CHALLENGES AND OPPORTUNITIES IN IMPLEMENTING ISO 20022 FOR INTERNATIONAL REMITTANCE: A CASE STUDY OF BIDV

The 13th International Conference on Emerging Challenges: Business Dynamics in Disruptive Economy

Huong-Linh Le[1*] and Hoang Van Hieu[1]

[1] International School, Vietnam National University Hanoi, Vietnam

[*]Corresponding author: linhlh@vnuis.edu.vn

Abstract

The global adoption of ISO 20022 by SWIFT is reshaping payment systems, urging financial institutions and corporate clients to adapt swiftly and sustainably to evolving standards, ensuring timely implementation and long-term operational benefits.

Research purpose:
This study explores ISO 20022 adoption at BIDV, identifying key challenges and benefits, and proposes a strategic roadmap with practical guidelines to support other Vietnamese financial institutions in implementing similar modernization initiatives.

Research motivation:
SWIFT's global adoption of ISO 20022 requires financial institutions to adapt. In Vietnam, banks like BIDV face challenges, including legacy systems and limited expertise, which lead to message rejections, data loss, and reconciliation issues. Yet, practical implementation research remains scarce, especially in developing economies undergoing similar remittance system transitions.

Research design, approach, and method:
This research employed a mixed-methods approach, comprising case studies, surveys, interviews, and SWOT analysis, guided by the Technology Acceptance Model (TAM) to assess user perceptions before and after the implementation of ISO 20022. BIDV ultimately selected the bridged translation model as the most feasible solution for a smooth system transition.

Main findings:
ISO 20022 adoption significantly improved operations at BIDV, enhancing message quality, efficiency, and compliance. Rejection rates fell from 9.2% to 1.4%, manual effort dropped 60%, and processing time decreased from 2.6 to 1.5 hours. Over 60,000 MX messages were processed, with 75% staff satisfaction in Q4 2023.

Practical/Managerial Implications
This thesis offers practical recommendations, highlighting phased implementation, cross-department coordination, and stakeholder training. It suggests permanent resource allocation, quarterly supervision, and proactive risk management to support sustained efficiency and ensure compliance in modernizing international remittance systems.

Keywords: *ISO 20022, International Remittance, SWIFT, BIDV, Technology Acceptance Model, Bridged Translation.*

1. INTRODUCTION

The contemporary financial landscape is characterized by relentless change and market forces demanding immediate adaptation. The global payment infrastructure is undergoing a significant transformation, driven by the shift towards the ISO 20022 standard. ISO 20022 is the international standard for financial information, designed by the Society for Worldwide Interbank Financial Telecommunication (SWIFT). It introduces consistent, rich, and structured data that enhances operational efficiency, improves the customer experience, and enables innovative new services, aligning directly with the conference's focus on leveraging technology to drive innovation and to improve competitiveness.

For large incumbent firms, this migration is a necessary adaptation to avoid being challenged and overthrown by innovative approaches. BIDV, as one of Vietnam's largest state-owned commercial banks handling over USD 15 billion in cross-border remittance transactions in 2022, faces the challenge of adapting its core service offerings to this disruptive technology. Traditionally relying on the legacy SWIFT MT format, BIDV encountered limitations such as data truncation, high message rejection rates (9.2% before adoption), and reconciliation inefficiencies as volumes grew.

Foreseeing the necessity and opportunity, the BIDV Payment Center strategically planned to adopt ISO 20022 starting in 2021. This case study provides a rigorous analysis examining the impact of disruptive technologies on banking operations within a developing economy context. Crucially, a gap exists in practical research supporting effective implementation, particularly for banks in Vietnam that must overcome challenges such as legacy IT systems and limited local benchmarks for this massive transformation. This research addresses how such an organization can effectively plan for and execute a phased implementation to achieve sustainable competitive advantage and operational resilience.

This research aims to establish the relationship between the impact of adopting the ISO 20022 standard and the strategic migration method chosen by BIDV to improve the performance and resilience of its international payment system. The study addresses key challenges faced by financial incumbents adapting to disruptive technology through three primary research questions:

1. What are the primary challenges the BIDV Payment Center faces in adopting and implementing ISO 20022 for international remittance services? (Focus on challenges of technology adoption and integration)
2. What strategic and operational benefits is ISO 20022 expected to deliver for BIDV's international payment operations? (Focus on business dynamics and value creation)
3. How can financial institutions in Vietnam effectively plan for and execute ISO 20022 implementation? (Focus on strategies for incumbent firms to adapt)

The study's objectives are designed to analyze the limitations of legacy business models, explore the technical and organizational challenges encountered during the 2021-2023 adoption period, assess the resulting enhancements in payment quality and process automation, and finally, develop a strategic roadmap and proposed recommendations to foster organizational resilience in similar financial institutions.

The research focuses specifically on the adoption and implementation of the ISO 20022 messaging standard within the context of international remittance services at the BIDV Payment Center. This concentration allows for a detailed case study analysis of internal operational, technical, and managerial dimensions, critical components of managing disruptive change. The study utilizes a mixed-methods approach combining in-depth case study analysis, structured surveys (targeting 50 key staff members), and SWOT analysis. The foundational framework utilized is the Technology Acceptance Model (TAM), adapted to evaluate user perception and organizational factors influencing the successful adoption of this transformative technology. The scope covers the critical 2021-2023 implementation period, including analysis of the immediate post-implementation outcomes in Q4 2023, which confirmed that the chosen bridged translation model was the most feasible strategic solution for managing operational risk during the co-existence phase. The results provide valuable insights into managing business dynamics in the face of mandated technological change in an emerging market.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. The Concept of ISO 20022

ISO 20022, also known as the MX format, was established in 2004. The origins of ISO 20022 stem from the messaging standard ISO 15022, developed in the 1990s and also known as the MT message format. In 2004, the scope was broadened to include all financial services to form the ISO 20022 – Universal financial industry message scheme (abbreviated to ISO 20022). The migration to ISO 20022 is a phased process, which started in March 2023 with the introduction of CBPR+, and was gradually expanded to include additional use cases. ISO 20022 is the most advanced global standard for financial information, which was created by the Society for Worldwide Interbank Financial Telecommunication (SWIFT). It provides consistent, rich, and structured data that can be used for every kind of financial business transaction.

