



THE CASHLESS CASH: INSTANT PAYMENTS





The Cashless Cash: Instant Payments

'Instant Payments' are high on the agenda of most financial institutions around the world. Globally there are various Instant Payments (or real-time payments) initiatives already in place, and many more being implemented. The topic attracts the attention of both banks and FinTechs alike. But what is this all about? This paper summarizes the most important topics being discussed and proposes the most relevant use cases and concepts that are important to be understood.

The paper is organized as follows:

- First, we discuss whether there is indeed a new use case for Instant Payments. Distinction is made between "immediate availability of funds" versus "immediate confirmation" of the payment. What is the added value of instant payments in each scenario?
- Then, we argue whether financial institutions should invest in Instant Payments. Is there a real business case or should it be seen as a defensive strategy, given the movements of FinTechs in this space?
- After this, we present the Instant Payments ecosystem and the various scheme layers. In which layer do we expect to see product differentiation and competition among the different players? What are the different options for clearing and settling the transaction?

- And finally, we discuss the 'block chain' technology and how this can potentially disrupt the payment industry, when used as an enabler of Instant Payments.

Why Instant Payments today?

In the last decade, digitalization in communication and information technology has fundamentally changed both our professional and personal lives. Being consumers of technology in this digital era, we have created high expectations on how our experience should be. Most of this expectation has been shaped by the outstanding products created by the internet giants such as Google, Facebook, Amazon, Spotify, Netflix and many others. Consumers expect a high level of quality, speed, on-demand services and immediate delivery. This sense of urgency extends from the virtual world into the real world. A world in which we do not want to wait more than 30 seconds to have our coffee ready. A world in which companies, such as Amazon, are experimenting with super-fast delivery of purchased goods using small aerial vehicles.





With information (and goods) flowing through these high-speed pipes, one would expect that money would also flow with such velocity. Whether you're sharing a restaurant bill with a friend or you're a merchant that needs to buy supplies to your shop on a daily basis, there is an expectation and a need for an immediate transfer of money.

As unlikely as it may sound, it happens that in the banking industry it may take one, two or even three days to send money from one person to another, or for a merchant to receive the full amount of all products sold during the day. These limitations are due to an existing infrastructure, which was largely developed two or three decades ago, that the banking community still maintains. As the high-tech of yesterday is the legacy of today, the infrastructure and derived services can hardly cope with the needs of the new generation. The digitalization era brings along the need of instantaneous value transfers. Instant Payments is the answer to this need.

The question still remains: will banks and financial institutions embrace the expectations and offer Instant Payments? If so, how to make it possible and when should that happen? In recent months there has been quite some discussion in the banking sector when trying to address these questions. Most opinions point to two opposite directions.

1) The most favorable opinion for the already solid banking industry point out to a renewal of their offer. The banking industry is and has been heavily

investing in recent years to upgrade the infrastructure. The next step into this direction is making it possible to receive and process payments instantaneously for the accountholders. This is a major refurbishment of the existing banking system that does not only affect an individual bank but also the inter-banking infrastructure. One of the major points of attention when taking this shift is what to do with fraud and how to comply with the Anti-Money Laundering (AML) and Know Your Customer (KYC) directives.

2) The less favorable opinion for banks points towards utilizing new setups created by FinTechs and new players in the financial ecosystem. The main advantage of FinTechs with respect to the traditional players is their eagerness to innovate and their dynamism. Regulation plays a double-edged role, FinTechs can either use it to leverage their business (for instance, to create a pan-European bank offering of common services regardless of the country or currency) or it can hinder its survival (for instance, not complying with AML and KYC may lead financial institutions to face significant fines). But in any case, the business opportunities are present in the market and are being picked up by the new entrants.

The market demand and the offering that is being created around it by existing or new players make Instant Payments relevant. Given this context, this paper is about understanding the use cases that it can facilitate, describing the business benefits and correlating all these concepts to the underlying banking infrastructure.

Is there a revolutionary use case for Instant Payments?

The rise of Instant Payment does not come associated with a new set of use cases that are going to make payments completely different. However, Instant Payments bring a perspective to the existing payment ecosystem.

To start with the definitions, Instant Payments (also called real-time payments by some parties) have different meanings in different contexts within different countries. However, we shall adopt the European Central Bank (ECB) description, which defines Instant Payment as a payment method that results in:

- Immediate debiting of debtor's account (<5 seconds)
- Immediate crediting of creditor's account (<5 seconds)
- Immediate confirmation (<5 seconds)
- Available 24x7x365
- Neutral to the underlying payment instrument, clearing and settlement mechanisms

The two main added values of Instant

Payments are immediate availability of funds and immediate confirmation of payments. However, these are not individually exclusive from Instant Payments and are not valued the same way in all the scenarios. Instant Payments makes them both part of a single potential product

Immediate availability of funds

We define immediate availability of funds the property of a payment instrument to allow the debtor of a payment to access and reuse the funds after having being received from a former payment. The acceptable period of time is typically under 5 seconds. An example of such a case would be to receive the money from a shared bill and immediately be able to pay the total bill.

