Exchange experience on the Supervision of European Payment Institutions

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Abbreviations and acronyms

ACPR	Autorité de contrôle prudentiel et de resolution	**KYC**	Know your customer
AMF	Autorité des marchés financiers	**LVPS**	large-value payment systems
API	application programming interfaces	**NBB**	National Bank of Belgium
ATM	automated teller machines	**NFC**	near-field communication
B2B	business-to-business	**OSMP**	Observatory for the Security of Payment Means
B2P or B2C	business-to-person or business-to-consumer	**P2P**	person-to-person
CAGR	Compound annual growth rate	**PFMI**	Principles for financial market infrastructures
CCP	country central counterparties	**PI**	payment institutions
CLS	Continuous Linked Settlement	**POS**	point of sale
CPMI	Committee on Payments and Market Infrastructures	**PSD2**	Payment Services Directive revised
DNB	De Nederlandsche Bank	**PSP**	Payment services providers
EBA	European Banking Authority	**QR**	Quick response
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization	**RPS**	retail payment systems
ECB	European Central Bank	**SCA**	strong customer authentication
EMI	electronic money institutions	**SCT Inst**	SEPA Instant Credit Transfer
EMIR	European Market Infrastructure Regulation	**SEPA**	Single Euro Payments Area
EPC	European Payments Council	**SIPS**	systemically important payment systems
EU	European Union	**TPP**	third party providers
IOSCO	International Organization of Securities Commissions		

1. Report framework

This report is developed within the project “Exchange experience on the Supervision of Payments Institutions” established between the Banco Central do Brasil (BCB) and the Directorate-General for Financial Stability, Financial Services and Capital Markets Union (FISMA) of European Commission.

Among the aims of the project are the understanding and sharing of supervisory frameworks and practices regarding payment institutions, in particular between the Brazilian and European market. This is deemed relevant in the current context of new developments in the payments sector, where new technologies and solutions are applied and brought in by new entrants in the market. Competing and/or cooperating with incumbents, these new entrants challenge regulators and supervisors all over the world in the way they should be assessed, how regulation is applied or needs to be updated and how their activities are framed and supervised. This is key to maintain market confidence and financial stability, as well as users’ (consumers and businesses) confidence, safeguarding users’ transactions, data and experience.

As a first step, this report provides an analysis of market structures of payment institutions and corresponding supervision practices in the European Union (EU) and a selection of jurisdictions: France, Germany, Italy, Spain, the Netherlands (set by the BCB), and Belgium.

To achieve the proposed aims, this report is structured as follows:

- Chapter 2 presents information on the EU supervision framework, detailing competences and activities of the relevant institutions set out in the EU landscape;
- Chapter 3 focuses on the national authorities that supervise payment institutions in the selected 6 jurisdictions;
- Chapter 4 provides a picture of the payments ecosystems, at the EU level and for the 5 selected jurisdictions;
- Finally, Chapter 5 lays out a description of selected relevant payment services providers in the 5 jurisdictions (plus one from the UK), with a view to allow for an analysis of business models,

2. European Union – competent authorities and oversight of payment systems

Context

The continuing transformation of the regulatory environment for the oversight of financial market infrastructures: after an initial phase in 2012-2014 during which the work of the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) was transposed into European regulations under the aegis of the European Union (EU), the last few years have been marked by the European Commission's first review of existing regulations. Of particular note is the revision of the European Market Infrastructure Regulation (EMIR), which addresses, firstly, the clearing and reporting obligations and, secondly, the supervision of third-country central counterparties (CCPs) and EU CCPs. Internationally, work on the recovery and resolution of CCPs has been a major focus of the authorities due to the systemic importance of these infrastructures.

Pursuant to EMIR, the national authorities include other European national authorities with an interest in the proper functioning of the central counterparty in the oversight of this infrastructure. The aim of this system is to promote a standardised approach to implementing EMIR requirements in the EU and an appropriate assessment of the CCP's risks, taking into account its risk profile and the various market segments it clears, while involving the main relevant authorities of other EU member countries. The college of authorities is the appropriate forum for exchanging information about the CCP and studying changes the CCP proposes.

An EMIR college comprises, firstly, the competent national authorities that oversee the central counterparty, but also includes the oversight authorities of entities that the CCP's activities may impact, i.e. the supervisors of the main clearing members, trading venues, CCPs with which interoperability arrangements have been established, central securities depositories, the central banks of issue of the main EU currencies cleared, as well as the ESMA, which does not hold a voting right.

The Single Euro Payments Area (SEPA) covers not only the euro area (see Annex II). Countries outside the euro area have also adopted SEPA standards and practices for their euro payments. However, legal coverage applies to countries within the EU only. Countries which participate in SEPA: all countries within the EU; Iceland; Norway; Liechtenstein; Switzerland; San Marino; Monaco. 34 countries in Europe participate in SEPA: over 523 million citizens are able to make SEPA payments; over 4,500 payment service providers have signed up for SEPA credit transfers; over 3,900 payment service providers have signed up for the SEPA core direct debit scheme; over 3,400 payment service providers have signed up for the SEPA business-to-business direct debit scheme.

The Eurosystem[1] promotes a smooth operation of payment systems by conducting oversight.[2] The European Central Bank (ECB) and national central banks may provide facilities, and the ECB may make regulations, to ensure efficient and sound payment and settlement systems within the

[1] The Eurosystem, which comprises the European Central Bank and the national central banks of the Member States whose currency is the euro, is the monetary authority of the euro area.

[2] The legal basis for oversight activities is enshrined in Article 127 (2) of the Treaty on the Functioning of the European Union and Article 3.1 of the Protocol on the Statute of the European System of Central Banks and of the European Central Bank (Statute of the ESCB). Article 22 of the ESCB Statute provides an additional legal basis.

currency Union and with other countries. This includes, the power to obtain information and documents from a SIPS (systemically important payment systems) operator, conduct on-site inspections as well as to take corrective action whenever necessary (empowered by the European System of Central Banks and the European Central Bank). The Eurosystem oversight of payment systems primarily distinguishes between systemically important payment systems (SIPS) and non-systemically important payment systems (non-SIPS).[3] The distinction is based on the size, market share, cross-border activity and the provision of settlement services to other financial market infrastructures and the classification is reviewed annually (see Annex I for details).

The growing importance of cybersecurity risks: whereas previously the regulatory focus had been on the availability of infrastructures, new requirements concerning data integrity and the overall resilience of the ecosystem (systems, data, processes and persons) have been put forth by various bodies (the CPMI-IOSCO Guidance on Cyber Resilience for Financial Market Infrastructures, the Network Information Security (NIS) Directive on the security of network and information systems in the EU, which promote a holistic approach involving all financial sector operators. Operators are now required to regularly submit documentation to the regulator about their management of cyber risks, describing governance, identification, protection and detection, and resilience-testing measures. The G7 member countries published the G7 Fundamental Elements of Cybersecurity for the Financial Sector. This non-binding document has served as the foundation for development of harmonised national strategies for the entire financial sector, including banks and other financial institutions. It sets out eight key elements for managing cyber risks: risk management strategy and framework, governance, risk assessment and control, continuous risk monitoring, responses to cyber incidents, recovery after a cyber incident, information sharing and continuous learning.

Oversight

The Principles for financial market infrastructures (PFMIs)[4] are implemented through the ECB Regulation on oversight requirements for systemically important payment systems (*SIPS*) (the SIPS Regulation, which applies to and is binding on all payment systems characterized by large-value payment systems (LVPSs) and retail payment systems (RPSs) of systemic importance) and the revised oversight framework for RPSs. The ECB is responsible for overseeing TARGET2[5], EURO1 and STEP2-T.

Since 2008, TARGET2 has been the real time gross settlement (RTGS) system for the euro zone. The system was developed by three central banks: Banque de France, Deutsche Bundesbank and Banca d'Italia. In 2016, the system included 24 national central banks (and the ECB) and their national user communities. The participating central banks are the 19 euro zone central banks and the central banks of 5 other EU countries that are not members of the euro zone (Bulgaria, Croatia, Denmark, Poland and Romania).

The US Federal Reserve System has accepted primary oversight responsibility for the Continuous Linked Settlement (CLS) system, leading a cooperative oversight framework in which the ECB participates, together with the G10 national central banks.[6] Within the Eurosystem, the ECB has

[3] Non-systemically important payment systems are generally used for the bulk of low-value payments to and from individuals and between individuals and companies and public authorities. They are subject to a subset of the CPSS-IOSCO Principles for financial market infrastructures (PFMIs), as defined in the revised Oversight framework for retail payment systems (OFRPS).

[4] Developed by the Committee on Payments and Market Infrastructures (CPMI) and the Technical Committee of the International Organization of Securities Commissions (IOSCO).

[5] Trans-European Automated Real-time Gross settlement Express Transfer system, which is already in its second generation.

[6] Protocol for the Cooperative Oversight Arrangement of CLS.

primary responsibility for the settlement of euro-denominated payments by CLS, in close cooperation with other Eurosystem central banks.

A competent authority, i.e. Eurosystem central banks with primary oversight responsibilities for one or more payment systems, is expected to regularly assess compliance of these systems with the SIPS Regulation requirements and/or the PFMIs, whichever is applicable. A competent authority should, therefore request information and documents at recurring intervals and in specified formats.

It can be used another authority, i.e. an authority responsible for oversight of a SIPS, other than the competent authority or the central banks overseeing or supervising the critical service providers of a SIPS, to which the power of conducting on-site inspections may be delegated. The delegation of power is subject to the conditions set out in the relevant applicable national law and the internal procedural rules of the competent authority. The authority that was delegated to conduct the on-site inspection, and its inspection team, should keep the information and documents obtained from the SIPS operator confidential as well as further internal organizational rules for an on-site inspection. In addition, the delegating competent authority continues to retain full power over, and liability in respect of, the inspection.

An on-site inspection team can be established as a group of experts from the competent authority or its delegate or, as the case may be, another Eurosystem central bank, led by a head of team.

A competent authority may require the appointment of an independent expert to conduct either an investigation or an independent review. The SIPS operator shall bear all costs related to the appointment of an independent expert.

Before the 2000s, cybersecurity issues focused essentially on data protection. The scope broadened ten years later to include detection, ex-post analysis and resolution of cyber-attacks. For many years, regulatory action focused primarily on the availability of infrastructures, and then on data integrity. Currently, the concept of overall resilience supplements these requirements, and calls for protection of critical functions and data enabling securities clearing, payment and delivery transactions to be executed within the prescribed deadlines. Therefore, cyber resilience is not limited to technological issues, but now extends to systems and data, as well as to persons and processes.

