NIUM



A Vision for a Future of Frictionless Commerce

Simple, Seamless and Scalable Global Payments and Card Issuance

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Why read this report?

The prolonged pandemic has placed an undeniable spotlight on the failings of our existing global payment systems – complex, fragmented, and slow. Existing systems were pushed to their limits by a population that went digital seemingly overnight. For a future with frictionless commerce, we must revisit our payments systems with focus on improvement in sync with the modern era staples - simple, seamless, and scalable. This report will detail how these core principles can help business and technology leaders restructure and modernize their payments.

Key takeaways:

No. 1

Today's payments systems are complex, fragmented, and slow: Nowadays, payments take place across a complex web of interoperable systems involving painstakingly slow settlement and reconciliation. This legacy infrastructure has reached its limits; it slows down business momentum, when in fact it holds the potential to be an accelerant.

No. 2

Tomorrow's payments system must be simple, seamless, and scalable: Businesses adopting these three core principles will deliver excellent experiences, diligently meet risk and compliance checks, and automate payment processes – all at a global scale.

No. 3

Follow four best practices to transform payments for a future of frictionless commerce: First, create an urgency for payment transformation. Second, use customer journey mapping to identify pain points in your existing payment processes. Third, adopt real-time APIs and global payment messaging standards. And fourth, partner with the right payment provider.





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Friction in Today's Payment Systems Are Holding Back Businesses

Payments are the foundation of global commerce; with economic activity expected to rebound from the prolonged pandemic, experts predict global payment volumes to grow by 11.5% through the year 2023. This increase in volume challenges existing systems once built to cater to manual processes, thus proving inadequate for the automated future (see figure 1).

Innovations in digital money movement that gained traction during the pandemic, from contactless payments to virtual cards, are here to stay. This tide change requires businesses to revisit their existing payment systems and processes - a necessity to propel successful business growth.

Friction in payments holds businesses back, due to factors including:

High reliance on manual processes making payments slow: Many firms continue to operate using manual business-to-business (B2B) payment workflows. Not only time-consuming, but the drawbacks also include error-prone reconciliation, and delayed new supplier onboarding.

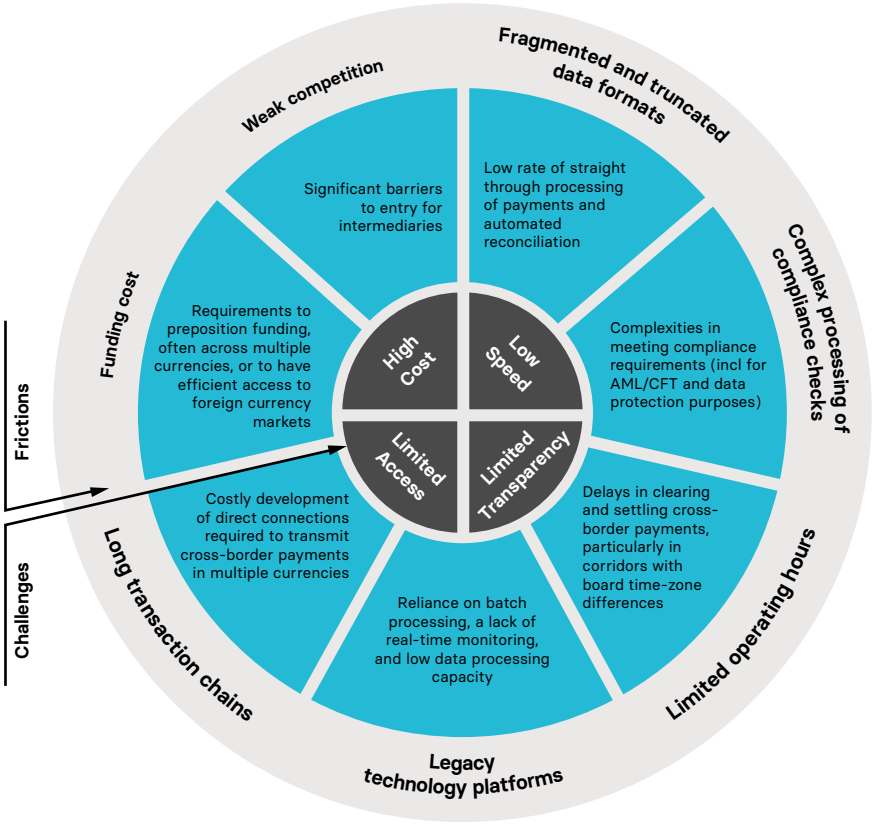
Lack of interoperability due to complex and fragmented payment systems, processes, and standards: Business teams send and receive payments via disconnected systems across multiple platforms that work as batch-based silos. Payment counterparties often use different payment systems resulting in a lack of interoperability extending to payment messaging and data formats.

