International Securities Services Association

ISO 20022 Working Group

THE BENEFITS OF A COMMON DATA MODEL BASED ON ISO 20022

Welcome to the first paper of a series of publications created by the ISO 20022 Working Group (WG). The Education and Benefits sub-group wants to expand the amount of information available to the industry in relation to Securities Services. This short article explains the rationale for a shared data model and the opportunities it creates, how the industry could adopt such a model and finally, the benefits rationale for doing so.

INTRODUCTION

"Data is the new oil." Over-use has reduced this exciting idea to a hackneyed phrase. Yet it persists because it points to an important truth. Just as refined oil drove the development of the internal combustion engine, the generation of electricity and the spread of synthetic materials, so does data provide the raw material for a variety of new financial products and services. In the 21st century data, like oil in the 20th century, is also plentiful. The falling cost of manufacturing data in digital form means the quantity of data that is stored as well as created – much of it is discarded – increases every year. According to International Data Corporation (IDC), the amount of digitized data in storage has grown from 0.5 Zettabytes in 2010 to 9.5 Zettabytes in 2020 and is likely to reach 51 Zettabytes by 2025.[1]

In its unrefined state, this growing mountain of structured and unstructured data is useless. Once it is analysed, however, it can yield insights that improve day-to-day business decisions, enhance existing products and services and drive inventions and innovations that create entirely new streams of revenue and profit. These are the opportunities that are now open to the financial services industry.

[1] *The amount of data created, as opposed to stored, is considerably larger than this. Just 2 per cent of data created in 2020 was retained into 2021. See IDC annual DataSphere and StorageSphere forecasts.*

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NEED FOR A COMMON DATA MODEL

To seize those opportunities, financial institutions need to be able to exchange data seamlessly between different parts of their own organisation and with their customers. Importantly, they also need to be able to exchange information efficiently with third parties, both to obtain data for their own new products and services and to share data with others so that they can do the same.

These data exchanges depend on the sender and the receiver of the data having a common understanding of how to interpret the information. This is especially true if either party is reliant on automated systems to handle data flows since computers can process data but not interpret it. A common understanding depends on senders and receivers sharing a common data model.

A common data model provides a shared data language for senders and receivers to use. By it, both parties agree on how to structure the data (syntax) and what the different components of the data mean (semantics). The syntax makes data exchanges machine-readable by agreeing field lengths, codes and characters, while semantics ensure the same word means the same thing to both parties.

What matters is that the data model is common. There is no shortage of data models in the financial services industry, but each structures data and defines words differently, restricting the value of a shared language to small groups of systems or narrow fields of activity. Once a common data model is agreed, it becomes possible to exchange data easily across all systems and activities.

THE OPPORTUNITIES CREATED BY A COMMON DATA MODEL

The ability to exchange data across the boundaries that separate systems and activities creates multiple opportunities for financial institutions to cut costs, reduce risks and grow revenues. The costs and risks are both operational and regulatory, and the new business opportunities span digital currencies and assets as well as existing payments and securities instruments.

One of the clearest opportunities is improved operational efficiency. In financial markets both transactions and holdings information are driven by data exchanges. By standardising the structure and meaning of data, a common data model allows more transactions to be finalised and holdings reported without human intervention. This can happen much earlier too, reducing the cost of liquidity and credit.

A second opportunity is the ability to reduce risk. Standardised data cuts the risk of errors, mismatches and delays leading, for example, to settlement failure. Standardised data is easier to search as well, so it can be analysed for insights into who the parties to a transaction are, and why they are transacting. This mitigates the risk of inadvertent facilitation of money laundering, financing of terrorism or breaches of sanctions due to lack of data insights.

Standardised data also expedites the development of new products and services because it is easier to combine with other data sets. The success of Open Banking and Open Finance initiatives, which enable incumbent service providers and third-party developers to build new products and services, depend entirely on continuous and real-time access to customer data held in different databases.

