



Driving the Future of Payments

Pre-Digital Era – Payments 1.0 – 2000 -2010

Payments are a driving force for good as they widen access to relevant, affordable financial products and promote financial inclusion.

Over recent decades, there has been a rise in the use of electronic payment methods for retail transactions and a decline in 'paper based' methods such as cash and cheques. Digital is now an accepted norm in payments. Today's innovations in digital payments are bringing significant changes in the way we lead our lives. Consumers can book a cab, order food and groceries with a few clicks, scan a QR code to pay bills, WhatsApp money to their loved ones within seconds - without stepping out of their home.

For digital natives who experience the world from a prism of pervasive technology, it's hard to imagine an earlier generation where banking and payments infrastructure were non-existent, and access was concentrated in the hands of the asset-rich and economically elite segments. Few people were using mobile phones or the World Wide Web two decades earlier. Their functions were limited to sending text or e-mail, the user experience was complicated and clunky compared with today's vast range of convenient and more secure digital communication services.

The same experience extended itself to financial services. For consumers opening a new bank account entailed furnishing cumbersome documentation and references from existing account holders and required multiple visits to the bank branch. Competition was limited and banks and card companies were the sole supplier of payment products. The choice of payment products was limited to plastic and the wait time for a card ranged between four and six weeks. Credit transfer orders took a week to execute and were made using cheques, postal orders, or a demand draft.

Digital Becomes Mainstream – Payments 2.0 – 2010-2020

Over the last decade digital payments have become mainstream.

The global digital payments economy has experienced a process of democratization in terms of its reach, technology, and market structure. We can see a new revolution evolving with an increase in the usage of mobile gadgets, telecom, and data services at affordable rates. Today, one in every two people on the planet is a smartphone user.

There has been a marked shift away from cash with an explosion of essential consumer services ranging from e-commerce to app-based taxi hailing that necessitates digital transactions, and the scale-up of these services for mass adoption. The technology boom has levelled the competitive playing field and an entire FinTech industry has now emerged to cater to demand for innovative, convenient products.

Changes in consumer behaviour, technology, regulations and the market landscape are providing the impetus for mainstream digital payments adoption and driving the rise of the less-cash society.

Technology Accessibility

The intersection of Social Mobile, Analytics and Cloud has been the primary trigger for change. The novel applications of these technologies are spawning an unprecedented number of new businesses and whole new business models that have permanently reshaped the marketplace. Look at the restaurant trade – power has shifted. The big players are no longer the restaurants themselves, but at-scale food-delivery apps like Just Eats, Uber Eats, and Zomato. The concept of a restaurant without a restaurant would have seemed impossible just a year ago. Now we see more restaurants simply as ghost kitchens delivering gastronomic treats through delivery.

Progressive Regulatory Policies

Globally progressive banking regulators are encouraging adoption by liberalizing banking licensing norms and through various forward looking policy initiatives such as eKYC, open banking, real-time payments. As an example, the Indian government's digital identification system for 1.3 billion people has made paper trails and physical presence redundant, and turned the banks' cumbersome know-your-customer into a cheap utility with standard protocols, paving the way for FinTech innovation.

Rise of Alternate Payment Mechanisms

The shift towards digital is accompanied by an introduction of new payment methods and channels, eroding the traditional dominance of cards. QR codes and digital wallets are becoming mainstream and have been able to attract consumers with better incentives and services experience. Deposit taking institutions still hold the accounts for sending or receiving funds. But rather than transacting on their bank apps or cards, customers prefer use Google Pay to pay one another and merchants.

Global Push Towards Real-Time Payments

Over 70 countries have moved to real-time payment infrastructure in the last ten years resulting in an explosion in digital payment volumes and are expected to overtake card growth. Investments in instant payments have begun to reap greater benefits, both in POS and e-commerce usage of instant

solutions. In India the world's largest digital payments market, UPI contributes over 50% to total digital payment volumes.

Broadening Financial Services Supply

Non-bank companies have increasingly assumed a more central role – Aggregators, Merchants, Non-bank Finance Companies. In addition to Fintech players, Techfins, Amazon, Google, Facebook, Apple, Tencent are rapidly diversifying into financial services as part of their larger ecosystem dominance strategy. Consumers are now increasingly agnostic about their financial and banking services provider, which is especially true for connected consumers accustomed to navigating the world using smart devices. Google, for instance, recently became the first regular Techfin to open a checking account, starting with Citibank and 10 other banks and credit unions in the US. The move has global significance as it shows the tenuous nature of the hold established banks have on a core operation like deposit-taking,

Collectively these trends will push the digital payments market revenue pool from US\$1.4 trillion in 2020 to US\$2.4 trillion in 2029, according to BCG, with the fastest growth coming from traditional cash loyal economies such as India. The rate of change in payments today in terms of form factor, channel, funding mechanism, associated technologies will acquire greater force and be driven by an unprecedented explosion of IOT enabled devices and consumers demanding zero effort commerce and payments experiences.

