



## Discussion Paper

ISO 20022 for Unifying  
FinTech

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The aim of this paper is to socialise views regarding the value of ISO 20022 standards in the evolving FinTech landscape.

Soaring proliferation of FinTech in the last decade has profoundly altered consumer expectations around the access to and delivery of financial services and products. Considered as both an innovative and disruptive force, FinTech is generating transformation of conventional banking systems. It has a growing influence on the financial services value chain, resulting in lower barriers to entry and levelling the financial playing field for the mass market. FinTech innovation comes in all different shapes and sizes, using divergent technologies and without the adoption of common standards; it is likely lead to inefficient and ineffective fragmentation. A common, standardised business language is paramount to ensure interoperability between existing and future financial systems.

## Financial industry standardisation efforts

Under the umbrella of International Organisation for Standardization (ISO), experts across the industry meet and collaborate with an explicit focus on developing common standards and driving global interoperability.

1. **ISO 20022** – the universal financial industry message scheme developed in 2004 under the ISO Financial Services Technical Committee 68 (TC68). Since its inception, it has resulted in extensive adoption across market infrastructures, financial institutions and corporations.
2. **FinTech Technical Advisory Group (TAG)** was established under TC68 in 2017. TAG is an advisory sounding board where industry stakeholders can discuss data and technology standards required for secure global commerce.
3. **ISO Technical Committee 307 Blockchain and distributed ledger technologies** was developed in 2017 to support interoperability and data interchange among users, applications and systems.

In an ever-changing, fast-paced FinTech marketplace, these committees emphasise the heightened importance of common standards and their adoption.

There are currently over two hundred and twenty ISO 2022 standards adoption initiatives in the global financial services industry. Over half of these are operating in a live capacity. Asia is no exception with more than twenty cases of ISO 2022-based financial market infrastructures in production mode. Encompassing these are stock exchanges and central securities depositories (CSDs) in Singapore, Australia and Japan as well as real-time payment and settlement systems in India, China and the broader ASEAN region.

Entrenched as a common business language for the financial marketplace, ISO 2022 is firmly positioned as a unifier for new and contrasting FinTech innovations, such as Distributed Ledger Technology (DLT), Smart Contract (SC) and Application Programming Interfaces (APIs). Considered the de facto, universal business language for financial industry initiatives, ISO 2022 acts as an enabler for new and emerging innovations. For example, one could imagine rich data mining solutions responding to regulatory requirements because all business segments could be aligned across different systems within an organisation. Similarly, such business alignment would make it easier to create universal web and mobile payments or machine learning solutions – all thanks to a robust fundament of aligned business flows. Equally, adopting the prevalent financial services business standard would contribute to seamless deployment of a FinTech solution since most of these solutions have a complementary role.

As part of this paper, nine standards and FinTech experts, including startups from the 2017 SWIFT gpi industry challenge were asked to participate in the survey to share their specialised opinion on ISO 2022 adoption and the anticipated value for FinTech in the next five years. These industry experts were surveyed for their insights into the specific value of ISO 2022 and its application traversing a variety of business models from DLT to APIs and real-time payments.

### Value of ISO 2022 for FinTech

The value provided by ISO 2022 across different FinTech implementations can be summarised in four areas:

- **Open and collaborative standard** – a key enabler for the future of open banking. Any organisation can make use of standards and design messages in a collaborative way as open standards are not controlled by a single commercial interest, and are publicly available on the ISO 2022 website @ [www.iso2022.org](http://www.iso2022.org).
- **Tech-neutral business language** – ISO 2022 provides the means to achieve uniform and unambiguous interpretation of the data exchanged among users, regardless of different technologies in use within and across the financial industry. Based on universal business models, the common standards can be enhanced to incorporate features of new technology, and can be made tangible by adopting a physical standard. For this reason, ISO 2022 does not necessarily have to be expressed in XML messages and could, for example, also be rendered in JSON.
- **Rich and proven data model** – allows any user to create ISO 2022 messages and data structures including new contents in the business model to define the financial business concepts, processes, flows and inter-relations. The ISO 2022 repository contains reusable concepts and data components which could be reused to create a business data record in a distributed ledger.
- **Global interoperability** – ISO 2022 facilitates interoperability at three levels; business, syntax and semantics. Business interoperability enables organisations to seamlessly execute business goals and objectives. Syntax interoperability aligns the exchange of data between different applications in the right protocols and valid formats, while semantics interoperability ensures the consistent meaning of the information.

The surveys captured interesting opinions from the respondents on FinTech in the context of established technologies such as RTGS and CSD systems as well as new technological innovations such as contactless and mobile protocols, DLT and APIs that support financial transactions that connect with consumers. This paper focuses on examples of ISO 20022 for unifying emergent FinTech as follows:

- New Payments Platform (NPP), Australia - design and definition of common data structures to support interactive addressing service dialogues that enable resolution of beneficiary account identification through mobile numbers and email addresses. *Status: The NPP central infrastructure is on track to Go Live before the end of 2017.*
- Australian Securities Exchange (ASX) - ISO 20022 standards could facilitate interoperability between the messaging layers and dataset in a potential DLT service for Post Trade Services. It could also drive interoperability and alignment with other Australian market infrastructures like NPP whom have adopted ISO 20022.
- DLT and Smart Contracts for bonds - ISO 20022 business model and content are applied to automate the securities transaction lifecycle of bonds including auto-coupon payments to achieve interoperability between DLT/ SC platforms and other automation mechanisms. *Status: Proof of Concept (PoC).*
- DLT and APIs for nostro account reconciliation - business data set used for DLT and APIs are based on ISO 20022 to ensure data consistency between the ledger content and APIs and interoperability with banks' ledgers. This facilitates monitoring and management of intraday liquidity for efficient cross-border payments. *Status: PoC.*
- APIs for SEPA Instant Payments - payment data set used to exchange information between third party payment providers and account servicers by APIs and is based on ISO 20022 which would comply with the new European Payment Services Directive – PSD2. *Status: Prototype.*
- SWIFT gpi - the components used to define the API calls for payment status and tracking in gpi are ISO 20022-based. This fosters mapping with the corresponding ISO 20022 messages for which these API calls were defined and are operated. *Status: Production.*

