Enabling the Digital Shift: Tokenisation in India's Economic Landscape

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Foreword

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Shri Gunveer Singh
Chief General Manager,
Department of Payment and Settlement Systems,
Reserve Bank of India

In a world where digital commerce is rapidly becoming the backbone of the global economy, India stands as a testament to resilience and innovation. Our nation has not only weathered economic uncertainties but has also risen to become the fifth-largest economy in the world. This economic vigour is deeply connected to our burgeoning digital payments ecosystem, a cornerstone for economic development, financial stability, and inclusion. The recent surge in the RBI Digital Payments Index to 395.57 in March 2023, up from 377.46 in September 2022, serves as a testament to this dynamic landscape.

The RBI has played an instrumental role in catalysing this digital transformation for India. Guided by our Payments Vision 2025 and its core theme of "E-Payments for Everyone, Everywhere, Everytime", we are committed to creating a payment system that is safe, secure, reliable, accessible, affordable, and efficient. Tokenisation represents a pivotal innovation that dovetails perfectly with our vision.

Tokenisation not only bolsters the security framework of digital transactions to enhance consumer trust and mitigate fraud risks but also paves the way for more digital payments and commerce innovation. Using tokenisation as a foundation, industry players may introduce customer-centric features like biometrics-based authentication and contactless payments via modern devices, wearables, and Internet of Things (IoT).

Customer centricity is another guiding principle behind all RBI initiatives. To bolster consumer confidence, we have taken decisive steps while implementing tokenisation. In collaboration with the financial ecosystem, the RBI has spearheaded educational initiatives to demystify tokenisation and its benefits for consumers. We have also mandated Additional Factor Authentication (AFA) for every tokenisation request, ensuring consumer control and elevating the overall security and trust in the process.

In closing, let me affirm that the RBI remains unwavering in its commitment to guiding this digital evolution of the economy towards an inclusive, secure, and efficient future. I extend my hearty congratulations to Visa for eloquently articulating the transformative potential of tokenisation and its manifold benefits for the Indian economy. I wholeheartedly invite everyone to delve into this insightful paper to fully grasp the game-changing potential of tokenisation. Together, we are not just shaping the future of digital payments; we are laying the groundwork and defining the contours of a more empowered and equitable India.

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Sandeep Ghosh
Group Country Manager India & South Asia
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India's digital journey is a testament to its unique character as a leapfrog economy. We have observed that when India embraces a technology trend, it does so with unparalleled speed and at an unprecedented scale. This agility and adaptability has been instrumental in the rapid evolution of our digital economy. Our report, "Enabling the Digital Shift: Tokenisation in India's Economic Landscape", delves into the intricate tapestry of this evolution and explores its future trajectory.

The digital economy's evolution in India is a confluence of several factors. The India Stack and its incremental innovations, along with the democratisation of data, have resulted in scalable solutions for the country. Landmark moves like demonetisation and the implementation of GST, coupled with widespread smartphone penetration, affordable data services and digital-first consumer behaviour since the pandemic, have turned the wheels of the digital economy juggernaut.

Central to our discussion is the role of secure and seamless commerce in the digital economy. As digital transactions grow exponentially, ensuring the safety and security of every transaction becomes paramount. It's here that technologies like tokenisation play a pivotal role in shaping consumer trust. While tokenisation is just one of the many innovations shaping the digital landscape, its role as a fulcrum in the broader framework of secure commerce cannot be understated. When paired with other emerging technologies and commerce trends, tokenisation paves the way for advanced commerce and payment experiences of the future.

The Indian government's proactive approach, characterised by forward-thinking policies and a conducive regulatory environment, has positioned India's payment landscape as one of the most advanced in the world. This environment has not only facilitated the growth of digital payments but has also ensured that innovations like tokenisation are seamlessly implemented, enhancing transaction security and facilitating seamless digital commerce activities.

As we look at the future of commerce, emerging technologies such as Artificial Intelligence, Biometrics authentication, Wearables, Voice assistants, and the Internet of Things are starting to redefine how consumers engage with a brand. Trends like social commerce, connected commerce, and autonomous commerce are not mere buzzwords, but tangible shifts that are reshaping the way businesses operate and consumers transact.

At Visa, our journey in India reflects our global ethos: leverage technology to build trust, manage the complexities of a vast infrastructure, and foster ecosystem collaboration. The rollout and scaling of tokenisation in India exemplify our commitment to these principles. It is essential to understand that tokenisation is just a steppingstone. The broader objective is to create a secure, resilient, interoperable, and inclusive digital economy that benefits every Indian.

As you navigate through this report, I invite you to reflect on the transformative journey of India's digital economy and the positive impact that technologies like tokenisation can have in driving innovation and change.

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Enabling the Digital Shift: Tokenisation in India's Economic Landscape

Executive summary

The digital payments landscape is undergoing a seismic shift, driven by technological advancements that range from mobile wallets and wearables to biometrics. As consumers adapt to these emerging payment methods, the onus is on banks, fintechs, and merchants to innovate and meet these evolving needs. However, this digital transformation also opens up new avenues for fraud, requiring robust security measures. This report explores how tokenisation is playing a critical role in shaping a secure and efficient digital economy in India, especially as the country aims for a $1 trillion digital economy by 2030.

A trillion-dollar aspiration

India's ambitious target of a $1 trillion digital economy by 2030 brings with it the challenge of ensuring consumer protection and awareness. The digital economy in India is remarkably diverse, as people from various backgrounds are quickly embracing mobile payments and online commerce. The sevenfold increase in cyberattacks from 2018 to 2022 underscores the urgent need for technologies like tokenisation to secure India's digital future.

Regulatory foresight

The Reserve Bank of India (RBI) has been a visionary regulator in India's tokenisation journey. Since 2019, the RBI has permitted the storage of tokenised card data on various electronic devices, with adequate prescribed safeguards being in place, extending this to include laptops, wearables, and IoT devices in 2021. Since the October 2022 mandate prohibiting any entity except card issuers and networks, from storing Card on File data has taken effect, a collaborative effort between regulators and the industry, along with comprehensive guidelines, has enabled smooth and extensive uptake of Card on File (CoF) tokenisation across a range of stakeholders.
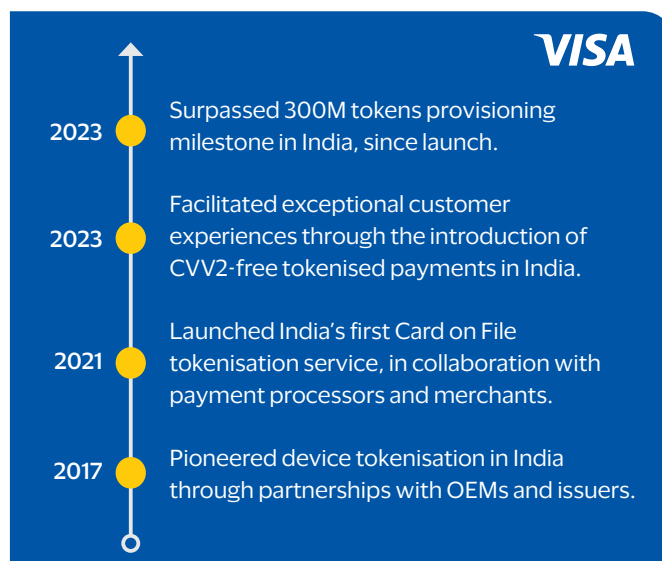
Collaborative adoption

The success of tokenisation in India is also a testament to the collaborative spirit of the country's payment ecosystem. A diverse range of stakeholders, including financial institutions, payment service providers, tech providers, and merchants, have come together to implement this technology at scale. This collective effort is further amplified by consumer education initiatives, ensuring that the benefits of tokenisation are well-understood and consent is explicitly given by consumers (as backed by the appropriate authentication mechanism prescribed by the RBI).

As tokenisation continues to evolve in India, it promises to unlock a diverse array of commerce opportunities and digital payment scenarios. Let's explore the future landscape of tokenisation in India. Tokenisation isn't merely a technological advancement; it's a pivotal catalyst shaping India's digital economy ambitions. When coupled with emerging technologies like smart devices, wearables, and biometrics, tokenisation has the potential to unlock a myriad of futuristic use cases that go beyond traditional transactional boundaries.

The convergence of speed and security

One of the most compelling trends driving modern commerce experiences is the convergence of speed and security. For instance, in the realm of mass transit and contactless payments, tokenisation synergises with NFC technology to enable quick tap-to-ride payments across various transit options. This eliminates the cumbersome wait times associated with traditional transaction methods while ensuring top-notch security. Similarly, the push and pull provisioning capabilities of tokenisation are making commerce experiences not just instant but also secure, a feature that becomes increasingly important as IoT devices become more prevalent in executing transactions.

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2023 — Surpassed 300M tokens provisioning milestone in India, since launch.

2023 — Facilitated exceptional customer experiences through the introduction of CVV2-free tokenised payments in India.

2021 — Launched India's first Card on File tokenisation service, in collaboration with payment processors and merchants.

2017 — Pioneered device tokenisation in India through partnerships with OEMs and issuers.

Tokenisation is ready for primetime in India

Contactless payments, enabled via NFC and wearables, may soon integrate payments into daily life through voice and IoT, and improve AR/VR shopping experiences.

Tokenisation, coupled with Frictionless authentication, offers a robust solution to card-related fraud. It's adaptable across devices and ready for future developments in biometric tech.

Tokenisation when paired with digital card controls helps issuers deliver superior card management experiences to cardholders.

Through appropriate consent-based push and pull provisioning, cardholders can send tokens to digital wallets and merchants can retrieve cards from issuers, respectively.

Smart devices

Frictionless authentication

Digital card controls

T

Token provisioning

Mass transit

B2B payments

Contextual commerce

Tokenisation enables quick tap-to-ride payments across transit and rentals using cards or wearables, reducing transaction wait times.

Tokenisation can transform B2B expense management by enhancing transaction security and precision. It simplifies expense tracking and removes administrative hurdles.

Tokenisation, when combined with social media, offers contextual commerce experiences right within users' favourite platforms.

Empowering consumers and businesses

Another underlying trend is the empowerment of consumers and businesses to have greater control over their financial transactions. Digital Card Controls paired with tokenisation are giving cardholders an unprecedented level of control and security. On the B2B front, Visa Payables Automation is leveraging tokenisation to offer enhanced transaction controls, thereby making business payments as seamless and secure as consumer transactions.

Building trust and contextual engagement

The third trend focuses on trust and contextual engagement. Frictionless authentication methods, when integrated with tokenisation, is elevating the trust factor in digital commerce to the level of physical card-based payments. In the realm of social commerce, tokenisation is merging with social media platforms to offer a more contextual and secure form of engagement, transforming the way consumers shop and interact online.

As tokenisation technology matures in evolving markets like India, it is set to catalyse a wide range of innovative commerce experiences. The technology not only boosts the security of payment transactions but also accommodates a plethora of new payment experiences - ranging from contactless transit payments to digital B2B operations and seamless subscription payment experiences. Furthermore, the incorporation of advanced security measures, such as biometric authentication, further reinforces trust and control among consumers and businesses alike. Altogether, these innovations are laying the groundwork for a robust, secure, and rapidly expanding digital economy in India.

Tokenisation overview

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Tokenisation, a cornerstone of modern digital payments, has emerged as a transformative force in the financial ecosystem. "Three Ts" underpin its significance, objective, and continued relevance to the digital economy:

1. **Technology:** Tokenisation is based on the EMVCo® payment tokenisation standard, which was finalised in 2014. The decade-old standard aligns with EMV[1] technology - the global standard for secure payments.

2. **Trust:** At the heart of tokenisation lies the promise of trust. Tokenisation allows merchants and payment processors to use a token instead of a PAN (primary account number) at the point of sale (online, in-app, or in-store) to process payments. The process facilitates trust among consumers, merchants, and issuers.

3. **Transition:** As the world rapidly evolves towards a digital-first realm, tokenisation facilitates this transition. It bridges the gap between the traditional economy and the digital economy, ensuring that businesses can facilitate payments without compromising on security or user experience.

In this report, we'll explore how tokenisation has been implemented and scaled in India, the future potential it presents when coupled with emerging technology and the dynamic trends that are propelling the digital economy forward.

Note to reader

Tokenisation: A multifaceted concept

Tokenisation is a versatile concept with applications in a variety of industries, each with its own unique interpretation of tokenisation. In this report, we will focus specifically on card tokenisation. However, tokenisation is quite popular in other contexts as well, such as:

• Asset tokenisation: In the digital assets realm, tokenisation refers to the process of representing ownership of real-world assets (such as real estate, art, or collectables), financial assets (such as equities, bonds, deposits, or loans), or digital assets (such as cryptocurrencies, stablecoins, virtual goods, or NFTs) with digital tokens on a blockchain.

