FNALITY INTERNATIONAL

Seamless exchange of value for banks and businesses in future financial markets

How we can build the common foundation for safe, real-time and frictionless settlements

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Financial markets are at an inflection point

As financial market participants race to build the foundations for the future, it is imperative to bring together traditional finance (TradFi) and decentralised finance (DeFi) institutions to deliver a system that works for both of their markets and participants. Distributed systems are already beginning to be seen as meaningful alternatives to traditional solutions. But the convergence between the two requires the development of quicker, safer and more efficient value exchange at scale.

There is a shared interest across the spectrum of financial institutions in this convergence. DeFi needs to develop compliance with existing regulatory regimes to establish legitimacy and facilitate an expansion of DeFi services based on trust and broad usage, helping them connect to a mainstream customer base.

Conversely, TradFi wants to use DeFi technology to reduce settlement risk by simplifying the incumbent, highly intermediated model. In wholesale markets, this has the potential to improve operational efficiency and risk management by enabling same-day settlements. Real-time peer-to-peer settlement will enable all wholesale financial institutions – with a huge range of trading and payment needs – to safely predict and manage their liquidity requirements.

Those looking to shape the solutions for the future need a foundation which enables seamless exchange of value, wherever participants are in the world. Solutions must be interoperable, so that legacy systems can fully and effectively interact with a new, decentralised solution, and traditional institutions can seamlessly and safely participate in this new market.

Existing initiatives are already well underway to create this global, connected environment, so it is important to understand the challenges these innovations present, the opportunities they create, and the building blocks needed to make them work.

New markets – especially those for tokenised assets – need institutional-grade payment rails for transactions to work effectively. There is a growing consensus that tokenised asset markets are poised to constitute a critical part of future financial markets – as UK Finance have cited, HSBC estimated that digital assets would represent 5 to 10% of global assets by 2030, while Citi Global Perspectives and Solutions forecasted USD 4 to 5 trillion of outstanding tokenised securities by 2030, coming from debt instruments, fund products, securities financing, and collateral.[1]

Fnality can provide the on-chain cash asset with the credit characteristics of central bank money, that will act as the foundational, essential trust layer for these nascent markets.

This paper sets out the market principles, core benefits and practical applications of this new ecosystem. With these key elements in place, we can fully articulate our market vision and bring the key elements of the Fnality Global Payments proposition together.

[1] https://www.ukfinance.org.uk/system/files/2023-07/Unlocking%20the%20power%20of%20securities%20tokenisation.pdf

TradFi has new opportunities to modernise

TradFi markets today are largely reliant on intermediaries, which can cause siloed and disjointed processes. It's a highly intermediated system, leading to a host of avoidable risks and inefficiencies which place a drag on profitability.

Potential savings in post-trade that can be realised through a reduction in process complexity alone are estimated at up to $300 million annually for an average tier-one institution.[2]

When liquidity is split across many intermediaries globally, each working to different, time-zone specific cut offs, banks cannot deploy their liquidity in a timely fashion, compounding these costs further.

In a modern business environment, clients need and expect near-instant access to liquidity. At the same time, they also want to see the benefits of speed, flexibility and accessibility which process automation and tokenised assets have begun to deliver. Relying on traditional ways of working is no longer realistic for financial organisations who want to remain competitive.

Decentralised finance has answers – but not to everything

Banks recognise the need to evolve and embrace the potential of emerging technologies and the new markets they enable. But there are crucial questions around how digital and tokenised capital markets can be connected to create credible, trustworthy and practical frameworks for on-chain payments and settlements.

To enable these payments and settlements at industry-wide scale – and allow banks to generate new use cases and revenues from DeFi processes – a foundational, regulated layer is needed to bridge the divide and harmonise institutional safety and trustworthiness with new DLT solutions.

Fnality Global Payments (FnGP) provides the legal and regulatory foundations, as well as the interoperability standards required to support a near real-time peer-to-peer payments process, underpinned by DLT. We interoperateacross different jurisdictions and business platforms, supporting a connected network for real-time payments and settlements on-chain, bridging the gap between TradFi and DeFi markets.

[2] https://www.broadridge.com/_assets/pdf/broadridge-charting-a-path-to-a-post-trade-utility-white-paper.pdf

A new vision for wholesale financial settlements

Put simply, Fnality Global Payments (FnGP) is a network of interoperable systems for wholesale payments and settlements on a real-time basis and on a global scale.

With distributed, peer-to-peer financial market infrastructure, we aim to remove barriers to payments and settlements globally, and provide true interoperability both between pools of liquidity across major global currencies, and across a wide range of existing and emerging asset classes.