According to Agarwal (2022), ISO 20022 is a global standard for financial messaging that aims to standardize electronic data interchange between financial institutions. It provides a more structured way of exchanging data for financial transactions, including payments, securities, and trade services (Oliphant, 2023). This standard creates a common language for payment data across the globe, enabling faster processing and improved reconciliation. The richer and higher-quality data means much more detailed information about the payment is available (Financial Times, 2022).

Dutta (2023) argued that, in addition to greater payment processing efficiency and lower costs and risks, the richer messaging enabled by ISO 20022 promises to unlock a range of new commercial opportunities. One of the most frequently

reported benefits is the improvement in Straight-Through Processing (STP) rates. For example, Deutsche Bank noted a reduction in payment repair cases by over 15% after introducing ISO 20022-compliant payment flows, as the structured data format minimized the need for manual intervention. Financial institutions such as HSBC reported lower rejection and inquiry rates for cross-border payments post-implementation, due to ISO 20022's ability to carry complete and unambiguous information about the payer, payee, and transaction purpose. Furthermore, JPMorgan Chase implemented ISO 20022 with large corporate clients. He reported a reduction of 25–30% in client-side reconciliation exceptions, as reference details like invoice numbers could be transmitted in a standardized field. Banks operating in high-regulation environments (such as the EU or Singapore) have reported increased accuracy in sanctions screening and Know-Your-Customer (KYC) checks following ISO 20022 implementation. For instance, Standard Chartered Bank used structured party information in MX messages to automate certain aspects of its anti-money laundering (AML) screening processes, improving efficiency and lowering false favorable rates.

2.2. Electronic Funds Transfer Payment

An electronic funds transfer (EFT) transfers money between people, banks, and companies. EFT payments are considered safer and faster than traditional paper-based methods, such as checks and cash (Hintze, 2022). EFT payments usually consist of two parties: an initiator/debtor and a beneficiary/creditor. When the debtor sends funds to the beneficiary, that payment goes through the appropriate payment network, and the funds will be transferred from the debtor's account to the creditor's account. Many types of EFT payments exist, such as ATM transactions, electronic bank payment orders, and e-wallets (Dalton, R., Smith, & Nguyen, 2024).

The process starts with a debtor executing a payment initiation message to its bank. Each message will contain one or more instructions and several payment orders to pay the beneficiaries. This message includes information necessary for the debtor and beneficiary banks to process the transaction and transfer the funds, along with the involvement of intermediary banks (if any), to the beneficiary's bank account. The data includes information from the initiating party, the payment beneficiaries, addresses, currencies, amounts, intermediaries (if any), bank details, value dates, charges, and remittance information, among others (Fung, Molico, & Stuber, 2014).

2.3. Technology Acceptance Model Theory

The Technology Acceptance Model (TAM) is a widely recognized framework for understanding how users come to accept and use technology. TAM suggests that two primary factors influence technology adoption: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU).

According to Hancock (2020), PU refers to the degree to which bank stakeholders believe the new standard will enhance their payment processing and overall business performance. This construct can be assessed by questions regarding whether implementing ISO 20022 improves the efficiency of international payment processing or customer satisfaction. The PEOU factor relates to how easily stakeholders within a bank can understand, implement, and use the ISO 20022 messaging standard. Training programs, standardized tools, and the experience gained from successful ISO 20022 adoption in other banks can improve ease of use. Banks that have adopted ISO 20022, such as JP Morgan Chase and Deutsche Bank, often report that the long-term benefits, such as improved cross-border payment processing speeds, enhanced regulatory compliance, and the ability to manage large transaction volumes, outweigh the initial transition challenges.

2.4. ISO 20022 Compared to Other Standards and Formats

For an EFT payment to be processed electronically, messages must follow a set of required rules, defining what data needs to be provided and how it needs to be structured based on a common standard (Major & Mangano, 2020). The financial landscape currently features multiple standards for the same purpose. For a single EFT payment, multiple formats or standards can be used throughout the flow, especially in cross-border payments where intermediary banks are involved (Poser, 2019). This fragmentation results in the need to translate and transform, enrich, and truncate data, which may lead to a degradation of data quality (Constantino, São Mamede, & da Silva, 2024).

The ISO 20022 migration strategy is phased over three years, starting in November 2022 with a co-existence between ISO 15022 and ISO 20022 until November 2025 (SWIFT, 2021). Corporations can continue to send payment instructions in legacy formats (e.g., MT103) until November 2025 (Mellon, 2021). A key reason that a new messaging standard is necessary is that the ISO 15022 MT standard is no longer suitable because its limited data-carrying capabilities cannot meet modern regulatory requirements, which demand much more data (Accenture, 2021).

If a conversion needs to occur from ISO 20022 to ISO 15022, some elements will likely be truncated or even left out. Banks may require elements taken into the bank's backend system and ignore other components, even when the ISO 20022 schema allows them (Mäenpää, 2015).

2.5. The Component of ISO 20022 Message

The ISO 20022 XML message is a description of all the information needed to perform a specific business activity (Quibria, 2015). The message format description is contained in an XML structure, which is machine-readable. This structure means that the implementation of new messages or changes to existing messages requires less manual effort (Debit, 2023).

2.6. Theoretical Gap in Existing Literature

Despite the critical global relevance of ISO 20022, the academic discourse surrounding its adoption remains limited in both scope and depth. Existing literature is predominantly produced by industry organizations (SWIFT, 2021) and consulting firms (McKinsey & Company, 2019), providing technical overviews and implementation checklists, but lacking theoretical grounding.

A review of academic databases shows that most ISO 20022-related studies are centered on developed financial markets. For example, De la Rosa (2018) discussed the impact on cross-border payment standardization in the European Union. Similarly, Hassan (2021) examined operational efficiencies gained in banks within the SWIFT Eurozone framework. These studies assume the presence of advanced IT systems, mature regulatory environments, and high institutional capacity, assumptions that do not necessarily apply to banks in emerging economies.

This creates a significant gap in the literature. There is no comprehensive, theory-informed academic study evaluating ISO 20022 implementation from both a technological and behavioral perspective, especially in a developing country context. At the time the author conducted the thesis, there were no studies examining the opportunities and challenges of implementing ISO 20022 in Vietnamese banks.