Complicated compliance and changing infrastructure mandates: Regulations, such as the fifth European Union Anti-Money Laundering Directive, the Second Payment Services Directive (PSD2), e-invoicing and open banking initiatives, add to complex compliance processes. While some banks, for e.g. Deutsche Bank, are making the most of the new payment initiation to offer firms direct bank transfers, many are slow to implement PSD2. Businesses have been slow to roll out European Infrastructure mandates, such as SEPA Instant Credit Transfers (SCT Inst), TARGET Instant Payments Service (TIPS), and the ISO 20022 data messaging standard.

Difficult integration with legacy technology platforms: Many businesses face the challenge of integrating new payment innovations into their existing legacy technology stacks. For years, companies have hard-wired siloed monolithic blocks on top of the existing legacy systems. As a result, their complex internal technology platform and business application landscape are hard to replace or upgrade.

Businesses that fail to integrate modern payment providers via real-time Application Programming Interface (APIs) are stuck with the old ways of batch processing or file sharing. This in turn makes payment processing significantly slow, manual, and costly.

Figure 1: Friction and Challenges in Cross-Border Payments





In order to solve solve these challenges, firms must transform their payment capabilities to reduce friction, and make payments and payment processes simple, seamless, and scalable.

Simple, Seamless, and Scalable Payments Will Help Navigate Uncertain Waters

We believe that a more frictionless future in payments will be guided by three core principles - simple, seamless, and scalable (see figure 2).

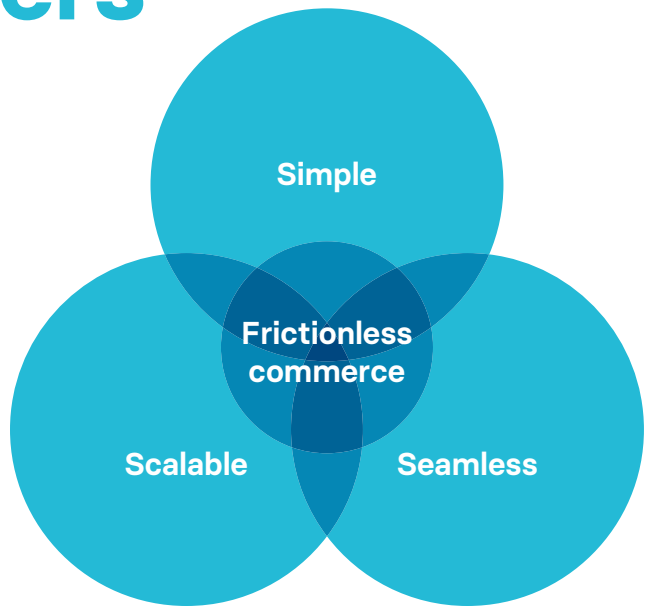


Figure 2: In the Future Payments Will Be Simple, Seamless and Scalable

Simple: Excellent Experiences Will Be Non-Negotiable

The intent behind a payment is straightforward; people either want to buy something, avail a service, or pay for skills. Businesses will optimize the buying, selling, or earning experience to excel at customer experiences (and employee experiences).

According to Spencer Hanlon, Head of Global Travel Payments at Nium,

"True simplicity is the ability to send anyone in the world, any amount of money, in any currency, using a simple identifier, at the click of a button"

In the future, payments will transform experiences by letting users acquire products or services without the need to confirm identity, consenting, and authorizing payments. We believe:

Payments will blend into experiences: One of the most successful implementations of the simple payments systems is India's Unified Payment Interface (UPI). UPI allows businesses, financial institutions and retail customers to send, receive, and collect money in real-time. Indian payment apps, such as Google Pay, Paytm, and PhonePe, have embedded themselves directly into the buying/shopping experiences without requiring users to open different windows, enter beneficiary account details or card details, or one-time-password on a payments gateway for authentication.