• Natural language processing (NLP) tokenisation: In NLP, tokenisation is the process of breaking up a text into smaller units called tokens. These tokens are often individual words, but they can also be phrases, symbols, or other meaningful elements. This is a fundamental step in text analysis and processing, allowing algorithms to understand and manipulate human language.

This report will delve into the intricacies of how tokenisation works for payments. While we will not be discussing other contexts of tokenisation, we encourage you to stay with us for an in-depth look at this essential aspect of payment security.

Tokenisation mechanics

1. Customer's card details i.e. the PAN is replaced with a series of randomly generated numbers, which is called the "token."

2. The token has no direct correlation to the PAN and can't be reverse engineered, ensuring security even if it falls into the wrong hands.

3. The actual PAN is securely held in a token vault by Token Service Provider (TSP). Card networks or issuing banks can play the role of TSP.

Customer — PAN — Merchant — T — Token requestor (Payment service providers/acquirers) — T — Token service provider [2] (Card networks/issuers) — PAN — Issuer bank

1- EMV is a registered trademark of EMVCo® LLC in the United States and other countries, www.emvco.com. |
2- In India Only Card networks or Issuer banks are permitted to act as TSPs.
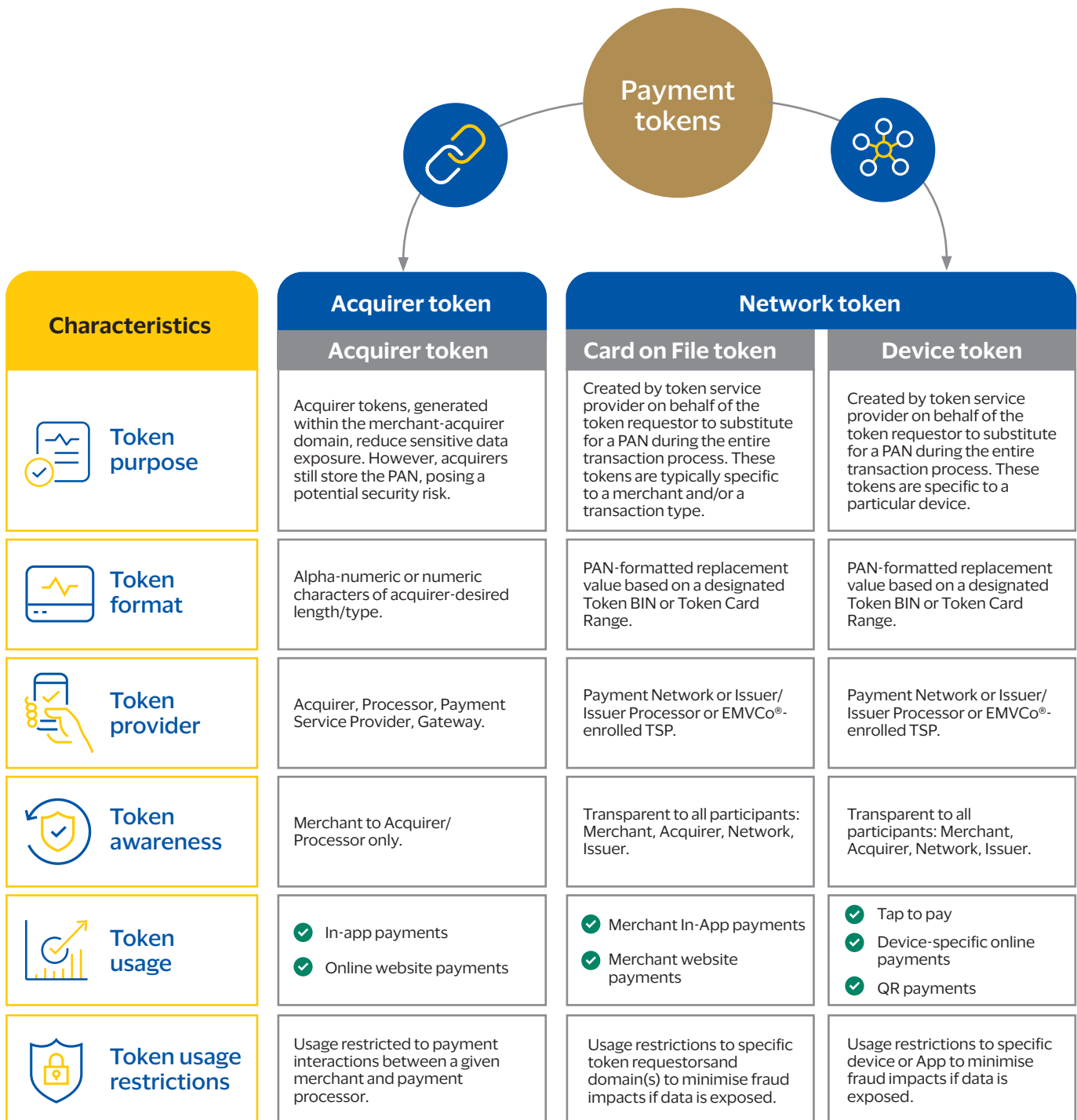
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The taxonomy of payment tokens

Most e-commerce merchants use tokenisation, typically provided by their payment service providers. These acquirer or gateway tokens substitute the PAN, safeguarding it from potential breaches at the merchant end. However, this doesn't grant issuers visibility into the token activities at the merchant's end. Issuers prefer the added assurance from network tokens used by merchants to secure cardholder data. Network tokens bolster PAN protection across the network and offer issuers visibility. The more insight and control issuers possess over the credential, the higher their confidence in transaction approval.
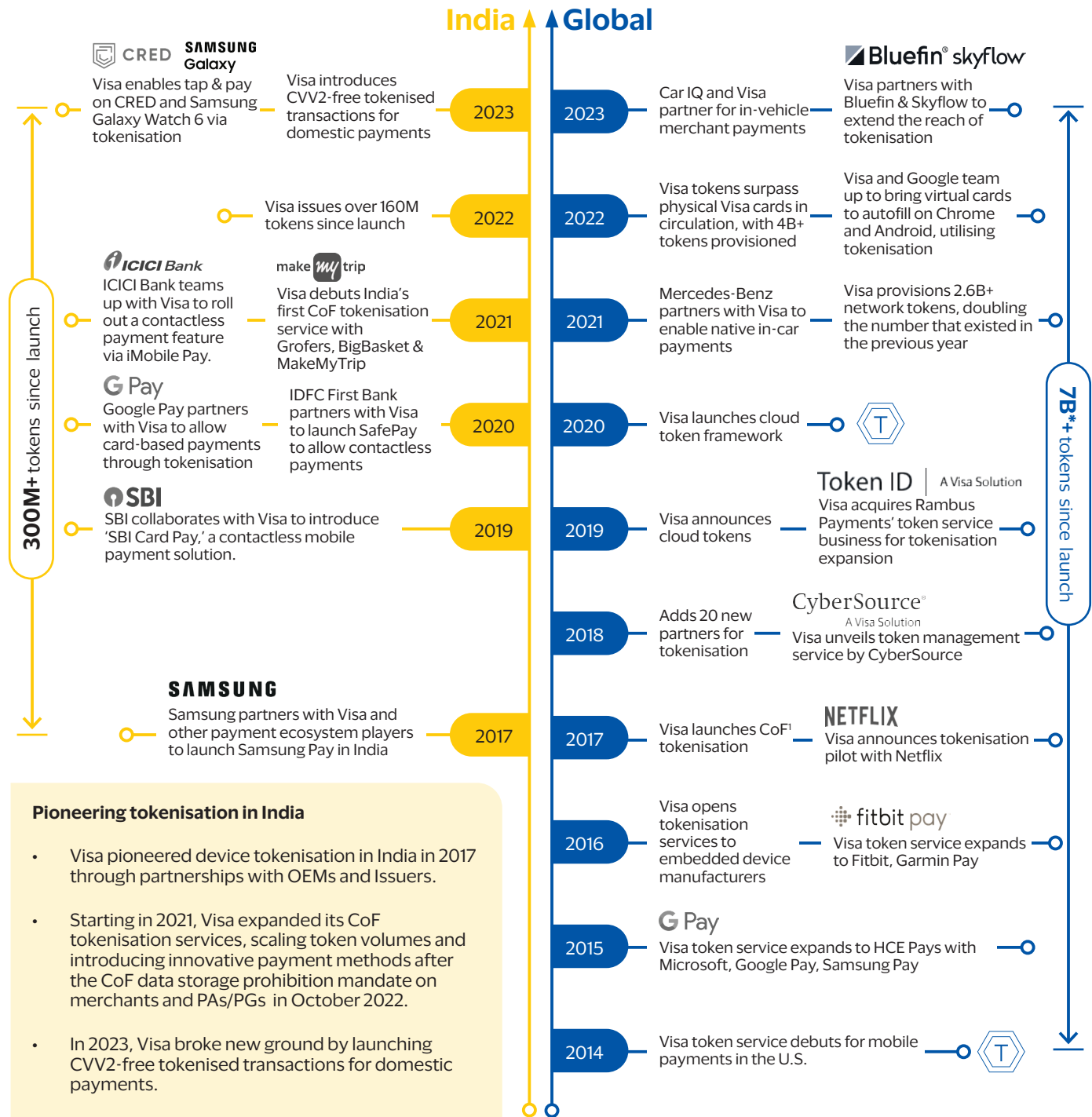
Token features like device-binding and lifecycle management lay the groundwork for genuinely seamless customer transactions. Recognising users through known-device data can make payments both ultra-secure and unobtrusive for improved consumer experience.

Network tokens can complement acquirer token solutions to amplify their value or function independently.

Payment tokens

Characteristics	Acquirer token	Network token	
	Acquirer token	**Card on File token**	**Device token**
Token purpose	Acquirer tokens, generated within the merchant-acquirer domain, reduce sensitive data exposure. However, acquirers still store the PAN, posing a potential security risk.	Created by token service provider on behalf of the token requestor to substitute for a PAN during the entire transaction process. These tokens are typically specific to a merchant and/or a transaction type.	Created by token service provider on behalf of the token requestor to substitute for a PAN during the entire transaction process. These tokens are specific to a particular device.
Token format	Alpha-numeric or numeric characters of acquirer-desired length/type.	PAN-formatted replacement value based on a designated Token BIN or Token Card Range.	PAN-formatted replacement value based on a designated Token BIN or Token Card Range.
Token provider	Acquirer, Processor, Payment Service Provider, Gateway.	Payment Network or Issuer/Issuer Processor or EMVCo®-enrolled TSP.	Payment Network or Issuer/Issuer Processor or EMVCo®-enrolled TSP.
Token awareness	Merchant to Acquirer/Processor only.	Transparent to all participants: Merchant, Acquirer, Network, Issuer.	Transparent to all participants: Merchant, Acquirer, Network, Issuer.
Token usage	✔ In-app payments ✔ Online website payments	✔ Merchant In-App payments ✔ Merchant website payments	✔ Tap to pay ✔ Device-specific online payments ✔ QR payments
Token usage restrictions	Usage restricted to payment interactions between a given merchant and payment processor.	Usage restrictions to specific token requestorsand domain(s) to minimise fraud impacts if data is exposed.	Usage restrictions to specific device or App to minimise fraud impacts if data is exposed.

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Pioneering tokenisation in India and globally

India ↑ | ↑ **Global**

India timeline

300M+ tokens since launch

2023
- **CRED / SAMSUNG Galaxy** — Visa enables tap & pay on CRED and Samsung Galaxy Watch 6 via tokenisation
- Visa introduces CVV2-free tokenised transactions for domestic payments

2022
- Visa issues over 160M tokens since launch

2021
- **ICICI Bank** teams up with Visa to roll out a contactless payment feature via iMobile Pay.
- **make my trip** — Visa debuts India's first CoF tokenisation service with Grofers, BigBasket & MakeMyTrip

2020
- **G Pay** — Google Pay partners with Visa to allow card-based payments through tokenisation
- IDFC First Bank partners with Visa to launch SafePay to allow contactless payments

2019
- **SBI** collaborates with Visa to introduce 'SBI Card Pay,' a contactless mobile payment solution.

