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ISO 20022:
A COMPREHENSIVE APPROACH TO DATA MANAGEMENT

CONTENTS

Introduction

ISO 20022 is an international standard followed by financial institutions as it provides a common language for organizations to exchange information securely and efficiently. It is designed to improve communication between financial institutions and systems, enabling seamless and accurate data exchange.

This standard is based on the concept of a universal financial industry message scheme, allowing organizations to use a consistent set of definitions and rules for representing financial data. This ensures that all parties involved in a transaction can interpret the data in the same way, improving the accuracy and efficiency of financial operations.

A key aspect of the ISO 20022 standard is its focus on data management. The measure includes detailed guidelines for managing financial data, including how to structure, store, and exchange information consistently and safely.

This whitepaper will explore the principles and benefits of ISO 20022 data management and how it can help organizations improve their financial operations' accuracy and efficiency. We will also discuss the challenges and considerations involved in implementing ISO 20022 data management and provide some best practices for successfully adopting the standard.

ISO 20022 data management can provide many benefits for organizations. For example, by using a common language for financial data, organizations can improve the speed and accuracy of transactions, reduce the risk of errors and fraud, and enable more efficient and effective communication between different systems and parties.

Additionally, the ISO 20022 standard includes detailed guidelines for data governance, which can help organizations ensure that their financial data is accurate, complete, and compliant with regulatory requirements. This can mitigate the risk of regulatory penalties and improve financial information's overall quality and reliability.

However, implementing ISO 20022 data management can also take time and effort. Organizations may need to make significant changes to their existing systems and processes to comply with the standard and invest in new technology and training to support the transition.

Organizations should take a holistic and strategic approach to successfully adopt ISO 20022 data management. This may involve conducting a thorough assessment of their existing systems and processes, identifying gaps or weaknesses, and developing a comprehensive plan for implementing the standard.

Moreover, organizations should involve all relevant stakeholders in the process, including IT, finance, and operations teams, as well as any third-party partners or vendors who may be affected by the changes. Organizations can ensure that the transition is smooth and successful by involving all stakeholders and ensuring that everyone understands the benefits and challenges of ISO 20022 data management.

ISO 20022 data management provides a common language for financial data that can improve the accuracy and efficiency of transactions and help organizations comply with regulatory requirements. While implementing the standard can be challenging, a strategic and collaborative approach can help organizations successfully adopt ISO 20022 data management and reap the benefits of this powerful tool.

Payments constrained by poor data quality

Payments Challenges due to Poor Data Quality

Unstructured, incomplete, and inconsistent data constrain cross-border payments.

Inconsistent and inaccurate payment data interpretation due to poor-quality data from disparate sources may require manual intervention before processing.

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The existing payment system has served us well for several decades. With the SWIFT system, payment processing was transparent, with more than 40% of payments settled within five minutes. The next stage of transformation will come from better-quality data in those payments. This will further improve the efficiency, speed, and compliance of payments, enabling better customer experience and opportunities for new client services.

That said, cross-border payments today are constrained by unstructured, incomplete, and inconsistent data. This poor-quality data, sourced from a variety of clients and disparate domestic payment schemes, is subject to interpretation and can require manual intervention and repairs before processing. For example, SWIFT traffic shows 72-94% of party data fields in payments use free-format options with unstructured data to identify parties with potentially vague or missing critical information needed to effectively screen and process payments. Consequently, financial institutions cite up to 10% of payments that require manual intervention.

Moving to better quality data in payments is important, bringing significant benefits in increased automation, faster processing, more effective reconciliations, improved mitigation of financial crime risk, and better data-driven insights on the purpose and context for payments.

Better data is also a platform for innovation, enabling banks and third parties to offer new, value-added services for customers. Improvements in data need to happen consistently and in an end-to-end manner across client payment initiation, domestic payment systems, financial institutions, and their payment providers.

