

# Card Legacy Platform Transformation: Challenges and Opportunities for Payment Participants

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Whitepaper



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# Abstract

Participants in the payment sector, especially issuers and acquirers, are seeing unprecedented challenges from their customers. Customers expect a better payment experience, personalized products, value-added services, and most importantly real-time payment services.

Competitors such as fintech and new-age digital banks are eating up the market share of traditional issuers and acquirers by providing payment innovation, omnichannel digital frictionless experiences, and personalized valued-added services along with real-time payment services.

Fintech companies have transformed customer payment experience to a new level giving strong competition to traditional payment providers.

In this paper, we discuss how fintech companies can provide real-time payments and new-age dynamic payment services, as they invest in new breed of open technology platforms that provide higher flexibility to meet the dynamics in the payment business. They are not carrying the baggage of inherited silo systems as traditional issuers and acquirers in the business of payments from decades

## Persistent challenges in traditional banks

Cards business systems exist in silos and are integrated with internal and external systems to enable end-to-end card transactions across its lifecycle.

Any time a business implements changes, such as incorporating a payment rule change, introducing a new payment type, mandating new scheme rules, it becomes challenging for banks (both issuers and acquirers) to incorporate changes into all their concerned systems.

Some of the key challenges observed with traditional banks with legacy platform highlighted in below figure.

### Highly complex, siloed IT system landscape

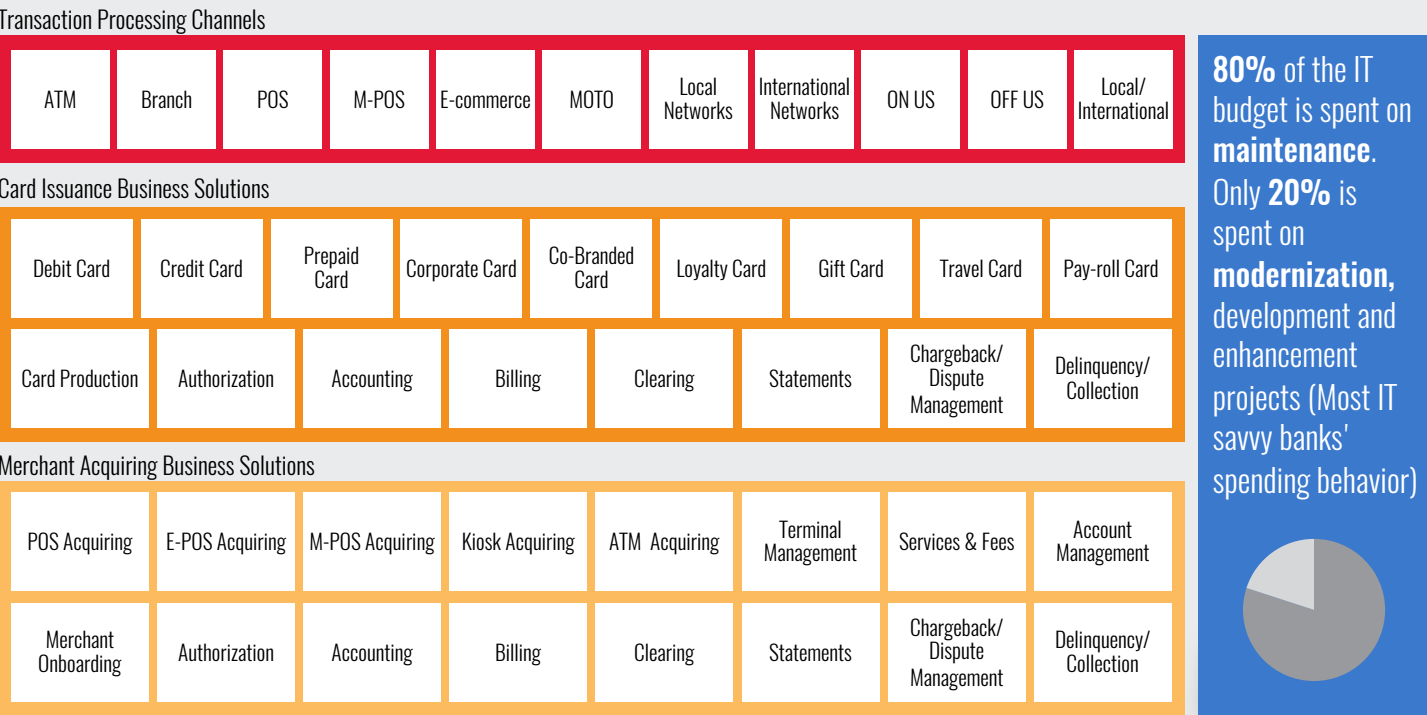


Figure 1: Silo system’s functional architecture of key cards business components

## Key challenges of traditional banks with legacy platform are discussed below

### 1. Brick-by-brick silo systems built over multiple decades

Over a period, banks have incrementally built the underlying systems to support the growth in the cards business. Accordingly, these banks built systems to support individual card product types (credit, debit, prepaid), types of customers they serve retail or institutional, country of operations, channels they support, domestic and international interchanges/schemes mandates, and sub-modules covering the entire card lifecycle. With this ground-up approach, banks end up building silo systems that are integrated to manage the end-to-end card business. It is common for banks to have a separate system for processing debit card transactions for domestic businesses and a separate system for international networks. Within international networks, different systems for processing transactions coming in from respective payment networks like MasterCard, Visa, Amex, or JCB.