Exceptional experiences will demand advanced identification, consent, and authentication: Intent-based authentication is the future, and we are already experiencing such cases in our retail interactions, for e.g. Amazon Alexa. Digital transformation will supercharge convenience and security for users making B2B payments. Expect biometric authentication, a market staple, combined with computer vision technology to recognize and simultaneously authenticate and authorize users.

Passive biometrics, for instance, can authenticate users in real-time by monitoring and analyzing how they use their devices or how they key in information. NuData is a Mastercard owned security and user validation company which scrutinizes four interconnected data layers to ensure no credential misuse. Based on behavior analytics it determines if users are operating their device normally, and deploys passive biometrics to study how users interact with their device physically. The result? An invisible payment journey.

Payments will become rewarding: Loyalty and rewards programs can no longer secure brand loyalty and stickiness. Instead, these programs will focus on determining how much charge to levy on a user, the kind of experience delivered, or access to different tiers of services. Moreover, with industry standardization and real-time APIs for messaging flow, loyalty and rewards will become interoperable.

The Amaze Card is a step in this direction. Launched by Instarem, Nium's retail cross-border payment service for consumers, and small and medium enterprises, allows users to link multiple credit or debit cards to their Amaze Card. They can select a default card to be charged at the time of the transaction, thus making card payments simple and rewarding. Consequently, Amaze Card users will earn rewards from both the Amaze card itself and the underlying card linked to it.



In future, payments will become simple, offer excellent experiences, and innovation in identity verification will make payments invisible. However, this will not be possible without seamless payment processes put in place.



> "Payments have to evolve in a way that all the meshes of identity verification, regulatory risk and compliance run seamlessly at the back-end and are never visible to the customer."
>
> **Prajit Nanu,** Founder and CEO at Nium

Seamless: Payments Will Be at the Center of Business Digital Transformation

Making payments autonomous so that an event occurrence triggers money movement is how payments will become more seamless.

The need for identification while presenting a card, entering card details online, or tapping the cellphone for contactless payment - they are all consequences of old messaging and payment networks based on identity. Frictionless experiences will phase-out this process of identifying oneself and then authorizing payments as:

Payments will become autonomous: Technologies such as blockchain, distributed ledgers (DLT), smart contracts, tokenization, and Internet of things (IoT) amongst others, put together in a stack will push the boundaries of payments in the future. This makes payments self-governing, seamless, and invisible.

For e.g., Banco Sabadell, Banco Santander, Bankia, BBVA, and CaixaBank completed a pilot of executing payments triggered by smart contracts in blockchain networks. By using smart contracts for managing bank guarantees, they automated issuance, registration, execution, and cancellation. With an average 2.5 seconds speed of transaction completion, the pilot has now been deployed in live production environments.

Payments will unlock digital transformation success for businesses: Treasury teams are trying to automate corporate treasury management solutions (TMS) and enterprise resource planning (ERP) systems to get real-time insights on working capital, payments status, and liquidity. With slow payments resulting in lost time, inaccurate liquidity assessment and disbursement delays, simplifying these complex processes has become crucial in order to stay competitive.

Adopting real-time payment capabilities using real-time API integration will help firms not only stay on top of cash flows, but also optimize accounts receivable and payable workflows. For instance, Bank of America uses its Accounts Payable Optimization tool to help clients identify efficient payment methods. Its CashPro Receivables tool uses artificial intelligence (AI) to fill in missing remittance information. Nium's real-time payment capabilities help clients automate manual reconciliation of invoices raised and payments received. Also, it ensures availability of the fastest payment modes across payable and receivable processes.

Security and compliance will support frictionless experiences: Conducting frequent risk assessments on specific international payment corridors/use cases will determine

lower risk corridors, reduce compliance checks, and facilitate market entry. This translates into lowered due diligence costs and de-risking of incidences, alongside quicker payment processing.

Centralized multilateral know-your-customer (KYC) related data on banking customers, and potentially, an ultimate beneficiaries' data will verify payment information and help address concerns about transparency and anti-money laundering (AML), or counter-terror financing (CTF) compliance. Socure's ID+ platform helps (1) improve data accuracy and consistency by maintaining a single set of updated information, (2) decrease money lost to fraud instances, (3) accelerate verification, and (4) significantly reduce manual efforts - thereby reducing friction in cross-border transactions.

