3. Payments

The Bank has a broad responsibility in the area of payments and adopts two different regulatory roles over the payments landscape; i.e. oversight and prudential supervision as described in chart 12 below. Oversight focuses on payment systems, instruments[1] and schemes[2] while prudential supervision targets payment service providers (PSPs). These approaches are complementary: while oversight concentrates on the sound and safe functioning of payment systems, payment instruments, payment schemes or other payment infrastructures, prudential supervision pursues safe, stable and secure financial institutions delivering payment services to the users.

The interest of central banks for the payments landscape stems from a connection with various core tasks. Directly or indirectly, payment systems, instruments and services may affect the practical implementation of monetary policy, the financial stability of the country, confidence in the currency, as well as a safe, reliable and competitive PSPs' environment in the country.

Section 3.1 describes the two payment systems which are core for the Belgian payment infrastructure: TARGET2 and the Centre for Exchange and Clearing (CEC). TARGET2 is the large-value payment system connecting Belgian banks with other European ones for processing high-value payments and serves as the basic connecting infrastructure needed for the implementation of central bank monetary policy. CEC is the domestic retail payment system processing intra-Belgian domestic payments. CLS Bank, a payment-versus-payment (PvP) settlement system for foreign exchange (FX) transactions, is included in this section as well.

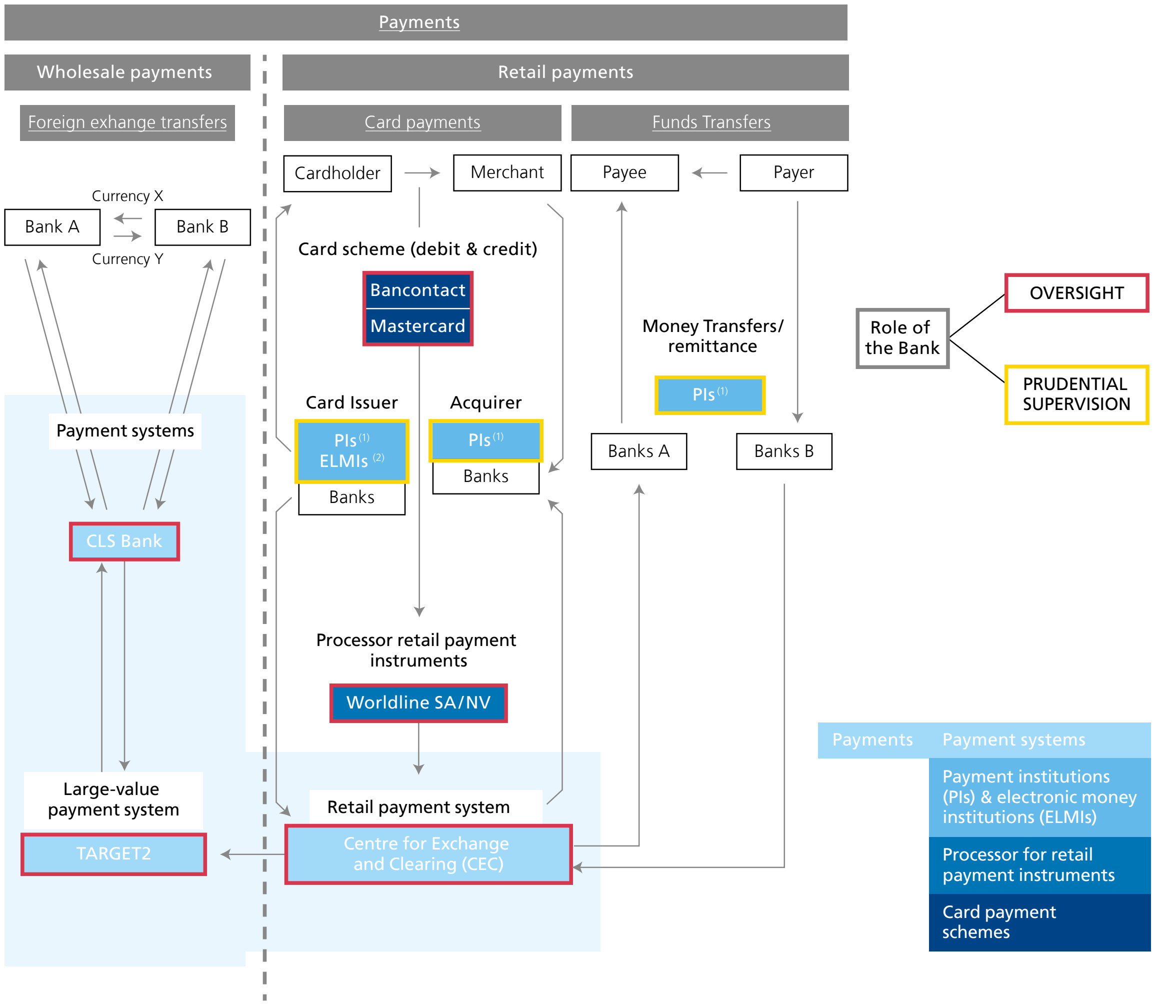
Prudential supervision of payment institutions (PIs) and electronic money institutions (ELMIs) – a relatively new sector for payment services which may offer since 2009, just like banks, payment services in Europe – is depicted in section 3.2.