2017
- **SAMSUNG** — Samsung partners with Visa and other payment ecosystem players to launch Samsung Pay in India

Global timeline

7B*+ tokens since launch

2023
- Car IQ and Visa partner for in-vehicle merchant payments
- **Bluefin / skyflow** — Visa partners with Bluefin & Skyflow to extend the reach of tokenisation

2022
- Visa tokens surpass physical Visa cards in circulation, with 4B+ tokens provisioned
- Visa and Google team up to bring virtual cards to autofill on Chrome and Android, utilising tokenisation

2021
- Mercedes-Benz partners with Visa to enable native in-car payments
- Visa provisions 2.6B+ network tokens, doubling the number that existed in the previous year

2020
- Visa launches cloud token framework

2019
- Visa announces cloud tokens
- **Token ID | A Visa Solution** — Visa acquires Rambus Payments' token service business for tokenisation expansion

2018
- Adds 20 new partners for tokenisation
- **CyberSource, A Visa Solution** — Visa unveils token management service by CyberSource

2017
- Visa launches CoF[1] tokenisation
- **NETFLIX** — Visa announces tokenisation pilot with Netflix

2016
- Visa opens tokenisation services to embedded device manufacturers
- **fitbit pay** — Visa token service expands to Fitbit, Garmin Pay

2015
- **G Pay** — Visa token service expands to HCE Pays with Microsoft, Google Pay, Samsung Pay

2014
- Visa token service debuts for mobile payments in the U.S.

Pioneering tokenisation in India

- Visa pioneered device tokenisation in India in 2017 through partnerships with OEMs and Issuers.

- Starting in 2021, Visa expanded its CoF tokenisation services, scaling token volumes and introducing innovative payment methods after the CoF data storage prohibition mandate on merchants and PAs/PGs in October 2022.

- In 2023, Visa broke new ground by launching CVV2-free tokenised transactions for domestic payments.

Visa leads in global tokenisation, issuing 7 billion+ tokens since 2014 and focusing heavily on India. It enabled Samsung Pay in 2017 and has since partnered with several issuer wallets and digital wallets like Google Pay. It has also pioneered the launch of the Card on File tokenisation (CoFT) service with brands like Grofers and BigBasket. Visa has also partnered with major payment processors in India, such as Razorpay, Juspay, etc., to scale card-based tokenised payments to merchants across sectors.

Buoyed by RBI's CoF data storage prohibition mandate on merchants and PAs/PGs that came into effect in October 2022, Visa has issued 300 million+ tokens in India. In 2023 it has partnered with CRED and Samsung Galaxy to introduce tokenised payments through digital wallets and smart watches, respectively. In a strategic step towards bolstering security and elevating user experience, Visa introduced tokenised transactions without the need for CVV2 for domestic payments. Through such pivotal initiatives and collaborations, Visa is not merely influencing but spearheading the evolution of secure, streamlined, and innovative payments in India.

* Till August 2023 | 1. CoF =Card on File | B- Billion, M-Million

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The driving forces behind tokenisation

Tokenisation serves as an anchor in the payment ecosystem, aiding various stakeholders in achieving their objectives. Whether it's the economic growth goals set by governments or the consumer protection mandates of regulators, tokenisation plays a pivotal role.

Furthermore, it empowers private market players, including merchants, payment processors, issuer banks, and payment networks, to meet their business aspirations. For instance, it addresses the needs of customers wanting reduced friction, and better user experience in Card-Not-Present (CNP) transactions. Merchants also benefit as tokenisation helps reduce card abandonment that happens due to false declines, thereby improving payment success rates and increasing business volumes.

Initially, tokenisation has gained traction in mature markets due to the advanced digital commerce infrastructure and high smartphone and internet adoption. However, the global rise in data breaches, coupled with the swift expansion of digital commerce during the pandemic, underscored the pressing need for robust digital payment security, particularly in emerging markets.

This urgency, intensified by the spike in fraud risks during these tumultuous times, prompted proactive regulators in many regions to expedite their tokenisation mandates. In response, stakeholders across the payment ecosystem collaborated to swiftly and efficiently roll out tokenisation, showcasing their agility and commitment to innovation. Additionally, these stakeholders have engaged in consumer education efforts to highlight the crucial role and benefits of tokenisation in enhancing payment security.

Policy objectives

Regulators

- Improve consumer protection
- Implement global standards
- Financial literacy and awareness

Governments

- Promote digital economy
- Reduce reliance on cash
- Improve access and inclusion

Tokenisation drivers

Customers

- Transaction convenience
- Security and privacy
- Multiple payment options

Merchants
(and acquirers/ processors/ gateways)

- Mitigate fraud
- Reduce false declines
- Deliver seamless commerce experiences

Payment networks

- Expand digital payment reach
- Comply with regulatory mandates
- Drive payments innovation

Issuer banks

- Offer secure payment solutions
- Enhance customer experience
- Comply with regulatory mandates

Better payment experience

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Regulatory stance on tokenisation in India

Shri Vasudevan P
Executive Director
Reserve Bank of India

How satisfied is the RBI with the present landscape of tokenisation adoption in India and its role in achieving the dual objectives of enhancing digital payment convenience and fortifying secure commerce?

It is indeed a feeling of great satisfaction and delight to see the extent of adoption of tokenisation in the country. Given the initial reluctance of stakeholders, the pace of progress has been very gratifying. In a short span of time, we see the number of CoF tokens created as of October 6th (~560 million), the number of successful transactions processed using such tokens (~1.53 billion), and the value of these transactions (~ INR 5 trillion), we can take the entire exercise to be a hugely successful one. In fact, this may be one of the largest tokenisation projects ever undertaken across the world. As a result, nearly 66% of domestic off-us card-not-present transactions move on tokenised rails every month. And this is only going to scale up. Significant milestones have been achieved during this journey of ours towards enhancing user convenience and balancing safety requirements with respect to card data storage in the online world. There were certain issues in proper implementation in a couple of use cases, but they have been largely addressed by the stakeholders after being pointed out by us. This approach will be ongoing until everyone settles down. There are outstanding issues relating to guest checkout transactions which also need to be expeditiously resolved so that there are no chinks of misuse of data breaches left in the armour. In examining the current dynamics, the networks, issuers, and merchants have observed notable improvements in acceptance rates. We're witnessing a significant uplift of 2-3% in acceptance rates. Furthermore, transaction latency has been considerably reduced, leading to a marked acceleration in transaction speeds.

Could you comment on the efforts undertaken by ecosystem stakeholders during the tokenisation rollout?

The activity was mammoth, and the timelines were stiff. Many meetings were organised by the Reserve Bank with all the industry stakeholders present – be they card networks, online marketplaces, banks, payment aggregators, etc. The meetings were very structured and focused on brainstorming on the issues involved and clearly laid down what the deliverables are and when they will be done. We did not hesitate to review a few things about the process and manner of implementation

based on such discussions. Specific use cases like EMI-based transactions, refunds, chargebacks, e-mandates, etc., were also solved while complying with the expectations. Considerable effort was put in to educate the beneficiaries of this exercise – the card users and the merchant community. In fact, the Reserve Bank undertook massive pan-India awareness campaigns across all media to explain the benefits of tokenisation, the process to be followed, etc. Within the overall deadlines, enough space was given for users to create tokens. I have also seen similar campaigns by the card networks and other intermediaries in the online card transaction processing chain. The top management of the Reserve Bank also talked about the benefits of tokenisation in their speeches and media / public interactions. On the whole, the entire approach was well-coordinated and executed. I will admit that there were anxious moments when the public strongly vented out their anger and discomfort on social media. Some stakeholders were also seen giving sound bytes to the media resulting in friction. Looking back, everything seems fair, but the feeling remains that the nay-sayers could have been more balanced in their views and inputs to the media. The need for tokenisation must be seen in the context of card data breaches, if they were to occur, and the havoc that the card users would have to endure. When we have a huge card base and an equally large merchant base that accept and process card data, such situations cannot be unattended. As Oliver Twist became famous by asking for more, we too, request the industry to be agile and partner with us to keep our payment systems and the set of infrastructure, processes, and data top-notch. These initiatives have enormously helped us achieve the pole position across the globe in the payments space. Teething issues faced during the implementation could have been proactively solved by the various ecosystem participants. What remains now is the aspect relating to tokenisation of guest checkout transactions. Once this piece is complete, so will be our objective of achieving nil card data storage in online medium.

What are the RBI's long-term aspirations with the CoF tokenisation mandate and device tokenisation guidelines?

It is the continuous and ongoing endeavour of Reserve Bank to enhance security of payment transactions – online or offline. Reserve Bank has not hesitated to take unprecedented or unexplored steps like mandating two-factor-authentication for all card-not-present transactions. When the world was looking

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Regulatory stance on tokenisation in India

at enforcing security in card-present transactions, we focussed on online card-not-present transactions. Going by the industry developments and user expectations, our stance has been vindicated. In the context of card data misuse, and to prevent the sanctity of card transactions – whether present or otherwise – it was our aspiration to devalue card data. No one, repeat no one, should encash any card data accessed in any nefarious manner. The card number should be unusable irrespective of whether the transaction is undertaken in card-present or not-present mode.

Device tokenisation represents a huge opportunity to make the plastic card form factor redundant. With the increasing adoption of Near Field Communication (NFC) devices in India, be it mobile, smartwatches or wearables, device tokenisation will open up more opportunities for making payments convenient in the country. For device tokenisation to fully take-off, the certification requirements from EMVCo® have to be aligned reducing the time and cost taken to go live on the solutions available.

The ultimate desire is to see that there is no usage of raw card data for any type of processing or storage, and there should never be any loss arising out of card data compromise going forward in our country.

With the increasing penetration of smartphones and the growing adoption of e-commerce in rural and semi-urban areas, digital payments adoption is also on the rise across all demographics. How does tokenisation fit into the RBI's broader strategy to encourage the adoption of digital payments in these rapidly evolving demographics?

Certain segments of payment users hesitate from transacting in the online space, given the data that is stored by various merchants and payment entities. Merchants – big or small – have been storing card data, sometimes even without user consent. There have been card data breaches, announced or otherwise, at many of these merchant locations. Tokenisation provides an opportunity to bring all segments of the population to the digital payments ecosystem by providing a customer-consented process for securing card details. Customer centricity is one of the main pillars of RBI initiatives, so we wanted explicit customer consent for each of the merchants where the tokens get used, and if the customer has given consent, they will also be comfortable using the tokens. The resultant customer confidence will help the digital ecosystem scale to further heights. The tokenisation framework can and has become the bedrock for implementing various items highlighted in the Vision 2025 document of the Reserve Bank, which includes weaving in alternate authentication mechanisms, contactless digital payments, issuer push provisioning, etc.

How does the RBI perceive the role of private sector entities like Visa in actualising the

objectives outlined in Payments Vision 2025, particularly in the realm of tokenisation?

Visa is the biggest player in the cards ecosystem. It has also implemented tokenisation across other geographies. However, to meet expectations of tokenisation in the Indian context, it is to the credit of Visa that they accepted, adapted and implemented card tokenisation in letter and spirit. Visa has been a constant support when we look at implementing various dimensions and action points of the current payments systems vision document.

As India's digital economy experiences unparalleled growth, what potential do you see for tokenisation in capitalising on emerging opportunities?

Device tokenisation will assist in creating new payment pipes along with business models that can be utilised by entities for simplifying payments with new-age authentication solutions in line with the Payments Vision 2025 of the Reserve Bank. India is also poised to move towards a single payment instrument for all the transit needs. One of the good things I was seeing recently is that one of the networks has decided not to use the CVV anymore because the CVV is again an additional factor of authentication. And if you have already tokenised using additional factor of authentication, probably the need for CVV may not be that vital. Today, the world understands cards where the instrument or underlying is plastic. With the adoption of device tokenisation and NFC devices, it is expected that this payment instrument in the foreseeable future will be a mobile device token. This will help India realise the CO_2 goals and help the world be a beneficiary of this eventuality.

Looking beyond the horizon of 2025, how does the RBI anticipate the evolution of tokenisation, especially in the milieu of emerging trends such as the Internet of Things (IoT) and smart devices?