Similarly, it is common for banks to have different payment processing systems based on the channel (automated teller machines, point-of-sale, web, mobile).

One would also find that traditional banks have built an overlapping, mesh of interconnected systems organically. There was another hybrid approach where the bank had taken commercial off the shelf systems (COTs), customized these systems to suit their needs, and built integrations with internal and external systems.

### 2. Support for Industry Message Format

Moreover, banks were slow to adopt industry message standards (for real time authorizations and file sharing) protocols. They built connectors to convert the messages received from external interfacing systems into an internal systems' understandable format and for outgoing, the messages are converted to specific standards demanded by the interfacing systems.

This added further complexity to communication between the interfacing systems. Whenever there were changes in any of the external messages along with the introduction of new payment types and the addition of a new interfacing payment ecosystem partner, modifications were made to the respective modules on these internal and external messaging components.

### 3. Closed Architecture Technology Platform and Absence of Service-Oriented Architecture

Banks who built their systems over a period as their business grew did not emphasize much on the service-oriented architecture. In addition, these systems are built on the closed architecture technology stack/mainframe-based platforms with a lot of customizations to meet specific requirements.

Closed architecture technology platforms are very restrictive. It is difficult to build enhancements on top of the existing built components. Building interfaces to these technology platforms is very complex if not impossible.

It is rare to find object-oriented programming (OOP) and service-oriented approach been followed in such architecture thereby restricting feature scalability, extensibility to prepare platform for dynamic needs of the payment business.

### 4. File-Based Batch Processing

Banks using legacy payment systems have information flow updates through a batch file processing approach. Traditional banks have specific time slots (start of the day, end of the day, defined time slots in a day, end of the week, end of the month, end of the year) to run various batch files like account status files, card status files, transaction files. To effect the changes from front end systems, partner system information updates to backend systems.

With traditional legacy platforms for a large/mid-size bank, it is very common to find that end-of-the-day processes take long hours to process transactions and other back-end files to update backend systems.

The batch file processing approach for the information updates in the cards systems of records is one of the major roadblocks for banks to enable real-time payments for their customers and ecosystem participants.



## Legacy Platform Transformation: The NXT Solution to Consider

The below figure demonstrates how banks can achieve agility in their offerings by consolidating overlapping business solutions into a single service-oriented architecture (SOA).

### Highly complex, siloed IT system landscape

Transaction Processing Channels

ATM	Branch	POS	M-POS	E-commerce	MOTO	Local Networks	International Networks	ON US	OFF US	Local/International
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### Unified Platform Solutions

Payment switch supporting all channels

Card Issuance Business Solutions

Debit Card	Credit Card	Prepaid Card	Corporate Card	Co-Branded Card	Loyalty Card	Gift Card	Travel Card	Pay-roll Card
Card Production	Authorization	Accounting	Billing	Clearing	Statements	Chargeback/Dispute Management	Delinquency/Collection	

Card issuance lifecycle management solution

Merchant Acquiring Business Solutions

POS Acquiring	E-POS Acquiring	M-POS Acquiring	Kiosk Acquiring	ATM Acquiring	Terminal Management	Services & Fees	Account Management
Merchant Onboarding	Authorization	Accounting	Billing	Clearing	Statements	Chargeback/Dispute Management	Delinquency/Collection

Merchant acquiring lifecycle management solution

Figure 2: A consolidation of the solution using the unified platform approach

## The New Age of Payment Platforms-Key Features

### 1. Open Technology Platform

With the advent of new technologies, mergers, and acquisitions, and growth in customer aspirations, banks will need to introduce new products and services relevant to their specific customer segments. To incorporate new changes or offerings, bank core systems need to be customizable or scalable and extendable without much re-architecture or heavy customizations. The core card platform should be built with open technology platforms that are open for innovation and customization on top of the existing solutions. The more this platform is open for customization/incremental development, the more cope for innovations, introduction of new products and services to build and maintain competitive advantage.

### 2. Micro Services Based Architecture

Micro services-based architecture comes with self-sustaining business services that could get integrated with the core platform implementing specific business enhancements to the core platform. Banks could prioritize services that could be developed and integrated based on business priorities.