Roles and practical powers

In relation to the SIPS Regulation, there are three supporting legal documents.[7] A competent authority should provide the time limit for provision of the information or document and, if applicable, the intervals at which it is to be provided. This is done without prejudice to the general obligation of a SIPS operator to respond without undue delay.

Europe's individual payment systems are assessed at regular intervals in line with the oversight standards that have to be observed. Here, system operators are first asked to complete a comprehensive questionnaire regarding oversight requirements. The answers provided are analysed by the central banks involved in overseeing that particular system and any ambiguities discussed with the system operator. Building on this, if necessary recommendations are made, possibly concerning improvements to the system or its manner of organization, after which a final oversight report is produced.

[7] The ECB Regulation on the power of the European Central Bank to impose sanctions; the ECB Decision on procedural aspects concerning the imposition of corrective measures for non-compliance with Regulation (EU) No 795/2014; and the ECB Decision on the methodology for calculating sanctions for infringements of the oversight requirements for SIPS.

Among the possible practical powers, an on-site inspection team has the right to:

(a) require the submission of information and documents;

(b) examine the books and records of the SIPS operator and take copies or extracts8;

(c) obtain written or oral explanations from any representative or member of staff of the SIPS operator or its critical service providers;

(d) interview any other person that is legally or contractually obliged to provide information.

A competent authority is not obliged to inform an entity subject to an on-site inspection of such inspection in advance. This may happen in case there are indications that there exist facts of a serious nature that threaten the smooth functioning of the SIPS or that informing that entity of the need to proceed with an on-site inspection may undermine its results.

Regarding ad hoc oversight activities, system operators are obliged to promptly report any severe malfunctions that may arise during live operations. When doing so, it is particularly important to state the extent of the problem, its cause and the way in which it was remedied. A copy of the resulting oversight report is sent to each of the national central banks involved in overseeing that system.

The individual system operators and the central banks tasked with overseeing them meet up twice a year for discussion purposes. Aside from looking at aspects of ongoing monitoring activity, these occasions are also used to analyse disruptions which occurred during the past period of observation and to discuss future company plans as well as any scheduled system updates.

A competent authority may publish findings resulting from investigations, independent reviews or on-site inspections. This can be done either at a level of detail which does not identify an individual system or operator, or, otherwise, with the consent of the SIPS operator.

European Banking Authority

The European system set up for the supervision of the financial sector is made of three supervisory authorities: the European Securities and Markets Authorities (ESMA), the European Banking Authority (EBA) and the European Insurance and Occupational Pensions Authority (EIOPA). The system also comprises the European Systemic Risk Board (ESRB) as well as the Joint Committee of the European Supervisory Authorities and the national supervisory authorities.

Whilst the national supervisory authorities remain in charge of supervising individual financial institutions, the objective of the European supervisory authorities is to improve the functioning of the internal market by ensuring appropriate, efficient and harmonised European regulation and supervision.

The European Banking Authority (EBA) is an independent EU Authority which works to ensure effective and consistent prudential regulation and supervision across the European banking sector. Its overall objectives are to maintain financial stability in the EU and to safeguard the integrity, efficiency and orderly functioning of the banking sector.

The main task of the EBA is to contribute to the creation of the European Single Rulebook in banking whose objective is to provide a single set of harmonised prudential rules for financial institutions throughout the EU. The Authority also plays an important role in promoting convergence of supervisory practices and is mandated to assess risks and vulnerabilities in the EU banking sector.

[8] Including those related to services performed by critical service providers of the SIPS insofar as the respective contractual arrangements between the SIPS operator and a critical service provider allow.

The EBA was established on 1 January 2011 as part of the European System of Financial Supervision (ESFS) and took over all existing responsibilities and tasks of the Committee of European Banking Supervisors.

The EBA's work in the area of payments and electronic money is aimed at ensuring that payments across the EU are secure, easy and efficient. The regulatory output in this section includes the technical standards and guidelines under the revised Payment Services Directive (PSD2); the mandate conferred on the EBA in the Interchange Fee Regulation (IFR); the EBA Guidelines on the security of internet payments; and the EBA's views on financial innovations in the payments sector, such as 'virtual currencies'. Among some regulatory products, ranging from binding Technical Standards to Guidelines, Recommendations and Opinions, it can be highlighted: the Regulatory Technical Standards (RTS) on home-host cooperation under PSD2; the Guidelines addressed to payment service providers and competent authorities aimed at contributing to the objective of PSD2 to increase the security of retail payments in the EU; as well as a warning on a series of risks deriving from buying, holding or trading virtual currencies such as Bitcoins.

Central register

To increase transparency and ensure a high level of consumer protection within the European Single market, the European Banking Authority (EBA) established a central register that contains information about payment and electronic money institutions authorised or registered within the European Union (EU) and the European Economic Area countries (EEA).

The register is established based on the requirement of Article 15(1) of Directive (EU) 2015/2366 on payment services in the internal market (PSD2), as well as the supplementing Commission Implementing Regulation (EU) 2019/410 and the Commission Delegated Regulation (EU) 2019/411 of 29 November 2018, which are based on the RTS and ITS on the EBA Register under PSD2 published by the EBA in December 2017.

National competent authorities provide the information contained in the central register of the EBA and are responsible for its accuracy and keeping that information up-to-date. The information on the central register of the EBA is updated regularly by national competent authorities, at least once per day, subject to changes in their national registers. In accordance with Article 11 of PSD2, granting of authorisation to payment institutions and electronic money institutions remains under the remit of the national competent authorities.

Public users can search the central register of the EBA free of charge, as well as download the whole content of the register directly from this website.

The register includes the following natural or legal persons that can provide payment services and/or electronic money services:

1. 'Payment institutions' as legally defined in Article 4(4) of PSD2;
2. 'Exempted payment institutions' under Article 32 of PSD2;
3. 'Account information service providers' under Article 33 of PSD2;
4. 'Electronic money institutions' as legally defined in Article 2(1) of EMD2;
5. 'Exempted electronic money institutions' under Article 9 of EMD2;
6. 'Agents' as legally defined in Article 4(38) of PSD2;
7. 'EEA branches' as legally defined in Article 4(39) of PSD2;
8. 'Institutions entitled under national law to provide payment services' under Article 2(5) of PSD2;
9. 'Service providers excluded from the scope of PSD2' under points (i) and (ii) of point (k) and point (l) of Article 3 of PSD2.

Cooperation among authorities

A competent authority for a SIPS shall exercise its powers on the basis of a decision taken by it. If the competent authority is a national central bank, it shall inform the Eurosystem of such decision upon its adoption.

In case a SIPS operator's staff obstructs an on-site inspection required by a competent authority, the national central bank of the participating Member State concerned shall afford the members of the inspection team the necessary assistance in accordance with national law.

For an on-site inspection, this includes the sealing of any business premises and books or records. Where that power is not available to the national central bank concerned, it shall use its powers to request the necessary assistance of other national authorities.

If an on-site inspection or the assistance to be provided require authorization by a judicial authority according to applicable national law, then the authority performing the on-site inspection shall apply for such authorization. When an on-site inspection is deemed necessary to take place also at the location of a critical service provider of a SIPS, the competent authority shall inform the central bank overseeing or supervising the critical service provider of the intended on-site inspection prior to notifying the SIPS operator. In case an on-site inspection of the same scope and nature was already performed by the central bank overseeing or supervising the critical service provider of a SIPS, the competent authority for the SIPS may choose to rely on the findings of such on-site inspection or perform an on-site inspection of its own.

In case of an investigation or independent review of the SIPS operator, the independent expert is required to exercise the rights with respect to the critical service providers of a SIPS, the competent authority shall inform the central bank overseeing or supervising the critical service provider of the intention to exercise those rights. It may also inform that central bank of the findings of the investigation or independent review after it is performed.

Promoting dialogue between regulators and industry: the European Cyber Resilience Board is a strategic high-level forum between regulators and industry representatives on the topic of the cyber resilience of financial market infrastructures and critical service providers. The objective of this forum is to create a dialogue interface, increase awareness of cyber security issues among regulators and the entities they supervise, and promote and strengthen joint initiatives aimed at improving the cyber resilience of the sector.

The EBA developed RTS specifying the framework for cooperation and the exchange of information between competent authorities of the home and host Member States. The RTS also clarify the type of information as well as the templates to be used by payment institutions when reporting to the competent authorities of the host Member States on the payment business activities carried out in their territories.

3. National competent authorities in the EU

The EU members-states provide examples of the functions of the competent authorities, namely: France, Germany, Italy, Spain, The Netherlands, and Belgium.

As general principles, the procedure of a competent authority when exercising its powers should be proportional to the objectives and the circumstances of the case (to avoid any unnecessary burden on a SIPS operator) and either apply the same requirements consistently to similar SIPS operators or justify the different treatment of SIPS operators.

France

The French Parliament adopted the Act of 9 December 2016 on transparency, preventing corruption and modernising the economy, which expands the remit of the Observatoire de la sécurité des cartes de paiement (OSCP –Observatory for Payment Card Security) to all cashless payment instruments (thereby becoming OSMP – the Observatory for the Security of Payment Means). The OSMP performs security analyses that are indispensable for the work performed by the Comité national des paiements scripturaux (CNPS – National Cashless Payments Committee), which oversees implementation of the national payments strategy.

As a national competent authority, the Banque de France is tasked with the oversight of the French financial market infrastructures, alongside the Autorité de contrôle prudentiel et de resolution (ACPR – Prudential Supervision and Resolution Authority) and the Autorité des marchés financiers (AMF – Financial Markets Authority), depending on the infrastructures concerned oversees the financial market infrastructures that operate in France: the central counterparty LCH SA, the central securities depository Euroclear France, the French payment system CORE(FR) and the pan-European payment system SEPA.EU. It also contributes to the cooperative oversight of various European and international market infrastructures and payment systems.

The competent national authorities for the CCP are the Banque de France, the ACPR and the AMF, which exercise joint supervision pursuant to EMIR. LCH SA's EMIR college was set up in January 2014 and comprises 19 authorities (including ESMA) from 9 different EU countries. The Banque de France chairs the college. College meetings provide an opportunity for exchanging various types of information with other authorities on the supervisory assessment for the past year and to inform them of the supervision plan and the topics that the national authorities have decided to study in greater depth, in addition to the proposals/changes submitted for their review. In accordance with EMIR, the opinion of the college is required, expressed by a vote as provided in Article 19 of EMIR, when a CCP is authorised, but also on proposals to expand service offers, initiate new business lines and matters that have a material impact on the CCP's risk management system, such as a change to its margin model. The college meets at least once a year after having reviewed relevant matters and other meetings may be convened on specific issues or in the event of a crisis.