To realize these benefits, there is a requirement for a modern data standard that is data-rich, ensures consistent interpretation, and is widely accepted. ISO 20022 is that standard. It is an open international data standard adopted worldwide for domestic payments systems and will be adopted by Financial Institutions and Payment service providers for cross-border payments and reporting.

An urgent need for quality data

Financial institutions and their payments businesses are under increasing pressure from competing incumbents, new entrants, and from regulators demanding increased transparency, compliance, and security. The license to operate is getting progressively complex and costly. The need for better quality data in payments is urgent and brings several significant benefits:

Benefits of Better Quality Data in Payments

Promotes automation	Provides better insights into the business purpose of payment	Offers valuable insights about customer behavior and choices	Effective screening, compliance, and AML process	Enables payment scenarios such as 'Payment on Behalf of' (POBO)

- It enables counterparties, intermediaries, and beneficiaries to increase automation in payments processing and reconciliation, reducing costly manual interventions, and improving visibility on cash flows and cash positions.
- It provides banks with better insight into the business purpose of payment, enabling improved value-added services to be offered.
- It enables businesses as payment users to gain more insight from their payment data pertaining to the behaviors and choices of their own customers.
- More complete and accurate party data leads to more effective and efficient screening, compliance, and anti-money laundering (AML) processes.
- It enables payment scenarios such as 'Payment on Behalf of' (POBO) to be fully supported, avoiding complex workarounds.

Better payments data cannot be achieved by any one institution alone; it must be adopted in a coordinated way across the payments ecosystem. Comprehensive, well-structured, and correctly labeled data must be sourced from clients at the point of payment initiation and carried across payment systems and correspondents in a consistent manner. This will avoid instances of data truncation, misinterpretation, and, ultimately, breakdown of the quality of service.

Better quality data and ISO 20022 assist in addressing all these issues. Financial Institution and Payment services companies that adopt ISO 20022 early will be positioned to improve and defend their competitive advantage.

Data Management for ISO 20022

ISO 20022 provides a rich data dictionary, beyond current MT and proprietary standards. To store, process, and serve rich data elements to internal consumers and clients will require financial institutions to conduct a strategic and systematic evolution of their channels and transaction processing architecture.

Short-term, stop-gap translation solutions for SWIFT and domestic payment systems will be complex and inefficient and will not yield benefits for either financial institutions or their clients. As best practice, a data quality program should be established that takes inventory of domestic and SWIFT payment schemes evolving to ISO 20022.

The initiative should then design an enterprise data model for the institution, rally internal and vendor resources, and define new client propositions and success metrics. Finally, it should sequence and execute a long-range change roadmap to achieve better-quality data.

It is important to note that all users, including those not planning to adopt ISO 20022 immediately, are still responsible for compliance screening of the full transaction data. Users can have full transaction data screened by the platform before the transaction data is delivered for processing. Alternatively, the user may opt to screen transaction data locally.
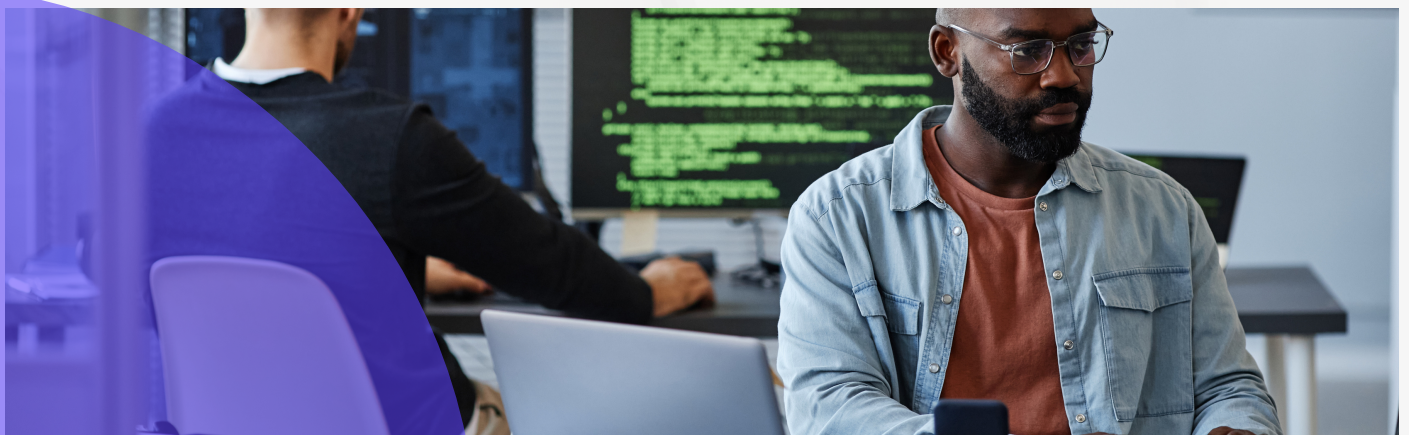
Monetizing Payments Data