Rise of Machine Customers – IOT and Payments 3.0 -2021-2030

Evolution in communications technology been a foundational driver for broad payments growth. Launched in 2019, 5G is available in over 50 markets today. The growth in 5G infrastructure, device, and application footprint, has huge implications for payments.

Fuelled by advances in connectivity, companies for the first time in history will manufacture machine customers, non-human economic actors that will actively participate in transactions. It is said that over 30 billion devices are already connected to the internet which will grow to be 44 billion by the end of 2021. By 2030 there **will be more than one paying machine customer for every human customer.**

This heralds a fundamental paradigm shift in payments and commerce. The Pos system of the future won't be a dedicated card-reading machine but a software solution capable of being installed across any touch point, including parking meters, fitting room mirrors, and vending machines.

Through the Internet of Things, 5G could support use cases whereby autonomous and semi-autonomous devices and objects initiate transactions on their own. Intelligent software assistants will infer human customer needs and automatically select products and services and transact purchases on their behalf. Any connected device that uses a consumable — such as printers (ink), thermostats (air filters), washing machines (detergent), or has replacement parts — such as vacuum cleaners (dust bags, brushes) — would be programmed to self-order replenishments.

And consumers will not hesitate to take financial advice from artificially intelligent apps – and then invest across asset classes, on a real-time basis.

Truly embedded payments are still on the horizon, but the first pilots are being run and the technology is moving fast. As the number of devices and objects outfitted with intelligent, connected sensors multiply, it will result in a virtual opening of the payments floodgates with billions of transactional devices that will enhance, and initiate payment experiences.

Shifts in Payment Dimensions

	Payments 1.0	Payments 2.0	Payments 3.0
Technology Infrastructure	2.5G and 3G	4G	5G
Payments Infrastructure	Batch Mode Payments and Settlement	Instant Real-Time Payments and Settlement	Distributed Finance
Channel Evolution	Single Channel/	Multi-Channel/Omni-Channel Commerce	Omni- and Off-World Commerce
	POS /ATM/Bank Branch	Online / Mobile Apps /QR Codes /Smart Devices	Smart Devices/Payment of Things
Payment Evolution	Cards/Cheques	Contactless Cards Realtime Payment Rails /Payment Tokens	Payment Tokens
Adoption Growth	Narrow base of users	Mainstream Adoption	Machines as Customers
Market Players	Banks/Interchanges	Banks/Fintech/Techfin or BigTech	Banks/Fintech/BigTech Network of Networks
Operating and Business Model	Closed Systems walled gardens	Ecosystems Orchestration - APIs and Open Banking	Open X
Customer Expectations	Mass market offers	Personalised Commerce (Know Me)	Internet of Behaviours (Be Me)
Market Evolution	Monopolistic (Bank-dominated)	Diverse and Fragmented	Greater Fragmentation

Implications for the Industry

As markets transform, the structural shifts from Payments 2.0 to Payments 3.0 will spark profound change. The infrastructure for payments will be reshaped, and new business and operating models will emerge.

To meet ever increasing lifestyle needs of consumers, closed, walled garden approaches are making way for open platforms and ecosystem-based models for growth. A prime example is China's Alipay and WeChat Pay. These ecosystem actors have created a new paradigm with 'super-apps' as payments platforms. WeChat launched in 2011 as a single purpose messaging app. Currently it hosts over 1 million "mini-programs" that allow users to address daily lifestyle needs — order a taxi, apply for a loan, transact with local businesses, government service providers – without having to leave the app.

With expansion in digital value chains and a proliferation of products, consumers, spoilt for choice, will place ever-higher premiums on the user experience. With more people and things transacting digitally than ever before, payments businesses need to drive scale quickly to optimise per-transaction cost and improve profitability profiles. Behind the scenes, payment processing — the "plumbing for payments" — would need to be strengthened to address exponential growth in demand.

A strong digital backbone offering ability to process imploding transaction volumes at Internet scale and affordable price points would form the core of the evolving ecosystem. In effect, payments would need a digital expressway that guarantees a smooth ride at high-speeds – for millions of innovative applications riding on top.

Given the industry's rapid evolution, payments modernization requires significant investment. As a case in point, leading payments specialists each committed between 3 and 13 percent of their revenues to capital expenditures in fiscal year 2019, representing annual budgets ranging from \$250 million to nearly \$1 billion, **according to McKinsey & Company**. Given the costs and complexity involved in constantly ramping payments infrastructure, many players would select asset-light models and "partner" with a trusted technology provider. Payments Platform As-a-Service would be preferred by many players as it brings in significant cost and time to market efficiencies.

Getting Future Ready

Payments 3.0 offers an opportunity to create new engines of growth. To be successful, technology providers need to align its operating models with the new world order in payments. FSS has a 30-year track record of being a market maker, delivering relevant innovations across the Payments 1.0 and Payments 2.0 growth phases. In response to the rapid structural changes, FSS continues to pursue its long-term strategy to lead the transformation of the payments landscape by significantly strengthening the scope and scale of its offering.