2.7. Success Factors and Potential Challenges Faced by Banking Institutions When Adopting ISO 20022 for Payments

Adoption success is contingent upon defined rules being consistently applied and comprehensive, exceeding the minimum mandatory fields (Wandhöfer, 2015). Success relies on the data set being supported by all parties in the payment chain.

A foreseeable challenge is related to the continuous evolution of ISO 20022 through periodic rulebook changes and updates known as SWIFT Standard Release (Schmidt, 2020).

Challenges and opportunities for adoption include:

Challenges: High implementation costs (e.g., Deutsche Bank allocated millions to overhaul systems), complexity in system integration (e.g., HSBC aligning outdated systems), lack of skilled personnel, and regulatory/regional differences.

Opportunities: Enhanced data quality and richness (e.g., BNP Paribas leveraging enriched data), improved customer experience, regulatory compliance, and support for innovation (e.g., ING Bank developing value-added services).

Many banks have been slow to implement ISO 20022 due to legacy system constraints, high transition costs, and alignment complexity (Schmidt, 2020). BIDV faced significant obstacles because its core banking system dated back to the 2000s. However, BIDV made the strategic decision to upgrade its core banking system in parallel with the ISO 20022 implementation. This parallel upgrade is compatible with the ISO 20022 format and ensures that BIDV can process structured and detailed transaction messages with minimal data loss.

SWIFT (2021) suggests solutions such as phased implementation and enhancing collaboration between banks and fintech firms. BIDV applied a phased implementation based on the Board of Directors' vision. JP Morgan's structured approach to modernization, interoperability, and compliance can serve as a model for BIDV, relying on advanced technology and strong data analytics. However, BIDV must tailor its approach by focusing on phased implementation, staff training, and scalable infrastructure upgrades to address its unique challenges, including legacy systems and resource constraints.

3. METHODOLOGY

3.1. Research Design and Approach

The research employed a mixed-methods approach, combining both qualitative and quantitative techniques to gather comprehensive data. The qualitative approach focused on staff from relevant departments, the Payment Center, the IT department, and the Digital Banking Center, to gain in-depth insights into challenges and opportunities. The quantitative technique was utilized to collect and analyze feedback from BIDV staff regarding the measurable impact of ISO 20022 implementation on the payment system.

The research process involved a sequence of steps: collecting data via online surveys and interviews, analyzing and interpreting the data, and drawing conclusions based on the analysis. The overall methodology was structured to address the four specific research objectives through targeted methods: (1)Analyze the Current State: Employing a Case Study method to detail the real situation of applying the ISO 20022 standard in Vietnamese and international banks; (2) Identify Challenges: Using Qualitative interviews and discussions to gather reliable feedback on implementation obstacles from project personnel; (3) Evaluate Opportunities: Using Qualitative interviews and discussions to capture the future strategic opportunities BIDV could achieve post-implementation; (4) Recommend Strategies: Utilizing SWOT analysis to systematically review every project aspect and provide suggestions for the next phase.



Fig. 1. The research process

Source: Compiled by authors

3.2. Data Collection Methods

The study employed two primary data collection methods: surveys, Qualitative Interviews, and Focused Group

Discussions, as well as secondary sources.

Survey

The online survey was the primary source of quantitative data. It was specifically designed to be economical, speedy, and practical. Crucially, the online format allowed respondents to maintain their anonymity and privacy, which encouraged more accurate responses.

The survey sample constituted the entire population (a census approach) of 50 officers directly involved in the ISO 20022 project. This population included 30 International Remittance officers from the Payment Center and 20 IT Developers and Support Officers from the Digital Banking Center. The Remittance officers were specifically targeted because their daily work involved executing funds disbursement, handling rejections, fees, inquiries, and bank statement reconciliation, giving them the most objective view of the process. The response rate was 100%, with all 50 copies sent out being returned and qualified for data collection.

The survey was structured around constructs adapted from the Technology Acceptance Model (TAM) and supplemented with items from prior ISO 20022 adoption studies to evaluate staff-level acceptance, readiness, and adaptation to the new system. The initial draft was validated by an academic supervisor and a BIDV project manager and subsequently refined after a pilot test with five staff members. The survey used a 5-point Likert scale and was organized into four key sections: general awareness, implementation readiness, expected benefits/business impact, and IT infrastructure/integration challenges.

Qualitative Interviews

Qualitative interviews were conducted to gather additional, deeper information that the structured survey could not cover. Interviews were held with strategically important respondents, identified as crucial to the organization's internal control system. These interviews used both open-ended and closed questions; open-ended questions allowed respondents to provide more contextual information, leading to a "deeper understanding" of the transition.

To ensure trustworthiness, the interview guide was reviewed by two internal managers at BIDV and an academic advisor. Interview findings were audio-recorded and subject to triangulation, cross-validation with survey responses, and internal documentation. Interviews targeted management, IT staff, and service operators to explore challenges (technical, financial, regulatory) and perceived benefits (efficiency, performance, strategic value). For instance, interviews revealed BIDV's strategic decision to upgrade its core banking system in parallel with ISO 20022 adoption to enhance performance.

Focused Group Discussions

Focus group discussions were also organized with the Payment Center and Digital Banking Center teams to gather broader perspectives on common challenges and strategic advantages.

Table 1. Interview questions for project leaders and key staff of the BIDV ISO20022 implementation team

Objectives	Interview Questions
1. Analyze the Current State of ISO20022 Adoption	- What steps has BIDV Payment Center taken so far in the adoption of ISO20022 for remittance services?
	- What is the current progress of ISO20022 implementation?
	- What milestones have been achieved in the implementation process?
	- Are there any areas where the implementation is lagging? If so, why?
	- How do you evaluate the current readiness of BIDV for full ISO20022 adoption?
2. Identify Challenges in the Implementation Process	- What technical challenges have you encountered during the adoption of ISO20022?
	- How has the transition to ISO20022 impacted financial and operational processes at BIDV?
	- What regulatory or compliance challenges have you faced during the implementation?
	- Are there any internal organizational challenges that are slowing down the adoption process?
	- How has staff training and adaptation to the new system been managed?
3. Evaluate the Opportunities Presented by ISO20022	- What do you see as the most significant opportunities for BIDV in adopting ISO20022?
	- How do you think ISO20022 will improve international remittance services?
	- What competitive advantages do you expect ISO20022 to provide in the market?
	- How do you believe this system will enhance customer service and satisfaction?
	- Do you see any long-term strategic benefits of adopting ISO20022 for BIDV?
4. Recommend Strategies for Successful Implementation	- What strategies have been implemented to address the challenges of adopting ISO20022?
	- What additional measures can be taken to ensure a smooth transition to ISO20022?
	- How can BIDV better prepare its staff for the full adoption of ISO20022?
	- What external resources or partnerships could be leveraged to improve implementation success?
	- How do you envision overcoming the regulatory or compliance challenges faced

	during the process?