As processor and acquirer[3] of retail payment instruments in Belgium, Worldline SA/NV is subject to both oversight and prudential supervision by the Bank. Section 3.3 explains this situation and the ongoing changes in the oversight regulatory framework in Belgium. This section looks at the synergies of the oversight and supervisory role a central bank can exert.

Section 3.4 covers the two payment card schemes overseen by the Bank: the domestic Bancontact scheme and the international Mastercard scheme. The Bank also contributes, indirectly, to other payment instrument oversight through the cooperation within the Eurosystem.

(1) A payment instrument is a tool to initiate payments of which currently the most widely used are credit transfers, cards and direct debits.
(2) A payment scheme is set of rules, practices, standards and/or guidelines for the execution of payment transactions.
(3) Acquiring of card payments is the service whereby a payment service provider contracts with a payee (merchant) to accept and process payment transactions, and guarantees the transfer of funds to the payee (merchant). The processing part is often performed by another entity.

CHART 12 SCOPE OF THE BANK'S OVERSIGHT AND PRUDENTIAL SUPERVISION ROLE IN PAYMENTS LANDSCAPE



(1) Payment Institutions (PIs)

– *Card acquiring and processing: Alpha Card, Alpha Card Merchant Services, Bank Card Company, B+S Payment Europe, Instele, Rent A Terminal, Worldline SA/NV*
– *Money Transfers/Remittance: Africash, Belgian Money Corp, Belmoney Transfert, Gold Commodities Forex, HomeSend, Money International, MoneyTrans Payment Services, Munditransfers, Travelex*
– *Direct Debit: EPBF*
– *Hybrid: BMCE EuroServices, Cofidis, eDebex, FX4BIZ, Oonex, PAY-NXT, Santander CF Benelux*

(2) Electronic Money Institutions (ELMIs)

– *Buy Way Personal Finance, Fimaser, HPME, Imagor, Ingenico Financial Solutions, Ingenico Payment Services, Loyaltek Payment Systems, Orange Belgium, RES Credit*

3.2 Payment institutions and electronic money institutions

This section focuses on the prudential supervision conducted by the Bank on non-bank payment service providers (PSPs) for retail payments. Both payment institutions (PIs) and electronic money institutions (ELMIs) are non-banks providing respectively payment services and the issuing, redeeming and distributing of electronic money [1] in competition with banks. ELMIs may also provide payment services and given their ability to issue electronic money to the public are subject to a stricter prudential regime, e.g. stronger capital requirements [2].

The regulatory and legislative framework for payment services was put in place in 2009 with the transposition of the European Payment Services Directive (PSD)[1] into the Belgian Law of 21 December 2009 on the legal status of PIs and ELMIs[2]. The goal of the Directive was to increase the level of competition in the payments market and to create a harmonised regulatory framework for payment services.

In order to ensure a common European framework, the Directive lists seven different types of payment services, ranging from the issuance of payment instruments to the remittance of money allowing retail customers to transfer cash to a third party abroad and vice versa[3].

