

FUTURE READY PAYMENTS PLATFORMS

Meeting today's business needs and preparing for tomorrow's

Foreword

Payments platforms sit at the core of a financial institution's business; a financial institution's ability to compete by offering new products and services is determined by the flexibility and extensibility of its payments platform.

Traditional 1st & 2nd generation payments platforms were developed for a card-centric, physical world. Platform customisation is achieved either by configuring platform parameters provided by the platform vendor or, where a financial institution wants to customise the platform beyond that envisaged by the vendor, by adding to or modifying core components of the platform.

This presents a problem for any financial institution operating a traditional payments platform and wanting to offer innovative, non card-based products. The problem is particularly acute for those financial institutions wanting to compete with the new breed of financial institutions – the neobanks, challenger banks and other fintechs – that have arisen since the early 2010s.

This problem has been recognised by all platform vendors. However many financial institutions continue to operate traditional, card-centric 2nd generation payments platforms which are based on concepts and technologies

from the 1990's. Vendors have reacted by adding short term fixes, such as integration layers, squeezing their platforms to the limits of their capabilities.

Since 2010, vendors looking to support all of their customers future needs have developed modern, 3rd generation, payments platforms which natively support extensive customisation, providing financial institutions with the means to develop innovative products and solutions now and in the years to come.

This whitepaper considers possible reasons for this evolution in platform capability. It describes:

- How payments platforms have evolved.
- The characteristics of traditional payments platforms and the problems these cause financial institutions attempting to compete with competitors using modern platforms.
- Why financial institutions might be reluctant to migrate to a modern platform.
- The typical architecture of a modern 3rd generation payments platform, its capabilities and the benefits it can deliver to a financial institution.

Finally, it describes why financial institutions need to migrate and the benefits they will enjoy post-migration.

Payments platforms sit at the core of a financial institution's business. A modern 3rd generation platform is essential to offer financial services that meet the needs of today's & tomorrow's markets.

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Evolution of payments platforms

- The changing business needs of financial institutions
- The changing capabilities of payments platforms

The changing business needs of financial institutions

Since their inception, payments platforms have developed in scope and capability to meet the changing business needs of financial institutions.

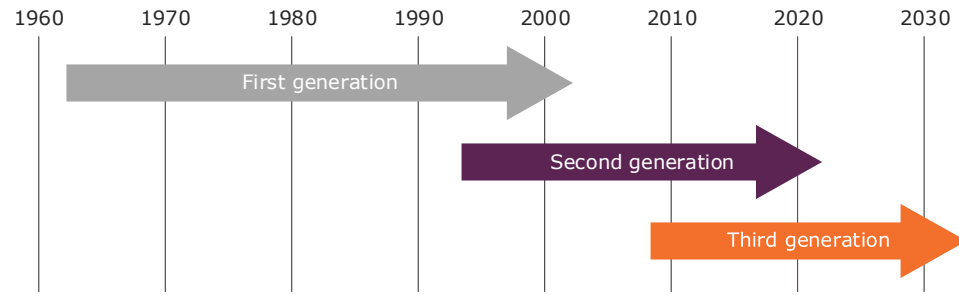
Starting in the 1960s, financial institutions began to offer card-based payments. Financial institutions regarded the ability to offer such payments as a core innovation. This drove them to develop their own 1st generation payments platforms.

Between the 60's and the 90's the demand for payments services grew rapidly, but the pre-modern era technology prevented the industry from fulfilling the demands. By the early 90s, card-based payments was no longer novel, and had become a commoditised core business need. Financial institutions required payments platforms that enabled them to deliver flexible card-based payments as efficiently as possible, 2nd generation payments platforms emerged to meet these challenges.

The late 1990s and early 2000s saw the rise of e-commerce, a rise that accelerated as smartphone use proliferated in the late 2000s bringing new payment

channels and new customer expectations. Additionally traditional financial institutions found that they were competing not only with each other but, by the 2010s, with many new competitors - neobanks, challenger banks and other fintechs. These competitors, having business models predicated on being able to deliver products and services over digital channels, deployed modern, extensible, 3rd generation payments platforms. Traditional financial institutions needed payments platforms that allowed them to compete with this new competition.