The ESES securities settlement systems and CSDs (Euroclear France, Euroclear Nederland and Euroclear Belgium) are overseen under a cooperation arrangement between the French, Belgian and Dutch authorities responsible for overseeing and regulating the central securities depositories and securities settlement systems of the Euroclear group. A memorandum of agreement entered into in July 2011 defines the procedures applicable to their cooperation and information exchanges with respect to regulation and supervision of securities settlement transactions. The National Bank of Belgium has been designated to schedule and chair meetings of the authorities, as well as to organise certain information exchanges with the ESES CSDs. The Banque de France participates as the overseer of ESES France. However, each ESES supervisor/overseer remains responsible for performing its duties and exercising its powers vis-à-vis the national SSS/CSD, in particular in light of the powers CSDR grants competent authorities. The current arrangement has been maintained (with certain adaptations to take into account these regulatory powers), which enables the French, Belgian and Dutch authorities to closely coordinate their study of CSDR issues, reflecting the very similar operation and characteristics of the three ESES CSDs

The Banque de France oversees CORE(FR), a SIPS with a clear national anchor (i.e. legally incorporated in a jurisdiction or serving that particular national market). It handles retail payments by clearing interbank exchanges of cashless payment instruments. CORE(FR) is a multilateral netting system, where settlement of payments is deferred and occurs once a day. All payments are settled in central bank money, in the participants' TARGET2 accounts. Retail payment systems only process flows of payments from banks' retail and business customers. They typically handle large volumes, although the value of individual payments tends to be low. It is designed, developed and managed by the company STET, which is jointly owned by the five leading French banks (BNP Paribas, BPCE, Crédit Agricole, Banque Fédérative du Crédit Mutuel and Société Générale). It was introduced gradually from January to October 2008, to replace the previous Système Interbancaire de Télécompensation (SIT); the existing domestic payment formats (MINOS) were progressively migrated to the CORE system, alongside the new SEPA instruments (SEPA Credit Transfer SCT and SEPA Direct Debit SDD). It is covered by the directive on settlement finality: transactions presented by participants may not be revoked once they have been entered into the system (FR), even in the event of bankruptcy.

In 2013, CORE(FR) handled more than 13 billion payment transactions, including: 7.2 billion card payments, 2.2 billion direct debits, 1.9 billion bank transfers, and 2.0 billion cheques. In 2017, 12.5 billion transactions, with a value somewhat exceeding EUR 4,800 billion, were cleared in CORE(FR). The volume of transactions in CORE(FR) fell at end-2016 due to the migration of clearing services for direct debits in the SEPA European format (SEPA direct debits) from CORE(FR) to the new SEPA.EU system.

In France, specific requirements for the financial sector were adopted early, as of 2013, in connection with cyber-risks and the implementation of the loi de programmation militaire compliance with which is verified by the Agence nationale pour la sécurité des systems d'information (ANSSI – National Information Systems Security Agency).

Oversight

The ECB recognised CORE(FR) as a systemically important payment system in 2014. It is required to comply with the provisions of EU Regulation No 795/2014 of the European Central Bank on oversight requirements for systemically important payment systems. Because the ECB oversees the other three pan-European systems (TARGET2, EURO1and STEP2-T), the Banque de France is currently the only Eurosystem national central bank with oversight authority over a SIPS.

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The Banque de France made recommendations to the operator, most of which have also been implemented, which go beyond the requirements of the ECB Regulation and aim to further improve the system's risk management process.

The ACPR maintains a list of PIs and EMIs in France: https://www.regafi.fr/spip.php?rubrique1

Germany

The Bundesbank organises the execution of domestic and cross-border payments and contributes to the stability of payment and clearing systems.

The Bundesbank is responsible for the oversight of RPS, its retail payment system. In order to avoid conflicts of interest, the divisions responsible for the operation and further development of RPS are kept separate from the division responsible for overseeing retail payment systems and have their own lines of reporting and management.

Furthermore, the Bundesbank participates in the Eurosystem's joint monitoring of the STEP2-T retail payment system operated by EBA CLEARING under the lead of the European Central Bank in its capacity as a competent authority.

Oversight

The Eurosystem developed its standards for the oversight of payment instruments independently of the PFMIs. The Bundesbank applies them for both the joint monitoring of internationally deployed payment instruments as well as for oversight at the national level. The oversight function of central banks focuses on settlement systems (including the respective instruments) and inspects their structure and functioning.

Running independent payment and securities settlement systems is a further important task of some central banks. In order to avoid any potential conflict of interest, these central banks are required to keep the operation of internal infrastructures and their oversight separate in organisational terms. Within the Bundesbank, responsibility for oversight lies with the Payments and Settlement Systems Department. Operation of the Retail Payment System (RPS) and involvement in running the TARGET2 system for individual payments fall within the remit of business units in the same department, albeit in different divisions with separate reporting channels.

It is in the interest of all EU central banks in which TARGET2 and EURO1 are used that these systems be properly monitored. The ECB plays a leading role in the oversight of both systems, and all interested central banks are able to take part in the tasks and decisions associated with this activity. The Bundesbank is actively involved in overseeing both systems. It helps to evaluate the information provided by the two systems and takes part in dialogues with the operators, the findings of which are then used to compile an assessment of each system, aided by a set of Eurosystem oversight principles which are in turn based on the CPSS/IOSCO principles for financial market infrastructures (PFMIs). In addition, the Bundesbank is involved in the decision-making process within the relevant working groups and committees at the Eurosystem level.

The Bundesbank's activities relating to operational risks can be divided into three areas of responsibility:

1) both at a national level and European level, the Bundesbank, as an integral part of the European System of Central banks (ESCB) and a member of the Committee on Payment and Settlement Systems (CPSS) of the G10 central banks, is actively involved in developing international standards and principles to address the operational risks which exist in the area of payments;
2) a further key concern of the Bundesbank is to engage in contingency planning with respect to its own systems and those systems for which it acts as a service provider within the Eurosystem. In this context, for instance, a wide range of organisational, technical and staffing measures serve to ensure the uninterrupted operation (ie, business continuity) of TARGET2, meaning that it continues to function smoothly, even in crisis situations; 3) furthermore, in consultation with the German Banking Industry Committee (GBIC), the German banking industry and major market participants in the German financial market, the Bundesbank has set up a communication infrastructure to deal with serious crises and threat scenarios in the area of individual payments. In the event of an emergency, this network allows the speedy and targeted exchange of information on the current situation and serves as a platform to discuss and decide on future steps.

Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin - Federal Financial Supervisory Authority) and the Deutsche Bundesbank share banking supervision in Germany. Their cooperation is governed by section 7 of the German Banking Act (Kreditwesengesetz – KWG), which stipulates that, among other things, the Deutsche Bundesbank shall, as part of the ongoing supervision process, analyse the reports and returns that institutions have to submit on a regular basis and assess whether their capital and risk management procedures are adequate.

Anyone wishing to conduct banking business or to provide financial services in Germany requires written authorisation. To operate a deposit-taking credit institution authorisation is granted by the European Central Bank (ECB) in consultation with BaFin, the national supervisory authority, pursuant to sections 32 and 33 of the German Banking Act (*Kreditwesengesetz* – KWG) in conjunction with Article 4(1) of the SSM Regulation. Authorisation to conduct other banking business or to provide financial services is granted by BaFin (sections 32 and 33 of the KWG).

BaFin maintains a register of PIs and EMIs: https://portal.mvp.bafin.de/database/ZahlInstInfo/

In consultation with the Deutsche Bundesbank, BaFin has issued a "Guideline on carrying out and ensuring the quality of the ongoing monitoring of credit and financial services institutions by the Deutsche Bundesbank "The German Act Implementing the Second Payment Services Directive (Gesetz zur Umsetzung der Zweiten Zahlungsdiensterichtlinie) was promulgated in the Federal Law Gazette[1] on 21 July 2017. By way of this act, which entered into force on 13 January 2018, amendments have been made to the German Payment Services Supervision Act (Zahlungsdiensteaufsichtsgesetz).

Two further transaction types are now subject to the authorisation requirement for institutions subject to the Payment Services Supervision Act. The new payment services that the previous law did not recognize are the payment initiation service and the account information service. In contrast to the other payment services, they are characterized by the fact that the service providers never acquire customer money. Payment initiation services are services that trigger a payment transaction at the customer's request; the account accessed in this process is not held at the payment initiation service provider, but at another institution. Given the increase in online trading, these service providers are becoming increasingly important. These services are further detailed in the section 4 of this report under the segent on "Impact of Fintech and new players".

Italy

The Bank of Italy is in charge of supervising, regulating and drawing up guidelines relating to payment systems, the settlement of securities transactions, payment instruments, and markets relevant for monetary policy and financial stability. The CODISE (committee for business continuity in Italy's financial marketplace) operates under the aegis of the Bank of Italy to coordinate action in the event of operating failures affecting the Italian financial market. It is the contact point for the European System of Central Banks (ESCB) in the event of pan-European failures. The law implementing the EMIR also empowers to the Bank of Italy to set up and manage supervisory boards for central counterparties based in Italy.

Within the Eurosystem, the Bank shares with the other central banks the task of overseeing the systemically important large-value payment systems TARGET2 and Euro1, the first run by the Eurosystem itself and the second by EBA Clearing[9], as well as the retail payment system STEP2, a pan-European euro-denominated clearing system run by EBA Clearing.

At national level, the Bank of Italy supervises the domestic component of TARGET2 (TARGET2-Banca d'Italia). TARGET2 (T2) is the pan-Eurosystem real-time gross settlement system developed by the Bank of Italy, Deutsche Bundesbank and Banque de France. The Eurosystem entrusted its day-to-day operational management to the Bank of Italy and Deutsche Bundesbank. Together with the central banks of France, Germany and Spain, the Bank of Italy has also developed TARGET2-Securities (T2S), a multicurrency pan-European platform for the settlement in central bank money of securities transactions. The platform is designed to remove the technical and operational barriers to cross-border settlement that continue to hinder the full integration of the European financial market. As with T2, the Bank of Italy and Deutsche Bundesbank are responsible for the operational management of T2S. The new platform was launched on 22 June 2015. The Italian central securities depository (CSD) Monte Titoli, together with the national financial marketplace, migrated on 31 August 2015.

Oversight

The Bank of Italy is empowered by law to issue regulations, authorise to engage in business, approve rules of operation, conduct inspections and issue sanctions in the event of serious irregularities. The Bank of Italy: a) verifies the sound and prudent management of the companies providing post-trading facilities; b) verifies that trading and settlement are conducted securely and efficiently by supervising flows on a daily basis and analysing the activity of operators; c) monitors continuously the measures in place to limit systemic risk.