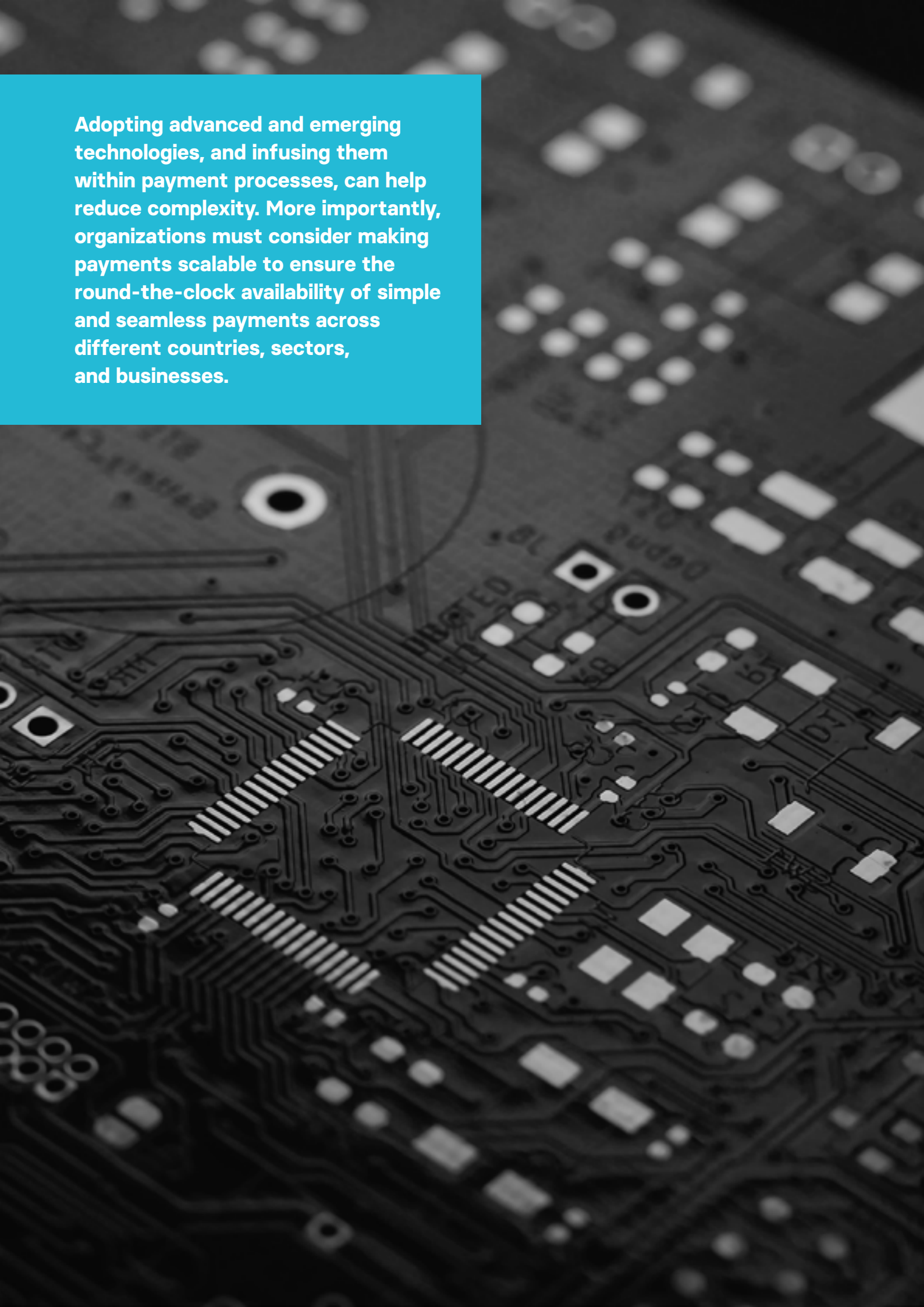
Process innovation will streamline cross-border payments: Payment infrastructures and network providers will transform cross-border payment experiences by automating access to local risk and compliance frameworks, domestic payment modes and methods, and enable real-time visibility into payment status.

For instance, RippleNet and IBM World Wire offer pre-validation and traceability of cross-border payments. SWIFT gpi allows banks to connect via APIs for payment status updates from its cloud. Nium's global payment platform enables real-time API integration to country-specific local payments; this enables faster cross-border money movement while ensuring regulatory compliance and low currency conversion cost. By automating customer identity linkage with transaction data and cross-referencing it with real-time AML/CTF checks, the process is left frictionless and secure.