This will allow market participants to access the benefits of a 'single pool of liquidity' alongside legacy infrastructure, delivering a transformative and functional ecosystem for efficient, flexible movement of funds.

How it works

We are developing a group of payment systems that together constitute Fnality Global Payments. Each jurisdictional Fnality Payment System - for example the Sterling FnPS, US Dollar, or Euro FnPS - will utilise a settlement asset that support real time wholesale payments with near instant peer-to-peer settlement.

Together with CAD, Yen and Swiss Franc, these jurisdictional Fnality Payment Systems will comprise Fnality Global Payments, a network of interoperable wholesale payment systems that enable near-instant PvP settlement on a cross border basis. This network of networks will dramatically reduce the risk - be it settlement, replacement cost, or credit counterparty risk - in real-time settlement and 24/7 availability. Over time we envisage including other jurisdictions.

We are architecting our payment systems with both forwards and backwards-facing interoperability in mind. The concept of a 'single pool of liquidity', is particularly exciting, as it can link real time PvP capability to the ability to settle any DvP transaction atomically and on a near instant basis. A participant can carry out near real time currency swaps to support DvP settlement in any given market.

The practical effect of this is that participants are empowered to manage the entirety of their cash and collateral portfolio virtually, from a 'single pool of liquidity', rather than via the parking of capital across fragmented nostros, correspondents, and domestic CSDs.

New markets – particularly those in tokenised assets – will need payment rails for the payment leg of any DvP transaction. There are myriad tokenised assets in existence,[3] and many exchanges on which to transact in them, but an on-chain cash asset with the credit risk characteristics of central bank money is needed to bring trust to these nascent markets, and fully unlock the potential of this novel asset class.

[3] https://www.ukfinance.org.uk/system/files/2023-07/Unlocking%20the%20power%20of%20securities%20tokenisation.pdf

With all this in mind, here is what we're bringing to the market:

- The foundational layer, enabling the market to unlock seamless cash settlement for digital transactions, across jurisdictions and business platforms.
- A dedicated operating system for wholesale payments, with a global network of interlinked payment systems, delivering settlement directly.
- A trusted convergence point that will decentralise finance in a regulated, scalable and secure way.
- A novel solution for the payment leg of tokenised asset transactions, creating a host of new use cases for wholesale market participants.
- An opportunity to generate new business and revenue lines by unlocking intraday markets that do not exist today.

Transformative applications for financial markets

A shared architecture for global settlements that is constituted in this way can help to overcome many of the weaknesses of today's post-trade landscape. The core design and capabilities of FnPS provides a novel solution to the credit risks, exposures, liquidity problems and inefficiencies which exist today.

1 Built for resilience

High availability of a widely replicated, updated ledger ensures everyone has their own source of truth within a decentralised network, with transactions settled and validated fast.

This high availability contributes to higher resilience, with no single points of failure in people, processes or technology. Plus, faster processing speeds help to reduce operating costs in the back office. Settlement risks are effectively eliminated, as all PvP and DvP transactions are both atomic and indivisible, so both legs are settled or neither of them are.

2 Programmable cash

Programmable cash provides the ability to trigger a payment conditional to predetermined criteria. This empowers the development of emerging financial markets by automating processes, increasing accuracy and speed, and further enhancing interoperability with legacy and novel technologies.

Peer-to-peer cash transfer on a resilient, distributed system contributes to the removal of single points of failure, reducing credit and counterparty risk.

3 Liquidity optimisation

FnPS is fully interoperable with other DLT platforms and legacy infrastructure. Participants in the systems are empowered to manage their whole cash and collateral portfolio from a single pool of liquidity. This makes it an ideal candidate as the payments leg of any future tokenised assets and markets which require a regulated, faster on-chain payment method.

As soon as funds are deposited into the central bank account operated by Fnality, they are represented in FnPS and transactable with 24/7 availability, meaning payments can be made outside of Real-time Gross Settlement (RTGS) hours. The introduction of real-time, atomic global settlement opens up an array of new possibilities for cash and liquidity management, and reduces fragmentation of liquidity across different nostros and correspondents.

For example, funds which are long in a currency where RTGS is closed could be swapped instantly for funds in a different currency where RTGS is open, instantly usable to meet any obligations.

4 Reduced risk

FnPS ensures high quality liquid asset (HQLA) characteristics for participant funds, minimising credit risks and maximising balance sheet management effectiveness.

Uniquely to Fnality, our cash asset is a digital record/representation of funds held at a central bank, and since the underlying funds are bankruptcy remote, it has the credit risk characteristics of central bank money and is much more suitable for institutional use in wholesale markets than other novel payment solutions such as stablecoins.