The Italian retail systems that handle settlement via BI-COMP (SIA/BI-COMP, ICBPI/BI-COMP, ICCREA/BI-COMP, and CABI/BI-COMP) are classified as 'non-systemic' and are therefore within the competence of Bank of Italy supervision only (Article 146, Testo Unico Bancario – Consolidated Law on Banking) and the provisions on the supervision of retail payment services and systems. The ECB Regulation applies to all payment systems, large-value and retail alike, that are classified as systemically important; it gives the supervisory authority power to issue sanctions and to oblige payment system operators to take corrective measures.

[9] EBA CLEARING is a bank-owned provider of pan-European payment infrastructure solutions and was founded in June 1998

The tasks of the supervisory function include analysis and monitoring of relevant phenomena based on information collected; assessment of compliance with oversight standards and recommendations; and, where assessment has brought to light a departure from established reliability and efficiency targets, intervention in one of the forms available, ranging from moral suasion and the role of catalyst in discussions with stakeholders, to official statements and the issue of sanctions.

Banca d'Italia maintains a register of PIs and EMIs:

https://infostat.bancaditalia.it/GIAVAInquiry-public/ng/

Spain

The EU Directive was incorporated into Spanish law with the approval of Law 16/2009, of 13 November, on payment services (henceforth, Law 16/2009), with the general aim of ensuring that payments realised in the European Union, specifically, transfers, direct charges and direct payments using bank cards, could be effected with the same level of ease, efficiency and security as domestic payments within EU member states. In Spain, the General Secretariat of the Treasury and Financial Policy (DGTPF), a body that reports to the Ministry of Economy, Industry and Competitiveness, published a public consultation document on its website on the amendment of Law 16/2009 and the regulation implementing it, Royal Decree 712/2010, of 28 May, on transposing PSD.

The Spanish interbank payment system is structured around two systems: TARGET2-Banco de España, for processing large-value payments; and the National Electronic Clearing System (SNCE), for small-value payments.

The National Electronic Clearing System is managed by Iberpay, a private company owned by the participating credit institutions. This system processes transactions conducted using retail payment instruments: SEPA credit transfers, SEPA direct debits, cheques, bills of exchange and various other operations (non-standardised documents, commissions and fees on loans or documented batches, foreign currency exchange, etc.). The securities clearing and settlement systems in Spain are integrated in Bolsas y Mercados Españoles, Sociedad Holding de Mercados y Sistemas Financieros, S.A. (BME). BME Clearing: is the central counterparty (CCP) of the BME Holding for the transactions traded in the Spanish stock exchanges, financial derivatives, Public debt repos, energy derivatives and interest rate derivatives. All the Spanish clearing and settlement systems settle the euro transactions in central bank money, in the cash accounts opened in the books of the central banks.

The Fintech sector in Spain comprises around 280 companies, with some 2,500 employees and attracting 250 million euros of investment in 2016, according to figures from the Spanish Fintech Association and Insurtech (AEFI).

Oversight

Payment systems in Spain are regulated and supervised by the Bank of Spain in accordance with Law 13/1994 of 1 June, on the autonomy of the Bank of Spain, article 7 of which establishes that one of its functions is to 'ensure the payments system operates correctly', while article 16 empowers it to regulate said system. Articles 4 and 5 of Law 41/1999, 12 November, on payment and securities settlement systems (henceforth, Law 41/1999), transposing Directive 98/26/EC of the European Parliament and of the Council, of 19 May, on 'settlement finality in payment and securities settlement systems' state that in order for a payment system to be recognised its general membership rules and operating standards must be approved by the Bank of Spain, designating the Bank of Spain as the supervisory authority for these systems.

The Bank of Spain carries out certain activities using a wide range of instruments. The way oversight is developed is explained in the document "The Banco de España and the oversight of payment systems". It maintains a register of PIs and EMIs:

https://www.bde.es/bde/en/areas/sispago/Vigilancia_de_lo/Vigilancia_de_l_931ea69f5eb1921.html

The Netherlands

DNB is responsible for the oversight of payment and securities systems. Examples include TARGET2, Currence (iDEAL), SWIFT, Mastercard and EquensWorldline. Oversight of securities systems focuses on institutions and systems that handle the clearing and settlement of securities and derivatives transactions that are relevant to the Netherlands.

Examples include central counterparties and central securities depositories such as EuroCCP, ICE Clear Netherlands and Euroclear Nederland (see Annex III).

Oversight

DNB carries out examinations into specific topics. In 2017, for example, DNB was looking into business continuity management. DNB carries out many oversight activities together with European authorities.

The national central bank of the country where an institution has its registered office bears primary responsibility for oversight. If an institution also operates in other countries, the central banks of these countries also bear part of this responsibility.

DNB maintains a register of PIs and EMIs:

https://www.dnb.nl/en/supervision/public-register/index.jsp

Belgium

The Centre for Exchange and Clearing (CEC) and TARGET2 are core for the Belgian payment infrastructure. CEC is the domestic retail payment system processing intra-Belgian domestic payments.

Prudential supervision of payment institutions (PIs) and electronic money institutions (ELMIs) – a new sector of PSPs which may offer since 2009, just like banks, payment services in Europe is an important aspect to consider. This category of non-bank PSPs for retail payments provides respectively payment services and the issuing, redeeming and distributing of electronic money. ELMIs may also provide payment services and, given their ability to issue electronic money to the public, are subject to a stricter prudential regime, such as stronger capital requirements. As acquirer and processor of payment transactions in Belgium, Worldline SA/ NV is subject to both prudential supervision and oversight. In addition, the two-payment card schemes overseen by the National Bank of Belgium (NBB): the domestic Bancontact scheme and the international Mastercard scheme are also important schemes in Belgium.

Oversight

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, supervision pursues safe, stable and secure financial institutions delivering payment services to the end users.

Regarding retail payment systems, the Bank is responsible for the oversight of the CEC. In 2017, CEC's cyber resilience was covered in the framework of the NBB's oversight activities. A Eurosystem-wide survey, based on a methodology developed for that particular purpose by the ECB and the NCBs, was conducted in order to assess the maturity of payment systems' controls in that field.

The NBB maintains a list of PIs and EMIs in Belgium:

https://www.nbb.be/fr/supervision-financiere/controle-prudentiel/domaines-de-controle/etablissements-de-paiement-et-1

Complementary to its role of overseer of payment systems, the NBB is also competent authority for assessing the compliance of payment schemes established in Belgium with respect to Article 4 of the SEPA Regulation on Interoperability.

The CEC developed in 2018 a new functionality aiming at processing retail payments on a real-time basis, referred to as "instant payments". A specific platform used for the processing of those payments is developed by the French Automatic Clearing House operator STET jointly for the French and Belgian retail payments markets. A pre-assessment of this new functionality has been started in 2017 and will be conducted in cooperation with the Banque de France for issues relevant for both overseers. The CEC's cyber resilience was also examined by the NBB in 2018. This was done jointly with the Banque the France which oversees STET. A cooperation framework between the Bank and the Banque de France, formalised in a Memorandum of Understanding (MoU), is in place in that context.

The NBB also participates in the cooperative oversight framework of CLS Bank, a US-based payment-versus-payment (PvP) settlement system for foreign exchange (FX) transactions. CLS has been designated as a systemically important financial market utility by the US Financial Stability Oversight Council with the US Federal Reserve Board as the Supervisory Agency. The Federal Reserve Bank of New York supervises CLS under delegated authority from the Federal Reserve Board. In addition, CLS is overseen by the Oversight Committee (OC), an international cooperative oversight arrangement comprised of the central banks whose currencies are settled in CLS and five central banks from the euro area (including the Bank), with the US Federal Reserve acting as lead overseer and performing the secretariat function for the OC.

4. Payment ecosystems

In the EU

The global payments business has been significantly growing in the last few years. One indicator shows an increase of 11% in global payments revenues from 2016 to 2017[10], partially stimulated by the accelerating transition from cash to electronic and mobile payments. Cash as a means of payment has seen a decrease[11], with a few EU jurisdictions already striving towards a cashless society. Digital networks and devices continue to transform the way consumers communicate, work and transact. EU citizens engage in a range of online activities and there is a growth in the use of online services and an upward trend in e-commerce[12], with about 68% of EU internet users shopping online in 2017. However, the intensity of e-commerce varies greatly across EU Member States. Privacy and security aspects when paying online are the most important concern for online shoppers.

For the past 20 years, the integration of the European retail payments markets has been going on. The Single Euro Payments Area (SEPA)[13] became a reality for over 500 million citizens, especially in using uniform credit transfers and direct debits. Although cards have been the fastest growing means of payment in Europe for some time, card payments still lack the same degree of market integration and harmonization of business practices and rules, as well as technical standards.

Retail payments are low value payments made by individuals or businesses for everyday needs. In 2017, there were 43 retail payment systems in the EU, 22 of which were in the euro area, representing 73% of the EU total by value. The largest of these by value is EBA CLEARING's STEP2, which processes and settles SEPA Credit Transfers and SEPA Direct Debits for participants across SEPA.

Around 57 billion transactions were processed by retail payment systems in the EU in 2017, with an amount of €44 trillion.

According to the European Banking Authority (EBA) Consumers trend report 2018/19, the main characteristics and functions from a consumer point of view of the different payment instruments:

- a payment card is a device that can be used by its holder either to conduct payment transactions or to withdraw money;
- a credit transfer is a payment service which allows a payer to instruct the financial institution holding their account to transfer funds to a beneficiary;
- a cheque is a written order from one party, i.e. the drawer, to another, i.e. the drawee, which is normally a credit institution, requiring the drawee to pay a specified amount on demand to the drawer or to a third party specified by the drawer;
- a direct debit is a payment service for debiting a payer's payment account, potentially on a recurrent basis, whereby a payment transaction is initiated by the payee on the basis of the payer's consent;

[10] McKinsey Global Payments Map, Global payments 2018
[11] ECB Economic Bulletin, Issue 6/2018
[12] Digital Economy and Society Index Report 2018
[13] SEPA consists of the 28 European Union (EU) countries and Switzerland, Iceland, Norway, Liechtenstein, Monaco, San Marino and Andorra.

- electronic money is electronically stored monetary value which is issued on receipt of funds for the purpose of making payment transactions and which is accepted by a natural or legal person other than the electronic money issuer.

These definitions are based on the existing EU legislation.