There are some scenarios in which fund availability is essential for the successful completion of the payment. In such cases, the debtor cannot wait or trust that the funds are going to be received and has the need to access the funds. Or, the debtor

is willing to reuse the funds or reinvest them in order to make its cash-flow more efficient. In this direction, the most relevant use cases to profit from this property of Instant Payment are: large value payments, urgent P2P and P2B invoices and multicurrency payments.

1. Large value payments

Large disbursements from customers or merchants always come with a certain nervous feeling. Either an individual is purchasing high value goods or services or a merchant is paying for high-value merchandise. In both cases, the current payment infrastructure does not help to cope with the expectations. Funds have to be provided in advance in order to meet the deadline fixed by the debtor of the payment and there is no confirmation from the payment until the creditor has received it potentially few days later.

The opportunity for Instant Payments in this area is clear: due to its instant nature, the transaction can be performed at the moment the product is purchased or the service is fulfilled. Furthermore, thanks to the instant clearing and settlement, it is immediately known whether the debtor has received the funds or if the payment has been unsuccessful.

2. Urgent P2P, P2B and B2B invoices

More and more financial institutions and merchants optimize their cash-flow in order to leverage their financial opportunities. This can be either to reuse funds to execute other purchase orders or simply to reduce the exposure in case of open financial positions.

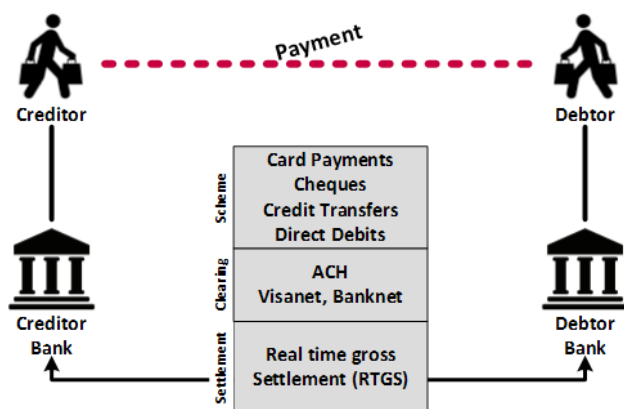


Figure 1: 4-corner model highlighting the Settlement, Clearing and Scheme layers for traditional bank products.

In addition, customers and merchants are willing to have the possibility to pay their invoices until the very last minute without incurring in additional fees. The equivalent scenario applies to transactions between customers where a merchant is not involved (i.e. P2P payments).

The existing picture today really varies depending on the country and method of payment used. P2P and P2B invoice payments can be typically achieved by consumers either using a Stored Value Account (SVA) in a specific Service Provider (SP). Examples of this pattern are PayPal, Skrill, WebMoney and plenty of other alternatives. In this case the funds are available immediately but the reachability is limited to the users of the specific SP.

Or they can be achieved using a traditional bank transfer (more or less automated through other Service Providers). Its main advantage is global reachability but depending on the country the settlement time may vary. Typically, in Europe, the SEPA credit transfer scheme guarantees a settlement time of one business day.

In opposition to this, Instant Payments could offer both global reachability and immediate availability of funds to cope with the merchant's and consumer's funding needs. In our view, this is a real game changer that opens plenty of new opportunities.

3. Multicurrency payments

The request from a party to fulfill a payment in a currency different from the currency available in the counterparty banks account occurs more and more

often in a globalized world. The existence of a common currency in Europe has shown that a simpler movement of funds brings together a growth in the cross-border market and opportunities.

As depicted, a multicurrency payment has some new actors that necessarily delay the transition of the funds from the creditor to the debtor. The existence of the so called Correspondent Bank or Liquidity Provider is linked to the existence of a market. It is not possible to transform USD in EUR magically. There should be somebody willing to sell EUR in order to provide EUR to the creditor. This can be the same bank; nevertheless most banks rely on corresponding parties to reduce risks and costs associated to this process.

Immediate confirmation of payments

Immediate confirmation of payment is the property of a payment instrument to inform both, creditor and debtor, of the successful completion (or not) of a payment trial. It is considered that a confirmation received within 5 seconds is immediate. This mechanism is already used since long time in the card payment business and gives confidence to the merchant in regards to the reception of the funds in a later stage.