This approach also helps in updating business logic in specific services if there are changes in the respective business offering without making application-wide changes.



## The New Age of Payment Platforms-Key Features (Continued)

### 3. Real Time Payment Processing

The new-age payment platform with seamless integrations of frontend authorization systems with the back-office clearing and settlement systems should enable real-time movement of funds with a frictionless customer payment experience.

Banks will have to move from their batch mode of information update to real time updates in the books of records. They will also have to invest in straight through processing streamlining information updates and execution of the business rules in the relevant back-end systems.

### 4. Advanced Data Based Value Added Solutions

As the payment business is changing, the interchange-based revenue model used by payment participants has been challenged by their customers. Customers, including merchants, are demanding personalized value-added services. For retail customers specifically, these value-added services could be in the form of personalized loyalty offerings and spend analysis. Whereas merchants would be looking for business advisory services, loyalty, and redemption program analytics for further enhancing their cross-sell and upsell programs.

Banks need to use customer and transaction data for building relevant solutions and services to differentiate themselves. This would mean investing in advanced analytics solutions integrated with unified core card systems.

### 5. Low CAPEX and OPEX

Banks need to invest in core technology platforms that are easy to manage and open to incorporating changes in the payment business. In the ideal platform, new products/services could be introduced using configuration capabilities rather than significant customizations (saving significant cost/time), whenever banks want to introduce new products and services.

With such a platform, overall management costs are reduced greatly. It could be a huge advantage to speedily offer differentiated offerings.

## Global Trends Driving Change in Payment Business

The payment business is becoming more competitive with all payment participants (bank, card issuers, acquirers, processors) being challenged for their relevance and existence today. Figure 3 illustrates some of the key trends that are redefining the way the payment business will shape up in the near future and beyond. Payment participants need to examine these technical and business model changes happening in the industry today, these global initiatives pose as opportunities, and are not one-off events.

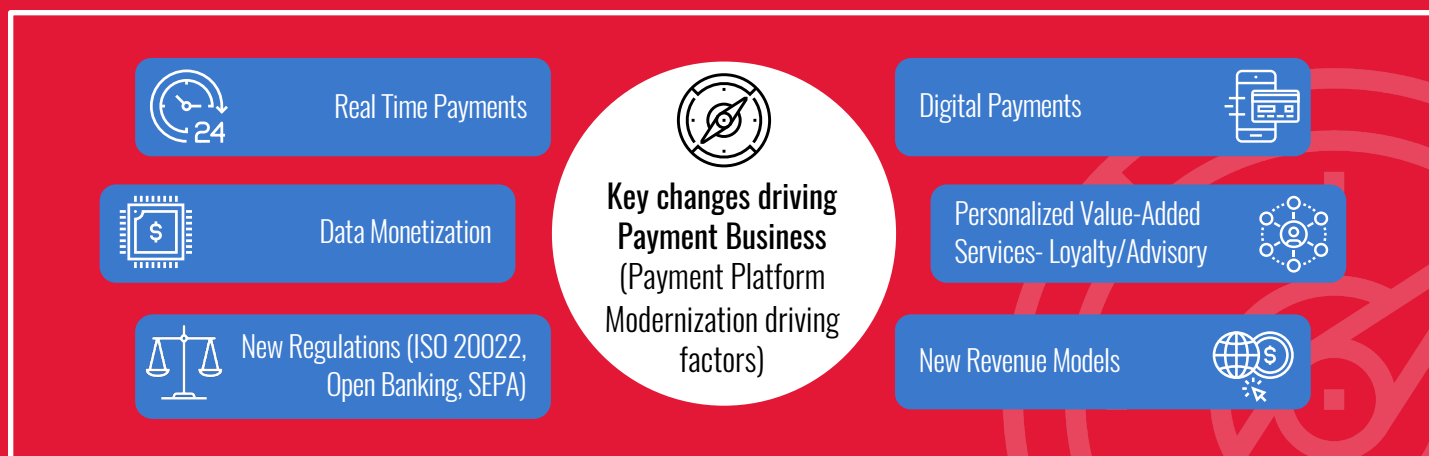


Figure 3: Key trends driving change in payment business leading to platform modernization.

## 1. Open Banking

Banks are the primary custodians of banking customer data. With Payment Services Directive Two (PSD2) regulation, banks are required to provide access to their customer data (with their consent) to service providers. These service providers could use application-programming interfaces (APIs) to integrate their services with banking platforms.

In addition to the European Union (EU) banks, the phenomenon is spreading globally, as agile banks incorporate these changes into their solution platform to attain market leadership.

## 2. Real Time Payments

Banking customers are looking for real-time payments, be it a retail banking customer or a merchant engaging with acquiring banks for payment processing across channels.