5 New opportunities

Intraday activity enabled by new on-chain payments will create a host of new opportunities to grow revenue. Short-term, instant funding sources will enable new, innovative partners to offer novel products, like intraday repos, FX swaps and active intraday liquidity management.

Plus, the reduction of cash collateral and deposit requirements will help to reduce large outflows and deliver healthier balance sheets with more efficient capital allocation.

An on-chain cash asset which possesses the credit characteristics of central bank money will be crucial to bring trust to the nascent markets of tokenised assets, and can help to unlock their full potential.

The post-trade infrastructure of the future

The free and frictionless flow of value between markets and jurisdictions on a reliable and regulated settlement infrastructure will be the fundamental, shared framework for trusted decentralised finance. It can open the door for wholesale financial institutions to enhance liquidity management and access new digital markets, while improving safety and efficiency in cross-border payments.

The huge diversity of potential participants in DeFi markets means that accountability must be held by a centralised system operator, who ensures participants and other system actors adhere to a shared legal framework, clearly defining responsibilities at all times.

More than this though, distributed Financial Market Infrastructure promises to unlock the transformative power of peer-to-peer processes, reducing the reliance on intermediaries. Trading, settlement and custody all have potential to be decentralised, creating a less costly, more efficient and more resilient post-trade framework.

Decentralisation without deregulation

The design of FnPS means that the role in fulfilling the settlement and processing of payment instructions, and the maintenance of the distributed ledger, will be shared by market participants – while meeting all necessary risk, regulatory and prudential standards.

Faster, safer and more transparent payments

Linking independent but harmonised DLT-based payment systems will mean that cross-border and foreign exchange transactions can be settled much more quickly than they can today. All while reducing the many risks that exist today by meeting standards that comply with applicable laws and regs, and under supervision of CeBs.

A reliable foundation for convergence

Together, these features of the Fnality model provide a basis for a move away from traditional TradFi operating models towards a faster, more flexible, more secure settlement flow. Without abandoning the safety of existing regulatory safeguards, participants can unlock the possibilities of moving wholesale funds across the world in an instant. With active participation between banks and partners, we can build a global network of interlinked payment systems, seamlessly exchanging value, to deliver a raft of new use cases and opportunities to boost revenue growth.

Creating a more profitable, connected global network

The proposal of a decentralised, transparent DLT-based payment system has the potential to deliver a huge range of use cases across DeFi and TradFi operations and infrastructures.

Primarily, the goal is to create a more efficient market architecture, that removes barriers to the free flow of money globally.

Use case 1 - Cross-border corporate payments

Wholesale cross border payments account for less than 20% of total payment volumes, but around 80% of total revenues. The primary cost driver is the complexity inherent in this highly intermediated and highly interdependent network of correspondents.[4]

Currently, cross-border payments are handled in a variety of ways. Large corporates tend to directly connect via a SWIFT gateway and send formatted messages to their banks or intermediaries to forward on. Smaller businesses may use their own applications connected to banks, banks' own platforms, or initiate payments manually.

This variation leads to a number of challenges:

- Fragmented data standards and poor interoperability between corporates and banks, due to the non-standardised rails used.
- Compliance complexities, as payment lenders may not provide the required data in the right format, leading to costly payment delays and failures.
- Long delays caused by different operating hours of banks and central banks in the payment value chain.
- Delays in target jurisdictions, as banks may not have branches in all jurisdictions, so may require additional intermediaries, which can impact on time, cost and transparency of liquidity pots.

The solution

- With our instant settlement capabilities, we can help banks and partners to settle their payments, cross border, and instantaneously, providing certainty and decreasing risk in the process.
- An always-on settlement network ensures participants are no longer dependent on operating hours of RTGSs in specific regions. This will accelerate payments to reduce costs and potential risk.
- Eliminates the need for unnecessary additional intermediaries, using a peer-to-peer network to provide clearing capabilities within the in-scope jurisdiction.

[4] https://swiftinstitute.org/wp-content/uploads/2018/10/SIWP-2017-001-The-Future-of-Correspondent-Banking_FINALv2.pdf

Use case 2 - Liquidity saving

Today, the amount the banks need to prefund settlement agreements is dictated by regulations, and determined by the bank's largest negative net cumulative position (LNNCP) – the minimum amount of intraday liquidity needed to be available on any given day.

Banks want to keep these liquidity buffers at the lowest possible level, to ensure cash can be used to generate revenue instead.