Source: Compiled by authors

Secondary Data: The secondary data is collected from BIDV's internal and public reports, as well as website information.

3.3. Specific Research Methods

Case Study Method

The case study method was applied to analyze the current state of adoption (Objective 1). Data collection involved document analysis of internal reports, technical documents, implementation plans, and progress reports. Comparative insights were gained by collecting and analyzing internal ISO 20022 adoption reports from global institutions like JPMorgan Chase, Citibank, and Deutsche Bank to provide useful context for BIDV's implementation.

SWOT Analysis

A SWOT analysis was utilized for Objective 4 (recommending strategies). The SWOT analysis was applied as a separate managerial assessment tool of the TAM model. Data collection for the SWOT involved conducting interviews and surveys with key stakeholders, including the project team leader (Head of the Payment Center) and five key staff members (Heads of Departments). The rationale was to systematically identify internal strengths and weaknesses, alongside external opportunities and threats, to guide the development of actionable recommendations. The SWOT analysis was conducted between August and September 2023.

Table 2. Summary of research method and research objectives

Research method	Research Objective	Research Objective Summary
Case study method	1. Analyze the Current State of ISO20022 Adoption)	The case study method helps to point out the real situation of applying the ISO20022 standard in payment messages in Vietnamese banks and other international banks.
Qualitative interview and discussion	2. Identify Challenges in the Implementation Process	Interviews and discussions with the people who are in charge of the project would bring the most reliable feedback about some obstacles for the team during the process
Qualitative interview and discussion	3. Evaluate the Opportunities Presented by ISO20022 Adoption	These methods also provide a future view after research and review of the team about some opportunities that BIDV can achieve after the implementation of ISO20022.
SWOT analysis	4. Recommend Strategies for Successful Implementation	SWOT analysis is a powerful tool for reviewing every aspect of the project, providing better suggestions for the next phase or feedback to the legacy.

Source: Compiled by authors

4. RESULTS AND DISCUSSION

4.1. Before the Implementation of ISO 20022 at BIDV

Before adopting the ISO 20022 standard, BIDV's international remittance operations, which primarily relied on the SWIFT Message Text (MT) format, faced several critical inefficiencies that required significant manual effort.

Payment Rejections and Inquiries: The high volume of payment rejections and inquiries resulted in additional manual work, fees, and delays. Survey data from 30 Payment Center staff showed that more than half (53%) dealt with five to ten rejection cases daily, while 20% processed over ten cases. This issue stemmed primarily from the MT format's limitations, including its reliance on free-text fields and strict character limits (e.g., 35 characters for account names), leading to unavoidable data truncation. It was conservatively estimated that 30 officers spent approximately 59.5 hours per day resolving errors and handling exceptions manually.

Difficulty in Managing Payment Message Formats: The limited character capacity of the MT format (35 characters per line, four lines maximum for key details) presented a considerable obstacle for staff trying to submit complete customer information. Nearly half of the respondents were dissatisfied with the MT format due to frequent truncation cases requiring manual processing and additional costs for amendments. Manual data entry, coupled with the unstructured nature of ISO 15022 messages, often led to errors in critical fields, such as account numbers or SWIFT codes, resulting in failed transactions.

Inexistence of Controls: The MT message format lacked proactive controls to detect potential issues during payment execution, leading to frequent mistakes. This issue was clearly recognized by staff: 57% of respondents either disagreed (30%) or strongly disagreed (27%) that controls existed to detect potential issues while processing payment messages proactively.

Inefficient Bank Reconciliation Process: The bank reconciliation process was inefficient due to a lack of consistent cross-references between payment instructions and electronic bank statements. Only 34% of staff agreed that the reconciliation process was efficient, while 37% disagreed. The free-text fields in ISO 15022 messages made it difficult to consistently

extract and match payment details, requiring tellers to manually read and interpret payment details, errors, and different formatting styles.

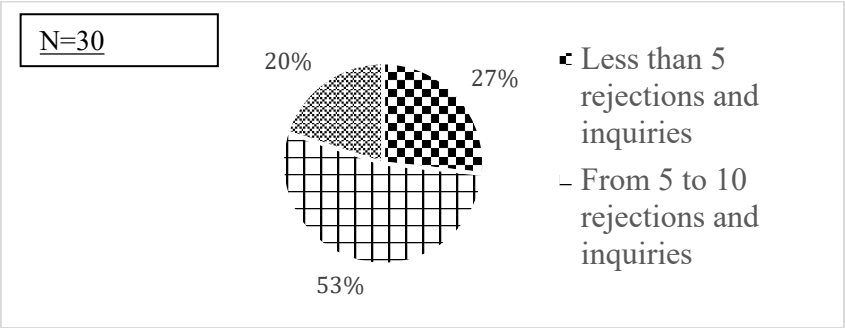


Fig.2. Number of payment rejections and inquiries received per day for the BIDV Payment Center teller

Source: Compiled by authors

4.2. The Adoption and Implementation Plan of BIDV

Recognizing these inefficiencies and aligning with the global SWIFT roadmap (which dictates a coexistence phase until November 2025, followed by mandated ISO 20022 usage), BIDV began planning for ISO 20022 adoption in early 2021.

SWIFT Migration Approaches and BIDV's Selection: BIDV evaluated three primary migration approaches:

1. Full Migration: Required a complete infrastructure overhaul and high initial investment (approx. USD 224,000, 1.5 years) with high technical risk and disruption.
2. Simple Translation: A quick, low-cost solution (approx. USD 60,000, 3 months) that translates MX to MT but results in data truncation and limited long-term value.
3. Bridged Translation (Selected): Superior to simple translation, this model allows banks to store and search the original rich MX data. BIDV chose this approach—which provides a reasonable cost (approx. USD 150,000, 6–8 months) and mitigates the risk of data loss—as it was deemed most suitable for BIDV's large scale and its goal of a phased but relatively quick transition.

