collateral Management
- pacs [12] – Payments Clearing & Settlement
- reca [14] – Reference Data
- secl [16] – Securities Clearing
- semt [18] – Securities Management
- sece [19] – Securities Settlement
- sestr [20] – Securities Trade
- tsmt [21] – Trade Services Management
- tsin [22] – Trade Services Initiation
- tsrv [23] – Trade Services

Within each category there are then the individual messages, which are named with the following convention:

- e.g. pacs.008.001.06
  - First set of four characters represent the category as per the list above, in this case payments clearing & settlement
  - First set of three digits are the message number, which indicates function, in this case financial institution to financial institution credit transfer
  - Second set of three digits indicates the variant number, in this case 001 indicates it is the base definition
  - Third set of two digits indicates the version number, which in this case is the sixth version of the message

The purpose of the first two sections and the last are pretty self-evident. However, the “variant” requires some explanation. As described by the ISO 20022 website:

“A ‘variant’ is a restricted version of a global message definition. For example, a variant may exclude the portions of the global message definition that are rarely used in order to provide a message definition that is easier to implement and still covers 80% of the cases. Variants may facilitate adoption of ISO 20022 message definitions by removing complexity and/or making it much clearer how to use a message definition in a specific context.”

These variants can then be submitted and approved/published by the RA. There is a standard mechanism for defining and submitting these variant requests which can be found on the ISO 20022 website7.
To decide whether a variant is necessary, the starting point is to refer to what the base ISO 20022 published definition is of the messages and their function. The ISO 20022 website has a “Catalogue of Messages” page where the following items can be downloaded for each category or message:

- XML schema for the message
- Sample messages (not available for all messages)
- The “Message Definition Report,” (MDR) which gives a written description of the message formats, items and "semantic validation rules" that are in effect cross element validations that cannot be defined in an XML schema but are added to give semantic consistency of the data across elements. For example, the following are some of the rules applied to the pacs.008.001.06 message:
  
  » Diagrams representing the business process and design (not available for all messages)
  » Message Usage Guidelines (MUG) which further define specific usage of the messages (not available or applicable to all messages)
  » Information on the submitting organization

**C28 PaymentTypeInformationRule**

If GroupHeader/PaymentTypeInformation is present, then CreditTransferTransactionInformation/PaymentTypeInformation is not allowed. (CrossElementComplexRule)

**C29 PreviousInstructingAgentAccountRule**

If PreviousInstructingAgentAccount is present, then PreviousInstructingAgent must be present. (CrossElementComplexRule)

More on ISO 20022 Variants

It is worth dealing in more depth with the concepts of ISO 20022 variant messages as they potentially have a major impact on the implementation of ISO 20022 as a standard for message-based data integration. For some purposes where a base message definition is too broad in scope or needs to be restricted to a particular use there are two possible routes.

1. If the variant is believed to be of use to the community at large then the details of the variant can be submitted to ISO for consideration and then largely follows a similar process to that of new messages being submitted by organizations for consideration. Should the submission be successful.

2. If the variant required is really for context specific reasons such as a commercial service, market utility or a financial firm specific reason then the restrictions of the variant are implemented as a set of Message Usage Guidelines or a non-registered variant schema which is often denoted by an extension to the base name; for example, in Target2 Securities, schemas have T2S added at the end such as acmt.007.001.01_T2S. So a

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7 https://www.iso20022.org/variants.page
8 https://www.iso20022.org/catalogue_of_messages.page
new schema is not always necessarily generated and the details can be shared between parties as written documents and / or spreadsheets. These are not submitted to ISO so in effect anyone can come up with their own and frequently do. This is far and away the most common approach and, while genuinely offering great flexibility while maintaining a common syntax, it does and has led to hundreds of them being created which in many ways dilutes the commonality of the standard from an integration perspective.

The starting point of both processes is usually a spreadsheet somewhat similar to that below which lays out the message in question and then facilitates information about the restrictions on the base message such as:

- Suppress a message item (element) that should not be used
- Restrict the number of times a repetitive item (element) can repeat
- Make an optional item (element) mandatory
- Restrict a choice to one or fewer options
- Restrict an internal code list to fewer values
- Reduce the size and/or restrict the pattern of a text item
- Define substitute data types to represent some of the above changes. A good example of this being the Global Market Practice guidelines for the use of ISO 20022 in the realm of Real Time Payments

In the example given it can be seen that:

- Batch Booking has become a forbidden element
- Control Sum has become mandatory
- The Settlement Method must only have the CLRG (Clearing) value