There are three key developments in the payment services sector triggered by the PSD. A first one, is the introduction of the term *Payment Institution* (PI), which refers to firms who are granted a licence by a regulator within the European Economic Area (EEA) to provide one or multiple payment services[4]. A second important element of the PSD relates to the harmonisation of the prudential supervision regime across the EEA[5]. The framework for this regime is built upon authorisation requirements, covering among other things capital requirements and a specific governance structure with which applicants need to comply for obtaining a licence. Subsequently, the ongoing prudential supervision continues to verify whether these conditions are still being met. In order to be licensed, PIs and ELMIs need to demonstrate that they meet the authorisation requirements, listed in table 7 below.

TABLE 7 OVERVIEW OF AUTHORISATION REQUIREMENTS

- Identification details
- Programme of operations
- Business plan
- Evidence of initial capital
- Measures to safeguard the funds of payment service users
- Governance arrangements and internal control mechanisms
- Internal control mechanisms to comply with obligations in relation to money-laundering and terrorist financing
- Identity and suitability assessment of persons with qualified holdings in the applicant
- Structural organisation
- Identity and suitability assessment of directors and persons responsible for the management of the payment institution
- Identity of statutory auditors and audit firms

Source: NBB.

A third key influential addition from the PSD includes the "EU passporting process", which means that any PI licensed within the EEA is allowed to provide its services across the EEA.

(1) Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/5/EC, OJ. 5 December 2007, L. 319, 1-36 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32007L0064&from=en).

(2) Law of 21 December 2009 on the legal status of payment institutions and institutions for electronic money, on the access to the activity of payment service provider and the activity of issuing of electronic money and on the access to payment systems, Belgian Official Gazette 19 January 2010, 2.199.

(3) The PSD defines the seven types of payment services as follows:
(1) Services enabling cash to be placed on a payment account as well as all the operations required for operating a payment account.
(2) Services enabling cash withdrawals from a payment account as well as all the operations required for operating a payment account.
(3) Execution of payment transactions, including transfers of funds on a payment account with the user's payment service provider or with another payment service provider.
(4) Execution of payment transactions where the funds are covered by a credit line for a payment service user.
(5) Issuing and/or acquiring of payment instruments.
(6) Money remittance.
(7) Execution of payment transactions where the consent of the payer to execute a payment transaction is given by means of any telecommunication, digital or IT device and the payment is made to the telecommunication, IT system or network operator, acting only as an intermediary between the payment service user and the supplier of the goods and services.

(4) The PSD defines six different types of Payment Service Providers (PSPs): credit institutions, Payment Institutions (PIs), Electronic Money Institutions (ELMIs), European and national central banks, Member States or regional authorities and post office giro institutions.

(5) PSD does not only apply within the EU but it is also part of the EEA Agreement and therefore incorporated in national legislation of those countries.

Besides harmonising the payment services sector, the European Commission also adopted a standard set of rules for the issuance and management of electronic money. After having introduced a first Directive in 2000 [1], which coined the term *Electronic Money Institution* (ELMI), a second piece of legislation was introduced in 2009 [2]. This second Electronic Money Directive (EMD2) addresses issues such as the need of high capital requirements, the outdated definition of electronic money and the potential danger of an uneven level playing field across the EEA. EMD2 was transposed via a Belgian Law of 27 November 2012 [3] and its stipulations integrated into the existing Law of 21 December 2009 on PIs to guarantee a common approach regarding the authorisation, operating conditions and performance of both PIs and ELMIs. Important to note is that ELMIs are authorised to provide all services in the scope of PIs. On the contrary, PIs are not allowed to issue electronic money.

CHANGES IN REGULATORY FRAMEWORK

Although the PSD and EMD2 took an important step in the consolidation of the regulatory framework of the European payments services sector, some regulatory inconsistencies and differences in interpretations that prevent the evolution towards a genuine level playing field are still in place. More specific, the 2012 Green Paper published by the European Commission [4] found that some new innovations in payment services operated in a legal vacuum and therefore lacked a minimal level of standardisation and interoperability.

In order to tackle these issues, a revised edition of the Payment Services Directive (PSD2) was adopted [5]. The amended Directive incorporates activities which are non-regulated so far but which will be considered as payment services from 13 January 2018 onwards (end of transposition period), i.e. *payment initiation services and account information services*. The new payment initiation services will require a licence as a PI while account information service providers need to be registered by the Bank. Both types of institutions will benefit from a lighter prudential regime as they are not coming into possession of clients' funds at any time in the payments process.