BIDV Implementation Process: The implementation was structured in phases, directly informed by staff feedback that emphasized reducing operational risk and ensuring gradual system integration:

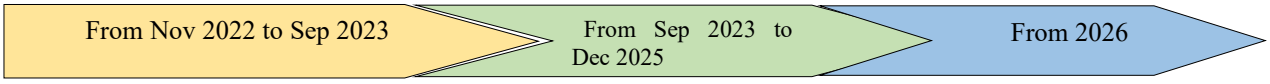
• Preparation (Q4 2021 - Q4 2022): The technical team researched requirements and conversion solutions, eventually submitting the Transaction Manager solution (a SWIFT platform integrated into the SWIFT interface) for approval.

• Adoption Phase (2022): BIDV registered the Transaction Manager, which automatically converts inward MX messages to MT messages to be processed by the current payment system (from November 2022 to September 2023). BIDV completed internal payment application upgrades to handle the converted MT messages and store the original MX data before November 2022.

• Implementation Phase 1 (March 2023 - August 2023): BIDV utilized SWIFT Inflow translation, developed detailed mapping rules to mitigate data truncation risk, and performed extensive end-to-end testing.

• Implementation Phase 2 (September 2023 - December 2023): BIDV officially adopted ISO 20022 on September 3, 2023, simultaneously upgrading its legacy systems and establishing the Payment Hub as a centralized system designed around ISO 20022 language for processing and storing transactions.

• Implementation Phase 3 (From 2024): BIDV aims to implement new ISO 20022 messages in accordance with SWIFT Standard Releases, focusing on continuous monitoring, compliance alignment, and risk management through protocols like fallback systems and weekly Steering Committee reviews.



From Nov 2022 to Sep 2023	From Sep 2023 to Dec 2025	From 2026
- Use SWIFT ISO20022 message conversion solution to convert inward MX messages to BIDV into MT messages. - Edit international remittance related application (Swift Editor, Gateway Monitor, Siron EMB) and related applications that exploit data directly from the SWIFT system (Nostro Statement,...) to receive MT messages from the conversion tool.	- Stop using SWIFT message conversion solution. - Use the message conversion tool built into the new Payment Hub system to convert MX messages sent to BIDV into MT messages for processing in internal programs (and vice versa).	Use Payment Hub system for BIDV's payment system with functions/components that fully satisfy the initiation, receipt and processing of messages according to ISO20022 message format.

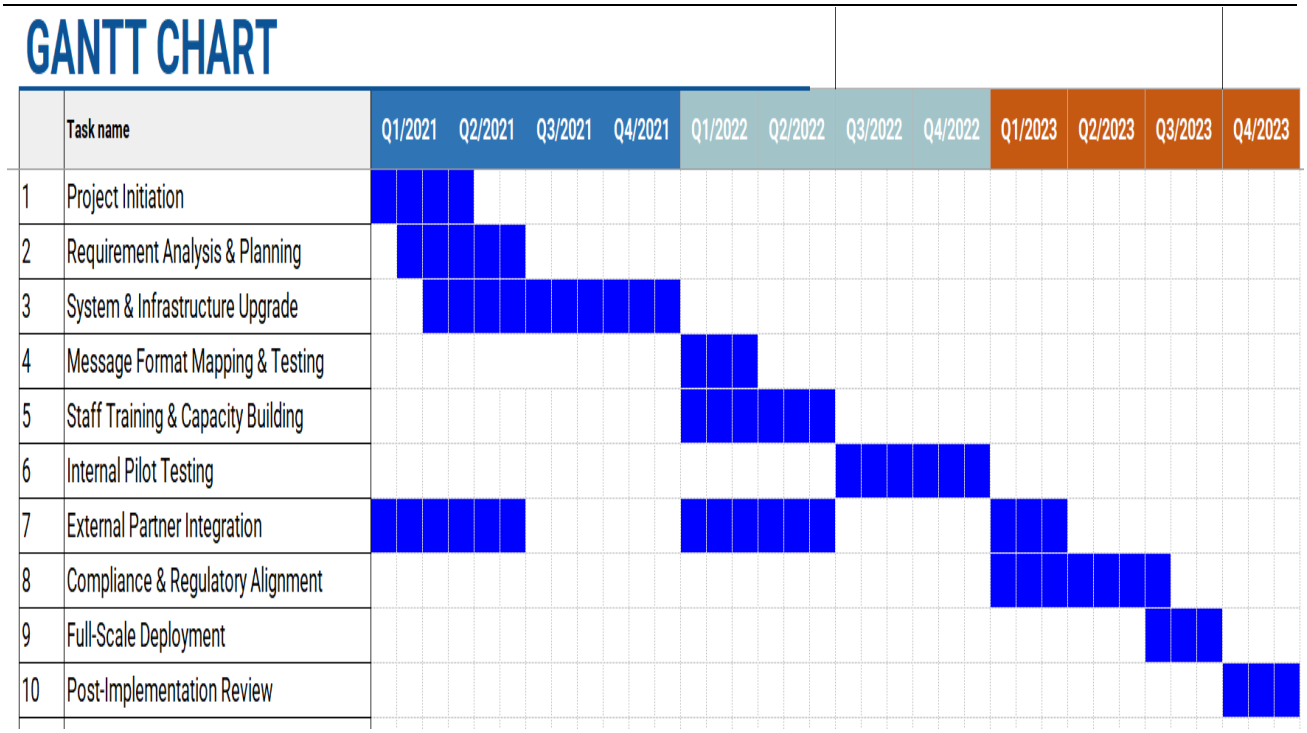


Fig 3. BIDV implementation roadmap of ISO20022 and Gantt chart of ISO20022 implementation