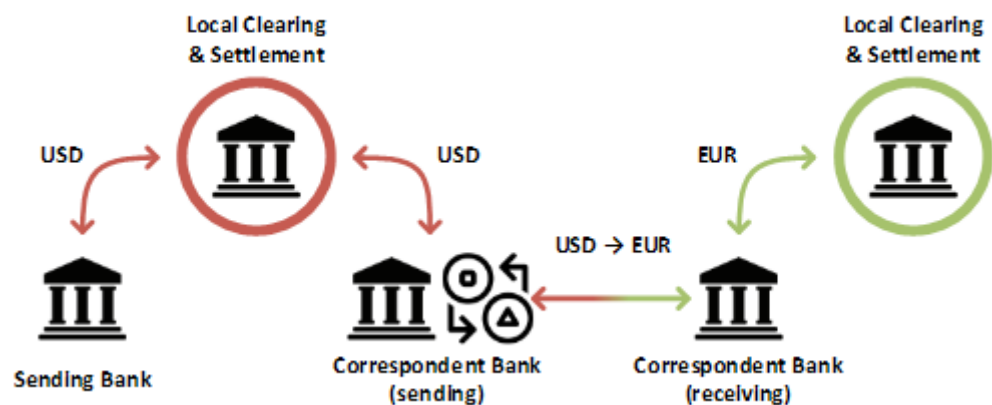


Figure 2: Stages required to perform a multi-currency transaction in the current banking system

To put it in perspective, the immediate confirmation of payments is an essential asset of card payments however; it is not exclusive to this payment instrument. Some of the scenarios in which this property becomes extremely relevant are the traditional Point of Sale (POS) payment, e/m-Commerce purchases online, P2P payments and Large Value Payments.

1. POS payments

In brick-and-mortar shops, the payment transaction typically occurs as the last stage once the customer has already brought with him all the goods he is willing to purchase. This space is traditionally occupied by the card payments, cash and, in some countries, checks. All these payment instruments already allow merchants to receive an immediate confirmation that the payment has been fulfilled, similarly to what Instant Payments can provide.

However, Instant Payments could play an essential role in this space by leveraging the usage of the underlying account as origin of the funds and providing to the merchant a cheaper way of accepting payments. Cash and checks could be replaced at some extent by the usage of Instant bank transfers that offer a much lower cost of treatment and settlement. Card payments would have a cheaper competitor (from the merchant's point of view) that additionally provides the paid funds with a shorter notice.

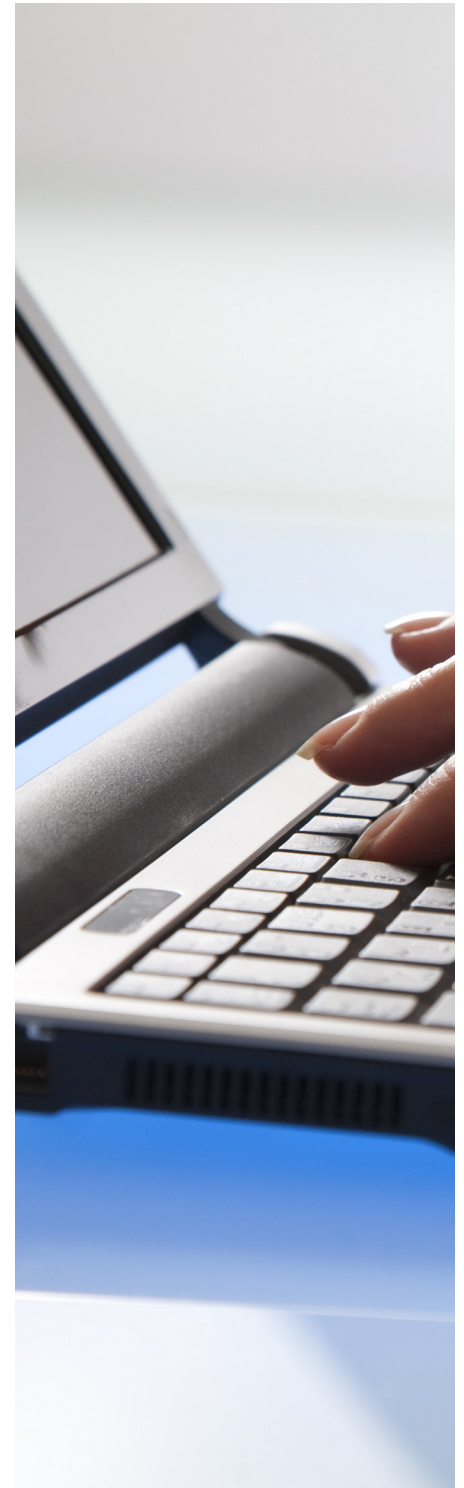
In the larger picture, Instant Payments represent a new payment instrument that can compete one-on-one, in the POS ecosystem, with cards and cash payments. This is especially true in countries where the usage of cards for low-value payments is not widely extended.