Since their inception, payments platforms have developed in scope and capability to meet the changing business needs of financial institutions



Evolution of payments platforms

The changing capabilities of payments platforms

Payments platforms evolve to meet financial institutions' changing business requirements.

Early 1st generation card payments platforms were developed or commissioned by the financial institutions that used them; the ability to offer card payments was a competitive advantage.

Over time, card-based payments became a commodity, business and financial institutions saw little justification in developing payments platforms themselves. As such 2nd generation platforms tended to be developed by specialist third parties and offered to financial institutions for use either in-house or on a "platform or software as a service" basis. These 2nd generation platforms are focused entirely on card based payments, card product customisation to provide the differentiation financial institutions required, could be met within the customisation capabilities of the platforms, or required development by the platform vendor.

Modern 3rd generation platforms, whilst maintaining support for card-based payments, are designed utilising

modern IT architectures with customisation as an inherent feature of the platform itself. 3rd generation platforms provide a rich toolbox for users. This enables unparalleled levels of customisation including the ability to change the logic and behaviour of the system, enabling the support of new payment mechanisms and products, such as micro finance at the point of purchase (buy now pay later), money management, mobile payments, Open Banking, personalised payments, etc. These platforms are made for the new payments world, allowing payments providers to develop and deploy at speed new features, payment flows, true omni-channel (not multi-channel) and take new ideas from concept to fruition.

Whereas 2nd generation platforms can offer multiple payment channels, including limited omni-channel solutions, 3rd generation platforms are not built for card centric payments. 3rd generation platforms are built and intended for tokens, all and many yet to be imagined.

By utilising advancements in IT, 3rd generation platforms provide customisation as an inherent property of the platform itself. Customisation is not something you do to a 3rd generation platform, it's something the platform is, including adding objects that the industry hasn't realised the need for yet.

Customisation is inherent, indeed native to 3rd generation platforms. It's not something you do to a 3rd generation platform, it's something the platform is.

The need to migrate from 2nd generation platforms

- The need for change
- Impediments to change
- Drivers for change

The need for change

3rd generation payments platforms have been available since 2010. However, as many financial institutions continue to use 2nd generation platforms, it is worth considering how such institutions might be restricting their ability to compete.

A 2nd generation platform can be typified as:

- Having been developed using languages and methodologies that were prevalent in the late 1980s and early 1990s.
- Targeting card-based payments, having been developed to meet the needs of financial institutions to offer card-based payments in a pre-eCommerce, non-mobile era.
- Offering capabilities intended to meet the needs of the financial institutions not their end customers.
- Limited customisation capability, typically driven by scripting engines, limited in their capability, only supporting more extensive customisation by modification of platform components.
- Slow time to market for new products and services, on average six to nine months to develop and deploy.

These points result in the following problems for financial institutions using 2nd generation platforms trying to compete with competitors using 3rd generation platforms:

1. Modelling all payment transactions as card payments:
 - Card centric, rather than payment and token centric.
 - Unable to adapt payment solutions required by today's consumers.
2. Customising the platform:
 - Limited customisation capabilities within the platform.
 - Reliant on the platform vendors for implementation of radical features.
 - Inability to react to changes in market quickly. e.g. Covid solutions.
3. Recruiting development staff:
 - Developers want to work on the latest technologies and techniques which will enhance their skills and CVs.

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The nature of payments is changing quickly with technology advances and the rise of e-wallets. The payments function increasingly is embedded as just one feature among many.

Payments Just Want to Be “Free”—How Can Providers Adapt?
Bain and Company
19th May 2020

1. Modelling all payment transactions as card payments

2nd generation platforms were developed during an era that was pre-eCommerce and pre-smartphone where the only payment method option was a card. Such platforms cannot adequately reflect the objects and functions of today's payments world. Developers therefore must model, as best they can, many of the payment operations of today's world as card transactions, instead of being able to represent them naturally.