Source: Compiled by authors

Table 3. Comparison table for three approaches for SWIFT transition of ISO20022

Feature	Full Migration	Simple Translation	Bridged Translation
Definition	Direct adoption of ISO 20022 without reliance on MT messages.	Converts MT messages to ISO 20022 format without structural enhancements.	Uses an intermediary system to handle both MT and ISO 20022 messages.
Implementation Complexity	High – Requires a complete infrastructure overhaul.	Low – Quick implementation with minimal system changes.	Medium – Requires additional middleware or translation layer.
Cost and time requirement	Approximate 224,000 USD, not including advisory fee – 1.5 years of implementation	Approximately 60,000 USD, not including advisory fee – 3 months of implementation	Approximate 150,000 USD, not including advisory fee – 6 to 8 months of implementation
Data Richness	High – Full utilization of ISO 20022's structured data fields.	Low – Limited to MT fields, losing some ISO 20022 benefits.	Medium – Some ISO 20022 data may be available but constrained by legacy formats.
Compliance Readiness	High – Aligns entirely with SWIFT's ISO 20022 migration roadmap.	Low – Temporary solution that does not meet long-term compliance goals.	Medium – Supports coexistence but requires future migration.
Operational Efficiency	High – Improves automation, reconciliation, and analytics.	Low – Retains legacy inefficiencies.	Medium – Some efficiency gains but still tied to MT constraints.
Risk of Data Loss	Low – No data truncation, ensuring complete message integrity.	High – Data truncation and loss of enriched information.	Medium – Some loss due to mapping limitations.
Future-Proofing	High – Fully aligned with future financial messaging standards.	Low – Temporary fix requiring future complete migration.	Medium – Offers flexibility but requires an upgrade over time.
Best for	Institutions with strong digital infrastructure and long-term vision.	Banks are looking for a quick, low-cost interim solution.	Organizations need a phased transition with minimal disruptions.

Source: Compiled by authors

4.3. After the Implementation of ISO 20022 at BIDV

The adoption of ISO 20022 marked a "historical milestone" for BIDV, establishing it as the first local Vietnamese bank to send, receive, and process MX messages for cross-border payments in three key roles: Instructing Agent, Instructed Agent, and Intermediary Agent.

Operational Results (Q4 2023):

• Volume and Value: Over 60,000 total MX messages were processed from September 3rd to December 31st, 2023 (46,938 outward and 13,548 inward), representing a total transaction value exceeding $6 billion.

• Successful Transactions: Compared to Q4 2022, successful outward messages increased by 10.5%, and successful inward messages increased by 14.5%, indicating a significant impact.

• Efficiency Gains (Operational Data): The structured data led to substantial improvements:

◦ The weekly error rate for outbound SWIFT messages dropped from 9.2% (pre-implementation) to just 1.4% in Q4 2023, representing an error reduction of over 85%.

◦ The average end-to-end transaction time for outbound payments was reduced by 44%, from 2.5 hours to approximately 1.4 hours.

◦ Operational labor costs associated with payment rework decreased significantly, saving the bank over $8,000 per month in manual effort.

Staff Adoption and Evaluation: A survey conducted 8 weeks after the official go-live date showed very high satisfaction among the 50 key staff members.

• Perceived Ease of Use (PEOU): Over 75% of employees were more satisfied with ISO 20022 than the legacy format, aligning with the Technology Acceptance Model (TAM), which suggests high PEOU reduces resistance to change.

• Efficiency Confirmation: Remittance staff reported that the process was "much smoother" and that they were experiencing 40% to 50% fewer rejections, with time spent on inquiries decreasing to less than 10% of previous levels.

• Challenges Identified: While satisfied with the benefits, staff highlighted areas for improvement, particularly the need to simplify the "confusing" XML Schema for IT developers and provide a more user-friendly screen for remittance officers to view and modify technical MX message details.

SWOT Analysis and Strategies for Success: An analysis based on interviews with the project leader and key staff identified internal and external factors influencing the project:

Table 4. SWOT Analysis and Strategies for Success

Category	Factors
Strengths (Internal)	Improved efficiency (more precise processing), global compatibility (interoperability), enhanced data analytics, and improved security.
Weaknesses (Internal)	Training and skill gaps (learning curve for staff), resistance to change, and potential data migration issues (error-prone data transfer).
Opportunities (External)	Strategic partnerships with international banks and innovation in services (e.g., real-time payments, enhanced reporting) by leveraging richer data.
Threats (External)	The complexity of the transition leads to operational disruptions and internal/external resistance to new messaging standards.

Recommended Strategies: Based on the SWOT analysis, strategies emphasize leveraging strengths and mitigating weaknesses:

1. Staff Training: Implement comprehensive training programs (Table 4) focusing on ISO 20022 message structures, data mapping, and reconciliation changes, ensuring 100% of key personnel are trained before go-live.

2. Change Management: Adopt a phased rollout (bridged translation) and a parallel run strategy (Table 5) to minimize data truncation and mapping errors during the dual-system approach.

3. Policy Recommendations for the Board of Directors (BOD): The BOD should issue policies to sustain ISO 20022 benefits, including allocating 8–12% of the annual IT budget for system maintenance and 3–5% for innovation (e.g., VND 300–500 billion). A permanent ISO 20022 team and mandated annual staff training (12 hours) were also recommended.

Table 5. BIDV's staff training programs for ISO20022

Module	Objective	Duration	Topics covered	Training format	Assessment
Introduction to ISO 20022	Provide a foundational understanding of ISO 20022, its impact, and its benefits.	4-6 hours	- Overview of ISO 20022 & why it matters for BIDV - Comparison: ISO 20022 vs. existing messaging standards (MT/MX) - Key benefits for banks,	- E-learning modules - Live webinars with industry experts	Online quiz (pass rate: 80% required to proceed to the following modules)

Module	Objective	Duration	Topics covered	Training format	Assessment
			businesses, and customers.	- Q&A sessions to address concerns	
ISO 20022 Message Structures & Technical Implementation (IT & Technical Teams)	Equip IT teams with the technical knowledge to integrate ISO 20022 into BIDV's payment systems.	5 days	- Mapping legacy SWIFT MT messages to ISO 20022 MX format - Data enrichment & validation rules - Error handling & exception management	- Classroom & virtual technical workshops - Case studies from global banks	Process and troubleshoot ISO 20022 messages in BIDV's test environment
Operations & Payment Processing (Operations, Treasury, and Back Office Teams)	Train operations teams on processing, reconciliation, and exception handling.	3 days	- Processing ISO 20022 payment instructions - Bank reconciliation changes under ISO 20022	- Scenario-based learning (real-world transaction processing cases)	Successfully process and reconcile payments in a test environment.
Customer Interaction & Compliance (Customer Service & Compliance Teams)	Enable frontline staff to handle customer queries and compliance reporting	2 days	- How ISO 20022 affects corporate and retail customers - Handling customer queries on new message formats	- Interactive workshops on fraud detection - Live compliance case studies	Successfully address a customer's ISO 20022-related concerns.