Banks must invest in transforming their file-based batch mode transaction processing approach to real time movement of funds and updating books of accounts. A lot of existing back-office operations therefore will need to be automated, such as reconciliation of transactions with partners, internal systems.

## 3. ISO 20022

ISO 20022 messaging standard provides tremendous opportunities for payment participants to standardize messaging between interacting partner systems. The standard provides a rich messaging format for effectively communicating payment message descriptions, business processes, and allied data. This opens avenues for innovation around value added services that banks could provide around the payment messages.

This payment message transformation is one of the most critical initiatives driving change in the technical and business models across the financial institution.

## 4. Data is the New Currency

The traditional business model of interchange-based revenue earned by issuers/acquirers has been challenged by their customers. New retail customers (Gen X, millennials, Gen Z) have ample alternatives available from the perspective of banking and payment services providers. They do not mind changing the payment service provider who gives a better payment experience, reward their engagement with highly personalized products/services.

**It is imperative that banks and payment participants streamline their core systems and build strong analytics on customer transaction data. Customers can benefit from this by receiving value-added products and services.**

Challenger banks have already started utilizing data as the key revenue enabler, be it is on the business advisory services they provide to merchants or cross sell/upsell/ personalized loyalty offerings are some of the use cases from a data monetization perspective.

## 5. Digitalization-New Payment Form Factor

We are seeing a lot of innovation at the payment initiation point be it is a mobile app, wallet, QR code-based payments, wearables, IoT-based payments, or biometric-based payments. The success of any of these payment form factors depends on customer payment experience, adaptability, security, and seamless integration with the core backend systems.

Banks or payment participants have rolled up mobile apps for payment services, but they have not given the desired customer base. There are multiple factors associated with the lack of success of these channels. Banks/payment participants must redraw these channel strategies and see how they could provide a seamless/frictionless payment experience along with enabling personalized value-added services through mobile channels.



**Innovation** – Agile platform enables quick introduction of products/ services to achieve first mover advantage



**Low CAPEX and OPEX** – With consolidation of legacy platform, overall cost of managing systems reduces



**New Compliance** – Incorporating new compliances at global level/ region wise



**Personalized products and services** with advance analytics



**Build/part of E-Marketplace** with seamless integration with partner systems

**Figure 4:** The benefits of legacy platform transformation

## Our Transformation Success Stories

One of the key legacy transformation cases was with a large issuer that provides credit cards, private label cards, and consumer loans in European countries.

This issuer was operating in 17 different countries and had a series of systems to manage cards and lending business. They had systems built over a decade with a combination of COTS solutions, country and product specific solutions, some homegrown applications, interfaces, and a lot of customizations done over a period.

Some of the key challenges were around the high cost of solution maintenance –any change required many time-consuming customizations on multiple systems and it was very difficult to introduce any new changes.

We engaged with this leading issuer and transformed a series of overlapping systems on a single OEM platform that manages end-to-end card business. We had completed this transformation (from gap analysis to new system deployment, data migration, and go live) within one and a half years.

The issuer attained the following key benefits with our transformation solution;

- 30 different solutions replaced with one unified platform solution managing end-to-end card issuing and loan business
- Overall 60 % reduction in the operational cost
- 15 % increase in customer base
- Innovative products and services launch lead-time reduced significantly.

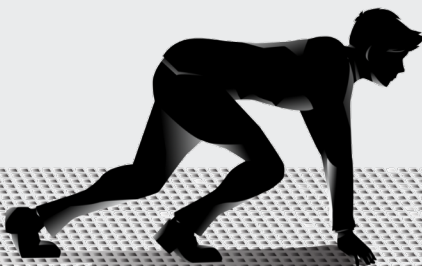
We also built a large data analytics platform seamlessly integrating customer data from core system for offering multiple cross sell/ upsell, personalized loyalty offering use cases.

## The Way Forward

Legacy platform transformation is a strategic decision and payment participants need to take all the key stakeholders on board for project success. We have seen the best of planned technology solutions being failed as there were internal conflicts not supporting organizational strategies.

Once payment participants have well-planned strategies and financial budgets approved, onboarding an experienced legacy transformational partner is the key to successful transformation.

The transformational partner needs to have the right combination of domain, solution platform, and technical implementation expertise. The transformation partner should bring in industry best practices, pros and cons knowledge of multiple platforms.





## Author



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Sudhir Shrivilele is a senior cards and digital payment domain consultant with Tech Mahindra leading cards practice. In this role, he is engaged in designing solutions to customer problems and building practice with niche solutions in cards and digital payment space.

Sudhir has over 19 years of rich experience in cards domain solution consulting, performing gap analysis, solution conceptualization, conducting solution workshops with stakeholders, specification, and domain support to development and testing team. He has successfully transformed some of the most complex legacy platforms with new age solutions. He has good experience in transforming card management system, payment switch, fraud, digital payments, and back-office solutions globally.

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