Besides introducing new payment services, the Directive also aims to ensure a high level of payment security by setting strict rules on when to use strong customer authentication. Moreover, PSPs will be subject to a notification duty in case of significant operational or security incidents. A European register, managed by the EBA, will be introduced to provide an overview of all the licensed PSPs in the whole EEA. Furthermore, cooperation requirements between the host and home country are enhanced and multiple definitions of the PSD are rewritten to be technologically neutral.

In order to safeguard the European-wide harmonisation and implementation of this Directive, the European Commission mandated the European Banking Authority (EBA) to launch the Task Force on Payment Services. This task force, in which the Bank participates, will deliver the necessary regulatory technical standards and guidelines with the aim to give detailed information to the market on how the PSD2 is to be understood and implemented in order to ensure a common European approach [6].

BUSINESS ACTIVITY

The Belgian payment services sector consists of a diverse set of actors, both foreign and local, that offer a wide range of technological solutions. In general, payment institutions with a full licence can be divided into the following four different types of businesses: i) card acquirers and processors, ii) money remitters, iii) direct debit institutions and iv) hybrid institutions.

(1) Directive 2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions, OJ. 27 October 2010, L. 275, 39-43 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32000L0046&from=EN).

(2) Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC, OJ. 10 October 2009, L. 267, 7-17 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0110&from=EN).

(3) Law to change the law of 21 December 2009 on the legal status of payment institutions, on the access to the activity of payment service provider and on the access to payment systems, and of other legislation on the legal status of payment institutions and of institutions for electronic money and of credit unions who are part of Crédit Professionel's network, Belgian Official Gazette 30 November 2012, 76.567.

(4) European Commission (2012), "Green Paper Towards an integrated European market for card, internet and mobile payments", COM/2011/0941, 1-25 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri= CELEX:52011DC0941&from=EN).

(5) Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC, OJ. 23 December 2015, L. 337, 35-127 (http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L2366&from=en).

(6) Regulatory technical standards cover the Directive as voted by the European parliament and the Council) and are binding in national regulatory frameworks. They have to be submitted to the European Commission for endorsement by means of delegated or implementing acts. Guidelines on the other hand can also be addressed to competent authorities, or market participants, but do not have to be endorsed by the European Commission. Competent authorities however have to comply with these or publish the reasons for non-compliance.

Firstly, card acquirers and processors offer classic payment services such as the processing of card payments, the acquiring of merchants [1] or the renting of payment terminals. The second sub-set, money remitters, allows customers to transfer cash (remittance) from Belgium to a third party in different locations around the world and vice versa. In order to immediately supply the recipient with money, these institutions often have arrangements in place to have liquidity available in different locations. Thirdly, direct debit institutions manage the SEPA [2] direct debits of customers who have a mandate with a certain supplier to wire a person on a regular basis such as payments for utility bills. Lastly, hybrid institutions denote firms whose core activity does not fall under a classic payment service category or whose business model is not centered on offering payment services. A typical example is a consumer credit firm that issues pre-paid cards.

The Bank currently has 21 Belgian and 3 foreign PIs with a Belgian branch under its supervision. In order to stimulate innovation, the PSD also established a "waiver" regime that sets less stringent requirements on the minimum capital levels, as well as on the reporting procedure and the internal control mechanisms. The waiver cannot be used to passport the institution's services to other EEA members and it is only granted to PIs who remain below an average transaction volume of € 3 million per month. Currently, five of 21 Belgian PIs operate under a waiver. Table 8 below lists all the PIs with a licence in Belgium in accordance with the different types of businesses they are involved in, and ranked according to their balance sheet size [3].

TABLE 8 CLASSIFICATION OF PIS WITH A LICENCE IN BELGIUM, RANKED ACCORDING TO THEIR BALANCE SHEET SIZE AND FOREIGN PIs WITH A REGISTERED BELGIAN BRANCH [1]

Card acquiring and Processing	Money Remittance	Direct Debit	Hybrid
PIs			
Worldline	HomeSend	EPBF	Cofidis
Alpha Card	Travelex		FX4BIZ
B+S Payment Europe	MoneyTrans Payment Services		eDebex
Bank Card Company	Gold Commodities Forex		Oonex
Alpha Card Merchant Services	Belgian Money Corp		PAY-NXT
PIs operating under a waiver			
Rent A Terminal	Money International		
Instele	Belmoney Transfert		
	Africash		
Foreign PIs with Belgian branch			
	Munditransfers		BMCE EuroServices
			Santander CF Benelux

Source: NBB.
(1) Foreign PIs with a branch in Belgium are not ranked.