2. Customising the platform

Whilst 2nd generation platforms might allow financial institutions who engage the vendor to introduce complex customisations or services by modifying the platform, the platform will guarantee that these modifications will work on subsequent upgraded versions of the platform, but it will have significant impact on time and costs. Consequently, financial institutions who invest time and resources in developing their own platform customisations are faced with an extensive regression testing and fix phase whenever they receive upgrades to their platform. Incorporating upgrades is mandatory for financial institutions. Part of the reason platform vendors release upgrades to their platforms core is to implement the

regular operational bulletins published by the international payment systems and other schemes.

Furthermore, some customisations may be either difficult or impossible for a financial institution to make without the cooperation of the platform vendor. This has several consequences:

- **Dependence on vendor:** Financial institutions cannot make all the customisations they need independently of their platform vendor. Consequently, financial institutions are restricted to only being as flexible and responsive as their platform vendor.
- **Potential loss of competitive advantage:** Where a customisation requires the vendor to modify the core platform, that customisation becomes available for use by all users of the platform, unless specific contractual restrictions are in place, making it expensive and complex to compete.
- **Increased support cost:** Modifications and custom features have to work with each regular platform upgrade. The more complex the modification, the more expensive it becomes to maintain, test, release and grow the platform. Each upgrade cycle brings increased risk of failure and reputational damage.

Second-generation platforms were developed during an era that was pre-eCommerce and pre-smartphone where the only payment method option was a card

3. Recruiting development staff

2nd generation platforms were developed using languages, tools and software development methodologies that were prevalent in the early 1990s.

This could present financial institutions with recruitment difficulties as staff having the relevant experience and inclination for developing for 2nd generation platforms retire. Today's developers will typically want to develop for modern payments platforms using modern languages, tools and techniques. Doing so not only allows them to be the most productive but also allows them to maintain and enhance their skillset.

This results in financial institutions operating a 2nd generation platform having to recruit platform developers from a diminishing workforce pool. This problem only increases the time that financial institutions defer migrating to a modern, 3rd generation payments platform.

Impediments to change

Given the benefits to a financial institution of running its payments products on a 3rd generation payments platform, why might a financial institution continue to run its payments on a 2nd generation platform? Reasons might include:

- **Familiarity:** It is familiar with its current platform, capabilities and shortcomings.
- **Stability:** Its payments processing is business-critical and migrating that processing to a new platform is an exercise it is unwilling to embark upon.
- **Market:** It feels sufficiently confident in its target market that it sees little business justification for offering the products that would be enabled by a 3rd generation platform.
- **Skillset:** 3rd generation platforms require different skillsets to operate and customise, so a financial institution needs to ensure that its staff have the training and skills appropriate to a 3rd generation platform before deploying one.
- **Cost:** The older and larger the system, the more expensive it will be to migrate. A cost that only grows the longer current systems are extended and squeezed to deliver new features.

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Each bank leader dodges the systems change bullet and leaves it for their successor to deal with.

Chris Skinner
Independent
commentator on
financial markets

<https://thefinanser.com/2019/07/is-there-any-way-to-change-the-status-quo.html/>

Drivers for change

The early 2010s saw the rise of a new breed of financial institutions – neobanks, challenger banks and other fintechs. This new competition to incumbent financial institutions arose because:

- Regulators in many jurisdictions saw that competition between incumbent financial institutions was not delivering better services and products for customers and changed their stance to encourage new entrants to the financial services market.
- New competitors emerged, FinTech and the mobile industry, everyone got involved in payments, payments were no longer the preserve of banks.
- The new competitors saw the need to deliver financial services in a way that embraced the rise of smartphone use from the late 2000s. They typically targeted customer demographics, such as younger customers, that expected banking to be delivered by an app, not by branch or even by website.

- The new competitors identified financial services that were either:
 - Not being provided by incumbent financial institutions (such as “buy now, pay later” products); or
 - Poorly provided by incumbent financial institutions (such as cross-border payments).

New financial institutions are able to deliver the services they do in part because, not having the baggage of legacy payments platforms, they are able to exploit the capabilities of modern payments platforms. This gives them a competitive advantage over existing financial institutions still using 2nd generation platforms.

For an existing financial institution to be able to offer products and services comparable or better than those of its new competitors, it needs a payments platform having capabilities that match or exceed that of the platforms used by those competitors.