Financial Institutions and Payment service providers can use payments data to generate insights into consumer purchasing behavior, and by coupling the insights with an understanding of emerging macro trends, payments firms can provide better service to customers—from fraud detection to spending insights. They can also go a step further by capturing emerging opportunities to extract value through monetizing the data internally or through third parties. These opportunities extend beyond the boundaries of the traditional payments business and require providers to take advantage of distinctive data sets and apply advanced analytics techniques. Payments providers that get this right can tap into various benefits, from reaching previously unserved customer segments to opening up new revenue streams through product cross-selling. Capturing these benefits will involve taking strategic steps such as building partnerships and alliances to strengthen existing data or exploring how to future-proof the business as new trends such as peer-to-peer and mobile payments take hold.

Payments providers are uniquely positioned to pursue emerging opportunities because they have insights into merchants and consumers and can bridge the gap between them by providing incentives to influence consumers' choice of merchants. On the other hand, they also face challenges, such as operating successfully within data privacy constraints and dealing with data ownership disputes. Finding solutions will require a thoughtful and gradual approach, starting with the data that is easiest to obtain and shows promise for value.

Sources of Data

Financial Institutions and payment service providers have two types of customer data:

- **Line-of-business (LOB) data owned by a particular part of the business**
- **Common data, which falls into two groups: enterprise-level data and supplemental data.**
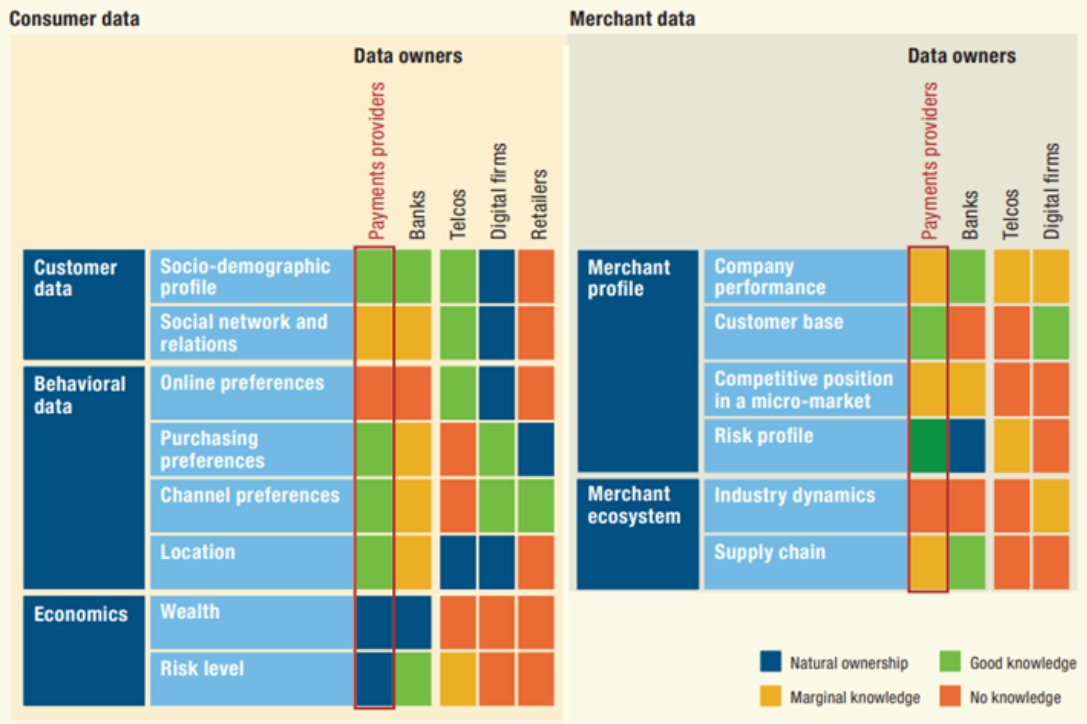
Enterprise-level data consists of the same elements as LOB data—customer preferences, needs assessments, and so on—but spans the organization and, in most evolved enterprises, is drawn from a single source, such as a data lake. Supplemental data ranges from raw data derived from external sources such as social media, weather data, and digital IDs to synthesized, value-added analytics captured through predictive modeling, sentiment analysis, and so on.