A related concept that also facilitates non-standard usage is the concept of Supplementary Data. Some ISO 20022 message definitions include a ‘SupplementaryData’ component that can be used by communities of users to add information to a message that is not catered for by other components of the message definition. The information in the SupplementaryData component must be ISO 20022 compliant and it requires development of a compliant message extension model and its components must be registered in the ISO 20022 Data Dictionary. This is a very powerful tool, however, to date and probably due to having to use the same process as submitting a new message, at the time of writing this approach has only been adopted by two

10 https://www.iso20022.org/payments_rtpg.page
groups. In the example below it can be seen that the Berlin Group have created registered supplementary data for a number of payments related messages. An up to date list of available supplementary data can be found on the ISO 20022 website.\(^{11}\)

A further concept that can alter the semantics of an ISO 20022 message is the concept of a "Data Source Scheme." The ISO 20022 Data Source Scheme (DSS) is a mechanism that allows an institution or market organization to specify and use a proprietary code list that is not owned or managed by ISO 20022, and that replaces a standard code list (either a specific ISO 20022 managed code list or another ISO standard code list.

\(^{11}\)https://www.iso20022.org/supplementary_data.page
e.g. BICs or ISINs) in specific message components where the use of DSSs has been approved. For example, in the following example the Data Type “GenericIdentification13,” which is used as the basis for the unique identification of a party, has been restricted to a set of values maintained by Deutsche Börse Clearing AG.

These Data Source Schemes are managed by the external organizations themselves but must be submitted for approval to the ISO 20022 RA.

ISO 20022 publishes a document that lists the approved DSSs by allowable data type for which they are eligible. The subsequent extract below shows that these DSS’s can be related to industry utilities, payments systems, clearing houses, government agencies and indeed financial institutions.

ISO 20022 Compliant Messages

It is self-evident that all registered base, candidate and variant messages published on the ISO 20022 website are ISO 20022 compliant. However, often a commercial service or firm such as a bank may wish to implement completely proprietary messages. Given that ISO 20022 has a very detailed set of business components which
result in a fairly comprehensive data dictionary, this can often be a very sensible route to quickly generating context specific messages. Especially in light of the ever-increasing adoption of ISO 20022, this can provide the opportunity of reusing functions that may already exist such as parsing, validation and mapping. If the messages implement the same “Type” definitions as ISO 20022 then there is going to be much less opportunity for misunderstanding between parties as they are using a common lingua franca. So whilst strictly speaking they cannot be referred to as compliant, they can be described as “based on.”

ISO 20022 Messages vs. SWIFT MX Messages

A subject that often causes confusion in the market and that expands upon the concept of variation, is that of SWIFT’s implementation of ISO 20022 compliant messages. Earlier in this paper it was pointed out that SWIFT acts both as the Registration Authority for ISO 20022 messages and as a submitter of standards to themselves in that role. They are however not the only submitter of messages. For example, the “pacs” payments category of messages were submitted by SWIFT but the card services “caaa” category messages were submitted by nexo (formerly EPASOrg). So there are ISO 20022 standard messages which are not supported/ transmitted via the SWIFT network and it is important to remember that ISO 20022 does not impose any preferred transport mechanism. SWIFTNet can be used but so can any other transport medium, secure or otherwise. Likewise, SWIFT operates added value commercial services on top of SWIFTNet which use both ISO 20022 compliant messages in addition to other messages that have been constructed according to the methodology and dictionary but have not as yet been approved or submitted to the ISO 20022 RA. Or they may implement newer versions of the ISO 20022 messages before they are accepted by ISO as a means of bringing enhanced functionality to market faster than the ISO process which can take a long time. There may also be rare occasions where a message is so context specific to the service that it may never be published as an ISO 20022 message.

So in short, sometimes SWIFT implements standard published ISO 20022 messages and sometime not.

In addition, ISO 20022 defines the business message schema often referred to as the “Payload” and also defines a “Business Application Header” that defines information such as the sender and receiver, amongst other things. There are, however, other pieces of information that may be required depending on the underlying method of transporting the message.

However, if an organization wishes to transport a message across SWIFTNet, they will also have to add other wrapping information that is specific to that network; for example, SWIFTNet headers and a request payload that as well as containing the ISO 20022 message also contains either the ISO 20022 business application header or the SWIFT specific interact header. In addition, the user will also have to conform to the additional wrapping information specific to the SWIFTNet gateway which will differ depending on the vendor in question.

So, mapping application data to the ISO 20022 message payload is only part of the task. Many applications already output the legacy MT message types, and organizations wishing to adopt ISO 20022 can either re-engineer their applications or transform the old messages to the new ones without invasive programming via the implementation of external transformation software.