New financial institutions are able to deliver the services they do in part because ... they are able to exploit the capabilities of modern payments platforms

3rd generation platforms

- Platform architecture
- Platform capabilities
- Benefits for financial institutions
- Migrating to a 3rd generation platform

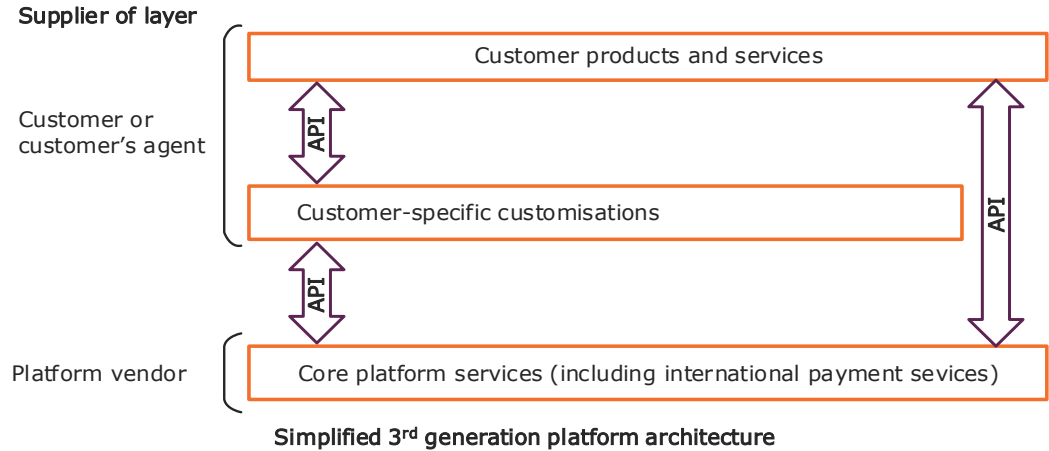
Platform architecture

The figure outlines the layered architecture of a typical 3rd generation payments platform in simple form.

It shows a base layer of core platform services provided by the platform vendor. Above these are the customisations for an individual customer (financial institution). Each layer accesses the services of a lower layer via published inclusive, fully developed APIs.

It is this layered architecture and rich APIs that endows 3rd generation payments platforms with extensive customisation capabilities. This architecture allows the platform vendor to maintain, develop and deploy updates to the lower layer without disturbing the customers layers and customisations that use its services.

This layered separation means the platform vendor can take care of scheme mandates, compliance, payment engines, batch processing etc. Providing the financial institution with the freedom to develop quickly without worrying about breaking the system, like in 2nd generation platforms, knowing the core platform is safe and secure. Vital resource can then be freed to develop innovative, independent products and services, differentiating for their customers and delivering revenue for the business.



Platform capabilities

A 3rd generation payments platform will be capable of:

- Supporting extensive customisation by virtue of rich APIs, native toolbox and layered architecture.
- Rapid development and deployment of new payment products.
- Handling token-based payments as one of many potential payment channels, enabling true omni-channel payments.

Benefits for financial institutions

These capabilities enable 3rd generation payments platforms to provide financial institutions with benefits such as:

- Being able to customise the platform beyond the simple parameter-based customisation offered by 2nd generation platforms, without having to make changes to the underlying core platform.
- Being able to customise and develop products for the platform independently of the platform vendor.
- Reducing the development effort required to add new products to the platform. Taking, reusing, applying, changing, inheriting and creating new

objects and workflows, system behaviours and interactions. All within days.

- The capabilities 3rd generation platforms provide financial institutions is ground-breaking.

These benefits allow financial institutions to approach product development with a different mindset to an organisation with a 2nd generation platform. Having the flexibility to innovate new products and new concepts on a payments platform affords financial institutions the ability to:

- Offer products that are personalised to meet the needs and promote the financial health of its customers as they go through life.
- Introduce complementary products such as “round up” products, whereby payments are rounded-up and the round-up amount donated to a charity, added to a savings jar, invested, etc.
- Respond swiftly to regulatory change.
- Ability to quickly deliver new short-lived products to meet new needs, e.g. Covid payment solutions, short term government schemes / benefits, all of which would take months, if at all possible on 2nd generation platforms.