Training Completion Requirements

Employee Group	Required Knowledge level	Assessment method	Passing criteria
IT & Technical Teams	90%+	Online tests (message mapping & validation) - Practical simulations (handling real ISO 20022 transactions)	- At least 90% accuracy in processing and troubleshooting ISO 20022 messages
Operations & Payment Processing Teams	85%+	Case studies (bank reconciliation under ISO 20022) - Hands-on transaction processing tests	Successfully process at least 95% of test transactions without truncation errors.

Key Performance Indicators (KPIs)

Metric	Target	Measurement Method
Training Completion Rate	100% of key staff trained	LMS (Learning Management System) tracking
Assessment Pass Rate	85%+ overall staff pass rate	Post-training quizzes and hands-on tests
Transaction Processing Accuracy	95%+ error-free transactions	Testing in the User Acceptance Testing (UAT) environment

Source: BIDV report on ISO20022 implementation plan

In conclusion, the ISO 20022 implementation at BIDV, executed via the bridged translation method, was verified as a success. It significantly mitigated pre-existing operational drawbacks, achieved measurable efficiency gains, and laid a sustainable foundation for future payment innovation

5. CONCLUSION

The research confirms the successful and sustainable adoption of the ISO 20022 standard in the international remittance services at the BIDV Payment Center. The findings validate that the chosen bridged translation model was the most suitable strategy for BIDV's large-scale operations and objectives, effectively mitigating risks during the phased transition. This work addresses a critical research gap concerning the lack of practical guidelines for ISO 20022 adoption, particularly for financial institutions in developing economies like Vietnam.

Strategic Contributions and Measured Success

The study provides quantifiable evidence of the operational improvements gained by leveraging technology innovation:
(1). Efficiency and Resilient Finance: Before the migration, legacy MT operations suffered a high message rejection rate of 9.2% and incurred significant manual workload, estimated at 60 staff-hours per day, dedicated to error resolution and exception handling. Post-implementation (Q4 2023), the error rate for outbound SWIFT messages dropped sharply to 1.4%, demonstrating enhanced operational resilience.
(2). Speed and Cost Savings: The average end-to-end transaction processing time was reduced from 2.6 hours to 1.5 hours. Furthermore, the reduction in manual effort decreased operational labor costs by over $8,000 per month.
(3). Adoption and Satisfaction: The successful deployment led to high user satisfaction, with over 75% of remittance staff reporting greater contentment with the new ISO 20022 format compared to the legacy format.

Theoretical Advancement

This study contributes to the academic discourse by contextualizing the Technology Acceptance Model (TAM) within a mandatory, organization-wide technology implementation, specifically, the adoption of ISO 20022 in a major financial institution. While the adoption decision was made at the executive level, the research focuses on operational-level user acceptance, where perceptions of usefulness and ease of use play a crucial role in the successful transition and integration of the system.
This research integrates organizational mediating factors, such as infrastructure upgrades (e.g., implementation of the Payment Hub system) and capacity-building efforts (e.g., structured training programs), which influence the traditional TAM constructs. These mediators helped mitigate resistance to change and supported internal adoption among staff. This applied perspective demonstrates how TAM can be practically adapted to evaluate staff experience in the context of non-discretionary adoption environments, particularly within developing economies.
By embedding TAM in this real-world organizational context, the study contributes valuable insights into the behavioral dimensions of large-scale technological transformation, aligning with the conference's emphasis on innovation and strategic management in banking.
Regarding the SWOT analysis, it was applied as a strategic evaluation tool independent from TAM to identify internal and external factors impacting ISO 20022 implementation. The SWOT findings complemented the TAM-based analysis by providing organizational-level recommendations, but were not formally integrated into the TAM framework. Future research may benefit from structurally linking SWOT dimensions to TAM variables to form a hybrid analytical model.

Limitations and Future Research Directions

The primary limitation of this study is the relatively short post-implementation evaluation period (Q4 2023), which restricts the ability to fully measure the long-term strategic impacts, such as return on investment, innovation outcomes, and user behavior evolution over time. Moreover, the study primarily reflects internal perspectives—particularly those of operational staff and IT departments, without incorporating feedback from external stakeholders, such as correspondent banks, regulatory bodies, or customers.
Future research should consider longitudinal assessments of ISO 20022's impacts on operational efficiency, compliance, and customer satisfaction. It is also recommended to conduct comparative studies across multiple banks in the ASEAN region to identify common implementation patterns and develop industry benchmarks. Additionally, upcoming initiatives at BIDV include leveraging ISO 20022's structured data for automation of reconciliation processes using CAMT.053 messages and real-time payment status updates through pain.002 integration. These initiatives represent the next phase of technology-driven transformation, focused on enhancing Straight-Through Processing (STP) and supporting sustainable digital finance in emerging markets.

6. REFERENCES

Accenture. (2021). *The Challenges and Opportunities for APAC's Financial Institutions*.

BIDV. (2023a). *Report on Transaction Manager and Swift Translator* [Unpublished Internal Report]

BIDV. (2023b). *Weekly report on ISO20022 implementation update* [Unpublished Internal Report]

BIDV. (2023c). *Weekly report on researching Translation Manager* [Unpublished Internal Report]

Bouille, I., & Haase, T. (2019). Adoption of global market practice for payments will pave the road to a successful global migration to ISO 20022. *Journal of Payments Strategy & Systems*, *13*(2), 104-112.