Among the new services which customer data can facilitate are investment in Crypto Currency and Securities Tokens and the use of new payment instruments such as Stablecoins and Central Bank Digital Currencies (CBDCs), all of which are potentially issued on to blockchain networks that inhibit the identification of counterparties. Accounts linked to digital identities derived from customer data are a solution.

The use and analysis of customer data is of course constrained by financial crime and privacy laws and regulations. This makes customer consent to the use of data essential, especially in responding to Open Banking and Open Finance opportunities. A benefit of standardised data is that it facilitates compliance with data privacy and consent obligations, precisely because it is properly organised.

Seamless data exchanges enable financial institutions to remain competitive as well. Incumbents face competition from new entrants unencumbered by legacy systems and client bases and aspire to cherry-pick the most valuable clients or revenue streams. By giving incumbents a complete view of their customers, standardised data enables services and prices to be adjusted to optimise the response to challenges.

This is how data can be used to deliver better products and services for customers in financial services. But standardised data also allows service providers to meet rising customer demands for greater speed and convenience. For example standardised data can be used to help accelerate the on-boarding and connecting of parties i.e. by not having to deal with each party's proprietary "data model" formats; this allows rapid on-boarding which reduces time-to-market for service activation. Standardised data can also be utilised for instant payment and real-time access to information about cash, securities holdings and credit and collateral obligations.

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ISO 20022 - THE PROPOSAL FOR A COMMON DATA MODEL

The principal barrier to these fruitful data exchanges is the use of different syntaxes and semantics by participants in financial markets. So a crucial question for the industry is how to arrive at a common data model capable of securing widespread agreement. The need is urgent because Application Programme Interfaces (APIs) that drive data exchanges are proliferating but are not standardised.

Happily, a data model capable of unifying data exchanges throughout the financial services industry exists. It is called ISO 20022, and it was designed specifically to overcome the barriers created by use of different syntaxes and semantics. It provides a common language for machines and people to exchange data, which is recorded in a single but continuously expanding data repository. The WG believes that ISO 20022's role should be seen as a universal common language across channels (e.g. SWIFT messages, API, DLTs, chatbots, "traditional" H2H/ files exchanges, etc.) to deliver full benefits to the industry and its clients.

The repository consists of a data dictionary and a business process catalogue. The data dictionary currently holds around 750 well-defined components that can be used to standardise a data exchange. The business process catalogue contains more than 1,900 fully defined data exchanges that can be used to complete a business process, such as clearing and settling payments or securities transactions.

The data dictionary is the key to the power of ISO 20022 to act as a common data model capable of unifying all data exchanges. It enables the data being exchanged in any format to be mapped to the components defined in the ISO 20022 dictionary. By this means, the dictionary allows data structured in any syntax to be understood by the user of any other syntax.

This independence of the way in which the same information can be expressed is the reason why ISO 20022 can facilitate exchanges of data between systems both within firms and between firms where different data formats are used. It is also sufficiently flexible to accommodate new business processes as they arise, since these can be described by re-using components from the data dictionary. As ISSA have noted in both the 2019 and 2021 DLT – Theory into Practice papers ISO 20022 should be used as the bridge between "traditional" and digital / Crypto Assets, enabling easier integration / aggregation across asset classes.

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THE BUSINESS BENEFITS OF A COMMON DATA MODEL

The business benefits made possible by a standard that enables systems to exchange data more easily, by using a common data model, are numerous and diverse. They range from **reductions in cost and risk**, through savings in cash, collateral and capital, to improvements and innovations in the services financial institutions can offer their customers.

Chief among the benefits of a common data model is **improved operational efficiency**. Counterparties can exchange information automatically, reducing costly re-keying of data, manual interventions to correct errors and omissions and reconciliation of different accounts of the same transaction. This releases the time of employees for more productive tasks, including customer service.

A common data model also **reduces operational risk**, and not just because automated exchanges of standardised data minimise the chance of a transaction process failure. Seamless interactions enhance the stability and resilience of the eco-system as a whole and create room to retire legacy infrastructural as well as individual systems, reducing operating costs as well as operational risk.