The electronic money sector is more limited, both in size and scope. At present, the Bank has 9 ELMIs under its prudential supervision, five of which are fully licensed and one is a foreign PI with an official and recognised Belgian branch. Also for ELMIs, a waiver regime exists for institutions that have an average outstanding value of electronic money below

(1) The Interchange Fee Regulation (Regulation (EU) 2015/751 of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions, OJ. 19 May 2015, L. 123, 1-15.) defines an acquirer as: "a payment service provider contracting with a payee to accept and process card-based payment transactions, which result in a transfer of funds to the payee".
(2) SEPA stands for Single Euro Payments Area and has fully harmonized the national payment instruments credit transfers and direct debits into European versions.
(3) The list can also be consulted on the website of the Bank at https://www.nbb.be/nl/financieel-toezicht/prudentieel-toezicht/toezichtsdomeinen/betalingsinstellingen-en-instellingen-5.

€ 5 million. Currently, three Belgian ELMIs have such a waiver. The total outstanding electronic money amounts to a relatively small amount, having reached its highest value of € 32 million in 2014. The main use of this electronicmoney is situated on internet platforms, pre-paid cards issued by credit card firms and gift cards. Proton was the largest Belgian electronic money solution (set up by the Belgian banks), processing transactions for more than € 308 million in its last year of active service in 2014. Table 9 below lists all the ELMIs with a licence in Belgium ranked according to their balance sheet size.

TABLE 9 LIST OF ELMIs WITH A LICENCE IN BELGIUM, RANKED ACCORDING TO THEIR BALANCE SHEET SIZE AND FOREIGN ELMI WITH A REGISTERED BELGIAN BRANCH

ELMIs
Imagor
Fimaser
Buy Way Personal Finance
Hi-Media Porte Monnaie Electronique (HPME)
Ingenico Financial Solutions
ELMIs operating under a waiver
Orange Belgium
RES Credit
Loyaltek Payment Systems
Foreign ELMI with Belgian branch
Ingenico Payment Services

Source: NBB.

Table 10 below gives an overview on the evolution of the PI and ELMI landscape within Belgium since 2011. It illustrates that there has been a gradual increase in licensed payment institutions, both those operating with a full licence and those with a waiver. On the electronic money side of the market, there has not been a major rise in the number of licences granted. This evolution illustrates the fact that new PIs are trying to gain a stronger foothold in the market, whereas for ELMIs fewer new initiatives were launched.

TABLE 10 EVOLUTION OF PIs AND ELMIs WITH A LICENCE IN BELGIUM AND WITH A REGISTERED BELGIAN BRANCH
(number of licenses, end of year)

	2011	2012	2013	2014	2015	2016
PIs						
Full Licence	9	10	12	11	12	16
Waiver Licence	0	0	2	4	5	5
Foreign PIs with Belgian branch	0	2	2	3	3	3
Total	**9**	**12**	**16**	**18**	**20**	**24**
ELMIs						
Full Licence	2	2	5	5	5	5
Waiver Licence	4	4	5	5	5	3
Foreign ELMIs with Belgian branch	0	0	0	1	1	1
Total	**6**	**6**	**10**	**11**	**11**	**9**

Source: NBB.

The future outlook for the industry remains mixed. On the one hand, there is still a lot of innovation within the payment services sector. For example, over the course of 2016, the Bank licensed institutions that combined multiple payment services in an innovative way, such as the offering of both mobile direct debit services and the acquiring of merchants. The implementation of PSD2 will stimulate this trend even further as new payment services are introduced and competition throughout the payment chain is encouraged. On the other hand, the popularity of electronic money is generally in decline. Among the drivers are the new mobile and digital payment solutions aiming to offer a more customer-friendly and more frictionless way of completing a transaction, both for the payer as payee. Nonetheless, innovation within the electronic money industry could continue to complement alternative business models in the payments landscape. Box 7 further elaborates on FinTech initiatives in payments.