Payments will enable seamless business ecosystem integration: Dynamic digital ecosystems have been disrupting retail financial services - this is why the parallels in the small and medium enterprise (SME) segment being seen come as no surprise. Disruptors with a singular focus on doing one thing well, and open architecture, are eager ecosystem participants. Many disruptors have prolifically partnered with hundreds of other service providers to create large digital ecosystems of SME services.

For e.g. New Zealand's Xero is a cloud accounting software provider for SMEs that built a marketplace using more than 700 apps from other firms. They successfully developed an ecosystem of services connecting SMEs to everything from point-of-sale (POS) systems to payroll to debt collection. Nium's embedded finance solution helps clients mitigate the risks of managing cross-border payments, and improves SME customer experience, by extending product offerings and facilitating access to finance at the precise point of need.





Adopting advanced and emerging technologies, and infusing them within payment processes, can help reduce complexity. More importantly, organizations must consider making payments scalable to ensure the round-the-clock availability of simple and seamless payments across different countries, sectors, and businesses.

Scalable: Payments Will Drive Business Growth and Expansion

The ability to send and receive money in large volumes is a service that enterprises and financial institutions expect from payments providers, however, managing the fluctuations in transaction volumes tests the scalability of payments. This is because payment volumes can be inconsistent with external factors such as business cycles, festive seasons, regulations, etc. playing a key role. We believe:

Real-time APIs will be critical for payment innovation at scale: Real-time APIs will become essential for payment providers while integrating strategic partners across different stacks of their payment platform in order unlock new business use-cases. Strategic partners will be chosen based on their scalability and reach to ensure low, or zero, payment service downtime to clients.

For instance, Nium has partnered with multiple digital KYC providers to achieve global coverage in identification and onboarding. This includes Australia's Bronld, Europe's onfido, India's NSDL (National Securities Depository Limited), Singapore's MyInfo, and many others. Similarly, for AML/CTF checks, Nium has partnered with third-party specialists such as Trulioo and worldcheck to ensure risk mitigation and resolution in real-time. This offers businesses access to global payment capabilities in real-time with no downtime.

New payment rails will offer simplicity and seamlessness at scale: New payment rails will enable frictionless commerce by eliminating the inherent disadvantages of existing ones. While the existing payment rails are scalable, new rails based on better technology architecture will embed simplicity, seamlessness, and scalability as a staple feature.