Payments Vision 2025 envisions facilitating a framework for IoT and context-based payments. Tokenisation has the potential to provide the first layer of security when such payments are enabled. We will also be guided by the developments that the industry sees and then offers to us as some of the solutions that could be implemented on top of tokenisation. It can be expected that other jurisdictions look to the Indian example for implementing rules around tokenisation and actual card data storage. The globe will be a better place without plastic or physical cards. Customer card data will be safe whether they are transactions on or offline. Merchants can concentrate on their line of activity which is of selling merchandise without worrying on securing the card data that they end up having. And ultimately, the regulators will be happy. Which also means that the card networks can breathe easy and concentrate on their strengths, which is transaction processing.
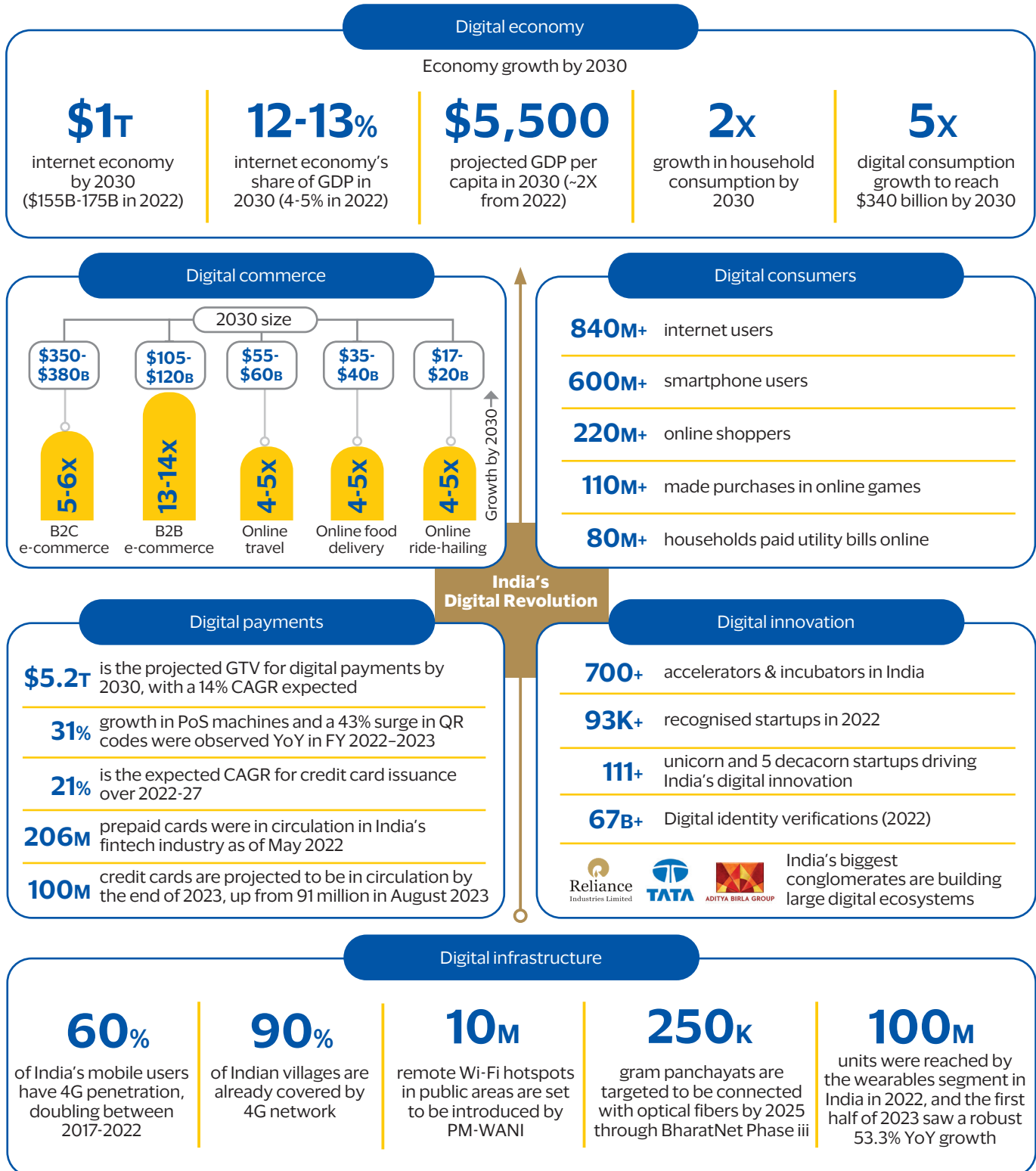
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Tokenisation for a trillion-dollar digital economy

As India strides towards its ambitious goal of a $1 trillion digital economy by 2030, the journey demands a harmonious blend of growth, sustainability, and consumer protection. The nation's vast digital landscape, with 500 million+ non-English speaking internet users, underscores the need for comprehensive awareness and robust consumer protection measures. This is vital to harness the full potential of digital adoption. Alarmingly, India has seen a sevenfold surge in cyberattacks, escalating from 0.2 million in 2018 to approximately 1.3 million in 2022. Tokenisation could emerge as a pivotal technology, poised to address these challenges and catalyse India's connected vision.

Digital economy

Economy growth by 2030

$1T	12-13%	$5,500	2X	5X
internet economy by 2030 ($155B-175B in 2022)	internet economy's share of GDP in 2030 (4-5% in 2022)	projected GDP per capita in 2030 (~2X from 2022)	growth in household consumption by 2030	digital consumption growth to reach $340 billion by 2030

Digital commerce

2030 size

$350-$380B	$105-$120B	$55-$60B	$35-$40B	$17-$20B
5-6x	13-14x	4-5x	4-5x	4-5x
B2C e-commerce	B2B e-commerce	Online travel	Online food delivery	Online ride-hailing

Growth by 2030

Digital consumers

840M+	internet users
600M+	smartphone users
220M+	online shoppers
110M+	made purchases in online games
80M+	households paid utility bills online

India's Digital Revolution

Digital payments

$5.2T	is the projected GTV for digital payments by 2030, with a 14% CAGR expected
31%	growth in PoS machines and a 43% surge in QR codes were observed YoY in FY 2022–2023
21%	is the expected CAGR for credit card issuance over 2022-27
206M	prepaid cards were in circulation in India's fintech industry as of May 2022
100M	credit cards are projected to be in circulation by the end of 2023, up from 91 million in August 2023

Digital innovation

700+	accelerators & incubators in India
93K+	recognised startups in 2022
111+	unicorn and 5 decacorn startups driving India's digital innovation
67B+	Digital identity verifications (2022)

Reliance Industries Limited — TATA — ADITYA BIRLA GROUP | India's biggest conglomerates are building large digital ecosystems

Digital infrastructure

60%	90%	10M	250K	100M
of India's mobile users have 4G penetration, doubling between 2017-2022	of Indian villages are already covered by 4G network	remote Wi-Fi hotspots in public areas are set to be introduced by PM-WANI	gram panchayats are targeted to be connected with optical fibers by 2025 through BharatNet Phase iii	units were reached by the wearables segment in India in 2022, and the first half of 2023 saw a robust 53.3% YoY growth

T- Trillion, B-Billion, M-Million, K-Thousand

VISA

Tokenisation: The India story

Tokenisation has emerged as a pivotal technology in India, reshaping the landscape of digital payments and aligning with the nation's push towards a digital economy. Here's a glimpse into the India story of tokenisation:
The journey of tokenisation in India, both in terms of regulatory enablement and industry implementation, has been a unique and remarkable one. It's a story that reflects the "Make in India" ethos, tailored to the specific challenges and opportunities of the Indian market.

Regulatory approach (RBI)	Tokenisation ethos in India	Implementation approach (Ecosystem players)
RBI enabled Card on File tokenisation for digital commerce to minimise the storage of sensitive payment data, addressing rising data breaches and fraud incidents.	**Consumer protection**	Firms from the payment and commerce sectors came together to implement Card on File tokenisation as a solution to the data protection objective of the regulator, focusing on customer security.
RBI enabled customers to choose tokenisation with explicit consent and control over transaction limits.	**Transparency & control**	Tokenisation implementation in India allows issuers to provide cardholders with visibility on token storage and implements OTP on Visa Secure rails for authentication capturing explicit customer consent , ensuring transparency & control.
RBI engaged with industry bodies like PCI, Nasscom, etc., to understand stakeholders' perspectives, fostering collaboration.	**Ecosystem collaboration**	The payment industry, with contributions from major players, has been collaborating with various stakeholders to ensure a smooth and glitch-free roll-out of tokenisation across multiple use cases such as in-app payments, and online payments.
In 2021, the RBI broadened tokenisation scope to include laptops, desktops, wearables, and IoT devices, alongside mobile phones and tablets.	**Customer experience**	Industry leaders are collaborating to advance India-centric innovations, such as CVV2-free tokenised payments and tokenisation for guest checkouts.
In 2019, the RBI issued tokenisation guidelines specifically for mobile phones and tablets.	**Payment innovation**	Visa has collaborated with OEMs, issuers, and TSPs to introduce new form factors for payments, such as smartphone pay, wearables pay, etc. For CoFT, Visa is actively bringing novel provisioning methods to ensure instant gratification for customers.

The "Make in India" approach to tokenisation is a shining example of regulatory foresight, collaborative innovation, and a strong focus on consumer protection. The rapid, successful, and scalable rollout of Card on File tokenisation in India demonstrates a mature and progressive payment ecosystem that is well-positioned to support the continued growth of digital payments in the country. It's testament to India's ability to adopt global solutions to local needs, reflecting the entrepreneurial spirit and commitment to enhancing the security and convenience of digital payments for all.
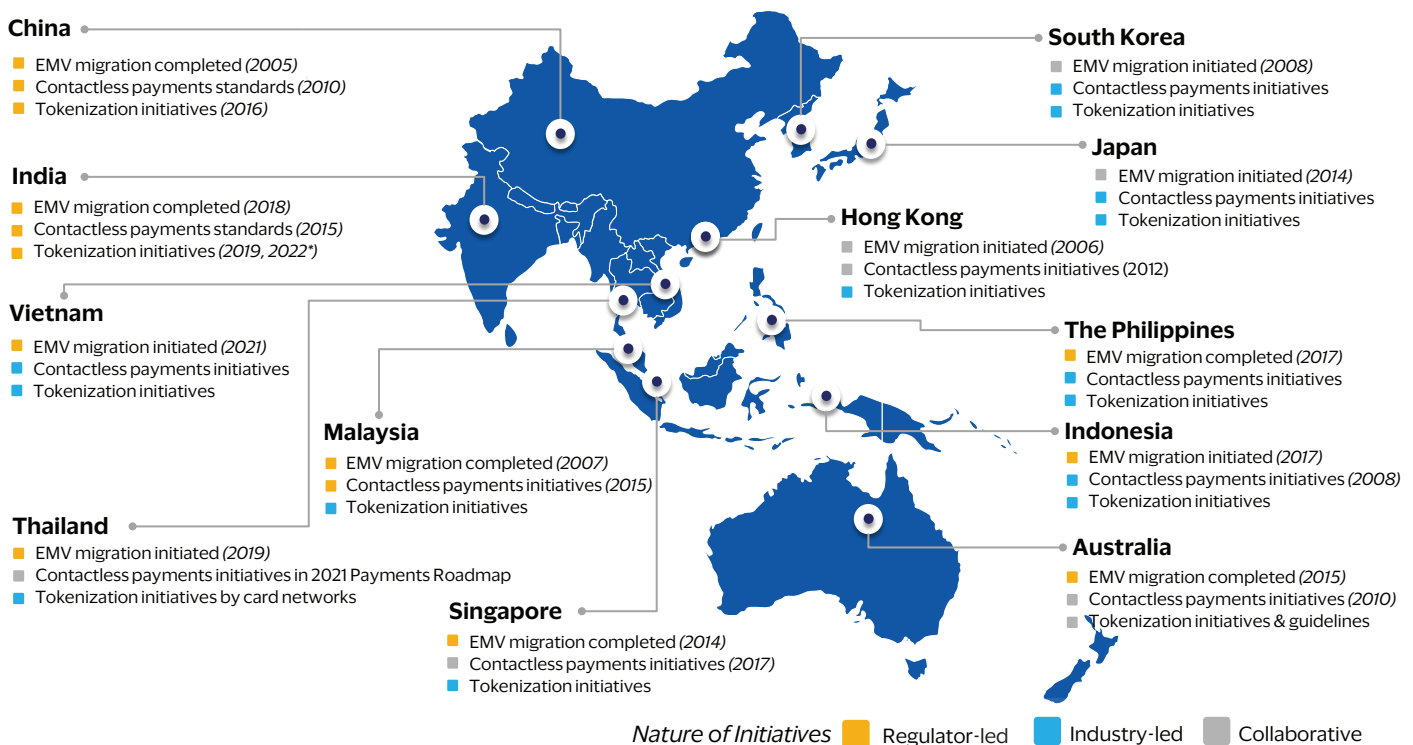
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The Asia Pacific playbook for payments standards

The evolution of payment standards globally has been marked by a series of transformative shifts driven by technological advancements, digitalisation, and regulatory changes. In India, the Reserve Bank of India (RBI) has been at the helm of this evolution, steering the country through the waves of EMV migration, the rise of contactless payments, and the strategic adoption of tokenisation. These initiatives, taken together, reflect RBI's coherent vision of creating a secure, convenient, and inclusive payment ecosystem for all and have positioned India as a leader in payment evolution.