There are some in-built barriers to this goal:

- Liquidity buffer fragmentation from domestic and cross-currency environments leads to inconsistency and increases the required liquidity holding.
- Liquidity mobility barriers resulting from different cut-off times create a situation where liquidity can only flow between pools to a limited level. Liquidity efficiency is then reduced as it is not always in the right place.
- Opportunity costs arising from the collateral required to secure credit lines, which could be used more profitably elsewhere.

The solution

- With an interoperable, connected network in each jurisdiction, banks can unify separate pools to create one intraday liquidity pool domestically and internationally, enabling them to manage virtually all cash from one place.
- Participants can access and use the entire liquidity pool nearly 24/7, reducing the likelihood of costly delays or problems with settlement.
- Peer-to-peer transactions between major counterparties help to reduce the number of correspondent banking flows and trapped liquidity.

There is an overall reduction of liquidity requirements, due to optimised transaction offsetting and a reduction of liquidity surpluses and deficits across separate pools.

For a GSIB, our quantitative analysis indicated that this could mean a **22% reduction in LNNCP**, resulting in group **liquidity cost savings of up to $469m**.

Use case 3 - Enablement of tokenised asset markets

A 2022 report[5] by BCG examined the potential of asset tokenisation, forecasting that the opportunity of blockchain-enabled tokenisation will grow to US$16 trillion by 2030 – or 10% of global GDP – and the potential of tokenisation to eliminate intermediation in transactions, to unlock value from illiquid assets, and to increase accessibility to asset markets for a wider customer base is becoming increasingly recognised by established players.

There is recognition however that realising these benefits and others is dependent on a commensurately transformative approach towards the existing clearing, payment, and settlement ecosystem.

It is no coincidence that the trend towards accelerated settlement in key asset markets (especially securities[6]) has been complemented by an increasingly enthusiastic exploration of the potential of tokenisation in these markets, but the cash leg remains a major barrier to progress and adoption.

The solution

- Fnality Payment Systems enable financial institutions to fully digitise the settlement leg of tokenised asset transactions. This enables near-instant wholesale settlement, 24/7 trading across jurisdictions, and a reduction in risk via atomic settlement in an institutional-grade cash asset.
- Smart contract-based payments – essentially utilising additional pieces of executable business logic that can be overlaid atop a DLT-based payment system – can automate processes, increasing accuracy, speed, and safety of settlement.
- Interoperability ensures settlement can be actioned across different platforms in compliance with applicable regulatory frameworks.

[5] chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://web-assets.bcg.com/1e/a2/5b5f2b7e42dfad2cb3113a291222/on-chain-asset-tokenization.pdf

[6] https://www.sec.gov/news/press-release/2023-29

Choosing the right partner to move DeFi forward

A foundational cash layer will ultimately support these emerging financial markets to grow safely and organically, unlocking the benefits discussed in this paper. Fnality can provide real value, by combining and applying these key principles within one global system of payments.

Why Fnality?

- Fully regulated financial market infrastructure within all active jurisdictions
- Fully backed by central bank money, providing the same risk benefits as using an RTGS
- Initial launch expected in UK GBP in 2023 subject to regulatory approval, followed by support in US and EU respectively.

The benefits in brief

- Peer-to-peer settlement in digital cash asset
- Interoperability of the network to enable near-instant settlement across borders
- Works with any legacy or DLT-based business applications

Fnality Payment Systems in action

We have already been able to show the potential breadth and extent of possibilities which this technology will unlock beyond existing use cases, with the collaboration of global DeFi market innovators.

Finteum

In October 2022, Fnality and Finteum delivered the first pilot cross-chain FX settlement transaction using GBP and USD. The pilot showed settlement took place in under 10 seconds, which will be replicable even in heavy traffic or when RTGSs are closed.

This followed the first successful interoperability test between Finteum and Fnality in 2019, with this latest test designed to reflect a live environment and a desired end state.

Read more

HQLAX

At the end of 2022 we were excited to announce the successful completion of the first proof-of-concept delivery versus payment repo settlement between FnPS and HQLAX's Digital Collateral Registry. This was supported by participants Banco Santander, Goldman Sachs and UBS.

The success of the test can now be taken forward as we focus on implementing the use case and accelerating the development of intraday settlements.

Read more

Nivaura (Recently acquired by NowCM)

Also in 2022, we worked with Nivaura and two global banks to conduct a proof of concept to demonstrate the benefits of DLT for near-instant settlements in capital markets. It was the first cross-chain pilot debt transaction, using public Ethereum and FnPS.

This represents a major step forward in the future adoption and development of these technologies, and will help to streamline payments activity into the future.

Read more

Would you like to know more?

We are always keen to talk to new participants and hear new ideas.

Please get in touch by email at enquiries@fnality.org to get started.

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