2. eCommerce and mCommerce purchases online

The largest challenge of eCommerce and mCommerce merchants when focusing on payments is how to make the full experience just frictionless. Today plenty of alternative payment methods have been created in order to fulfill this need.

Typically, goods or services are only released at the moment the payment confirmation is received and the merchant is sure to receive the payment. But also, customers are willing to receive in the Internet channel a similar experience to the one in the physical shop.

Instant Payments allow merging these two expectations and creating a more pleasant purchase experience for both customers and merchants. The possibility to create pay-on-delivery payment instruments that enable payment on merchandise reception while still using a digital payment and providing a seamless experience regardless if the payment occurs before, during or after the shipping. Or even, the ability to reduce the pay-to-release cycle before shipping products to the customer, which enables a more futuristic approach to real-time pay and deliver eCommerce.



At this stage, the integration with the existing banking applications or services already used by the customer will make the difference.

Why should financial institutions invest in Instant Payments?

If you are wondering what the business case is for Instant Payments or why banks should implement or participate in Instant Payments then you are asking yourself the wrong question.

In a completely digitalized world, the bank's customers do not expect to have a barrier between what they can do in their real life and what they can do with their money. The money should be considered as common representation for value, and this value must be available for transfer at anytime from anywhere and to everybody that the consumer is willing to transfer.

Recent studies [1] show that consumers are willing to change their main bank simply to have access to faster Instant Payments. When such study is published, we consider that the question is not anymore whether a financial institution should invest in Instant Payments or not but which initiatives a financial institution is going to take forward in order to put Instant payments on its service portfolio. Indeed, in recent months the business case for Instant Payments has proven to be more defensive (competing with the FinTechs entering the market) than offensive, especially when focusing on the customer side of it.

If we turn the picture 180 degrees and look at the merchant side of the business case, we believe that the added value provided can be monetized by the financial institutions in mainly two different directions.

1. Due to recent regulation of the European Commission the merchant interchange fees for debit instruments are going to be capped to 20 basis points. For issuers, this is a point of concern, as a currently safe source of income is going to be drastically reduced. However, the Total Cost of Ownership (TCO) associated to debit instruments (issuance of instruments, processing of transactions, licensing and branding fees, etc.) is not going to be reduced. Beyond Europe, in various others regions and countries there are also recent directives reducing and capping the interchange fees.

To compensate this, the creation of new services and products providing an immediate confirmation through the the Instant Payments infrastructure can certainly help to alleviate the interchange loss. In the long run, it may even represent an alternative to the capped card interchange. And the best of all, not because they represent a larger percentage of the transaction but simply due to the lower cost of ownership, compared to card payments.

2. Making Instant Payments a product is the other option that we believe that should be explored. In certain markets, merchants are reported to agree raising their MDR (Merchant Discount Rate) in order to obtain access to the funds quicker.

Bearing in mind that Instant Payments provide this feature per construction, monetization of this feature is expected to be possible.

Furthermore, we consider that Instant Payments are the cash of tomorrow. Due to its digital nature they also reduce to nearly zero the cost of cash management, handling and reconciliation for merchants. This feature, also available per construction, makes possible monetization in this direction.

The elephant in the room

Instant Payments also mean instant fraud, instant risk, instant control of funds and capitals... and in the wider sense, Instant Payments mean that compliance is not anymore something that can be treated later but must be also treated real-time.

Most of the existing legal frameworks do not take explicitly into account that with Instant Payments funds will move faster. Fraud opportunities will be multiplied and as such financial institutions' fraud systems need also to be considered when offering services based on Instant Payments. The usage of strong validation and verification of consumers should be the rule however; the trade-off between usability and security needs to be considered.

The existing implementation of successive Anti Money Laundering (AML) directives needs to be reviewed to ensure that compliance is still achieved while offering Instant Payments. And maybe, limiting the verticals in which Instant Payments

are allowed (i.e. gambling) together with defining specific fund thresholds for Instant transactions (i.e. before triggering specific AML procedures) helps to reduce potential risk.

Instant Payments in the banking ecosystem

According to the European Central Bank (ECB) in order to preserve the ecosystem from fragmentation and leverage the harmonization and integration achieved with previous initiatives, the Instant Payment ecosystem should be divided in three main layers. These three layers are the scheme layer, the clearing layer and the settlement layer.