The Report states that there is a steady growth in the use of e-money in the EU. In terms of payment methods, there is a significant growth in contactless payments using cards or smartphone apps, with the use of 'proximity' technology – such as near-field communication (NFC), quick response (QR) codes or Bluetooth – and contactless-enabled point-of-sale terminals. According to research from Mastercard in 2018, there is an increased adoption of contactless technology in Europe, with almost one in two in-store card transactions now being contactless. Again, the rate of evolution in contactless payments differs across the EU, In relation to online payment methods, a wide range was observed across the EU, from the use of digital wallets or PayPal to domestic bank transfer systems and direct debit payments. The wider growth of Fintech brought a significant rise in the use of digital and mobile wallets, which are currently positioned as one of the fastest-growing technology markets.

The same Report indicates that in 2017, cards, credit transfers and direct debits were the most important forms of payment, corresponding to 51.6%, 24% and 18.7% of total transactions, respectively. The period 2013-2017 shows an increase in transactions using cards and a relative decrease in the use of credit transfers, direct debits and cheques. The total number of non-cash payments in the EU increased to 134 billion in 2017, 7.3% more than the previous year. The importance of paper-based transactions continued to decrease, with the ratio of paper-based transactions to transactions initiated electronically standing at around 1 to 10. Although the relative importance of electronic money is still limited, it must be highlighted that the total number of payments with this payment instrument is growing slowly but steadily every year. Payment cards have been the prevailing payment instrument in the EU in the last few years, with the majority of retail payment transactions being executed through them; the number of card transactions rose in 2017 to 69.2 billion, 10.1% more than the previous year.

Recent surveys[14] show that online consumers are becoming mobile consumers, with a clear preference for smartphones. The increasing growth pace of internet penetration in Europe had a positive impact in the European e-commerce industry. The EBA reports in its Consumer Trends Report 2018/19 that consumers tend to use electronic payment instruments more than before, which also confirms the trend highlighted by several stakeholders that the new and innovative technologies introduced in the EU payments market are growing in use and popularity among consumers. In 2017, 831 million cards with a cash function were issued, which represents an increase of 2.4% compared with the previous year. The number of cards with a payment function in the EU increased by 2.0% in 2017 to 812 million. With a total EU population of 513 million, this represented around 1.6 payment cards per EU inhabitant.

That report also reveals the channels through which payments are made. Around half (51%) of adult EU citizens used internet banking in 2017. This percentage is constantly increasing and has doubled since 2007, when it stood at 25%. This trend shows that consumers are gradually becoming more familiar with new and innovative ways of making payments, in particular the use of internet banking. Internet banking is particularly popular among 25- to 34-year-olds, with 68% using this facility, confirming that the new generations of consumers are those most willing to interact with their banks and payment institutions through new technologies. Moreover, the use of internet banking tends to increase in line with the education level of the user. While only 24% of those with

[14] https://www.pwc.com/us/en/financial-services/publications/assets/pwc-fsi-whitepaper-digital-banking-consumer-survey.pdf

no education or less than high school level used internet banking in 2017, 77% of those with high school education used this channel in the same year. Finally, in 2017, the total number of automated teller machines (ATMs) in the EU decreased by 1.0% to 433 900. From 2014 to 2017, the total number of ATMs decreased by around 21 800 units. This decreasing trend in the number of ATMs may reflect the consolidation of the banking industry in general and the growth of electronic payments that has already been highlighted. Nevertheless, for certain consumers not used to or familiar with new and innovative ways of making payments (e.g. vulnerable populations or people living in remote or rural areas), the reduction in the number of operative ATMs could be an issue to take into account. In contrast to the number of ATMs, the number of point of sale (POS) terminals increased by 9.9% between 2016 and 2017 to 13.55 million. This growth may reflect the increasing use of credit and debit cards for payment transactions by consumers that has already been highlighted, as well as the rise in popularity among consumers of new and innovative technologies (e.g. mobile payments, including through smartphones payment applications) introduced in the EU payments market.

In general, European cardholders are able to pay with one card all over Europe. However, the reality is that, at present the pan-European acceptance of cards issued under a national card scheme is entirely reliant on co-badging with an international card scheme. Increasingly, payment service providers only issue cards from international card schemes. In the past, all attempts to establish a common European card payment scheme have failed, as national card schemes and banks did not see a viable business case in the short term.

European instant payments scheme[15] are being implemented and common or interoperable instant payments infrastructure are developed to process such payments. This may create new momentum to interconnect existing national card schemes. It is possible that the use of this newly installed instant payments infrastructure may support the interlinking and interoperability of national card schemes. Should full pan-European coverage be ensured, in parallel, this would provide a possible alternative to establishing a European card scheme.

Instant payments are beneficial to users, who need or expect them to be immediately available, just like instant communication. There also seems to be an economic rationale for providers to offer instant payment solutions. The main benefits of instant payments, for consumers are:

- Make and receive payments 24/7/365 with immediate transfer of funds
- Optimise cash usage with increased flexibility and convenience
- Enable immediate person-2-person mobile payments
- Provide for emergency payments at any time
- Facilitate future innovative payment products via smart devices

For businesses and governments, benefits will be to:

- Make and receive payments 24/7/365 with immediate transfer of funds
- Improve cash flow and process of payment reconciliation
- Increase efficiency of e-invoicing and e-billing
- Optimise working capital management and minimise need for external financing
- Reduce late payments and speed up the payment of invoices

[15] Electronic retail payment solutions available 24/7/365 and resulting in the immediate or close-to-immediate interbank clearing of the transaction and crediting of the payee's account with confirmation to the payer (within seconds of payment initiation)

- Improve e-commerce, with goods/services released against concomitant payment, thus decreasing the financial risk
- Speed up check-out processes at a physical point-of-sale
- Increase efficiency of and integrate tax, social insurance or other government-related payments

Finally, the benefits for payment services providers are:

- Leverage for new business opportunities (e.g. through value-added product offerings to consumers, corporates and merchants)
- Strengthen the relationship with current customers
- Promote new customer acquisition and subsequent retention
- Provide a competitive advantage in the market place
- Future-proof core infrastructure

Furthermore, more competition to the cards market is expected by the use of innovative technologies, boosting the range of choices for consumers. They are also expected to affect the evolution of card-based products, including changes in merchants' payment acceptance technologies. However, innovations may be capital intensive and thus smaller market participants might experience difficulties in keeping up with technological progress. There is therefore a risk of innovations not being introduced in some markets in Europe, while others may already benefit from them.

The Eurosystem welcomes innovative solutions as they may make card payments efficient, convenient and secure. It is desirable that these should be designed (i) to enable pan-European reach, even if at first they target national environments, and (ii) to not perpetuate fragmentation of the cards market. Thus, deeper cooperation and dialogue among relevant market players, in particular incumbents and newcomers, is highly supported.

The Interchange Fee Regulation (IFR)[16] and the revised Payment Services Directive (PSD2) [17] have already been implemented or is currently being implemented by the European cards industry. These are two important pieces of EU legislation aimed at supporting a harmonized, competitive and innovative cards market.

Impact of Fintech and new players

PSD2 opened the door for the EU payments market and new players enter the payments sector, using technology to redesign traditional networks and business models across retail and wholesale payments. According to the EBA Register of payment and electronic money institutions[18], 961 payment institutions (PIs) and 297 e-money institutions (EMIs) were authorised or registered within the EU (as at 25 May 2019). New licenses were obtained/re-authorised following PSD2, including entities operating outside the regulatory perimeter, such as technology and telecommunication companies, that decided to enter the payments and e-money area and obtained a PI or EMI license.

[16] Regulation (EU) 2015/751 of the European Parliament and of the Council of 29 April 2015 on interchange fees for card-based payment transactions

[17] 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

[18] https://eba.europa.eu/risk-analysis-and-data/register-of-payment-and-e-money-institutions-under-psd2

A number of existing and newly authorized institutions have already embraced or are actively looking at embracing the new services provided under PSD2 and are looking at expanding their service offerings to customers. Providers for those new services will:

- *account information services (AIS)* - allow consumers and businesses to have a global view on their financial situation, for instance, by enabling consumers to consolidate the different payment accounts they may have with one or more banks and to categorise their spending according to different typologies (food, energy, rent, leisure, etc.), thus helping them with budgeting and financial planning;
- *payment initiation services (PIS)* - typically help consumers to make online credit transfers and inform the merchant immediately of the payment initiation, allowing for the immediate dispatch of goods or immediate access to services purchased online. For online payments, they constitute a true alternative to credit card payments as they offer an easily accessible payment service, as the consumer only needs to possess an online payment account.

According to the Bank for International Settlements[19], the financial services activities of BigTech firms appear to be growing, specifically in some jurisdictions, particularly in payments, lending to small and medium-sized enterprises (SMEs), and other specific market segments. It was also noted that, while most BigTech firms start in payments, often to facilitate their core business (e.g. e-commerce or advertising), there is considerable diversity in the sequencing of business areas and how they conduct payment services. In Europe, where the incumbent bank-based payment infrastructure is dominant, innovations in payment services from BigTech firms (Google Pay, Amazon Pay, Apple Pay, Samsung Pay and payments on Facebook Messenger) all rely on existing payment rails.

While some institutions focus their business on person-to-person (P2P), business-to-person (B2P) or business-to-business (B2B) payment solutions only (e.g. billing, invoicing), the current developments appear to motivate an expansion into new businesses, for example expansion of a current B2P business into the P2P payment market, targeting retail customers by offering mobile wallet and other services. Another observed trend is the progression of some instant payment and mobile payment schemes from P2P to P2B and B2B, in order to improve merchant cash flows.

Most incumbent institutions are investing in their payments infrastructure and technological developments, in both front and back ends. Moreover, they appear to have invested (directly or indirectly) on average an amount equal to 7% of their 2018 revenues in unregulated Fintech firms. In terms of spending, institutions engaged with internal Fintech developments have spent on average an amount equal to 13% of their 2018 revenues on such developments, while an amount corresponding to 16% has been spent for ICT purposes (e.g. upgrade/maintenance).

More than 25% of institutions reported no intention to change their business model, noting however that regulatory change might force adjustments in order to comply with regulation and at the same time remain profitable and competitive. One out of three PIs and EMIs are seeking to add new services to their existing business models to extend their offerings to customers and enlarge their customer base. Only a few institutions seem to be keen to obtain a credit institution license, aiming to get access to payment systems and reduce operational dependency on banks and/or convert themselves into specialized banks and enhance customer engagement, changing their business models materially.

[19] https://www.bis.org/publ/work779.pdf

Based on the EBA survey (March 2019), more than 80% of institutions outsource activities to (TPPs). Most institutions mainly outsource (including intra-group outsourcing) operational and back-office activities, critical and non-critical, ranging from ICT infrastructure and core payment systems to accounting platforms and card processing.