Financial Institutions and payment service providers can capture the greatest value and insight by adding supplemental data to their existing internal data. Up to now, Fintech companies have mostly sought to cooperate with existing payments providers and banks by providing third-party services rather than posing a direct threat to their business. However, payment providers would be well advised to explore the possibility of bringing these capabilities and services in-house, given the value they could deliver, especially when squeezed margins and commoditization put pressure on returns from traditional payment services. Moves toward open banking through PSD2 in Europe and similar initiatives can also be seen as a call to action, since they make access to payment data easier for third-party players who do not own primary client relationships.

On a more positive note, an analysis of the relative strengths of payments providers, banks, telecom companies, retailers, and digital firms in terms of their access to customer and merchant data shows that payment providers are well-placed to capture emerging data monetization opportunities.

Payments providers may hold less information on consumers than digital players, but they have more data on merchants. Compared with banks, they have less data on merchants but more on consumers. And payment providers have better overall access to data than either telecoms or retailers. The greatest potential of data monetization is probably from merging cardholder data with data from the merchant side to gain an end-to-end view of transactions that can unlock additional value. The opportunities include coupling consumers with preferred merchants, channels, and potential products; geo-referring transactions to identify a customer's location; and understanding the dynamics of local markets at a sub-postal code level. The payments providers best placed to capture these opportunities are those with a large market share in both issuing and acquiring in specific markets or those acting on one of the "legs" that can develop effective partnerships with players strong on the other "leg": for instance, a large merchant acquirer partnering with a primary issuing bank.

Exhibit 1

Payments providers have particularly good access to consumer and merchant data

Consumer data

Data owners		Payments providers	Banks	Telcos	Digital firms	Retailers
Customer data	Socio-demographic profile	Good knowledge	Good knowledge	Good knowledge	Natural ownership	No knowledge
	Social network and relations	Marginal knowledge	Good knowledge	Good knowledge	Natural ownership	No knowledge
Behavioral data	Online preferences	No knowledge	Good knowledge	Good knowledge	Natural ownership	No knowledge
	Purchasing preferences	Good knowledge	Good knowledge	Marginal knowledge	No knowledge	Natural ownership
	Channel preferences	Good knowledge	Good knowledge	Marginal knowledge	Good knowledge	Good knowledge
	Location	Good knowledge	Good knowledge	Natural ownership	Natural ownership	Good knowledge
Economics	Wealth	Natural ownership	Natural ownership	No knowledge	No knowledge	No knowledge
	Risk level	Natural ownership	Good knowledge	Marginal knowledge	No knowledge	No knowledge