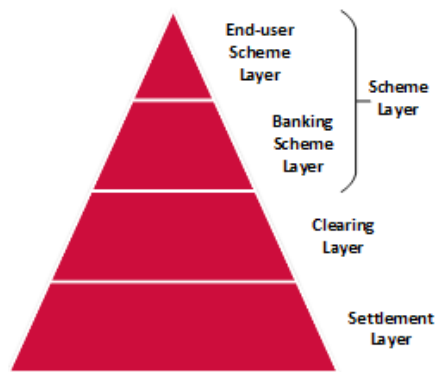


Figure 3: Main layers in which an Instant Payments system could be divided to foster harmonization and avoid fragmentation

The Scheme Layer

The scheme layer typically covers the subset of services, standards, rules and regulations put in place in order to guarantee a uniform service and product across all the customers using

Instant Payments. Looking in detail into it, two different schemes can be clearly distinguished: the end-user scheme used by the Customer and the banking scheme used by the financial institution.

End-user Scheme

The end-user scheme is also considered the productized version of Instant Payments as offered to the end consumer. We believe that most of the competition will appear in this space, where the main differentiation between products will occur.

Already today, a growing competition in this space takes place and each player tries to differentiate from each other. We can cite as examples the Italian initiative Jiffy that, in addition to Instant Payments, offers the possibility to look-up the receiver via its mobile phone number and is thinking to expand beyond the Italian border. Or the English initiatives of PayM and Zapp that in addition to what Jiffy offers, have also agreed with the main retail banks to integrate a white-labelled solution into the existing banking applications. And obviously, both of these solutions are built keeping in mind that the mobile phone is in the center of our finances.

The above examples make clear that a strong emphasis should be put on the creation of the Instant Payments product towards the consumer. It is not anymore about offering a commodity Instant Payments service but about offering a simple and secure experience that is in line with what all stakeholders

(consumers, merchants and banks) are looking for – this is definitively the space in which banks have more to win.

Banking Scheme

UL thinks that this is the space in which the future of Instant Payments is going to be decided. If regulators, banks and financial institutions fail to agree on an underlying foundation to provide services, those will not be possible.

Standards are essential at this stage; it seems a sensible choice to leverage at this point the major investment in IT and knowledge that banks did for the migration to SEPA and build on top of it, at least in Europe. At the same time SEPA Credit Transfers (SCT) or equivalent products in other regions seem to be an ideal product on top of which is possible to build the requirements needed to make credit transfers work instantaneously.

While embracing the initiative to enhance the SCT scheme for Instant Payments, all stakeholders are indirectly supporting the choice of ISO20022 as inter-banking message standard, which is in-line with the discussions that other regions are having. The ISO20022 standard provides a pre-agreed set of standardized concepts across the financial industry as well as a clear foundation to establish and enhance the existing exchanges of data. Indeed, ISO20022 messages are structured in order to allow carrying more data mostly oriented to achieve a simpler reconciliation and enrich remittances.

As learned from experience, we know that the ISO20022 implementation in Europe for SEPA was not uniform and various issues rose due to this complexity. It is the responsibility of all the stakeholders and facilitators to make this possible without repeating the errors from the past.

UL acknowledges this complexity and understands customizations are needed in order to meet country specific rules, regulations or even needs issued from deeply rooted risk management policies. Nevertheless, global interoperability is a challenge towards which all the stakeholders need to be committed in order to make Instant Payments a reality.

The Clearing and Settlement Layers

In this paper we understand clearing as being the validation of the payment details, posting as being the credit and debit of the accounts and settlement as being the actual irrevocable exchange of funds; in line with the definitions provided by Swift.

Depending on the way clearing, posting and settlement take place they can be considered a single process. In order to avoid confusion, they are evaluated in the same section.

Instant Payments do not necessarily impose a modification of the underlying clearing and settlement infrastructure while this one is able to reach the parties involved in the Instant Payments ecosystem and to perform its function in near real-time (within the 5 seconds frame).

There are however various implicit considerations that have to be thoroughly evaluated:

- 24/7/365 availability. Most of traditional clearing and settlement are neither able nor optimized to work under these conditions. An Instant Payment infrastructure should be able to be operational with the highest availability and without any downtime that could harm any of the essential functionalities. Remarkably, only very few of the Real-Time clearing and settlement mechanisms are able to perform both functionalities 24/7. Most of them limit their capabilities to continuous clearing and windowed settlement.