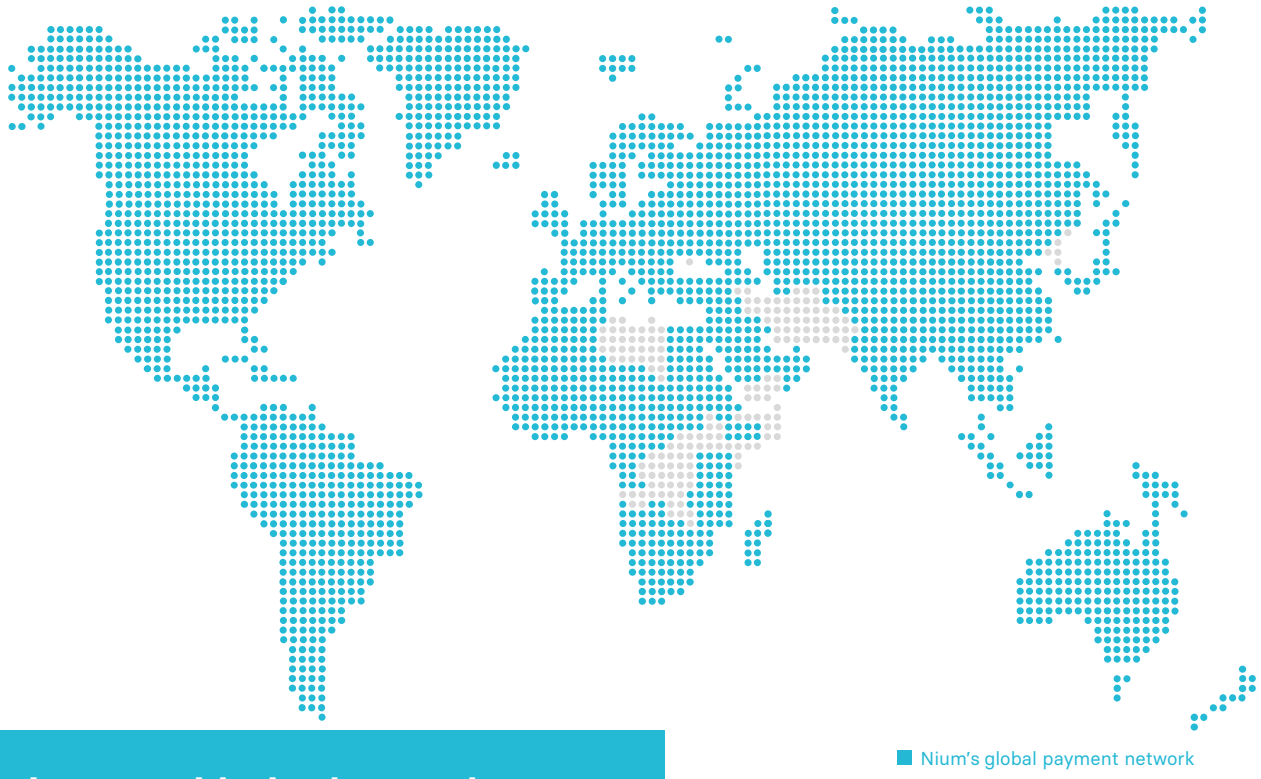


With over 2 billion monthly domestic transaction volume, National Payment Corporate of India (NPCI) is positioning UPI as a global payments network by partnering with Bhutan's Royal Monetary Authority (RMA), China's Union Pay International (UPI), Japan Credit Bureau (JCB), Singapore's Network for Electronic Transfers (NETS) and the US's Discover Financial Services (DFS). NPCI partnered with BENEFIT, LuLu Financial Holdings, Merchantrade Asia, and Network International to make UPI available for cross-border transactions in Malaysia, Bahrain and UAE.

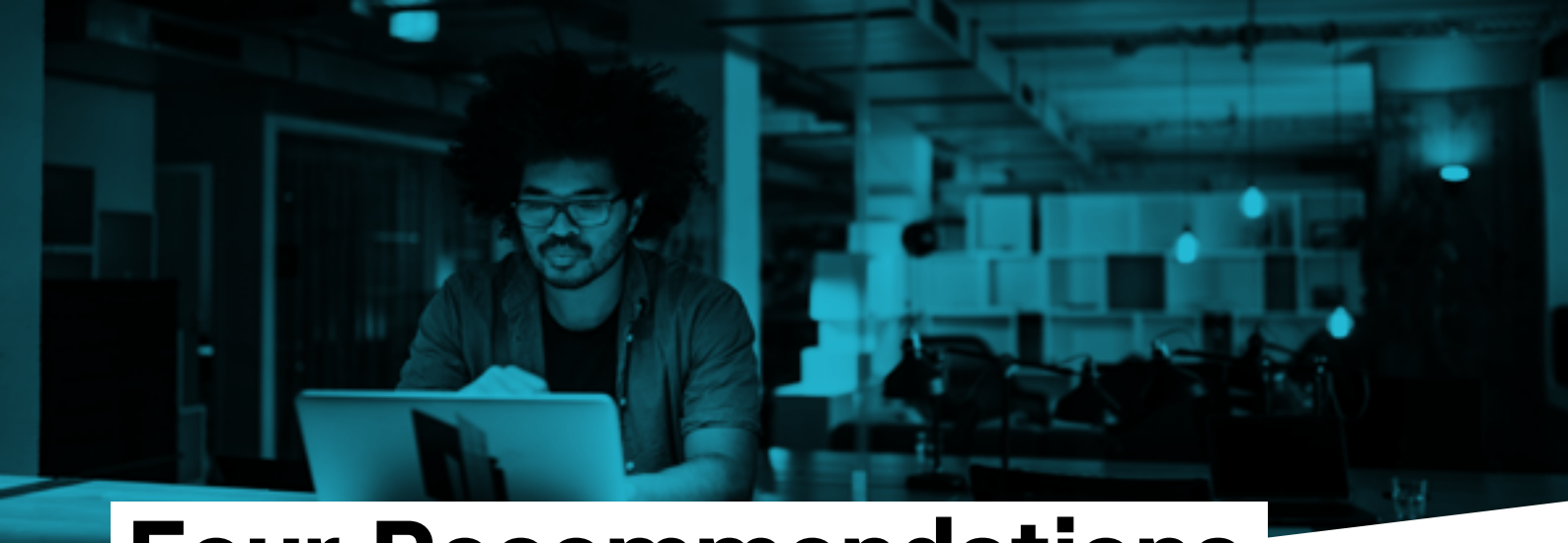
Scalable payments will enable global reach and expansion: Payment scalability can be an obstacle for firms, especially when transferring money across different geographies, platforms, and regulators. Businesses will be required to support popular payment modes in compliance with the region and associated local regulations.