Open banking

One of the changes brought in by PSD2 is the access to data held by incumbents (banks and traditional PSPs). New providers, so-called TPPs, will be able to provide services so long they have the payment users' consent. Those services will be on the basis of information on the account (e.g. balance, products, etc.) held by the user at the different PSPs. To have access to that data, TPPs will have to rely on application programming interfaces (APIs). These interfaces will have to be up and running according to the requirements set out in the delegated acts and regulations that complete PSD2. This new paradigm is called "open banking".

The success of open banking will depend on a variety of factors, with four attributes likely to play a significant role in defining how conducive the industry environment will be for open banking: market dynamics, enabling infrastructure, governance, and customer demographics. Banks must be ready for open banking as early as possible in order to derive prime mover advantage, essentially ensuring that they are well-architected for the API economy not only for compliance, but also for the ability to expose further value-added services from partners to end customers. This will position them well in a market that is becoming increasingly competitive.

In the World Payments Report 2018 (CapGemini/BNP Paribas), a key finding mentions that an interesting correlation exists between per-capita non-cash transactions and open banking; countries that record higher levels of per-capita non-cash transactions are emerging as open banking pioneers.

Strong Customer Authentication

Although the promotion of innovation stands as a key driving force for PSD2, the regulation's primary goal is to create a safer European payments framework. PSD2 includes a specific mandate that focuses on strong customer authentication (SCA) as a way to improve security for the consumer. SCA is two-factor authentication, a security system that obligates the consumer to provide more than just a password to complete a transaction.

The two factors may simply require a piece of user-specific information that only they know, coupled with something the user possesses, such as a mobile phone or something inherent like a fingerprint, iris recognition or voiceprint. The major card schemes already have a security protocol for card-not-present transactions called 3D Secure 2.0. By implementing this scheme, merchants will satisfy their SCA obligations arising from PSD2.

While the immediate challenge for merchants will be to develop interfaces that can accommodate such security measures, the greater risk is disrupting the buying experience for consumers. The implementation of two-factor authentication threatens to be counter-productive by creating a more complicated payment process that makes consumers less inclined to shop online. Merchants must be ready - it is imperative that all of these new systems mesh to create a seamless shopping and payment experience. There are several exemptions allowed from SCA but merchants need to consider what is most appropriate to their business:

- Low-value Transactions: Below €30 but cumulative transactions exceeding €100 or six consecutive low-value transactions must be challenged
- Recurring Transactions: Same value or varying values in specified scenarios

- Trusted Beneficiaries: Where the consumer adds a merchant to a whitelist with their issuer
- Secure Corporate Exemption: Restricted to specific travel and lodging use cases
- Transaction Risk Analysis: Exemption based on fraud rate of acquirer.

In France

At 31 December 2017, the French banking system numbered 29 payment institutions (PI) authorised in France and 16 PI branches located in the European Economic Area (EEA), compared with 19 and 7 respectively in 2013. There has been a steady growth in this type of institution in recent years, particularly with the entry of Fintechs into the sector. Over the period 2014-2017, the volume of payments handled by PIs has leapt to EUR41.2billion at end-2017, while the average individual transaction value increased from EUR65 to EUR230 during the same period.

France's retail banking and payments landscape is dominated by five large banking groups: BNP Paribas, Crédit Agricole, Société Générale, BPCE and Crédit Mutuel. These banks are the leading issuers and acquirers in the market and are also key stakeholders in the national card association. Additionally, they compete with Fintechs through mobile payment services and online banking subsidiaries. There are several new banks providing competition to traditional retail banks in the market. These banks vary considerably in their delivery mechanisms, range of services and ownership models.

Contactless, mobile and instant payments are being promoted by the government as alternatives to cash and cheques, which remain in widespread use. To further push the use of contactless cards, the French central bank increased the contactless card payment limit. Effective from October 2017, card holders can now make contactless payments up to €30 without the need to enter a PIN. Previously the limit had been set at €20. The increased limit will further push the use of payment cards for day-to-day low-value transactions. According to the French central bank, over 1.2 billion contactless payments were made in 2017.

Instant payments were made available in France in 2018 through the SEPA Instant Credit Transfer scheme. These have been made available by most banks - though many levy a charge which discourages widespread use. The new system enables fund transfers up to €15,000 in real-time within 10 seconds. BPCE, a major French cooperative banking group (which includes the Banque Populaire and Caisse d'Epargne networks), became the very first payment service provider in France to adhere to the new SEPA Instant Credit Transfer (SCT Inst) scheme.

Most bank-issued cards are issued on the domestic Cartes Bancaires network and cobadged with Visa or Mastercard. Deferred debit cards are more common than revolving credit cards and attract higher transaction volumes. Multifunctional cards are a feature of the French cards market with different combinations of debit, deferred debit and credit functionality available on a single card. The market for revolving credit cards has declined significantly in the last decade due to new legislation placing restrictions on revolving credit. This has resulted in a substantial shift away from revolving credit towards other forms of consumer credit. This has also weakened the position of consumer finance specialists such as Cetelem, which traditionally played a leading role in France's credit cards market.

The average adult made 264 card purchases during 2018, of which 15 percent were contactless and 13 percent online. There is a competitive mobile payments landscape though usage remains low. Homegrown options such as Paylib, Lyf Pay and Lydia compete with Apple, Samsung and Google. To benefit from the growing preference for alternative payments, banks and payment service providers are launching new payment solutions. For instance, in March 2018 Carrefour, a

French retail giant, launched its mobile payment solution Carrefour Pay. The solution enables users to make contactless mobile payments using their NFC-enabled mobile phones. In addition to the 3,000 Carrefour stores in France, the solution can be used at all stores that accept contactless payments. In April 2018 Samsung also launched its mobile payment solution Samsung Pay in France. The solution allows users to make purchases using NFC and magnetic secure transmission technologies.

France: At a glance (J.P. Morgan[20])

Population	67.1 million
Average age	41.4 years
Gross domestic product	€2.3 trillion
E-commerce market value	€81.7 billion
Mobile commerce market size	€17.2 billion
Mobile commerce as a percentage of e-commerce market	21%
Internet penetration	88%
Smartphone penetration	67.8%
Bank account penetration	94%
Card penetration per capita	0.94

In Germany

The number of payment service providers in Germany was declining until 2017. This is due to mergers, above all in the credit cooperative and savings bank sectors. Besides credit institutions, payment service providers also include licensed electronic money institutions and payment institutions. As at 31 December 2017, these payment service providers were operating around 150 million accounts. Of this number, roughly 103 million were current accounts, and they had a credit balance of around €1.4 trillion at year-end. This represents an increase of 11.3% on the previous year. Current accounts are the fulcrum of the payments world, given that they feature directly or indirectly in all forms of non-cash payment.

In 2017, 1.8 million additional debit and credit cards were issued in all, of which there were 1.2 million cards with a delayed debit function. The number of debit cards increased by just 438,000, though they do account for the bulk of payment cards, at 109 million cards. In statistical terms, then, each account holder has at least one debit card.

Whereas 68% of debit cards (74.8 million cards) also have an e-money function built into the card's chip, this function was used at least once with just 3.4 million cards. A number of banks having switched to issuing new debit cards without this e-money function over the past few years, these cards have been declining in number. Other e-money cards, such as prepaid credit cards issued

[20] 2019 Global Payments Trends Report - France Country Insights

by a number of institutions, saw growth of 13.5%, albeit from a very low level of roughly 760,000 issued cards in 2016.

2017 also saw German payment service providers provide net around 16,000 new payment terminals (POS terminals) in Germany. Overall, then, slightly more than 1 million POS terminals which accept card payments were available at the end of 2017. Outside Germany, there are 188,000 POS terminals operated by German payment service providers.

The use of cashless payment instruments gained further ground in 2018, as evidenced by the Deutsche Bundesbank's Statistics on Payments and Securities Trading, Clearing and Settlement. Just under 23 billion cashless transactions (up by 1.2 billion or 5.8% on 2017) were processed by German payment service providers. However, the total value of such payments rose only slightly on the year by 0.4%, amounting to €55.8 trillion (which comprehends e-payments, card payments and transfers). This shows that the average cashless payment amount is in decline.

Direct debits were the most frequently used cashless payment instrument with a share of more than 47% of the total of all cashless payment instruments, followed by credit transfers (29%) and card payments (24%). Cheques only play a minor role within cashless payments.

The growing interest in cashless payment methods is becoming particularly apparent in the field of card payments; in 2018, a total of almost 5.3 billion payments, with an average value of around €59 (€3 less than in 2017), were made with cards issued by domestic payment service providers. This corresponds to growth of just over 18%, which is primarily attributable to an increase in debit card payments. The number of debit cards issued rose by 1.6 million (+1.5%) by the end of the year; for credit cards, this figure was 839,000 (+2.4%).

Alongside card payments, credit transfers (+2.5% to around 6.5 billion) and direct debits (+3.0% to 10.6 billion) were also performed more frequently in 2018. Although both the number of credit transfers to recipients abroad (+19%) and received direct debit payments from abroad (+22%) increased considerably, they continued to make up only a minor portion of total transactions, at 197 million and 269 million transactions respectively.

The German merchant acquiring market is witnessing a host of mergers and acquisitions. In May 2018, French payment technology provider Ingenico Group started exclusive negotiations for the merger of German payments firm BS PAYONE with Ingenico retail assets in Germany, Austria, and Switzerland. The combined entity would be 52% owned by Ingenico Group. Existing shareholders of BS PAYONE would continue to hold the remaining 48% stake. In July 2018, both companies signed a partnership deal. This comes after B+S Card Service and German tech company PAYONE merged to form BS PAYONE in August 2017.

To increase uptake of contactless payments, in March 2018 commercial network operator Card4Vend collaborated with acquiring partner SIX Payment Services to install Germany's first unattended contactless-only readers for girocard in Berlin. Both companies are planning to install additional readers in and around the German Banking Industry Committee's pilot region, Kassel, and at other locations. In March 2017, retail chains Aldi Nord, Aldi Süd, and REWE Group enabled their contactless payment systems to accept girocards.

International payment service providers are entering the German market in order to capitalize on the growing popularity of alternative payments. Google Pay was launched in Germany in June 2018 in partnership with Wirecard, Comdirect, Commerzbank, and N26, with the likes of Revolut and LBBW also expected to support Google Pay. The solution allows in-store, online, and in-app payments. Meanwhile Apple Pay and Samsung Pay are expected to launch in the country in the near future. And in October 2018, Wirecard partnered with Germany's EHI Retail Institute to form a new consortium, EHI Mobile Payment Initiative, which is focused on advancing mobile payments. The initiative will focus on both retailers and consumers across the country. Other members include Visa, Mastercard, Google, Payback, and GS1 Germany. Members will exchange their expertise to help the retail industry address the growing demand for these payment solutions.