- Batch vs individual payments. Large settlement systems divide payments between large value and low value payments. The differentiation becomes more relevant in the clearing and settlement stages. In the traditional approach, high value payments are cleared and settled individually (often by RTGS systems) where as low value payments are grouped in batches and processed grouped. This division is put in place in order to avoid credit and liquidity risks when moving large amounts of funds between banks or governments. This has an obvious impact on the costs associated. In order to achieve the Instant Payments functionality the clearing and settlement mechanism needs to be able to process individual low value payments in large volumes without losing performance. In other words, a system with RTGS properties is needed for lesser cost and higher performance.

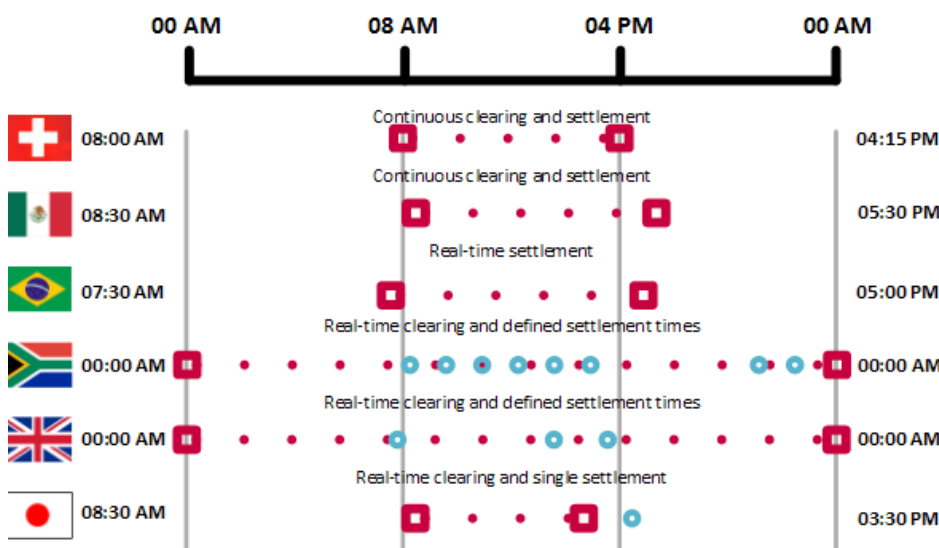


Figure 4: Collection of sample clearing and settlement windows for various Instant Payments system already in operation (Red: clearing window, Blue: settlement point)

Clearing and Settlement alternatives

Traditionally three different clearing approaches can be distinguished while fulfilling the Instant Payments requirements:

- The Automatic Clearing House (ACH) approach or hub approach. In this scenario the Financial Institutions are all connected to a central hub that performs the clearing between all the entities. Later on these results are forwarded towards the Settlement house that uses a Real-Time Gross Settlement (RTGS) mechanism to complete the fund transfer. This mechanism is currently the most used for Instant Payments, examples are UK, Sweden, Poland, Singapore and others
- The RTGS approach. In this case the transactions are directly provided to the Gross Settlement system is able to settle immediately (without validating transaction information) and return payments that failed to be completed. This mechanism is used for Instant Payments in Switzerland, Mexico and Czech Republic between others.
- The distributed approach. Only used in Australia is based on a P2P clearing mechanism between all banks. Once this is completed the settlement request is sent to the Central Bank that processes it real-time. The actual movement of funds only occurs effectively at the end of the day.

Taking into account existing implementations, this property may not be needed from day one but could be built during the initial operation of the system.

- Ancillary data. Due to the usage of new standards, ISO20022 being the more likely one, the clearing and settlement mechanisms needs to be able to support larger amounts of data that are to be treated together with the original transaction.

The goal of the ISO20022 messaging is not anymore providing an optimized way of processing payments but providing a complete set of data accompanying the typical transaction information.

- Fraud management. Nowadays this topic is left up to the financial institutions participating in the clearing and settlement mechanism, and due to the relative “low-speed” of the funds this solution provides an appropriate solution.

The immediate reusability of funds proposed by Instant Payments together with the raise of cyber-attacks makes clear, according to UL, the need of also addressing this topic in the core of the clearing and settlement layers.