Regulators play a crucial role in adoption of payment standards in emerging markets

China
- EMV migration completed *(2005)*
- Contactless payments standards *(2010)*
- Tokenization initiatives *(2016)*

India
- EMV migration completed *(2018)*
- Contactless payments standards *(2015)*
- Tokenization initiatives *(2019, 2022*)*

Vietnam
- EMV migration initiated *(2021)*
- Contactless payments initiatives
- Tokenization initiatives

Malaysia
- EMV migration completed *(2007)*
- Contactless payments initiatives *(2015)*
- Tokenization initiatives

Thailand
- EMV migration initiated *(2019)*
- Contactless payments initiatives in 2021 Payments Roadmap
- Tokenization initiatives by card networks

Singapore
- EMV migration completed *(2014)*
- Contactless payments initiatives *(2017)*
- Tokenization initiatives

South Korea
- EMV migration initiated *(2008)*
- Contactless payments initiatives
- Tokenization initiatives

Japan
- EMV migration initiated *(2014)*
- Contactless payments initiatives
- Tokenization initiatives

Hong Kong
- EMV migration initiated *(2006)*
- Contactless payments initiatives (2012)
- Tokenization initiatives

The Philippines
- EMV migration completed *(2017)*
- Contactless payments initiatives
- Tokenization initiatives

Indonesia
- EMV migration initiated *(2017)*
- Contactless payments initiatives *(2008)*
- Tokenization initiatives

Australia
- EMV migration completed *(2015)*
- Contactless payments initiatives *(2010)*
- Tokenization initiatives & guidelines

Nature of Initiatives   Regulator-led   Industry-led   Collaborative

Laying the foundation for EMV migration

The introduction of EMV chip technology marked a significant milestone in enhancing payment security. As countries like China, Malaysia, and Hong Kong transitioned to EMV by 2008, RBI's 2015 mandate ensured that Indian banks swiftly migrated to this safer technology within a span of three years.

Contactless payments and tokenisation

The onset of the pandemic accelerated the shift towards digital commerce, presenting both opportunities and challenges. While contactless payments offered a safer and more convenient transaction method in a socially-distanced world, the surge in online transactions also exposed vulnerabilities. The rise in data breaches and fraud incidents underscored the need for enhanced security measures.

RBI, with its forward-looking approach, had already introduced guidelines for device tokenisation in 2019. However, the challenges posed by the rapid growth of digital payments and digital commerce in the country during the pandemic made it clear that a more robust solution was needed. Card on FIle Tokenisation, which allows merchants and payment processing intermediaries to adopt tokens to process transactions, emerged as the answer. This approach was in alignment with the central bank's consistent focus on consumer consent and awareness.

By leveraging tokenisation with contactless payment technologies, RBI ensured that consumers could enjoy the convenience of quick payments without compromising on security.

While countries across the Asia Pacific have made strides in adopting new payment standards, RBI's proactive measures from EMV migration to the strategic adoption of tokenisation, have been instrumental in shaping India's payment landscape. By anticipating challenges and acting decisively, RBI has ensured that India remains at the forefront of global payment innovations, always prioritising consumer safety and convenience.

*Device tokenisation permitted in 2019, Card on File tokenisation permitted in 2021

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RBI's role in driving tokenisation in India

RBI's progressive stance

The Reserve Bank of India has been a visionary regulator, proactively shaping the landscape of tokenisation in India. Their tokenisation journey began to take shape in 2019 when RBI permitted the storage of tokenised card data on electronic devices such as smartphones and tablets. Recognising the potential of this technology, RBI extended this provision to other devices like laptops, wearables, and IoT devices in August 2021. By embracing tokenisation, RBI has effectively eliminated the scope for misuse, setting a precedent for innovation and security.

Implementation and consumer protection

In March 2020, RBI took a significant step by issuing a notification mandating the deletion of Card on File (CoF) credentials from merchants and payment processor platforms. Initially, the CoF credentials storage restrictions on merchant and processors was set till December 2021. The thoughtful extension of the deadline to September 2022 and a detailed guideline for CoF tokenisation allowed for a smooth and broad implementation of CoF tokenisation across various stakeholders. RBI's comprehensive guidelines cover aspects like explicit customer consent through Additional Factor of Authentication (AFA), secure storage of tokens, customer service, and dispute resolution. Emphasising the use of certified tokenisation service providers (TSPs), RBI has ensured a robust and standardised framework that prioritises consumer protection.

Leadership in education and adoption

RBI's role extends beyond regulation and implementation. They have actively engaged in educating consumers about the benefits of tokenisation, publishing advisories, FAQs, and conducting workshops for the entire ecosystem. This educational initiative by RBI has been further complemented by similar efforts run by ecosystem players such as issuers, card networks, and processors. Together, these initiatives have been instrumental in building trust and consumer understanding around this technology.

RBI's strategic approach to tokenisation, characterised by progressive initiatives, robust implementation, and collaborative educational outreach, has set a unique and inspiring example in the global payments landscape. Under RBI's guidance, India has emerged as a global leader in tokenisation adoption, with over half a billion tokens getting provisioned and used since the CoF data storage prohibition mandate. This aligns well with the Payments Vision 2025, which aims to establish a framework for IoT and context-based payments. This shift alleviates the burden on merchants, allowing them to focus on their core business activities without worrying about securing card data. It also enables issuers, payment processors and card networks to concentrate on their respective roles more efficiently. This approach by RBI not only enhances security but also positions India as an example for other jurisdictions to follow in implementing tokenisation and card data storage rules.

RBI's tokenisation initiatives

Oct 2022 — CoF data storage prohibition mandate on merchants and PAs/PGs comes into effect.

Jun 2022 — RBI extends deadline for card tokenisation till 30th September 2022.

Dec 2021 — RBI extends deadline for card tokenisation till 30th June 2022.

Sep 2021 — RBI issues a directive (CoF directive) to extend the existing device tokenisation to Card on File tokenisation (CoFT).

Aug 2021 — Device-based tokenisation extended to all consumer devices (laptops, wearables, etc.).

Mar 2021 — RBI extends the deadline of card data storage restrictions till 30th December, 2021.

Mar 2020 — RBI brings first draft of PA/PG guidelines which includes a prohibition on merchant websites from storing Card on File and related data.

Jan 2019 — RBI introduces guidelines for device-based tokenisation by card networks for mobile and tablets.

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One year of tokenisation in India

October 2023 marks the first anniversary of the CoF data storage prohibition mandate in India, a significant milestone in the country's rapidly evolving digital payment ecosystem. Spearheaded by proactive regulators, the initiative aimed to bolster the security and efficiency of online transactions. The RBI's role was pivotal, as it recognised the growing need for enhanced payment security in an era of booming digital commerce and increasing fraud risks.

A collaborative achievement

The success of tokenisation in India is not just a regulatory triumph but also a testament to the collaborative spirit of the country's payment ecosystem. A diverse range of stakeholders, from financial institutions and payment networks to payment processors, merchant acquirers, digital wallets, and tech providers, came together to implement tokenisation at scale. This collective effort, achieved within a constrained timeframe, underscores India's agility and openness to embracing cutting-edge technologies. The impressive rate of tokenisation adoption in India is also supported by extensive customer education campaigns.

Visa's role in scaling tokenisation

Since the introduction of the CoF data storage prohibition mandate, industry leaders alongside Visa have worked diligently to scale tokenisation in India. Collaborative efforts have enabled Visa to provision over 300 million+ tokens till August 2023. Transactions conducted through advanced token-based systems, like the one implemented by Visa, have shown superior performance compared to traditional PAN systems, with a noticeable 4.5% uplift in card authorisation rates post-mandate. A critical aspect of this industry-wide push was to ensure that only active and verified cards were tokenised during the rollout, which significantly contributed to the enhanced authorisation rates.

The first year of CoF tokenisation in India has been a resounding success, marked by regulatory foresight, collaborative implementation, and rapid adoption.

Key metrics on tokenisation adoption and performance indicators

Token statistics - Global

7B+
tokens issued [1]

8,500+
issuers enabled for tokenisation [2]

3%
card authorisation rate uplift [3]

28%
fraud reduction ($PV) Visa Token transactions vs PAN-based online transactions [4]

Token statistics - India

300M+
tokens issued [5]

4.5%
card authorisation rate uplift [6]

1. VisaNet Data, Till August 2023
2. VisaNet Data, July 2022, global
3. VisaNet Data, Jan–Mar 2022. Visa credit and debit global card-not-present transactions for tokenised vs. non-tokenised credentials. Auth rate defined as approved count of unique transaction authorisations divided by total unique authorisation attempts, based on first auth attempt only (global average)
4. Visa, Inc, Q4 2021 Earnings Call

5. Till August 2023
6. Between October 2022 and August 2023, on average

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Aligning with G20/OECD principles

Tokenisation in India not only enhances payment security but also aligns seamlessly with the G20 principles of financial consumer protection.

Regulatory oversight and consumer awareness

The RBI has established a strong legal framework for tokenisation, overseeing its phased rollout. This partnership with the payments ecosystem highlights the need for governance in digital payments. The RBI also focuses on educating consumers about the benefits of token usage and enhancing financial literacy and security.

Consumer rights and innovative offerings

Tokenisation levels the playing field by standardising payment security and ensuring fair treatment of consumers. It has also

sparked innovation in financial products, including wearable payments and frictionless digital authentication.

Security and future readiness

Tokenisation masks actual card details, providing robust protection against fraud and simplifying complaint resolution. It's well-suited to meet the challenges of emerging digital technologies, especially in fast-growing countries like India, and promotes eco-friendly banking by reducing the need for physical cards.

Tokenisation in India
Conforming to G20/OECD principles on financial consumer protection

1 Legal, regulatory & supervisory framework ●●●

2 Role of oversight bodies ●●●

3 Access & inclusion ●●

4 Financial literacy & awareness ●●●

5 Competition ●●

6 Equitable & fair treatment of consumers ●●●

7 Disclosure & transparency ●●

8 Quality financial products ●●●

9 Conduct & culture of providers & intermediaries ●●●

10 Protection of consumer assets against fraud, scams & misuse ●●●

11 Protection of consumer data & privacy ●●●

12 Complaints handling & redress ●●

13 Financial well-being ●●

14 Digitalisation & technological advancements ●●●

15 Sustainable finance ●●

◇ G20/OECD principles on financial consumer protection.

◇ Cross-cutting themes relevant to multiple/ all principles.

Alignment of tokenisation imperatives with the G20/ OECD principles.

High ●●●
Medium ●●

Source for G20/OECD principles on financial consumer protection - OECD (2022)

Debunking tokenisation myths

Tokenisation, the transformative technology that replaces sensitive card details with unique tokens, has been rapidly gaining traction in India. The rapid adoption of tokenisation is not just a testament to the technology's efficacy but also a driving force behind its widespread acceptance among consumers and merchants.

However, like any revolutionary technology, tokenisation has had its share of myths, especially during its early days.

These misconceptions, from worries over user experience to uncertainties about ecosystem preparedness, can pose significant challenges that might impede its adoption. But the reality, as we've seen, is quite different. For instance, while there were apprehensions about user experience being compromised, in practice, merchants have been able to provide a seamless checkout experience by displaying familiar card details like the last four digits of the PAN.

Myths / Facts

	Myths	Facts
Customer experience	Customers will get confused with tokens, as they're used to seeing the PAN on various platforms during transaction.	Merchants can display the last 4 digits of the PAN, issuer bank, and the associated card art on checkout pages.
Ecosystem readiness	Issuers and payment processors readiness for tokenisation is still missing.	Over 99% of issuers and all major payment processors in India already support network tokens.
Regulatory requirements	Merchants who are already using acquirer/processor tokens don't need to adopt network tokens.	RBI enables the use of Card-on-File tokens for all merchants and processors.
Operational continuity	Network tokens will disrupt loyalty, rewards, and back-office operations.	Visa enables merchants to map PAN and all associated tokens to a non-financial instrument called PAR (payment account reference) to streamline loyalty and reward operations.
Transaction efficiency	Using network tokens will slow down transaction processing, affecting customer experience.	There is no material effect on transaction processing speed because of tokenisation.
Payment friction	Customers will need to manually retokenise their card after every security incident or when their card expires.	Using consent-based push provisioning, merchants can update token details for events like security breaches or card expiry, while pull provisioning permits them to access customer card credentials directly from issuers with customers consent.

Merchants, issuers, processors, digital wallets, payment switches, and issuer processors have all come together to champion the cause of tokenisation. Their collaborative approach has not only addressed concerns but also showcased the tangible benefits of tokenisation, from enhanced security to improved transaction efficiency.

The results speak for themselves. Since the rollout of Card on File tokenisation (CoFT) in October 2022, India has witnessed an exponential surge in token adoption. Till October 2023, ~560 million tokens have been provisioned and used for transactions in an impressively short span of time. The success of tokenisation in India is a shining example of how collaborative efforts, combined with a clear understanding of the technology's benefits, can lead to transformative changes in the payments landscape.