Merchant data

Data owners		Payments providers	Banks	Telcos	Digital firms
Merchant profile	Company performance	Marginal knowledge	Good knowledge	Marginal knowledge	Marginal knowledge
	Customer base	Marginal knowledge	No knowledge	No knowledge	Good knowledge
Merchant ecosystem	Competitive position in a micro-market	Marginal knowledge	Marginal knowledge	No knowledge	No knowledge
	Risk profile	Good knowledge	Natural ownership	Marginal knowledge	Marginal knowledge
	Industry dynamics	No knowledge	No knowledge	No knowledge	No knowledge
	Supply chain	Marginal knowledge	Good knowledge	No knowledge	No knowledge

Legend:
- Natural ownership
- Good knowledge
- Marginal knowledge
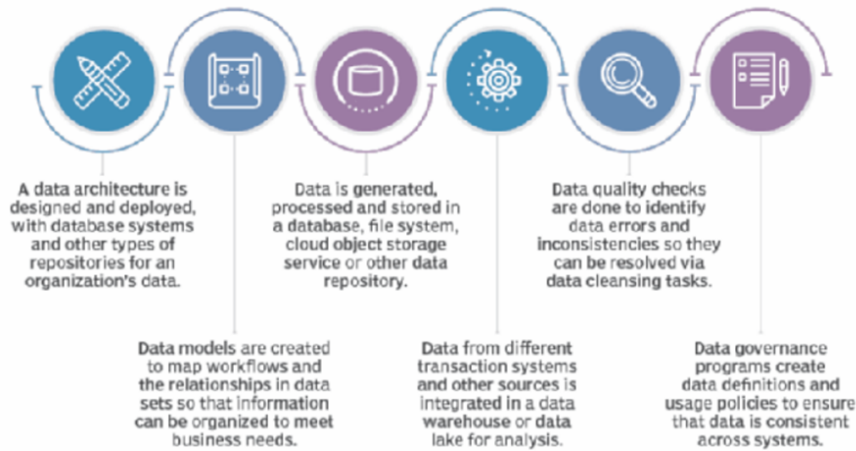- No knowledge

Source: McKinsey analysis

Data Management Functions

FiThe data management process covers a series of steps, from data processing and storage to governance of how data is formatted and used in operational and analytical systems. Development of a data architecture is often the first step, particularly in large organizations with lots of data to manage. An architecture provides a blueprint for the databases and other data platforms that will be deployed, including specific technologies to fit individual applications.

Databases are the most common platform used to hold corporate data; they contain a collection of organized data so it can be accessed, updated, and managed. They're used in both payment processing systems and data lakes.

Database administration is a core data management function. Once databases have been set up, performance monitoring and tuning must be done to maintain acceptable response times on user queries to get information from the stored data. Other administrative tasks include database design, configuration, installation, and updates; data security; database backup and recovery; and application of software upgrades and security patches.

Key parts of the data management process

A data architecture is designed and deployed, with database systems and other types of repositories for an organization's data.

Data is generated, processed and stored in a database, file system, cloud object storage service or other data repository.

Data quality checks are done to identify data errors and inconsistencies so they can be resolved via data cleansing tasks.

Data models are created to map workflows and the relationships in data sets so that information can be organized to meet business needs.

Data from different transaction systems and other sources is integrated in a data warehouse or data lake for analysis.

Data governance programs create data definitions and usage policies to ensure that data is consistent across systems.