Germany: At a glance (J.P: Morgan[21])

Population	82.7 million
Average age	47.1 years
Gross domestic product	€3.7 trillion
E-commerce market value	€73 billion
Mobile commerce market size	€19.7 billion
Mobile commerce as a percentage of e-commerce market	27%
Internet penetration	91%
Smartphone penetration	71%
Bank account penetration	99.1%
Card penetration per capita	0.52

In Italy

In recent years, some specific government initiatives have encouraged this change: by law, payments in cash between individuals cannot exceed three thousand Euros; salaries must be paid only using electronic payment instruments; and tax benefits have been introduced in some sectors if payments are made electronically. Important initiatives have also been launched in the public sector to encourage the use of electronic instruments when paying public administrations.

Over the years, the Italian Banking Association has carried out several information campaigns about the benefits of digital payments, including in cooperation with consumer associations and other entities (e.g. the Association of Oil Companies).

As part of its financial inclusion program, the Italian government has simplified the process of opening a bank account to encourage the use of formal banking products. In May 2018 the Ministry of Economy and Finance issued a legislative decree mandating banks, electronic money institutions, payment institutions, and Poste Italiane to offer basic bank accounts for low-income customers with an Equivalent Economic Situation Indicator (ISEE) of less than €11,600 ($13,918.39). The ISEE estimates the economic situation of families resident in Italy by taking into account their income and assets. Examples of basic bank accounts offered by financial institutions include the UniCredit Base Account by UniCredit Bank and Basic BancoPosta by Poste Italiane.

The importance of Poste Italiane is very significant. The number of branches and POS show this: in 2018, there were over 25 thousand bank branches (of 505 institutions) and almost 13 thousand Postal branches; there were over 3 Million POS ran by banks and over 80 thousand by the postal

[21] 2019 Global Payments Trends Report - Germany Country Insights

service. The number of ATMs was of over 40 thousand bank owned ATMs (in-branch and out, cash dispenser and multifunction).

Even if the use of cash is still predominant in Italy, the number of payments with alternative instruments has shown an increase over the last years: in 2017, 100 transactions per capita were carried out with electronic instruments compared to 62 in 2006. The number of contactless payment cards in Italy increased from 14.0 million in 2014 to 58.7 million in 2018, at a significant review-period CAGR of 43.1%. Contactless payments are now being extended to public transport networks. In June 2018 payment processing company SIA launched a new digital payment platform in Milan to allow customers to buy subway tickets at any contactless-enabled turnstile using Mastercard or Visa contactless cards.

The volume of instant payment transactions is increasing even if the launch of the new products based on the European Payments Council (EPC) scheme has not yet been accompanied by large-scale marketing initiatives. These will be deployed when full reachability at national level has been attained. In the course of 2019, several Italian will adhere to the SCT Inst scheme (by the EPC).

In 2017 mobile proximity payments accounted for over 70 million euro (compared to 10 million euro in 2016) with an expectation that in 2020 that sum will reach 3.2/6.5 billion euros. Mobile commerce also continues to grow (with an accelerating growth rate of sixty-five percent in 2017 compared to fifty-five percent in 2016), amounting to 5.8 billion euros (representing twenty-five percent of the total amount of e-commerce versus eighteen percent the previous year).

Also, cooperation with Fintechs can be an opportunity to accelerate innovation in payments: a 2017 survey reports that more than seventy percent of Italian banks are already cooperating with Fintechs to develop new solutions in different banking and financial areas – including payments.

To capitalise on the rising preference for alternative payments, international payment service providers are entering the Italian market. Amazon Pay and Apple Pay launched in Italy in April and May 2017 respectively, followed by Samsung Pay in March 2018. Google's mobile payment solution Google Pay is the latest entrant as of September 2018. Currently, 20 banks and financial institutions in Italy support Apple Pay. Some of the leading retailers accepting Apple Pay include Auchan, Autogrill, COOP, Eataly, H&M, and SiMPLY Market.

Italy: At a glance (JP Morgan[22])

Population	60.6 million
Average age	45.5 years
Gross domestic product	€1.7 trillion
E-commerce market value	€21.2 billion
Mobile commerce market size	€7 billion
Mobile commerce as a percentage of e-commerce	33%
Internet penetration	73%

[22] 2019 Global Payments Trends Report - Italy Country Insights

Smartphone penetration	68.5%
Bank account penetration	93.8%
Card penetration per capita	1.09

In the Netherlands

In the Netherlands, most retailers give their customers a choice in how they pay for their purchases. Consumers pay by debit card more often than with cash, but cash is still the most widely accepted means of payment: 96% of Dutch retailers accept payment in cash, against 82% that accept debit cards. Most retailers expect they will still accept cash payments in 2022. This emerges from a survey held among more than one thousand Dutch retailers commissioned by De Nederlandsche Bank (DNB). Retailers indicated lack in customer demand and risk of robbery as factors for refusing cash. May 2018 marked the first period of twelve consecutive months in which consumers paid an average of 60% of their purchases at points of sale by debit card and 40% in cash, with which the target set in the Covenant on the Payment System was officially achieved. Although consumers used debit cards in POS payments for 60% or more several times in 2017, the annual average of 58.1% was still below the target percentage. Figures including those for June 2018 show that in the first six months of 2018 61% of purchases were paid by debit card and 39% in cash.

The majority of population groups pay by debit card more often than in cash, but there are marked differences. Young adults aged 19 to 24 are the frontrunners in terms of debit card use in the Netherlands, paying 77% of their purchases by debit card and 23% in cash in the first six months of 2018. They also witnessed by far the sharpest increase in debit card payments (+9 percentage points relative to the first six months of 2017). In the past year, women, the 55-64 age group, people with medium-level education and university graduates started using their debit cards significantly more often (+4 percentage points), but the increase was limited in the 25-34 age group and among people with low-level education (<1 percentage point).

In 2018, Dutch consumers paid in cash for 37% of their purchases in shops, bars, restaurants, hotels and similar establishments (points of sale, or POS), down from 41% in 2017, while using their debit cards for 63% of their purchases. While consumers made payments to other consumers (peer-to-peer, or P2P) mainly in cash, a shift towards electronic means of payment can be discerned. In 2018, they used cash for 59% of their P2P transactions, against 67% in 2017, according to a joint study performed by the Dutch Payments Association and the DNB.

To foster the use of electronic payments and realise the need for instant payments in the Netherlands, the Dutch Payments Association was working towards building infrastructure for real-time instant payments. The development of the system began in 2015, and was scheduled to go live by May 2019. All major Dutch banks have decided to contribute towards its development. Once implemented, the new instant payment system will enable individuals to transfer funds within five seconds with no amount limit. All relevant stakeholders, including the Dutch Central Bank, have been involved from the start. From the beginning, the view has been that instant payments should become the new normal. Customers – both consumers and businesses – expect to get service instantly, 24/7 from their PSPs, especially when it comes to payments.

In a recent interview, the CEO of the Dutch Payments Association mentioned that the scheme had processed over thirty million instant payments transactions in total and averaging more than half a million transactions a day. For him, the E2E performance is more than satisfactory: almost all transactions (over ninety-nine and a half percent) are within five seconds, with a uptime (24/7) that is high and stable (greater than ninety-nine and a half percent) and the reject rate is well below half a percent.

The Dutch payment cards market is mature, and dominated by debit cards, as consumers perceive them to be more secure, cost-effective, and consumer-friendly. Pay-later card payments are not popular due to a cultural aversion towards debt. Dutch consumers are very comfortable using debit cards - accounting for 90% of the overall transaction value in 2017 - and online payment channels (especially local brand iDEAL[23], backed by wide acceptance and a convenient user experience). Growth in the payment cards market is supported by well-developed infrastructure, with one POS terminal per 34 individuals. Growth in the e-commerce market is attributed to high internet and smartphone penetration. In spite of a high level of consumer comfort with established payment instruments, recent developments in mobile proximity payments and contactless technology by the likes of ING, Rabobank, and ABN Amro will see these payment options gain traction among Dutch consumers.

In May 2017 the OV-chipkaart mobile app was launched by mobile network operators KPN and Vodafone Netherlands in partnership with OV public transport card provider TransLink. The companies began piloting the service in December 2015, allowing 200 commuters to add their OV card to their smartphones to pay for journeys. The app also allows users to make contactless payments.

Digital banks made inroads into the Netherlands during the review period. In February 2016, Pocopay launched its mobile banking service in the Netherlands. It offers a current account and a Mastercard-branded contactless debit card. Meanwhile, Germany-based mobile-only bank N26 launched in the country in December 2016. Account holders are offered a Mastercard debit card that can be used to make payments in stores and online. Mobile-only bank Bunq also operates in the country.

In order to reduce the costs and risks of handling cash, in May 2017 ABN AMRO, ING, Rabobank, and Geldservice Nederland partnered to create a joint ATM network. This enables their customers to access any ATM of their choice, regardless of the bank that services the ATM. The project is being implemented in phases, and is expected to complete by the end of 2020.

The Netherlands: At a glance (J.P. Morgan) [2]

Population	17.1 million
Average age	42.6 years
Gross domestic product	€826.2 billion
E-commerce market value	€22.5 billion
Mobile commerce market size	€4.5 billion
Mobile commerce as a percentage of e-commerce market	20%

[23] iDEAL is the digital payment method of choice for Dutch consumers. Started in ecommerce, it now is being used for C2C payments, ticketing, e-invoices, charity donations and top-ups. In real-world situations, iDEAL payments can be initiated from a QR code on a web page, a merchant's cash register, a paper invoice or a poster.

[24] 2019 Global Payments Trends Report – the Netherlands Country Insights

Internet penetration	95.9%
Smartphone penetration	71%
Bank account penetration	99.6%
Card penetration per capita	0.18

In Spain

The Spanish economy has rebounded since 2014. This recovery in economic performance has boosted the consumer finance and payments industries, along with other sectors of the economy. Although cash is still king in Spain, representing an estimated 80 percent of the total number of retail transactions, innovative methods of payment are advancing in the country. Spain is a frontrunner for instant and Person-to-Person (P2P) mobile payments. Another electronic instrument, Direct Debit (SDD), is also popular.