## ISO 20022 for FinTech in the next five years

All respondents share the view that global adoption of ISO 20022 and user base growth will be abundant across the financial industry in the next five years. This is partly due to the expected increase of FinTech applications and continued integration with financial market infrastructures. Some experts also forecast that ISO 20022-based implementations will accelerate and become widespread, if not the norm, as the standard business language of choice in the next few years. Adoption will be driven by market demand together with regulation mandated by financial service authorities and industry stakeholders whom are likely to adopt international standards for global interoperability. This said, the experts anticipate there will be some challenges associated with harmonising standards and market practices.

## Impact of FinTech evolution on ISO 20022 standards

Thanks to the launch of the new Fast Track Maintenance Process in August 2017, ISO 20022 can provide increased value in tune with fast-paced FinTech developments. Contrary to the current yearly maintenance cycle of ISO 20022 standards which typically spans three quarters' of a year, this new accelerated process can be initiated at any time and may be reduced to as little as three months. This new agile submission and maintenance process reflects market demand which is partly driven by technological innovation. ISO 20022 is both a standard business language and technology enabler. To remain relevant, ISO 20022 must leverage evolving technologies and, in particular where these become the technologies of choice to support data exchange across the financial industry.

Discussion Paper



“Expect much broader global adoption of ISO 20022 in the next five years.”



Dr Gordon Clarke  
Managing Director,  
Monetics Pte Ltd



“I can see a wider adoption as more and more FinTech applications integrate with payment market infrastructures.”



George Voina  
Senior Software Engineer,  
Montran Corporation



“We see the market changing at an incredible pace. This requires standards to become far more agile.”



Kris Ketels  
Standards Tools and  
Methodology, SWIFT



“The use of common standards helps to rationalise the set of statuses, and the set of reason for statuses. The work done upstream by ISO enables reuse of business standards, and provides a common playground for the stakeholders (system vendors, corporates, banks), whatever the involved technologies.”



François Lemaire  
Biotos, SWIFT gpi Industry  
Challenge 2017 finalist

## Evolution of ISO 20022 standards

ISO 20022 standards keep up with the pace of new technological developments and better support fast-paced DLT and API-based technology innovations. Currently, the business layer of ISO 20022 standards are reusable. More work is being undertaken on the logical layer of ISO 20022 standards that define logical message definitions and the technical layer that defines physical syntax to optimally generate outputs in any required syntax timely. For example, while the ISO 20022 data models were created based on a messaging paradigm, their expansion must include concepts from DLT such as read and write permissions

Equally, in the areas of new addressing capabilities for real-time payments, ISO 20022 adoption is still evolving at the edges. This is giving rise to ISO 20022 recognising and incorporating concepts from compatible technologies such as JSON and API methodologies to meet certain needs for real-time data processing in financial markets.

The first ISO 20022 compliant API Resources are being developed and are estimated to be published by the Registration Authority around the change of year.

Lastly, since a number of FinTech innovations focus on financial inclusion which remains low in many parts of Asia Pacific, ISO 20022 standards will have to evolve to support more financial services for retail and small enterprise levels, such as mobile payments, crowd funding, Islamic finance to name a few. Unifying standards can be an enabler to expand financial inclusion and help mobilise untapped assets and provide finance access for unbanked and under-banked populations. To this end, wider inclusive community engagement and closer industry experimentation and collaboration are essential.

## Conclusion

FinTech innovation holds enormous potential value for the financial services industry by offering efficient and effective solutions. We have aimed to demonstrate how FinTechs that are thriving are those that are working together with the industry to complement and grow financial services across the entire ecosystem. This is not to suggest that FinTechs need to work directly together or to obtain funding from this ecosystem. The optimal way for a FinTech solution to be adopted is to display interoperability by leveraging the use of ISO 20022 standards for financial messaging.

The ISO 20022 standards process is becoming agile and embodies a rich structure that allows business growth for financial services. ISO 20022 is an open standard for the financial community and increasingly, the financial ecosystem. It fosters the appropriate level of disruptive growth and advocates innovation from a basis that seamlessly integrates legacy systems with the new wave of developments.

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“ISO 20022 is evolving to better support fast-paced DLT and API-based technology innovations.”



Alex Kech  
Head of Securities Market Infrastructures and FX, SWIFT



“ISO 20022 is recognising and incorporating compatible technologies such as JSON and API methodologies to meet certain needs for real-time data processing in financial markets.”



David Dobbins  
Standards Expert, SWIFT



“One could imagine rich data mining solutions responding to regulatory needs, because all business segments could be aligned across the different systems within an organisation.”



Tom Alaerts  
Standards Expert, SWIFT



## About SWIFT

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

Our messaging platform, products and services connect more than 11,000 banking and securities organisations, market infrastructures and corporate customers in more than 200 countries and territories, enabling them to communicate securely and exchange standardised financial messages in a reliable way.

As their trusted provider, we facilitate global and local financial flows, support trade and commerce all around the world; we relentlessly pursue operational excellence and continually seek ways to lower costs, reduce risks and eliminate operational inefficiencies.

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