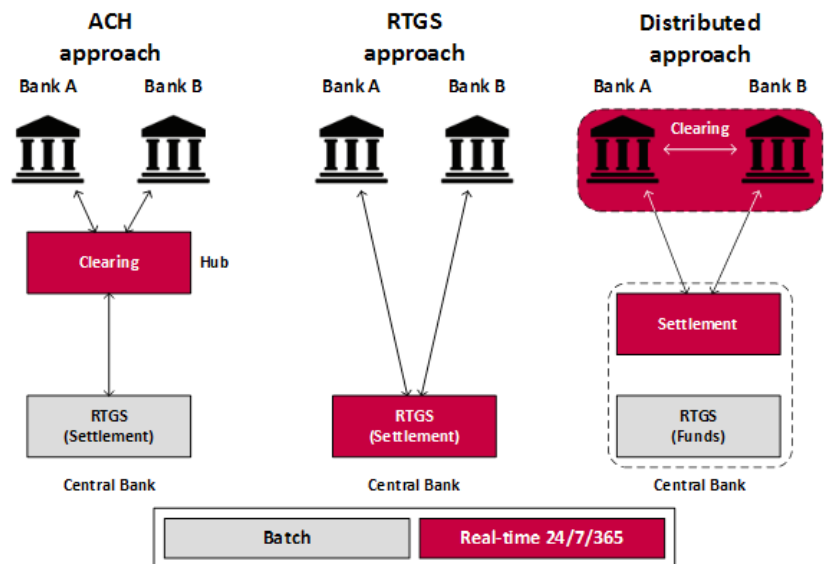


Figure 5: Most typical three approaches to clearing and settlement in the current banking environment

The role of block chain technology

When FinTechs are mentioned in relation to Instant Payments, most of them try to get a privileged spot in the end-user scheme. Nevertheless UL considers that the block chain technology has its place in the financial industry especially in the Clearing and Settlement layers.

If we take a look on the current Electronic Fund Transfer (EFT) system and how this one is operated to achieve international bank transfers we see the existing challenges.

The following steps are needed for a transaction:

1. Initially the debtor requests its local bank to transfer funds to the creditor placed in another country.
2. As the debtor bank does not have a branch in the creditor's country, it needs to first transfer the funds via an existing national clearing house to a corresponding bank.
3. The corresponding bank, typically a trans-national financial corporation, has a branch in the creditor's country. In order to offer the service, it will initially transfer the funds between his accounts and apply the FX markup that considers appropriate.
4. The remote branch of the corresponding bank can now, using the remote clearing house, transfer the funds to the creditor's bank.

5. Finally the creditor's bank can credit the creditor's account with the funds received.

In the above description, the corresponding bank plays the role of the local central banks (i.e. Fed, ECB or other) as a trusted party to move funds while avoiding double spending. Without them, it would not be possible to settle those transactions. Also it is relevant to note at this stage that SWIFT only provides messaging and instruction services but not settlement between the parties.

An equivalent ecosystem is proposed by parties such as Ripple where the goal is to simplify the full process while, at the same time, reducing the cost and increasing the cash-flow speed.