PRUDENTIAL APPROACH

Since April 2011, the Bank is the national competent authority within Belgium for prudential supervision on PIs and ELMIs. In order to carry out this role, the Bank relies on a wide range of tools, listed by Belgian law, to ensure the secure functioning and solvency of these institutions. The requirements with which institutions need to comply consist largely of the elements that were assessed throughout the authorisation process. For example, both before and after starting their activities, institutions should be able to provide evidence that they safeguard the funds received from clients. To enable the Bank to assess these ongoing requirements, institutions need to report on a quarterly basis a wide range of information, including financials and governance documents. In addition to this reporting requirement, institutions are legally required to appoint an accredited auditor to certify their balance sheet, account statements and regulatory reports. Important to note is that the institutions subject to a waiver regime have less stringent reporting requirements. For example, they do not need to submit their balance sheet on a quarterly basis. However, both types of institutions do have to notify the Bank if there are changes in the corporate governance structure.

SUPERVISORY PRIORITIES IN 2017

The Bank participates in the international work by the EBA (i.e. Task Force on Payment Services) delivering the necessary regulatory technical standards and guidelines to ensure a common European approach. In the transposition process, the Bank aims to minimise gold-plating [1], by respecting the EU rules, and wants to keep the regulatory burden low for both potential and existing institutions. Table 11 below gives an overview of the different regulatory technical standards and guidelines that are being developed within the EBA mandate under PSD2.

TABLE 11 OVERVIEW OF REGULATORY TECHNICAL STANDARDS AND GUIDELINES BEING DEVELOPED WITHIN THE EBA MANDATE UNDER PSD2

Regulatory Technical Standards
Passporting Notifications
Strong Authentication and Secure Communication Central Contact Points
EBA Register
Guidelines
Authorisation
PI Insurance for PSPs
Major Incidents Reporting
Complaints Procedure
Security Measures
Minimum Monetary Amount of the Professional Indemnity Insurance

Source: NBB.

(1) Gold-plating describes a process by which a Member State which has to transpose EU Directives into its national law, or has to implement EU legislation, uses the opportunity to impose additional requirements, obligations or standards on the addresses of its national law that go beyond the requirements or standards foreseen in the transposed EU legislation.

Box 7 – Fintech in payments: New technology, enablers, hurdles and potential impacts

The expansion of the Internet and associated new technologies turned innovation into an essential driver for the development of the payment industry. Customers started having new expectations for online and mobile payments, requiring adequate solutions to be developed. On the demand side, the widespread use of smartphones and the development of the Internet of Things (IoT) ushered in new needs for payment solutions, whereas on the supply side, these same developments triggered the setting up of innovative payment services and infrastructures. Moreover, the development of distributed ledger technologies or DLT, originally used by virtual currencies (e.g. the Blockchain of Bitcoin), opens up new possibilities for further innovations in these domains.

Increasingly, new technological solutions are being developed by non-banks, which become new entrants as payment service providers (PSPs) whereas so far banks had been the dominant PSPs. This technology-based phenomenon bringing innovations in the field of finance is often captured by the notion of FinTech. There is no universally accepted definition of this concept. It covers a wide variety of interacting financial actors, technologies and business models linked to an (expected) widespread acceleration of technological innovation used for the simplification and improvement in the provision of financial services. Among these services, payments represent a particularly active area.

RETAIL PAYMENTS SOLUTIONS

In the field of retail payments, FinTech covers a multitude of innovative solutions. These include for instance apps enabling mobile payments based on standard instruments such as debit and credit cards, credit transfers and direct debits; on the integration of multiple bank accounts on a single app, on the user-friendly and secure use of cards through biometrics and tokenisation, etc. The objective of these innovations is to meet customers' requests: user-friendly digital payment platforms based on superior design or directly integrated in the connected objects (IoT) as well as a faster processing of their payment transactions at a lower cost. FinTech uses new technologies to bring solutions to existing inefficiencies of current payment services.

DISTRIBUTED LEDGER TECHNOLOGIES

Born with Bitcoin less than a decade ago, the distributed ledger technologies may be promising for the future development of more efficient and less costly payment solutions which might no longer rely on a central entity for their operation but on a network of participants acting as node for the validation of transactions. This DLT technology, which is expected to be used not only in payments but in a wide range of domains, is currently being tested and assessed by different players around the world including central banks. Collaborative initiatives, such as Hyperledger [1] have emerged in order to commonly develop the technology and its potential applications. DLT also paves the way for the payment leg of smart contracts [2].