Data Management Best Practice

A strong focus on data quality

Equal involvement of business executives and users

Make informed decisions about the data architecture design, evaluation, and selection of technologies

IT and data managers must align data systems with the intended purpose of an organization's business operations

A well-designed data governance program is critical to effective data management strategies, especially in organizations with distributed data environments that include diverse systems. A strong focus on data quality is also a must. In both cases, though, IT and data management teams can't do it alone. Business executives and users must be involved to ensure their data needs are met and data quality problems aren't perpetuated. The same applies to data modeling projects. Also, the multitude of databases and other data platforms available to be deployed requires a careful approach when designing a data architecture and evaluating and selecting technologies. IT and data managers must be sure the systems they implement are fit for the intended purpose and will deliver the data processing capabilities and analytics information required by an organization's business operations.

Techwave Data Management Services

Our team of experienced professionals includes data architects, data modelers, database administrators (DBAs), database developers, data quality analysts and engineers, data integration developers, data governance managers, data stewards, and data engineers. We offer a full range of solutions to help businesses of all sizes better manage and utilize their data.

Techwave Data Management Services

| Data Modeling | Data Integration | Data Governance | Data Quality Management | Master Data Management |

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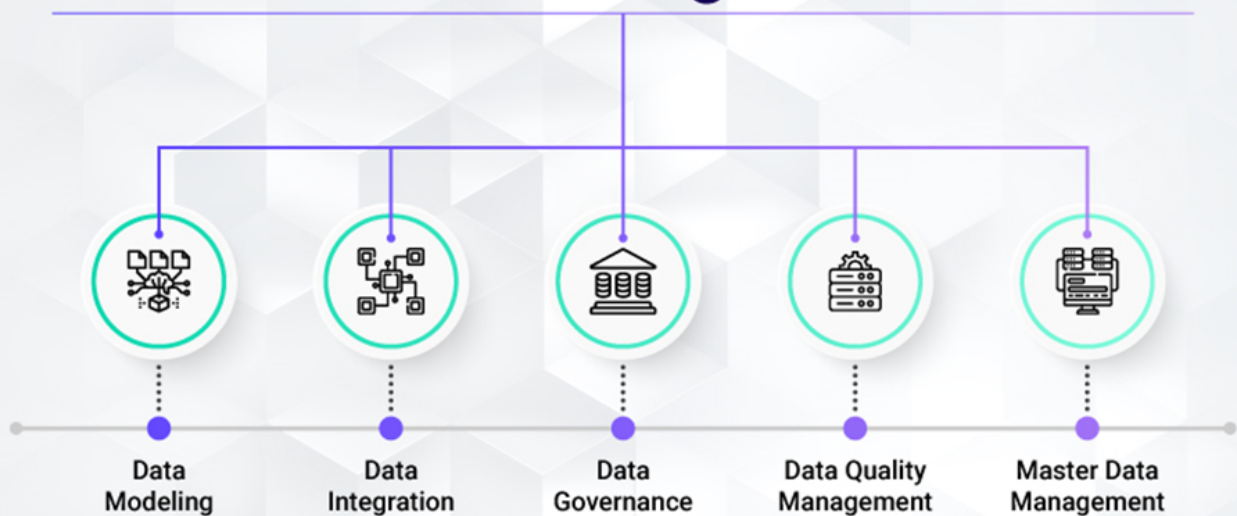
DATA MODELING:

Establish the relationships between data elements and how data flows through payment systems
Data Integration: Extract data from different data sources for operational and analytical uses.

DATA GOVERNANCE:

Sets policies and procedures to ensure data is consistent throughout an organization
Data Quality Management: Fix data errors and inconsistencies.

MASTER DATA MANAGEMENT:

Create a common set of reference data on Customers, Merchants, Country specific payment schemes, etc.

At Techwave, we understand the importance of data and its role in driving business success. That's why we are committed to providing high-quality data management services that help businesses optimize their data management processes and gain a competitive advantage.

Our team of data management professionals has extensive experience in the field and is well-versed in the latest technologies and techniques for organizing, storing, and analyzing data. We work closely with our clients to understand their unique needs and challenges and tailor our services to fit their specific requirements.

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