It is, however, important to understand that these mappings only help the mapping to the ISO 20022 compliant messages that have a functionally equivalent “old style” MT message.

As can be seen below in an example of such a mapping, it is an extremely complicated task and this only represents the top level mapping for a small part of a MT103 to pacs.008 message. It is therefore advisable to
try to source such mappings externally rather than starting from scratch. The caveat being that mappings are also often context specific and often some logic will need to be refined or added to make it viable. It is best to assume Pareto’s Law (colloquially the 80/20 rule) but even this represents a huge productivity gain over starting from nothing.

**ISO 20022 and the API Economy**

As has been stated earlier, ISO 20022 does not impose a syntax on the representation of the data, although to date XML has dominated in most implementations. With the advent of what is being called the API Economy, ISO 20022 now finds itself in the position to potentially accelerate the building of financial market APIs. Due to the important decision not to impose a syntax, ISO 20022 is well positioned to provide the “payload” for API driven transactions. Part of an API defines the orchestration, i.e. how the two applications talk to each other, but the other must define the constituents of the transaction itself, for example the payment.

The payload is often defined in standard ways using widely adopted technical standards such as JSON, and as such, tools are available to easily transform XML payload into a JSON structure payload with practically no manual coding involved. This can both accelerate the definition and the adoption of the API by the market.
Considerations for Implementing ISO 20022

Without question the introduction and development of ISO 20022 has introduced a coherent and standardized approach to financial messaging. Although the uptake has been quicker in some areas than others, whether geographically or by asset class, the pace of adoption has increased dramatically over the last couple of years with much more adoption and migration planned in the coming years.

The future for solving the messaging problems that the financial services industry has had with disparate, inadequate and proprietary standards is brighter than it was in the past; providing that financial services firms take the initiative to implement data transformation and integration strategies that simplify adoption of data standards and enable STP efficiencies across retail and wholesale markets. Indeed, this type of strategy offers the potential to further compliance and would reduce costs and risks for each firm as well as those systemic in the industry. In fact, a more strategic approach to integration can deliver additional business benefits related to better data management, such as improved investor and asset servicing.

However, as has hopefully been highlighted in this paper, ISO 20022 in itself is the basis for solutions and not the solution in its entirety. When making a decision to implement ISO 20022, an organization must ask, “what type of ISO 20022 messaging are we talking about?” For example, some high-level questions should be addressed up front:

» Will all clients/trading partners communicate with the organization via standard ISO 20022 messages?
» What variants of ISO 20022 messages are going to be used and are they registered or proprietary?
» Are Data Source Schemes going to have to be supported?
» Are external code lists going to have to be supported?
» What cross-field validations need to be implemented and are these likely to be at the client/trading partner level?
» What transport mechanism is going to be used and does that entail additional header information being added to the base ISO 20022 message?
» If SWIFTNet is going to be the transport mechanism, what are the header requirements of the interface gateway?
» Are all the messages standard ISO 20022 or are they actually SWIFT MX messages or a mixture of both?
» If variants/supplementary data are going to be used, how do you support their growth as the number of clients/trading partners increases over time?
» How does the organization cope with the maintenance changes to the ISO 20022 messages or the variants/additional messages that utilities such as SWIFT implement?
» Are internal applications going to be re-engineered to natively create and/or consume the ISO 20022 compliant messages and if so, what are the ongoing maintenance implications of invasively changing them?
» If internal applications are not going to be re-engineered to natively create and/or consume the ISO 20022 compliant messages, how is transformation between the existing formats going to be achieved and is there a way of achieving this with a model driven mapping approach rather than native coding, thereby accelerating the project and lowering ongoing maintenance costs?
» If off the shelf message translation artefacts exist for message pairs, e.g. SWIFT MT to SWIFT MX ISO 20022 compliant messages, is that a more prudent approach than invasive application changes?
» If message transformation is implemented, does the logic exist as specifications for all messages given that they may only exist for ISO 20022 messages supported by SWIFT?
» For message transformation, what is the best approach for supporting the inevitable client/trading partner specific information/formats within the constraints of the standard itself?
» What syntax is going to be employed? Do not assume XML as the project may be better served by other syntax such as ASN.1 or JSON with the latter especially relevant in relation to API based projects.
Are there message usage guidelines or market practice guidelines that could or must be adopted?
If the firm itself is going to be making usage or variant changes, how can they be effectively communicated with customers and counterparties?
If the firm itself is going to be making usage or variant changes, how can they be tested with customers and counterparties?