VISA

Ecosystem perspectives on future of payments

Point of views

Sanjeev Moghe
Head - Cards & Payments, Axis Bank

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Tokenisation benefits

Tokenisation has carved out a new paradigm for the payments landscape in India, bringing forth two pivotal benefits. On one hand, customers and us, the issuers, are witnessing an uplift in Payment Success Rate for e-commerce transactions – a commendable increase of nearly 3%, underpinned by enhanced authentication successes. On the other hand, the embrace of tokenisation for almost two-thirds of online transactions has transformed our approach to data security. In an age marred by data breaches, the fact that merchants no longer hold onto card data is a monumental stride. Tokenisation isn't just a technical shift; it's the bedrock of a more secure and efficient digital economy.

Future of payments

In India, the journey of transaction evolution has been noteworthy. From the chip and pin era almost a decade ago to the robust 2FA safeguards and tokenisation, we've laid down a solid foundation for transaction security. With the security rails in place, it's time to enhance the transaction experience. We're eyeing a future where CVVs are redundant and where 2FA OTP might give way to more innovative authentication methods. Device tokenisation is another way to enable modern experiences for customers doing offline payments. At Axis, we're ready to embark on this innovative journey. Our role as issuers is to lay out choices for consumers, tailoring to what resonates with them.

Tokenisation implementation experience

Reflecting on our 12-month journey with tokenisation, it was a ride filled with anticipation. The initial change management stages took us from a phase of denial to a profound understanding: while 2FA ensures transaction security, it doesn't necessarily promise data security. The introduction of network tokenisation solutions pivoted our trajectory from understanding to proactive implementation.

Networks, especially Visa, were instrumental in this journey. Our collaboration with Visa, both on the issuing and acquiring fronts, significantly influenced our interactions with regulators and other industry participants. Through broad industry consultations and collective efforts, the transition was very smooth. A pivotal catalyst in this transformation was the regulator's flexibility in adjusting timelines, ensuring industry readiness.

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VISA

Ecosystem perspectives on future of payments

Point of views

Prashant Mehra
Sr. Vice President - Retail Risk & Credit, HDFC Bank

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Tokenisation benefits

Tokenisation, a pioneering initiative by our regulator, has paved a transformative path in the payment ecosystem. For the end consumer, it has bolstered confidence; their card data remains fortified with banks and networks, immune to the vulnerabilities that once permeated every transaction. Gone are the days of ubiquitous card numbers lingering on apps and merchant endpoints, which previously were a treasure trove for fraudsters. Today, consumers transact with greater freedom and assurance. Merchants, on the other hand, handle only tokenised data and benefit from better payment success rates. And for lenders, tokenisation translates to significantly fewer disputes and reduced fraud for card payments. The ripple effect of this innovation touches every stakeholder, ensuring a safer, more efficient payment experience.

Future of payments

The convenience of accessing everything on the go has particularly appealed to consumers across age groups. As this convenience continues to merge with the introduction of new devices, from smartwatches to rings, the security of data, especially payment data, becomes critical. There are several opportunities for innovation to be built on top of tokenisation:

Device tokenisation:

Smartphones have become the epicenter of our lives and device tokenisation can help consumers increasingly use mobile-based contactless payments for both online and offline transactions. And device tokenisation can enable a coherent experience across payment modes. Also there is growing inventory of fitness and health tracking devices that can be enabled for payment transactions through tokenisation.

Bank account number tokenisation:

Tokenising bank account numbers presents a strong case for security. As data floats through account aggregators, ensuring this sensitive information remains secure will be critical for data sharing use-cases.

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VISA

Ecosystem perspectives on future of payments

Point of views

Bhavesh Gupta
President & COO, Paytm

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Tokenisation benefits

Tokenisation has been a game-changer in more ways than one. Firstly, the bolstered security is evident. With tokenised cards, even if a breach occurs, card numbers aren't exposed in the public domain – a monumental leap in safeguarding user data. Secondly, we've noticed tangible improvements in success rates, especially since we've sidestepped the CVV hurdle, resulting in elevated transaction rates. Lastly, customer awareness has shot up. No longer are individuals wary of storing card details on unfamiliar platforms. The education around tokenisation has empowered users to trust more and worry less.

Payments innovation

At Paytm, we are the biggest believers that the only dominant form factor for payments will be mobile phones. Online transactions account for approximately 25-30% of India's acquiring volumes, the remainder is offline, indicating a pressing need for an efficient, offline acceptance solution for merchants.

Our launch of the 'card soundbox', which is priced very competitively could be a game-changer. Imagine transacting by simply tapping your card in offline stores! Given its affordability and convenience, we envision a rapid proliferation – potentially 10 million boxes in the market within the next 2-3 years. As the landscape evolves, we anticipate a shift from physical cards to mobile-centric form factors, augmented with wearables and other technologies.

Tokenisation implementation experience

Diving into tokenisation, you could feel there were a lot of nerves and confusion in the industry. Especially around the smaller businesses who don't have the tools to tokenise or use issuer or network vaults for tokenisation. And the thought of everyone manually entering card details during a guest checkout only added to the uncertainty. Teaming up with Visa, we waded through these complexities, and engaged with the regulator multiple times to find our path forward. We also introduced innovations like delayed token generation, to ensure consent is taken first and tokenisation happens later. This helped us tackle some of the issues merchants were facing. Overall the tokenisation rollout in India was a journey of collaboration, innovation, and, above all, persistence.

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VISA

Ecosystem perspectives on future of payments

Point of views

Vikas Bansal
Head- Payments and Financial Services, Amazon Pay India

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Tokenisation benefits

Tokenisation in India has ushered in a new era of security and efficiency. Not only has it dramatically reduced cyber phishing and frauds, strengthening consumer trust in digital payments, but it has also enhanced payment success rates. We've seen an impressive boost of nearly 5% in success rates since its implementation. This improvement is partly due to better-performing payment rails and partly because customers using tokenised cards face fewer issues like expired or inactive cards. The dual benefit of enhanced security and increased efficiency makes tokenisation a game-changer in the digital payments landscape.

Payments innovation

Tokenisation in India is much more than just a security measure; it's the foundation for the next generation of payment innovations. Moving towards CVV-free payments is just the beginning. Imagine frictionless small-value transactions, akin to tap-and-pay with smartphones using device tokenisation. The potential is vast - from voice-activated payments, complementing the surge in voice-based shopping, to alternative authentication mechanisms, such as biometrics. The future promises a payment landscape where convenience meets security, and tokenisation acts as the bedrock of these transformative experiences.

Tokenisation implementation experience

Bringing tokenisation to life in India was a testament to the collaborative spirit. Guided by the RBI, the entire payment and commerce ecosystem rallied together, not only ensuring a seamless rollout but also meticulously addressing intricate commerce nuances such as instalment payments, refund and cashbacks, subscription payments, etc. Visa, in particular, has been an outstanding ally and the whole team has been very supportive during the journey.

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VISA

Ecosystem perspectives on future of payments

Point of views

Madhusudanan R
Co-founder, M2P FinTech

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- Reflecting on the transformative role that OTP has played in elevating trust and security for online payments, tokenisation has the potential to 10X that impact. Its real power lies in its role as a trust enabler—fortifying control, bolstering security, and significantly reducing the risk of fraud.

- In India, the digital shift is leapfrogging to mobile commerce, especially in tier 3 and 4 cities and rural locales. This tech migration, fueled by regulatory push and innovation like tokenisation, presents a golden opportunity for digital brands to both attract and securely engage this new cohort of consumers.

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Vibhav Hathi
Co-founder, OneCard

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- Tokenisation would help accelerate card adoption and digital payments in Tier 3/ Tier 4 cities and among younger segments by facilitating a seamless and secure environment for card payments. It allows new customer cohorts entering the card sphere to confidently explore diverse use cases for card payments, unburdened by fears of fraud.

- Token lifecycle management elevates the customer experience by facilitating user-friendly interactions for token management. It helps card issuers unlock new and improved customer experiences, such as notifying customers about upcoming subscription payments or instantly push-provisioning the tokens of a new card to cardholders' preferred merchants. Visa has a pivotal role to play in catalysing these improvements across a spectrum of use cases.

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VISA

Ecosystem perspectives on future of payments

Survey insights

Visa conducted a survey among industry executives across card issuers, payment acquirers/processors, and merchants to understand the industry viewpoints on the implementation of CoF tokenisation.

Industry leaders' opinion on benefits of tokenisation:

There are several benefits of tokenisation for consumers and the industry. The most agreed upon benefits by industry executives are as follows.

Top 3 benefits for consumers	
Enhanced security	**88**%
Increased trust in digital payments	**65**%
Improved payment experience	**47**%

Card on File tokenisation

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Top 3 benefits for the industry	
Reduced risk of data breach	**94**%
Reduced fraud rates	**41**%
Simplified compliance	**41**%
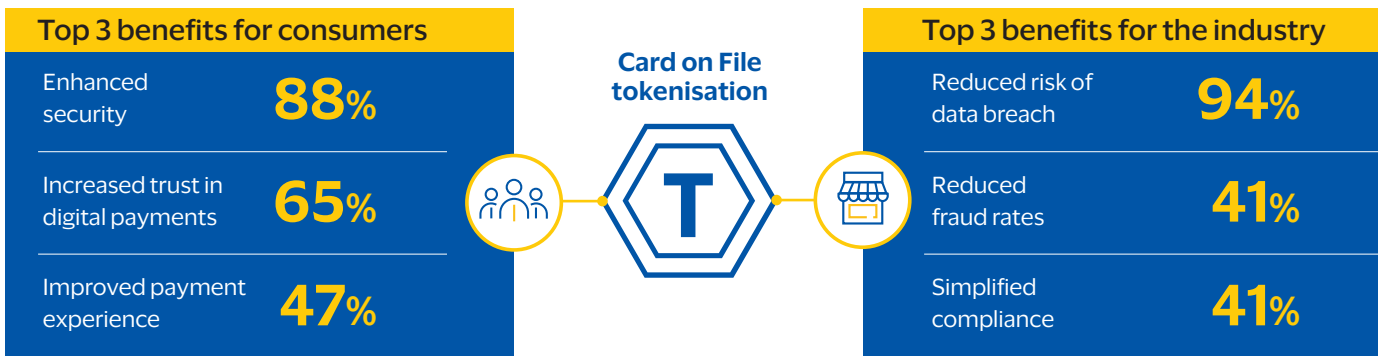
In terms of future potential, the top 3 use cases that executives believe have maximum potential are:

	Use of mobile phones to make contactless payments for retail and everyday transit	**94**%
	Payment using wearables – Smartwatch, fitness bands etc.	**82**%
	'Pay with Partner' – Merchant aggregators facilitating device-based payments across third-party merchants	**65**%

Enormous untapped potential for tokenisation in India

82% of executives believe that tokenisation will be used for a wider range of use cases.

76% believe that tokenisation will propel contactless payments across devices and also spread across more merchant categories.

Three-quarters of executives found the implementation of tokenisation to be generally smooth, experiencing only minor issues in some instances. The primary challenges organisations encountered while adopting tokenisation were:

76% Complex integration

59% Operational clarity of regulatory guidelines

59% Customer education and awareness

Key catalysts to successfully implementing the tokenisation manadate

Strong collaboration between stakeholders	**94**%
Regular monitoring and guidance	**53**%
Consumer education initiatives	**53**%
Resilient technology	**41**%

• A robust 94% of executives concurred that effective stakeholder collaboration was highly beneficial for the ecosystem.

• Additionally, regulatory oversight and guidance were instrumental in ensuring a smooth implementation process.

* Survey insights are based on responses from 17 industry executives.

VISA

Ecosystem perspectives on future of payments

Industry voices

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The transition from card-based processing to token-based was effectively managed through deft collaboration by all the players in the transaction value chain, thereby leading to little to no disruption.

Amarjit Singh Walia, **ICICI Bank**

The most important factor is the amazing collaboration across the ecosystem which propelled towards efficient and complete implementation. Talks volumes about what can be achieved with regulator-guided industry collaboration.

Deep Agrawal, **PhonePe**

Card tokenisation is going to be very useful to counter online fraud and reduce digital payment breaches, with many other benefits such as enhanced safety and security, faster checkouts, and easy card management.

Anjaneya Sharan Singh Dayal, **Paytm**

Tokenisation is a pull product: A win-win for all stakeholders - end users, merchants, and issuers. Among merchant categories, tokenisation coupled with CVV-free transactions has led to higher success rates. This has helped merchants grow. In future, the potential to do contactless, wearable-based payments etc., will help further digital payments adoption in India.

Rahul Gupta, **Zomato**

The most significant takeaway was the collaboration across stakeholders to make a shift of this magnitude happen. The card networks played a very critical role here. Also, the understanding shown by the regulator in giving extended timelines after evaluating the ecosystem readiness was supportive.

Deepak Patil, **Flipkart**

The entire tokenisation system is simply more coherent. It is encouraging payment innovations and collaborations across all participants; and is acting in the interest of the cardholder security while also making it more convenient.