INTERNET OF THINGS (IOT)

The development of the IoT is likely to open up new needs for payment solutions. Physical items are increasingly being turned into connected objects that are able to interact with other objects in their environment. Examples of these innovations are refrigerators which are able to check their contents and directly order and pay for the missing items or cars which automatically manage the payment of the insurance premiums associated with their use (pay-per-use model). These payment interaction patterns require technology that enables frictionless payment,

(1) Hyperledger is an open-source collaborative effort created to advance cross-industry blockchain technologies. It is global collaboration, hosted by The Linux Foundation, including leaders in finance, banking, IoT, supply chain, manufacturing and technology.
(2) A smart contract permits users to include self-executing codes on the ledger to automate the fulfilment of contract terms

i.e. reduced complexity for the end user, low transaction costs and integrated payment solutions. DLT is currently investigated as a possible solution for IoT payments.

ENABLERS AND HURDLES

If technology is the main driver to the development of FinTech, other factors are likely to have a significant impact also. Among these factors, the legal environment will be a critical one. Conflicts with existing legislation or regulations, lack of legal harmonisation and legal uncertainties would probably have an adverse effect. However, when legislation stimulates the creation of new payment solutions and boosts competition, FinTech may be encouraged to play an even more significant role. This is what is likely to happen in the field of payments with the second Payment Services Directive (PSD2) which aims at improving the efficiency of the European retail payment services. PSD2 is expected to do so, in particular by bringing two new types of payment services, i.e. *payment initiation and account information*, into the regulatory scope. However, the most significant change brought by the PSD2 from a FinTech perspective is the requirement for banks and other account-holding institutions to enable those new categories of payment institutions to directly access the accounts of their customers. In other words, the Fintech companies will be able to develop their own payment solutions directly connected into the payment accounts of their customers.

Another factor influencing the development of FinTech innovations is the existing inter-PSP infrastructure (i.e. the retail payment systems) on which the new payment solutions often have to rely. Current retail payment systems generally provide end-of-day settlement and availability of funds on the beneficiary account on the next working day. The new needs in the fields of payments induce changes also at the level of the infrastructure and foster the development of new real-time retail payment systems for ensuring an immediate availability of funds to the payee, i.e. instant payments. Such instant payment systems will enable efficient and safe interbank settlement of the new payment solutions irrespective of whether they are offered by incumbent PSPs or by new actors. Several countries already have instant payment solutions in place.

FinTech initiatives are confronted with various hurdles. At technical level, the need for standardisation and interoperability with existing incumbent infrastructures as well as the integration readiness of the innovative services are still major challenges. From an investment perspective, significant resources are needed to build, bring to maturity and support FinTech solutions on a large scale in a short time. Regarding retail payments, the requirement of adoption by a critical mass could also be an impediment to the long-term success (and survival) of innovative solutions.

IMPACT ON THE FINANCIAL SECTOR

For the traditional PSPs, FinTech developments create additional competitive pressures, including from new non-bank entrants in the payment services area, which incites them to incorporate innovations in their payment services offering. On the other hand, FinTech developments bring along new opportunities for the existing, traditional PSPs, which often have the network advantage (innovations can be rolled out on a large scale over a large customer basis). While FinTech actors are usually new entrant start-ups, incumbent players have well understood the challenge ahead : they also develop their own FinTech innovations, cooperate with existing FinTech companies or buy those with promising development possibilities. As a result, the payment landscape evolves towards an increased complexity of the value chain and of the interactions between various actors with different status.

Additionally, the move to a real-time payment environment entails significant investment costs, not only to develop the real-time infrastructure but also to upgrade internal processing chains.

IMPACT ON CENTRAL BANKS

Central banks are also impacted by the new technological context brought by FinTech. As payment system operators, two issues are particularly relevant for them: the need to adapt to the real-time payment environment as well as the possible use of DLT in their own systems.

As regulator, central banks are confronted with a new fragmented landscape composed of multiple actors with various risk profiles and business models creating an increased need for monitoring interdependencies as well as technological developments and their use. The changeover to real-time settlement of payments also has the potential to make some risks more acute (e.g. credit risk and operational risk), as the reaction time to incidents is being shortened significantly.