Constantino, J., São Mamede, H., & da Silva, M. M. (2024). Adopting ISO 20022: Opportunities, Challenges, and Success Factors for Corporations in Payment Processing. *Emerging Science Journal*, *8*(4), 1402-1419. https://doi.org/10.28991/ESJ-2024-08-04-010

Dalton, P. S., Pamuk, H., Ramrattan, R., Uras, B., & van Soest, D. (2024). Electronic payment technology and business finance: A randomized, controlled trial with mobile money. *Management Science*, *70*(4), 2590-2625. https://doi.org/10.1287/mnsc.2023.4821

Davis, F. D., Bagozzi, R., & Warshaw, P. (1989). Technology acceptance model. *J Manag Sci*, *35*(8), 982-1003. https://doi.org/10.1287/mnsc.35.8.982

Davis, F. D., Granić, A., & Marangunić, N. (2024). *The technology acceptance model: 30 years of TAM*. Springer.

De la Rosa, R., & Klemann, D. (2018). ISO 20022 and the transformation of cross-border payments. Journal of Payments Strategy & Systems, 12(2), 146–157.

Debit, S. D. (2023). ISO 20022 Payments.

Debois, S. (2019). *10 Advantages and Disadvantages of Questionnaires*. https://surveyanyplace.com/questionnaire-pros-and-cons/

Dutta, S. (2023). *How the migration to ISO 20022 can enhance payment-operating models*. https://www.ey.com/en_sa/banking-capital-markets/how-the-migration-to-iso-20022-can-enhance-payment-operating-models

Egner, T. (2011). ISO 20022 Newsletter.

Farnsworth, B. (2016). *How to desgin a questionnaire*. https://imotions.com/blog/design-a-questionnaire/

Fink, A. (2003). *How to design survey studies*. Sage.

Foody, J. (2014). The Future of Financial Messaging Worcester Polytechnic Institute.

Fung, B., Molico, M., & Stuber, G. (2014). Electronic money and payments: Recent developments and issues.

Gallaher, M., & Harper, C. (2021). Demystifying ISO 20022: Evaluating the benefits and limitations of new messaging standards. *Journal of Payments Strategy & Systems*, *15*(4), 410-418.

Gauci, M. (2024). Navigating ISO 20022 maintenance in a connected world: A vision for harmonisation. Journal of Digital Banking, 9(2), 118-128.

Goswell, S. (2006). ISO 20022: The implications for payments processing and requirements for its successful use. Journal of Payments Strategy & Systems, 1(1), 42-50.

Haataja, E., & Stackenäs, W. (2021). CONSTRUCTING A DECENTRALIZED COMMUNICATION SYSTEM COMPLIANT WITH THE ISO 20022 FINANCIAL INDUSTRY MESSAGE SCHEME. In.

Hancock, M. L. B. a. J. (2020). *Innovations in payments*. B. Q. Review. https://www.bis.org/publ/qtrpdf/r_qt2003f.htm

Hassan, S., & Vasileva, E. (2021). SWIFT migration to ISO 20022: Challenges and strategies for banks in the EU. Banking Technology Review, 23(1), 28–39.

Hintze, J. (2022). 'ISO ' a Payments Messaging Upgrade. American Bankers Association. ABA Banking Journal, 114(4), 18-19.

Lindsay, S. (2015). ISO 20022 and real-time domestic payments. *Journal of Payments Strategy & Systems*, *9*(1), 22-29.

Mäenpää, A. (2015). *XML guidelines in ISO 20022 messages : explanations and improvements*.

Maillard, H., & Vermeulen, J. (2006). The Single Euro Payments Area: SEPA. *Economic review*.

Major, T., & Mangano, J. (2020). Modernising Payments Messaging: The ISO 20022 Standard. *1. 1 Managing the Risks of Holding Self-securitisations as Collateral 2. 11 Government Bond Market Functioning and COVID-19 3. The Economic Effects of Low Interest Rates and Unconventional 21 Monetary Policy 4. Retail Central Bank Digital Currency: Design Considerations, Rationales*, *66*.

McKinsey & Company. (2019). Getting ahead of the ISO 20022 wave: How banks can act now. Retrieved from www.mckinsey.com

Mellon, B. (2021). *ISO 20022 - What do you need to know. BNY Mellon.*

Morgan, J. (2013). ISO 20022 Newsletter.

Oliphant, R. (2023). *ISO 20022: Are your payment systems ready?* https://www.ibm.com/blog/iso-20022-data-are-your-payment-systems-ready/

P.Gill, K. S. (2008). *British Dental Journal*. https://www.nature.com/articles/bdj.2008.192

Pickles, C. (2008). Securities standards migration: ISO 15022 vs ISO 20022. *Journal of Securities Operations & Custody*,

1(3), 289-300.

Poser, H. V. (2019). Facilitating the interoperability of high-value and international payments: The ISO 20022 migration of the Eurozone. Journal of Payments Strategy & Systems, 13(2), 113-120.

Quibria, N. (2015). *Introduction to ISO20022 for U.S Financial Institutions*.

Rea, L. M., & Parker, R. A. (2014). *Designing and conducting survey research: A comprehensive guide*. John Wiley & Sons.

Retzer, D. (2013). Transforming uncertainty into opportunity: Coexistence of ISO 15022 and 20022 messaging standards. *Journal of Securities Operations & Custody*, *5*(3), 232-236.

Rowley, J. (2014). Designing and using research questionnaires. *Management Research Review*, *37*(3), 308-330.

Schmidt, I. (2020). ISO 20022: Understanding the scale of change. Journal of Digital Banking, 5(2), 126-136.

Speer, A. B., Tenbrink, A. P., Schwendeman, M. G., & Wegmeyer, L. J. (2020). Individual differences in effective interview design: Factors affecting question choice. *International Journal of Selection and Assessment*, *28*(3), 310-321.

Sulabh Agarwal, C. B. (2022). *5 ways ISO 20022 could rewrite the future of payments*. https://bankingblog.accenture.com/5-ways-iso-20022-could-rewrite-the-future-of-payments

SWIFT. (2021). *Learning a new language for the next generation of payments*.

Taherdoost, H. (2016). How to Conduct an Effective Interview: A Guide to Interview Design in Research Studies. *International Journal of Academic Research in Management*, *11*(1), 39-51. https://doi.org/10.2139/ssrn.3205040

The Financial Times (2022). *ISO 20022: What it Means For The Payments Industry*. https://thefintechtimes.com/iso-20022-payments-new-era/

Wandhöfer, R. (2015). SEPA for corporates: On the path towards cross-border harmonisation. *Journal of Payments Strategy & Systems*.