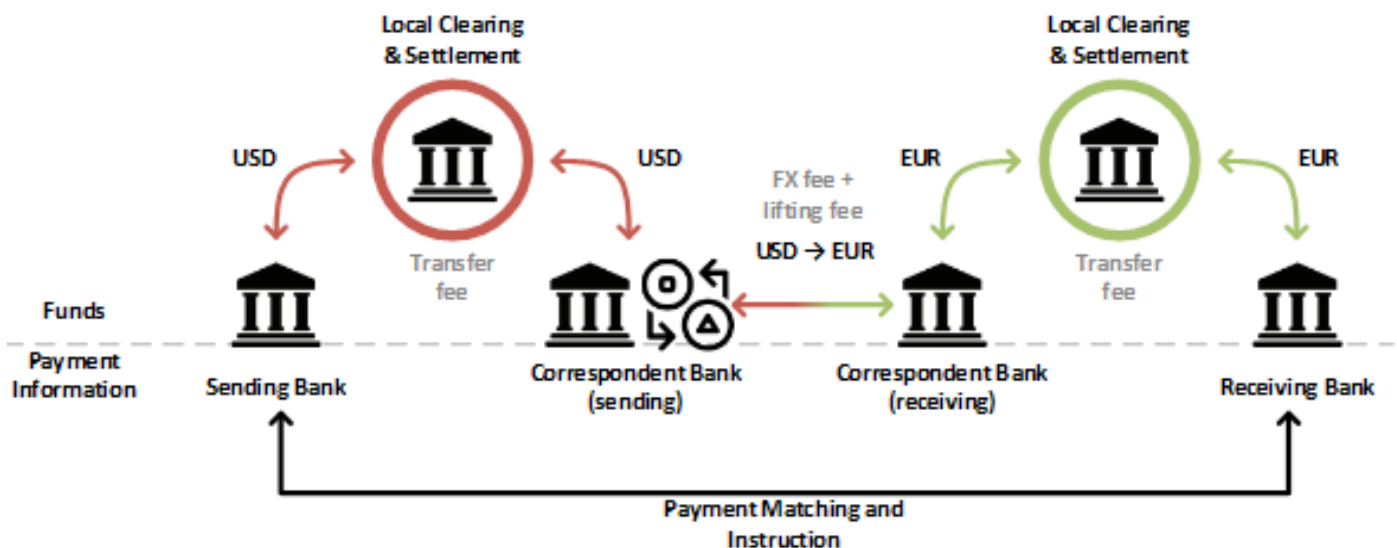


Figure 6: Multicurrency transaction as occurring today in the banking system

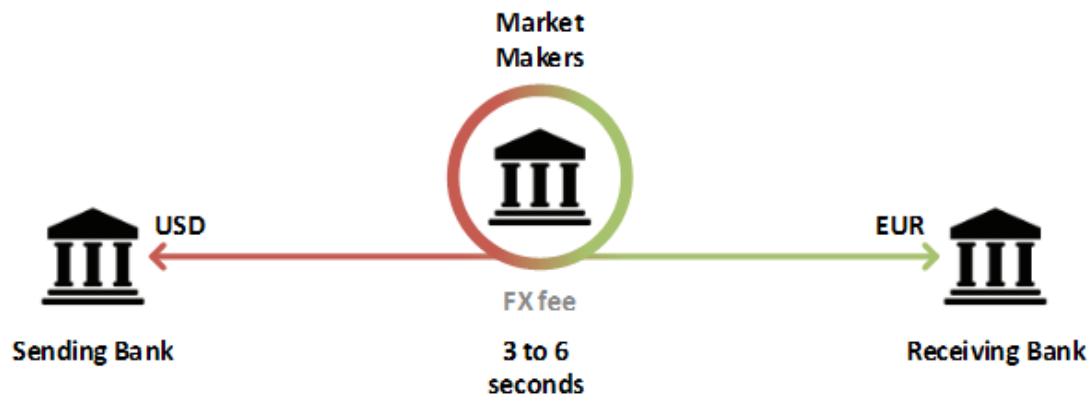


Figure 7: Multicurrency transaction framework as proposed by Ripple

In this scenario, the steps needed to complete the process are less:

1. Initially the debtor requests its local bank to transfer funds to the creditor placed in another country.
2. The debtor bank initiates a transaction in the decentralized network. The market makers (or traders) will compete for the transaction buying or selling local/remote currency pairs. Once the network has agreed on the cheaper trader it will process the transaction and provide to the debtor bank with the funds in the currency requested.
3. Finally the creditor's bank can credit the creditor's account with the funds received

In this case, the market maker facilitates the transaction making sure that both parties receive what they expected in a short period of time (typically 3 to 6 seconds).

As stated by Ripple itself, the advantages of such a system can be summarized in:

- There is no need of intermediate FX to other recognized currencies (i.e. when currencies used in one extreme are not internationally traded)
- It can be integrated in the existing banking systems and provide the same user experience to the end creditor or debtor
- Due to the quick settlement time, creditor's and debtor's bank can grant faster access to the funds and improve customer experience and cash-flow
- KYC/AML and other compliance requirements may remain largely the same due to the non-modified interaction between customers and their financial institutions.

UL considers that the block chain technology is a perfect companion for Instant Payments when used in the clearing and settlement layers. It may speed-up transactions, reduce cost and enable an enhanced value proposition to the final customer.

Conclusion

As answer to the demand of customers and merchants for a quicker way to perform payments, we have seen this year the arousal of many different Instant Payments initiatives. All of them target the same goal: refurbish the payment industry in order to increase the money velocity between consumer and merchants.

UL believes that the tendency initiated by the market requesting to move money as quickly as any other digital goods is here to stay. Financial institutions have two possibilities to tackle this opportunity, either they provide the service that customers and merchants are willing to receive or allow FinTechs and newcomers in the market to take their place and commoditize their existing banking services.

Financial institutions are ideally placed to pick up this new market opportunity thanks to their compliance with AML, KYC and other directives targeting to reduce the fraud involved in payments. Leveraging the existing fraud management mechanisms, making them part of the core offering is essential to gain the confidence of customers and merchants.

In the same direction, regulations may be seen as a threat for financial institutions today. Leveraging their side effects rather than implementing them because “it must be done” is the turnkey towards the financial institution of tomorrow.

From experience, UL has seen that time to market and a clear product definition is essential to make a product successful. Quickly identifying the use cases and value proposition makes the difference when facing the customer and merchant. The market is not going to wait three years to have an up and running solution from the traditional Financial Institutions, especially when around the corner FinTechs are going to provide an equivalent product in less than half of the time.

The train of Instant Payments already left the station, but you are still on time to jump on it. Losing this opportunity, or leaving it up to others, may mean that your Financial Institution will be left aside from the payment of tomorrow.



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Contact details

UL

Transaction Security Division

info@ul-ts.com

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