These benefits allow financial institutions to approach product development with a different mindset to that when customising on a second-generation platform

Further benefits for financial institutions

The reduced development effort required by 3rd generation platforms means that, instead of being forced to select one product for development from a shortlist of new product concepts due to high development costs, financial institutions can instead afford to develop multiple products from a shortlist. This allows products to be test marketed to different customer segments to determine which product(s) work best, instead of committing all resources to a single product which could ultimately fail in the market.

Not being card-based, allows financial institutions to offer true omni-channel payment solutions. A single platform with full visibility of everywhere, and no need for extra bolt on components to add capability or integration with other layers. Fully featured APIs ensures a payments system that seamlessly connects everything.

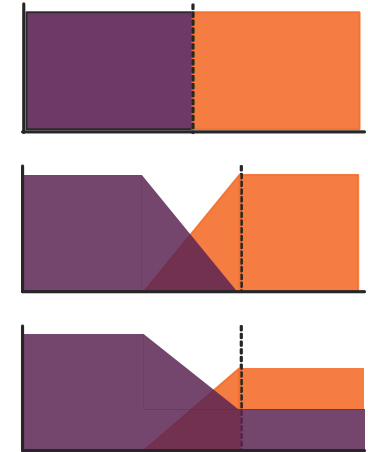
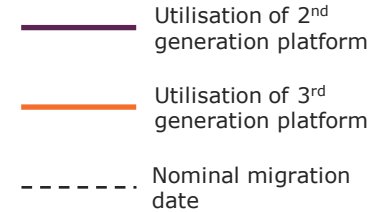
3rd generation platforms were Open Banking and PSD2 ready, before Open Banking and PSD2 existed. Their native toolbox, token based operation provides the extensibility to future proof a financial institutions payments services needs.

Migrating to a 3rd generation platform

Financial institutions operating a 2nd generation platform, needing to migrate to a 3rd generation platform, will need to plan the migration in a way that best suits their organisational needs. Where 3rd generation platforms being inherently cloud compatible, these migrations can be done in part over time reducing the cost impact and mitigating risk.

Possible migration strategies include:

- **Big bang migration:** All existing products and operations are migrated to the new platform and the original platform decommissioned. All new products operate on the new platform.
- **Phased migration:** Existing products and operations are migrated to the new platform over time, with both the original and new platforms operating until the migration is complete and the original platform decommissioned. All new products operate on the new platform.
- **Partial migration:** Both platforms are operated in parallel, with some existing products never being migrated to the new platform. All new products and geographies operate on the new platform.



Embracing 3rd generation platforms

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Traditional financial institutions need to embrace 3rd generation platforms because doing so will allow them to meet the competition presented by the wave of new financial institutions. These new competitors have developed products for today's always-connected, always-online, mobile-centric world. Existing financial institutions will struggle to compete effectively if they persist in operating 2nd generation platforms intended for a card-centric, physical world.

Whilst migrating from a 2nd to a 3rd generation payments platform will always present challenges, once the migration is complete a financial institution can start to reap the benefits of operating a modern platform like those of its newer competitors:

- The ability to use the platform's rich API to develop customised products independently of the platform vendor.
- Reduced time to market for new payments products, enabling the adoption of agile product development concepts such as:
 - **"Disposable innovation"**: The development and launch of multiple products with a view to determining which succeed in the market.

- **"Pop-up innovation"**: The development of products to meet a temporary, short-lived need, closely related to:
- **"Campaign innovation"**: The development of products in support of a marketing campaign.
- The ability to recruit development staff without being restricted to recruiting from a candidate population able and willing to work on old platforms.
- The ability to take advantage of deployment models typically offered by vendors, such as:
 - On-premises
 - Cloud-based
 - Hosted by vendor on a "Platform as a Service" or "Software as a Service" basis.

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The result? A bank can have its own innovation lab, be researching the benefits of these latest technologies, partner with fintechs, and have proof of concepts relating to every one of the new trends, but if that bank doesn't focus on transitioning to the world of platforms, it faces a bleak future.

Tony McLaughlin

Citi

<https://www.finastra.com/viewpoints/market-insights/banking-world-platforms>

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