Conclusion

ISO 20022 has been around for more than a decade and for most of that period it has been viewed by much of the financial markets as a “nice to have” but without a compelling event driving adoption. It would seem that the compelling event was the mandating of ISO 20022 messages for SEPA. It may be a coincidence, but it does appear to have been a tipping point. Once a critical mass within the market had to adopt ISO 20022 for a major part of the business, it then became a case of finding areas to reuse the same logic given that much of the parsing logic between ISO 20022 messages can be shared across asset classes and especially so within an asset class. Once a major scheme like SEPA in the payments domain announced the mandatory nature of ISO 20022, then naturally the market’s thoughts turn to interoperability, especially in a cross-border scenario.

This is especially true in the payments world where many of the world’s payments infrastructures such as domestic ACHs, have for decades used highly proprietary message standards. Over the past couple of years, much ACH and RTGS infrastructure either have, or intend to, migrate to an ISO 20022-based messaging solution. The rapid increase in the creation of Real-Time or Instant payments has further increased adoption of the standard with pretty much all schemes adopting it across the world. The standard is also being adopted by many banks as the standard approach for onboarding clients’ payment initiation instructions and cash management requirements.

Within the capital markets industry, adoption is also gaining pace. Investment Funds largely migrated to ISO 20022 a number of years ago with respect to SWIFT messaging, followed by Target2 Securities (T2S) also going live in the recent past with an ISO 20022-based architecture. Regulation has also seen recent adoption of the standard, with EU regulations starting to mandate ISO 20022 as the only allowable message format across all new regulations such as MiFIR, SFTR and CSDR. The pace of change is such that ISO 20022 can now truly be said to be the de facto messaging standard for the financial service industry.

So whilst it is easy to phrase the sweeping statement that an organization is going to migrate to ISO 20022 messaging, it is rarely as straightforward as it seems. And as ever in data integration, the devil is in the detail. As an example, one payments operator in Europe has already indicated that they have had to support more than 200 variations on the base ISO 20022 messages. Indeed, one only needs to review the SEPA standards, which restrict the usage of ISO 20022 messages and support variants of even those with the concept of AOS (Additional Optional Services), or the usage guidelines for using the same messages for Worker’s Remittances, to see that variation is the norm.

Standardization of messaging will, at a stroke, cut enormous costs and risk across the whole market by enabling a consistent approach to structuring information, which in itself enables greater STP and agility in onboarding clients, trading partners, and clearing and settlement venues. It will not, however, achieve these high objectives unless the organizations are able to integrate the data internally and pass it through to the next processing.
recipient in real-time. Fortunately, with technology available to automate ISO 20022-based integration in a maintainable fashion that reduces the cost of implementation and ongoing ownership, this goal is achievable for any type of firm.

**About Volante**

Founded in 2001, Volante Technologies is a global leader in the provision of software for the integration, processing and orchestration of payments and financial messages within financial institutions and corporate enterprises. Volante is dedicated to helping firms increase their business agility so they can focus on thriving and being competitive. Product features such as configuration rather than coding, and automation features including automated code and documentation generation and integrated desktop testing, promise significantly accelerated project completions every time, compared to alternative options.

Volante serves a growing client base of more than 85 financial institutions and corporate enterprises operating in 27 countries around the world, including several of the largest global organizations. Many clients use Volante to assist with multiple product implementations ranging from message transformation and integration, through to on-boarding, processing and orchestration of payments.

Along with its products, Volante Designer and the VolPay Suite of payments processing products, that be licensed and deployed on premise or on the cloud, Volante maintains a growing library of hundreds of domestic and international financial industry standards plugins, transformations and processor modules.

Volante serves its broad client base from offices in Jersey City (Volante HQ), London, Dubai, Mexico City, Bogota, Santiago, Hyderabad, Chennai and Pune. The diversity of clients within the financial services industry means that Volante can comprehensively encapsulate a best practice approach into its product development roadmaps for continuous innovation.

If you would like to know more about how we enable accelerated payments business within corporate enterprises and corporate/wholesale banking with innovation and accelerated project implementations, please visit [www.volantetech.com/products/volpay/](http://www.volantetech.com/products/volpay/)

If you would like to know more about how we support enable accelerated financial message integration and processing within non-payments related transactions such as capital markets or trade finance, please visit [www.volantetech.com/products/volante-designer/](http://www.volantetech.com/products/volante-designer/)

**For further information about Volante**, please visit: [www.volantetech.com](http://www.volantetech.com)