Nium has local presence and payment licenses in many countries (see figure 3) including Hong Kong, Indonesia, Japan, Malaysia, and other exotic currency countries. It enables clients to move money using real-time API integration with its global payment platform. This lets clients build a global solution using a modular cloud-based API suite, alongside hassle free integration of new features and geographies.

Figure 3: Nium Enables Money Movement Across More Than 190 Countries



Businesses with simple, seamless, and scalable payment capabilities will deliver excellent experiences, steer digital business transformation to success, and unlock sustainable business growth. This is why there should be focus on transforming their payments capabilities based on the following recommendations.



Four Recommendations to Start Your Payment Transformation

It's time for businesses to address Covid-19 induced cost pressures, and evident inefficiencies in their payment processes. There is a strong need to redesign payment strategies to ensure operational payment efficiency and innovation in legacy processes. Also, they must focus on removing friction from payment processes to enhance the buyer/supplier payment experience and resolve the challenges escalated by the pandemic while eliminating the risk of late payments. Businesses and financial institutions must:

Create urgency for payment transformation: Covid-19 led to an increase in digital payment adoption almost overnight. Most firms embraced digital payments to ensure business continuity as lockdowns boiled their needs down to reduced cash usage, digital payment acceptance, and faster settlement time. Businesses must consider changing their perception of payments from a cost center to a strategic opportunity that unlocks operational efficiency and growth.





Use customer journey mapping to identify user needs and solve payment pain points: Customer journey mapping in the B2B scenario has more steps than B2C due to involvement of different departments, teams, and senior authorities. Businesses should conduct extensive research before and throughout the journey mapping to know what-to and how-to collect information.

It is recommended to take inspiration from tried and tested retail customer journey mapping techniques to map out effective B2B journeys. Businesses should seek payment providers that have a focus on innovation and upgrading the B2B payment experience. Nium learns from its platform and applies that knowledge to help clients better understand their payment pain points, meanwhile also focusing on customer needs. Its retail platform offerings such as Intarem and Amaze Card successfully simplify cross-border and card payments for retail customers - a proof of Nium's global payments platform capabilities.

Select the right payment provider: Firms must look for a payments partner that not only offers new-age payment capabilities, but can grow alongside the clients' future needs and strategic roadmap. Maintaining multiple payment providers is expensive, and can make processes and systems slow. Hence, focus on selecting a partner that simultaneously unlocks global reach and zero service downtime convenience.



Nium's global payment platform offers zero downtime by integrating multiple third-party vendors for client onboarding, risk and compliance checks, and other payment processes. With presence across 60 countries, Nium ensures global coverage and saves time and money for its clients. Nium's platform, by feature, rapidly evolves and scales up to match evolving market scenarios and client needs all embedded in the payment experience.