Pravir Shanker, **Razorpay**

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VISA

Powering the future of payments and commerce

Tokenisation, when synergised with emerging technologies, is poised to revolutionise both payments and commerce. NFCs and wearables, for instance, are streamlining contactless payments, making transactions swift and hassle-free for consumers. Voice assistants and IoT devices are integrating payments into our daily routines, allowing for seamless purchases with simple commands. Meanwhile, AR/VR devices, backed by tokenisation, are enhancing the shopping experience, letting users try before they buy in virtual spaces. Frictionless authentication mechanisms further ensure these transactions are secure and trustworthy.

On the commerce front, emerging trends are reshaping the merchant landscape. Digital card issuance accelerates the onboarding process, while integrated shopping on social media platforms offers a unified shopping experience. Recurring payment mandates simplify subscription-based services, and 'grab-and-go' stores epitomise the future of retail. With multi-channel payments, virtual cards for corporate expense management, and contactless transit payments, tokenisation is at the heart of this transformative era in commerce.

Emerging technologies

Mobile commerce	Connected commerce	Conversational commerce	Connected commerce	Immersive commerce	On-chain commerce	Seamless commerce
Contactless payments	Contactless payments	Voice-enabled payments	Automated payments	VR payments	Blockchain payments	Biometrics payments
NFC-enabled devices	Wearables	Voice assistants	Internet of things (IoT)	Spatial computing	Blockchain	Frictionless authentication

Tokenisation

Emerging trends

Digital issuance	Contextual engagement	Auto-debit mandates	Grab-and-go stores	Omnichannel engagement	Mass transit	B2B expense management
Instant payments	Embedded payments	Recurring payments	Cashier-less payments	Multi-channel payment	Tap-to-ride	Payables automation
Mobile commerce	Social commerce	Subscription commerce	Autonomous commerce	Unified commerce	Urban mobility	Digital B2B commerce

● Payment innovation   ● Commerce innovation

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New possibilities

Tokenisation with NFC and wearables

Tokenisation and NFC

NFC technology, integral to contactless payments, pairs seamlessly with tokenisation to ensure swift and secure transactions. While NFC facilitates immediate data transfer, tokenisation ensures the transmitted data is a secure token, safeguarding actual card details.

Contextual engagement

Tokenisation, when combined with social media offers a contextual engagement right within users' favourite platforms. By embedding tokenised card payments in social media, users can enjoy a frictionless and safe transaction journey.

Mobile commerce

- Faster transaction processing, leading to reduced queues and improved customer satisfaction.
- Integration with various digital wallets expands the merchant's reach to a broader customer base.

Commerce innovation

Social commerce

- Access to a vast audience of social media users, increasing potential sales.
- Reduced cart abandonment due to personalised recommendations and simplified checkout.
- Enhanced influencer engagement for contextual social commerce experiences.

Contactless payments

- Quick, contactless payments with a simple tap or wave of a device.
- Seamless integration with popular digital wallets, offering a consistent payment experience across various merchants.

Payments innovation

Embedded payments

- Convenient in-app purchases without redirection to external sites.
- Streamlined checkout processes, leading to faster and hassle-free transactions.

- Since 2014, Visa has collaborated with Apple Pay to enable tokenised transactions in the US and multiple other countries.
- Additionally, Visa has forged partnerships with Samsung Pay and Google Pay in India to drive device tokenisation for digital payments.

Industry application

- In 2020, Visa teamed up with Thai FinTechs under "Everyone Speaks Visa," enabling sellers on social media and virtual platforms to accept Visa payments.
- Visa's 2020 partnership with Facebook facilitated secure and quick payments for WhatsApp users in Brazil, benefiting small businesses.

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The pivotal role of provisioning in tokenisation

Consent-driven token provisioning is pivotal for contemporary digital payments, and has the potential to amplify the adoption of token credentials in India's payment landscape.Push provisioning allows issuers, with customer consent, to directly provide tokens to selected merchant apps, enhancing activation and convenience. Pull provisioning lets merchants, after obtaining consent, retrieve card tokens from issuers during checkout, improving the experience and bolstering customer retention.

Push provisioning

Issuer-initiated   **Customer-consented**

Push provisioning enables cardholders to "push" a token associated with a card from the issuer wallet to a destination digital wallet or a merchant app or website.

Token provisioning

Pull provisioning

Merchant-initiated   **Customer-consented**

Pull provisioning allows merchants to retrieve customer-linked cards from issuers, with explicit consent. The available cards are displayed to customers at checkout and the chosen card is then tokenised and stored by the merchant.

The traditional approach

In the manual provisioning method, cardholders manually enter their card details, such as the Primary Account Number (PAN), expiry date, and CVV2, into a digital wallet or a merchant app. To complete the process, an OTP (One-Time Password) is sent to the cardholder via their chosen verification method.

Empowering cardholders via push provisioning

Push provisioning allows cardholders to "push" a token associated with their card from the issuer's wallet to a destination digital wallet, merchant app, or website. Issuers can facilitate in-app or web push provisioning through their mobile banking applications and initiate the token provisioning to digital wallets or merchant apps. This method not only streamlines the card activation process but also enables issuers to incentivise activation, thereby accelerating the adoption of their digital card portfolio. Quick and secure card activation increases the likelihood of transactions, positively impacting sales and customer engagement for merchants.

Streamlining commerce via pull provisioning

Pull provisioning enables merchants to "pull" customer-linked cards from issuers, provided they have explicit consent from the customer. During the checkout process, the merchant can display the available cards linked to a customer's mobile number or email. Once the customer selects a card, it is tokenised and stored by the merchant for future transactions in accordance with the applicable regulations. This method offers a win-win situation for all parties involved: consumers enjoy a simplified checkout experience, merchants benefit from reduced cart abandonment rates, and issuers gain from increased transaction volumes.

In summary, manual provisioning serves as the foundational method but is increasingly being supplemented by push provisioning and pull provisioning. These advanced methods offer unique advantages that contribute to a more secure and efficient digital payment ecosystem. Push provisioning empowers cardholders to take control of their payment options, while pull provisioning facilitates the on-demand discovery of cards which solves for the Guest-checkout experience and accelerates the growth of digital payments.

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New possibilities

Frictionless authentication

As digital commerce accelerates, there is a need to increase the adoption of authentication solutions to keep the eCommerce experience secure and easy to use for all players in the payment ecosystem. Digital Authentication expands the capabilities and requirements that enable merchants to deliver frictionless shopping experiences while ensuring effective fraud management built on top of the foundation laid by tokenisation as a platform. Below are some of the digital authentication methods that can serve the dual purpose of enhanced security and seamless customer experience:

Device-based authentication is a method where a user's device (like a smartphone or computer) is used as an additional layer of validation during a payment transaction. It includes a process to register a device as a trusted device to provide strong authentication during the transaction flows.

Biometric authentication - An authentication approach where unique biological characteristics of the user, such as fingerprint, facial recognition, or voice recognition, are used to verify their identity during a payment transaction. This

method provides a higher level of security than traditional authentication methods such as OTP, static pins and passwords and in conjunction with the latter, strengthens the mode of authentication for a transaction.

Risk-based authentication is an advanced form of authentication that evaluates the risk level of a user's login or transaction attempt based on various parameters such as purchasing behaviour, transaction geolocation, transaction value, etc. Depending on the assessed risk, it then determines whether to allow, block, or require additional authentication for the attempt.

Identity-based authentication, as conceptualised by many, including the FIDO (Fast IDentity Online) Alliance, involves verifying the identity of a user based on unique attributes or credentials that are associated with them. The FIDO Alliance specifically promotes strong authentication standards that move beyond simple password-based authentication to more secure methods.

1, 2 : RBI annual report 2022-23

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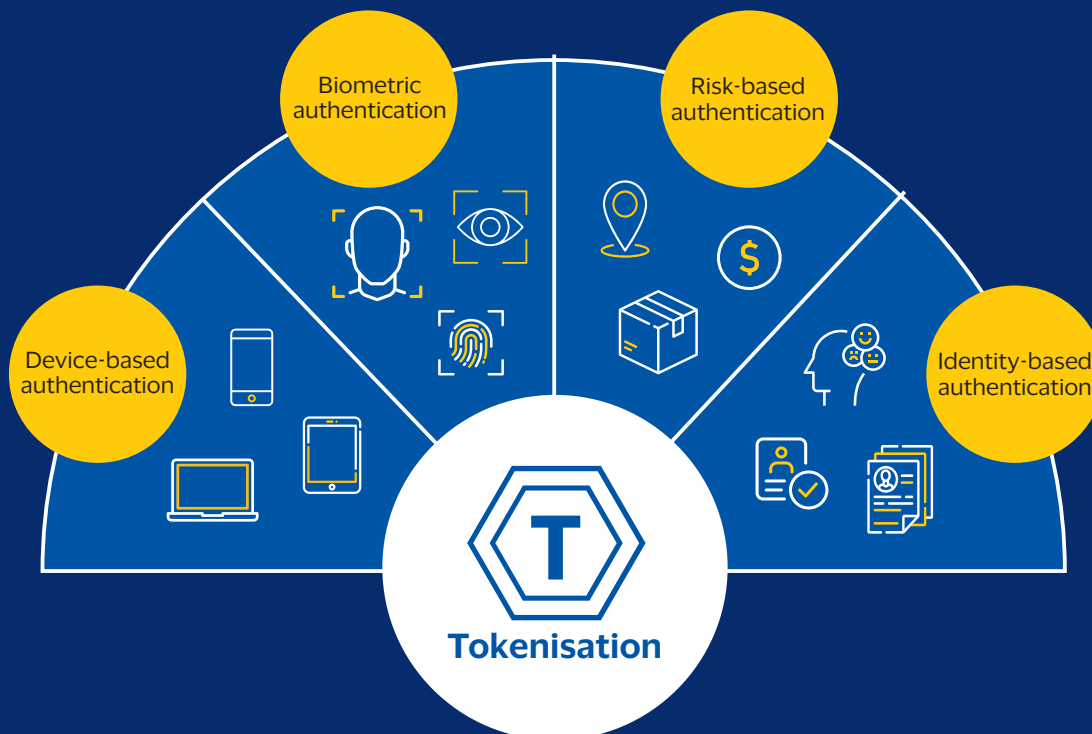
New possibilities

Tokenisation with digital card controls and mass transit

Digital card controls

Tokenisation when paired with Digital Card Controls help issuers deliver superior card management experiences to their cardholders, letting them add, view, manage, and share access to their card.

Mass transit

Tokenisation facilitates seamless tap-to-ride payments on public transit, bike or electric vehicle rentals, and mobile ticketing using cards, phones, watches, or other wearables, eliminating the wait for transaction confirmations.

Credential management for digital commerce

- View merchants & wallets that have tokenised payment credentials stored.
- Add or remove tokenised payment credentials to merchants or wallets.
- View which merchants have updated tokenised payment credentials.

Commerce innovation

Urban mobility

- Faster transaction processing reduces queues and enhances commuter flow.
- Contactless payments for mobility can streamline operations, reducing the need for physical ticketing systems and associated overheads.
- Offer customers mobile-based solutions for electric vehicle charging and parking.

Payment controls

- Stop payments or terminate subscriptions.
- Review stored credentials for Card on File payments and subscriptions.
- Set transaction restrictions or block transactions.

Payments innovation

Tap-to-ride

- Passengers can easily tap and ride without the inconvenience of purchasing a separate ticket.
- Connected devices offer new ways for people to interact with the city's transport infrastructure.

- Visa's *Digital Card & Controls Suite* offering enables financial institution partners to deliver greater control, increased insights and enhanced security to their cardholders who make digital payments.

Industry application

- Around the world, Visa has been involved in over 500 contactless transit initiatives, with key projects rolled out in cities such as London, Edinburgh, Manchester, Miami, New York, Rio de Janeiro, and Singapore.

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New possibilities

Revolutionising B2B expense management

Tokenisation is reshaping the future of B2B expense management, ushering in an era of enhanced security, agility, and efficiency. This innovative approach replaces sensitive card details with unique tokens, ensuring transactions are not only precise but also immune to breaches, even if the actual card is compromised.

The innovation of dynamic expense management emerges, where businesses can establish nuanced controls over expenses. Imagine a scenario where a token is exclusively generated for a specific merchant, a defined time frame, or even a capped dollar amount. Such granularity ensures that every transaction aligns perfectly with company policies, safeguarding against any unauthorised or out-of-policy expenses.

For finance teams, tokenisation streamlines reconciliation processes, eliminating discrepancies and ensuring accurate financial records. Employees benefit from an automated compliance mechanism, aligning every transaction with established spending policies without manual checks. Business teams, on the other hand, can optimise their operational flow, as tokenisation eliminates administrative bottlenecks.