The benefits of greater operational efficiency are financial as well as operational, since faster settlement improves cash flow, **saving liquidity, collateral, credit and capital costs**. These savings are especially significant in cross-border transactions, where financial institutions maintain expensive liquidity buffers to avoid the costs of settlement failure and regulatory impacts such as buy-ins.

The improvements to liquidity management extend to customers of financial institutions. Earlier settlement translates into earlier receipt of cash. In addition, the seamless exchange of standardised transactional data between systems enables corporate treasurers, for example, to monitor the cash position of the company in near real-time rather than via an end-of-day report only.

In fact, data standardisation **enhances reporting** in general. Standardisation makes it easier to source, aggregate and present data from multiple sources without manual intervention. This enables financial institutions to remain compliant by delivering regulatory reports on time. Standardised data also enables financial institutions to offer their clients more accurate, frequent, varied and timely reports.

These benefits compound over time, as automated exchanges of data allow transactions at risk of failure to be managed actively. Tagging enables the status of a transaction to be made visible in real-time, allowing missing or incorrect data

components to be added and erroneous transactions to be recalled. Transaction costs become transparent, allowing less expensive routes to be chosen.

Tighter management of transaction costs is a clear benefit of exchanging data in standardised form. ISO 20022-compliant data exchanges also contain more data, so the opportunities to extract cost-saving and revenue-enhancing insights from the data multiply. Lastly, standardisation makes it easier to develop Open Banking and Open Finance services with third parties by sharing data via APIs.

The standardisation of APIs themselves to the ISO 20022 standard **can accelerate adoption of new data-driven services**. It achieves this by relieving providers of API-enabled services of the need to adapt to different data structures, workflows and security features every time they connect to a financial institution or other third-party data supplier that contributes to their service.

New, API-enabled services are not the only benefit standardised data enables financial institutions to offer their customers. The ability to blend data from multiple internal and external sources makes it possible for product managers to understand how customers use services and for marketing managers to **create bespoke products** and sales messages to particular groups of customers.

The greater volume of data about counterparties and the purpose of their transactions also **simplifies Know Your Client (KYC), Anti Money Laundering (AML)**, countering the Financing of Terrorism and sanctions screening compliance. Fewer transactions require manual investigation, bad actors are easier to identify, and the reporting of suspicious transactions can be automated.

Lastly, standardisation can **accelerate the adoption of innovations** based on blockchain networks, such as Crypto Currencies, CBDCs and Securities Tokens. Although blockchain business processes differ, making the business process catalogue less relevant, the business definitions in the data dictionary can be re-used by members of blockchain networks.

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Institutions represented by experts in the Working Group "ISO 20022"

If you are interested in joining the ISO 20022 WG or if you have any practical use cases to share with ISSA members, please reach out to Colin Parry.

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SUMMARY AND CONCLUSION

The volume of digitized data is increasing rapidly. It represents a new and largely untapped source of value, which can lift the performance of financial services firms by enhancing decision-making, widening margins on existing products and services and fueling a variety of profitable innovations. But realising these gains depends on all parts of the industry using a common data model.

ISO 20022 is the logical foundation of a common data model. It is designed for that purpose, widely accepted in the financial services industry, and flexible enough to accommodate multiple data formats and business processes. Its dictionary provides a large set of standardised components which can be used to build data exchanges in any format and translate data exchanges between any pair of formats.

Once a common data model is shared, data exchanges become cheaper and simpler. This enables financial institutions to cut transaction costs and risks, especially in post-trade processing, liquidity management and customer due diligence checks. It also makes a range of innovative customer services possible, from Open Finance products to Crypto Currency and Securities Token investing.

But the innovations visible now are just the beginning. The exchange and analysis of the growing quantities of digitized data are poised to reshape the way the financial services industry makes decisions, interacts with customers, manages costs and risks, improves existing products and launches new ones. All the industry needs to unleash that value is a common data model.