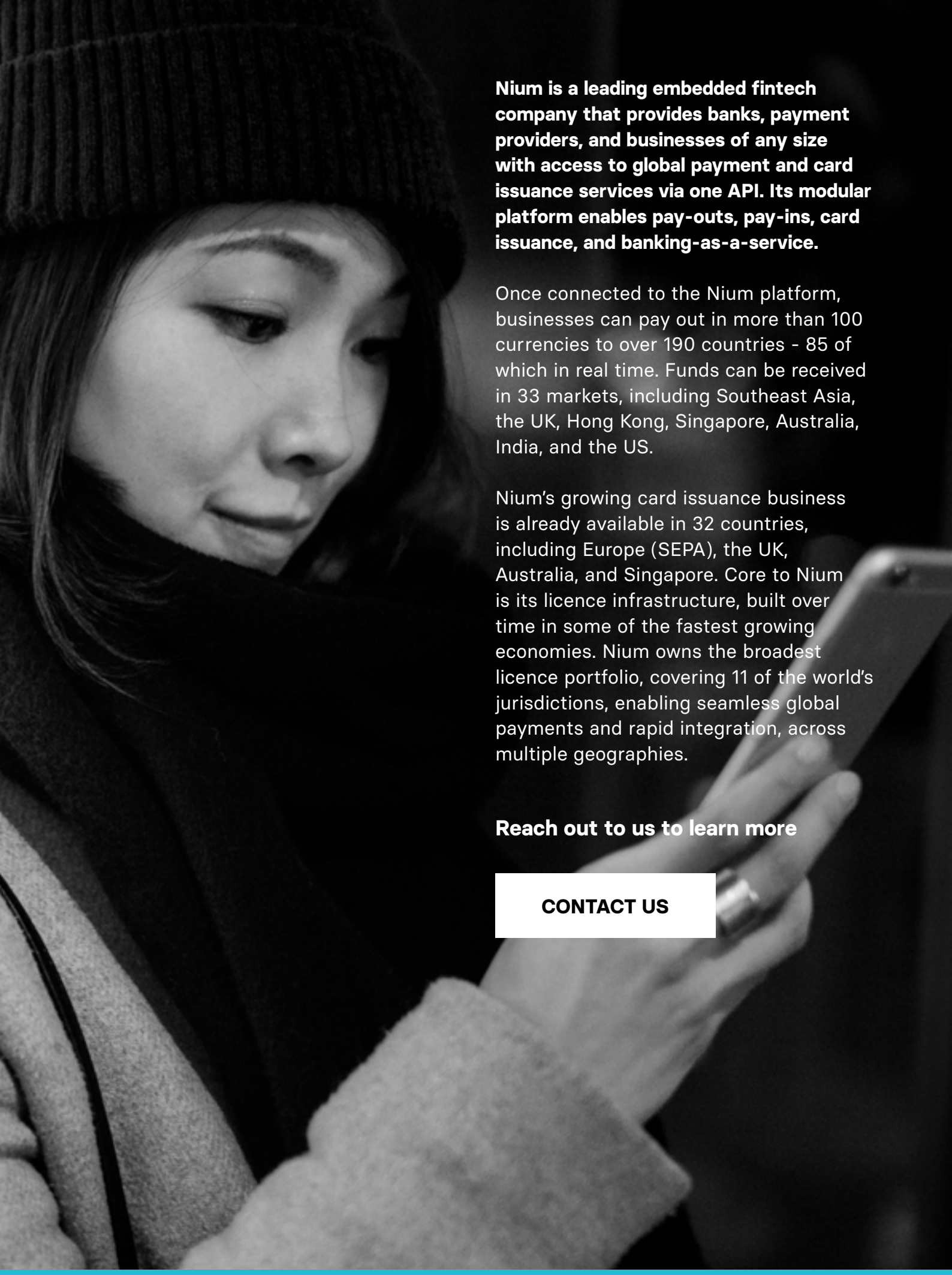
Adopt real-time APIs to integrate aggregators and advance data messaging standards: Payment aggregators use real-time APIs to connect businesses, and offer access to payment networks and methods. Businesses that use real-time APIs can avoid slow payments and leverage the benefits of embedded emerging technologies such as AI, machine learning (ML), robotic process outsourcing (RPA) to automate manual processes.

Adopting ISO 20022 messaging standards to enable richer payment information flow is strongly recommended; global standards such as ISO 20022 and SWIFT Corporate Access help reduce integration costs, interact faster with multiple banks and payment partners, and better leverage data.





These recommendations will help businesses identify the pain points in their payment offerings and better navigate the need for change. Partnering with an innovative payment provider, and adopting real-time APIs and global payment standards will help firms make their payments simple, seamless, and scalable.



Nium is a leading embedded fintech company that provides banks, payment providers, and businesses of any size with access to global payment and card issuance services via one API. Its modular platform enables pay-outs, pay-ins, card issuance, and banking-as-a-service.

Once connected to the Nium platform, businesses can pay out in more than 100 currencies to over 190 countries - 85 of which in real time. Funds can be received in 33 markets, including Southeast Asia, the UK, Hong Kong, Singapore, Australia, India, and the US.

Nium's growing card issuance business is already available in 32 countries, including Europe (SEPA), the UK, Australia, and Singapore. Core to Nium is its licence infrastructure, built over time in some of the fastest growing economies. Nium owns the broadest licence portfolio, covering 11 of the world's jurisdictions, enabling seamless global payments and rapid integration, across multiple geographies.

Reach out to us to learn more

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