Visa is championing this digital-first approach for B2B commerce and expense management by turning the complexities of running and growing a business into the streamlined solutions of tomorrow.

Virtual card issuance

Visa allows business customers to issue unlimited single-purpose or multi-use use virtual cards mapped against a single PAN issued to the company.

Pseudo accounts

Payment controls

Business customers can set transaction spending limits for different divisions or individual employees and easily monitor compliance with spending policies.

Payment controls

Transaction restrictions

Credentials issued can be restricted for usage as per credit limit, merchant category, channel, velocity, time, location, etc., helping clients mitigate most risk factors.

Risk management

Visa Payables Automation

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Tokenisation

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Taking security and efficiency up a notch

Tokenisation is revolutionising the payment landscape by offering unparalleled security and efficiency compared to traditional PAN-based card transactions. Unlike traditional methods, where issuers remain uninformed when a card is added to a merchant platform, tokenisation proactively informs them of a customer's intent to transact, sharing crucial cardholder data for enhanced identity verification. This proactive approach improves acceptance rates. While card transactions often rely on easily shared and vulnerable PINs, tokenisation employs advanced digital authentication,

ensuring genuine cardholder verification, reducing fraud, and boosting consumer confidence. The introduction of robust cryptograms like TAVV add an extra layer of security, validating the genuineness of the transaction origin. Furthermore, tokenisation's domain-specific controls ensure tokens are crafted for a specific purpose, preventing misuse and further reducing the potential for fraud. By incorporating these features, tokenisation stands as a beacon of enhanced security and efficiency in the modern payment ecosystem.

Aspect	PAN-based card transactions	Tokenised card transactions
Card lifecycle management	• Customers have to manually update the 16-digit PAN of the newly-issued card on merchants' websites or apps.	• Tokenisation supports lifecycle management which means even fewer declines for expired/reissued credentials. • Issuers may refresh tokens associated with the newly issued card credentials into the merchant or wallet environment, helping to preserve top-of-wallet status.
Card holder verification and customer's transaction intent	• Issuers are not made aware immediately when a card is added to a merchant's website or app.	• Before a transaction, issuers are informed about the customer's intent to transact with specific merchants. • Issuers also get details like device model, location, email ID, and more, aiding identity verification to confirm the genuineness of the cardholder before they issue the token.
Cardholder verification	• Limited to PIN-based validation, which can be shared and is vulnerable.	• Enables advanced frictionless authentication methods like fingerprints, biometrics, etc. Unlike static PINs, these dynamic methods ensure the cardholder is genuine and has the physical card.
Merchant verification	• CAVV[1] or ARQC[2] are generated during the 3D Secure authentication process or EMV chip transactions, respectively. • They are used to verify the authenticity of the cardholder and the transaction itself.	• TAVV[3] cryptogram is generated in tokenised transactions. • TAVV validates the genuineness of the transaction originator and ensures the transaction is coming from the intended merchant.
Transaction scope and restrictions	• No domain-specific controls are available to restrict the scope of PAN-based transactions.	• Tokens are 'fit-for-purpose'. Tokens are often restricted to a particular merchant, device, or transaction type, limiting their use outside of that domain. • This adds an extra layer of security, as even if a token is compromised, its usability is confined to a specific context.

1. CAVV- Cardholder Authentication Verification Value | 2. ARQC- Authorisation Request Cryptogram | 3. TAVV-Token Authentication Verification Value

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Tokenisation case studies: Global examples

Visa's effective deployment of tokenisation, enabling secure digital payments and seamless digital commerce around the world

Visa | Adyen

125M
Visa network tokens provisioned or active from Adyen

2 to 7%
Authorisation uplift with EMV® network tokens, compared to non-tokenised transactions

Growing e-commerce revenues with network tokenisation

- Visa's network tokens combined with Adyen's machine learning optimisation delivered an authorisation uplift of 2-7% over PAN-based transactions[1] in 180+ countries.

- While token performance varies by merchant, in developed markets where lifecycle management practices are widely accepted by issuers & merchants, the average uplift from tokens is +7%. This means merchants could bring home an additional $2-$7 for every $100 spent[2].

Visa | Adyen | Bolt

90.8%
PAN authorisation rates [3]

95.9%
Token authorisation rates [4]

Fast-tracking exceptional customer experiences and revenue growth

- **Visa Account Updater Suite** seamlessly updates customer payment details, preventing service interruptions for Bolt and reducing cart abandonment due to expired or lost credentials.

- The combined force of Adyen and Visa innovation is powering exceptional consumer and merchant outcomes, from frictionless payment journeys to more holistic data insights, across verticals, sales channels, and regions.

Visa | Daimler

$86B[5]
is the estimated total volume for in-vehicle payments by the year 2025.

Revolutionising commerce on the go: The car as a payment device

- Visa and Daimler's global tech partnership enables European customers to make secure, fingerprint-authenticated payments from their cars since 2022.

- The two-factor authenticated in-car payments offers convenience and safety by allowing fingerprint authorisation for transactions, enhancing the customer experience for in-car payments.

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Prospects and potential of tokenisation

As India's digital commerce landscape experiences unprecedented growth, fueled in part by the rapid adoption of credit cards, the focus is increasingly shifting towards enhancing the guest checkout experience. Visa is at the forefront of this transformation, actively collaborating with ecosystem partners to tokenise transactions in the guest checkout use case. This initiative aims to bolster both merchant and consumer confidence by minimising the risk of data breaches.

Tokenisation presents a plethora of opportunities to elevate payment security and the overall user experience. However,

it is crucial to recognise the unique role that issuer banks play in this evolving landscape. In India, the authorisation to act as Token Service Providers (TSPs) is exclusively granted to card networks and issuer banks. While the complexities and resource-intensive nature of tokenisation could be daunting, issuer banks are well-positioned to innovate at the experience layer. They have a broad spectrum of opportunities, ranging from developing new consumer payment methods to creating modern, cost-effective payment acceptance solutions for merchants. This allows issuer banks to build on their core competencies, thereby contributing significantly to the growth and security of India's digital economy.

Guest checkout

India has already made significant strides with the Card on File tokenisation. Guest checkout is the next frontier to ensure seamless and secure transactions for all digital commerce scenarios. As digital commerce continues its exponential growth with participation of new users, ensuring the security of card details during guest checkout transactions becomes paramount. Instead of sharing sensitive card details with merchants during every transaction, customers can confidently proceed with their purchases, knowing that only a secure token is being exchanged.

This approach ensures that the actual card details remain a closely-guarded secret, known only to the cardholder, issuer banks, and card networks. The broader ecosystem participants, from online retailers to payment gateways to digital wallets, all interact solely with tokens, streamlining digital commerce while bolstering security. Such a paradigm not only elevates the trust factor for consumers but also minimises the risk of data breaches for merchants.

As India continues to transition towards a digital-first economy, the guest checkout use case, underpinned by tokenisation, will play a pivotal role in shaping a secure, efficient, and inclusive digital commerce landscape.

The tokenisation opportunity

Tokenisation undeniably offers a plethora of opportunities for enhancing payment security and user experience. However, issuer banks should weigh these prospects against the considerable investments required in becoming a TSP—both financial and human.

The initial setup is just the tip of the iceberg. Building, scaling, and monetising the tokenisation infrastructure is a multi-year commitment that demands substantial financial backing.

Moreover, staying competitive in this space involves ongoing coordination with both domestic and international partners. Keeping up with evolving standardisation guidelines, technological advancements, and product performance upgrades is a continual process.

Tokenisation also demands a flexible approach to support a wide range of payment use cases. This includes complexities like guest checkout, standing instructions, token lifecycle management, and even the nitty-gritty of refunds and reconciliation.

Lastly, it's crucial to recognise that tokenisation is fundamentally an infrastructure-layer innovation. This is a domain where payment networks have built specialised expertise. In India, issuer banks have abundant opportunities to drive innovation at the experience layer. By introducing novel payment methods for both consumers and merchants, they can significantly contribute to the growth and expansion of the digital economy.

Key milestones in the road ahead for tokenisation in India

India stands at a pivotal juncture in the realm of digital payments, with tokenisation poised to redefine the very fabric of card transactions. Tokenisation's rapid ascent since the CoF data storage prohibition mandate highlights its foundational role in shaping the future of India's digital payments and commerce. Its potential extends beyond mere transactional security, offering a myriad of opportunities for the Indian economy.

1 Navigating the digital payments boom

Tokenisation, when combined with emerging technologies, is set to revolutionise the payments and commerce sectors. It is streamlining contactless payment experiences through NFCs and wearables. It can soon enable integrated payment experiences into daily routines via voice assistants and IoT devices and enhance shopping experiences with AR/VR devices.

> The Reserve Bank of India (RBI) reports that in 2022-23, credit card transactions surged by 30.1% in volume and 47.3% in value. Prepaid Payment Instruments (PPIs) also saw gains, with a 13.5% increase in volume and 2.9% in value. These trends highlight rising consumer confidence in digital payments, stressing the importance of enhanced security features like tokenisation to maintain this growth.

2 Securing the digital commerce surge

In commerce, tokenisation will continue to accelerate digital card issuance, simplifying subscription-based services, and driving the future of retail with 'grab-and-go' stores.

Tokenisation will continue to play a pivotal role in multi-channel payments, virtual cards for corporate expense management, and contactless transit payments.

> Credit cards have expanded beyond urban areas, hitting a record ~91 M in circulation in August 2023. According to RBI data, nearly 1.4M new credit cards were issued in August 2023 alone, largely due to banks collaborating with digital brands to launch co-branded cards. This partnership is effectively expanding credit card use into smaller cities. The growing adoption of credit cards in semi-urban areas heightens the need for secure digital payment options for the influx of new cardholders.

3 The promise of push and pull provisioning

Token provisioning methods, particularly push and pull provisioning, will enhance the security and efficiency of digital payments. Push provisioning allows cardholders to 'push' a token from the issuer's wallet to a destination digital wallet, while pull provisioning allows merchants to 'pull' customer-linked cards from issuers with the cardholder's consent.

> According to the RBI, credit card spending surged to a record Rs 1.48 lakh crore in August 2023, up 2.7% from July 2023. The spike in card transactions is a positive sign for India's digital economy. Despite this growth, banks and retailers face the persistent challenge of making co-branded cards the top-of-wallet choice for consumers. Advanced token provisioning methods could offer a solution, encouraging customers to consistently use co-branded cards as their go-to payment option.

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Key milestones in the road ahead for tokenisation in India

4 The synergy of tokenisation and frictionless authentication

Tokenisation, combined with frictionless authentication methods like device-based, risk-based, and biometric authentication, offers a robust defence against card-related fraud. This payment security strategy is versatile, compatible across various devices, and is forward-compatible with emerging biometric technologies, ensuring a secure and adaptive framework for both payment and identity verification.

In India, the incidence of card-related fraud has shown an uptick, albeit still being less prevalent compared to many other global markets. RBI data reveals an 85% increase in fraudulent activities linked to card-based internet transactions between the fiscal years of 2021-22 and 2022-23. This growing trend underscores the need for robust security mechanisms, like biometric authentication, to enhance the safety of card transactions.

5 Transforming B2B payments

B2B expense management can be revolutionised by replacing sensitive card details with unique tokens, ensuring precise and secure transactions. It enables dynamic expense management, streamlining reconciliation processes, and eliminating administrative bottlenecks. This innovation allows business customers to issue unlimited single-purpose or multi-use virtual cards and set transaction spending limits, thereby mitigating most risk factors.

According to the consulting firm Kearney India, the business spending market in the country is projected to soar to US$ 15 trillion by 2030 from an estimated US$ 6-7 trillion in 2022. With approximately 3-4 million of the 64 million businesses in India quickly digitising their expenses, the Kearney Global B2B Index notes that India has made substantial strides in digitisation. However, it also highlights the ongoing need for improvements in payment efficiency for business transactions.

As India strides confidently toward a digital future, tokenisation stands poised to serve as a pivotal force for a secure and frictionless digital economy. Regulatory support and collaborative efforts across the ecosystem are accelerating the adoption of tokenisation, setting the stage for its rapid and expansive integration into India's digital landscape.

Visa envisions a future where tokenisation not only serves as the foundation for India's burgeoning digital economy but also acts as a catalyst, propelling it to new, unparalleled heights.

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Acknowledgements

In collaboration with

WHITESIGHT

This report is commissioned by Visa and is developed in collaboration with WhiteSight. We extend our special thanks to them for their efforts and contribution in researching, compiling, designing, and producing this report.

We also express our gratitude to the business leaders from leading organisations who generously took the time to share their insights. Your expertise has provided us with a nuanced understanding of the market, making this report a truly collaborative and informed piece of work. We extend our heartfelt thanks to the leaders from the following organisations for their invaluable guidance and contributions:

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