The emergence of digital-only banks is likely to accelerate the shift towards electronic payments in Spain. According to Eurostat 2017, 46% of Spanish consumers have used digital banking - albeit lower than the EU average of 51%. To push digitalization in the country, Banco Pichincha Spain introduced its digital bank Pibank in September 2018. The mobile-only bank provides banking services exclusively through mobile apps and social networks. At present, the bank offers a fee-free payroll account that comes with a debit card. Previously in January 2016, CaixaBank launched its mobile-only imaginBank. Through the mobile app, consumers can apply for current accounts, debit cards, credit cards, and consumer loans, manage personal finances, and make P2P payments. To intensify the competition further, Orange Bank plans on launching its digital bank in September 2019 in Spain.

Of the different clearing payment instruments, in 2019, over 65% of transactions were SEPA direct debits, almost 30% SEPA credit transfers, 3% instant transfers and cheques reached 1.8%. There is a significant growth in SEPA direct debits, a steady growth in SEPA credit transfers, while there is a decrease in cheques. Instant transfers are very recent and growing. In terms of amounts, SEPA credit transfers took up over 65%, SEPA direct debits over 17%, cheques passed 12% and instant payments were above 2%. There was a steep increase in SEPA credit transfers since 2014, in contrary cheques decreased significantly. SEPA direct debits have remained without any significant change.

Payment card purchase volume has seen significant growth over the years under review, growing by 70 percent from 2012 to 2018. Total payment card purchase volume exceeded the total value of ATM cash withdrawals for the first time in 2013. In 2018, card purchase volume as a percentage of combined card purchase volume and cash withdrawals came to 59 percent. There were over 3 900 million card based transactions in 2018, increasing 13.8% comparing to 2017, with a total value of over EUR 147 431 Million (rising 9% from the previous year).

Debit cards are more widely used than credit cards for transactions. The value of debit card purchase volume exceeded the value of credit card purchase volume for the first time in 2015. Contactless has proven popular among Spanish cardholders. Around 60 percent of card transactions in 2018 were contactless, despite a relatively low limit. Credit card profitability has been boosted by strong lending growth since 2015. Competition is growing in this space as issuers pursue a previously underdeveloped market. There were over 47 Million debit cards circulating in 2018 (growth of 4.86% from 2017), and over 36 Million credit cards (growth of 6.57%).

In 2018, the three ATM and POS networks (ServiRed, Sistema 4B and EURO 6000) merged into a new entity, Sistema de Tarjetas y Medios de Pago, with the brand name yet to be decided. This new network has been instructed by the regulator to launch a new domestic payment cards brand, with the first of these cards set to be issued in the final quarter of 2019. There were over 50 thousand ATMs and 1.8 Million payment terminals (TPA).

Spain launched SCT Inst in November 2017, being one of the early adopters of instant payments. Previously in October 2016, a common mobile payment platform called Bizum was launched jointly by 27 Spanish banks. Bizum is integrated within the banks' apps and lets users conduct P2P, in-store, and online transactions instantly through their mobile phones.

Uptake of alternative payments among Spanish consumers is gaining traction, with international payment providers launching their solutions in the market - the latest initiative being the introduction of Android Pay (now Google Pay) in July 2017. Individuals holding a BBVA Visa/Mastercard debit or credit card can use Google Pay at any store that accepts contactless payments in Spain. Earlier in June 2017 Alipay was launched in Spain in collaboration with BBVA. Other international payment solutions including Samsung Pay and Apple Pay forayed into Spain in 2016.

Spain: At a glance (J.P. Morgan[25])

Population	46.6 million
Average age	42.7 years
Gross domestic product	€1.3 trillion
E-commerce market value	€30.3 billion
Mobile commerce market size	€11.5 billion
Mobile commerce as a percentage of e-commerce market	38%
Internet penetration	87%
Smartphone penetration	69.5%
Bank account penetration	93.8%
Card penetration per capita	1.64

[25] 2019 Global Payments Trends Report - Spain Country Insights

5. Payment institutions with relevance

This chapter provides an overview of selected payment institutions in the subset of countries analysed in this Report. The information presented is mainly collected from those companies' websites.

In France

Ingenico

https://www.ingenico.com/

ingenico GROUP

Ingenico Group is a partner to financial institutions, e-commerce, small merchants and major retailers. Ingenico provides solutions that to ensure reliability and fluidity of payments, which is essential for securing purchases. For almost 40 years, Ingenico Group has supported the evolution of commerce through a comprehensive offering of payment acceptance solutions and services. Their solutions cover the whole payment value chain and all sales channels, and are suited to customers' local requirements and international ambitions.

Payment processes are based on national protocols as well as variable local parameters such as the percentage of the population who bank, the quality of telecommunications infrastructure, the number and type of credit and debit cards in circulation, growth of organized retail, etc. Ingenico Group has a strong presence throughout the world, across five continents and in 170 countries. This multi-local approach is a major differentiating factor: it allows the Group to work very closely with an extensive network of local partners, providing the most appropriate expertise, solutions, and services for their markets. At the end of 2018, Ingenico Group employed some 8,000 people worldwide. As well as creating two Business Units to focus on its customers' needs, the Group also takes a geographical approach to address the challenges of an international company and to bring it closer to the developments and specific features of each region in which the Group has a presence. The Group is structured around four geographical areas: North America; Latin America; Asia-Pacific; Europe, Middle East & Africa. Since 2006, Ingenico Group's business has been based on a "fabless" model, with the manufacturing of terminals fully outsourced (except for the Chinese market) to top-tier industry partners: the Group currently works with two of the world's five largest electronic sub-assembly subcontractors, Flex and Jabil. The Group regularly and rigorously audits the plants, via Ingenico employees present on site who carry out audits that cover, among other aspects, social data. Ingenico Group is constantly striving to streamline its manufacturing process: today most plants are located in Asia (global market) and Brazil (Brazilian market). This manufacturing flexibility enables the Group to increase or decrease production to meet demand and to ensure an effective procurement policy.

Ingenico Group has created a Business Unit to address the specific requirements of this indirect distribution channel. The Banks & Acquirers offering allows our partners to offer merchants secure payment solutions and services by reducing the complexity of payment management whilst differentiating their offering from the competition. To achieve this, the Business Unit relies on the capacity for innovation of Ingenico and Landi, the Group's Chinese subsidiary, to offer an optimized range of terminals as well as value-added solutions for the merchant. Its business activities therefore cover the complete scope from design of the offering to after-sales service.

Ingenico Group now works with the major financial institutions, with an acceptance network of more than 1,000 banks and acquirers around the world. Some of the world's biggest banks place their trust in Ingenico Group, including Barclays, Crédit Agricole, Crédit Mutuel, Bank of China, Garanti Bank and Bank of America. Ingenico Group also works with major acquirers such as Cielo, Redecard, Elavon, First Data, etc.

The Retail Business Unit helps large-scale distributors, small and medium-sized merchants, and e-merchants to support consumers in their omnichannel purchasing journey, to develop their cross-border activities and to increase their conversion rate. It combines a product offering comprising terminals and integrated in-store and online payment services with omnichannel payment solutions, to offer its customers free-flowing, unified services. The Retail Business Unit handles the full scope of activities, encompassing the design, preparation, marketing and operation of online and omnichannel payment services. It relies on its regional sales teams to develop its sales worldwide. The Business Unit was, until now, organized into three divisions addressing the separate requirements of the various market segments: SMBs (small and medium-sized businesses): 550,000 merchants; Global Online (digital players): 542 million individual transactions billed, with a value of €58 billion; Enterprise (large-scale distribution and organized retail): 6.3 billion individual transactions billed, with a value of €230 billion. The Business Unit will include a fourth division called Payone. It was created through the joint venture between BS Payone and Ingenico's Retail assets in Austria, Germany and Switzerland.

In 2018, Ingenico reached €2,643m in revenues, representing a 2% organic growth. The final EBITDA came in at €488m, representing a 18.4% margin, in contraction due to the Banking&acquirers (B&A) underperformance. The net profit came at €188m.

Edenred

https://www.edenred.com/en

Edenred

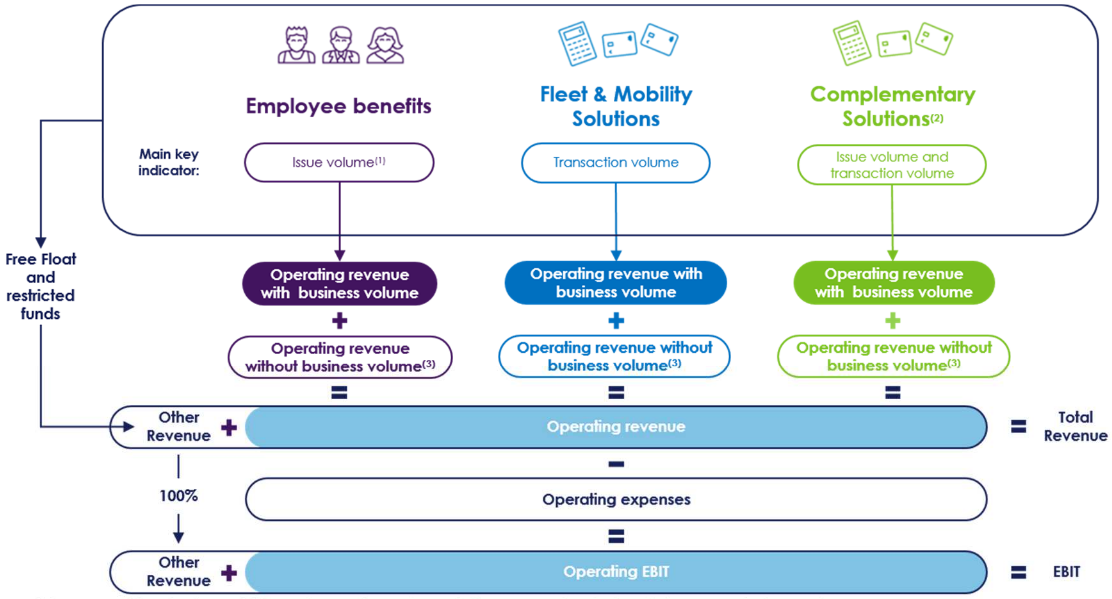
Edenred originated in France, starting its operations in 1967. The group provides payment solutions for the working world, connecting 830,000 corporate clients, 47 million employee users and 1.7 million partner merchants across 46 countries. With its global technology platform, the Group managed 2.5 billion transactions in 2018, primarily carried out via mobile applications, online platforms and cards, and representing more than €28 billion in business volume. Edenred has 8,500 staff and its aim is improving employees' quality of life, increasing companies' efficiency and boosting merchants' revenues. They try to achieve this through three business lines:

- Employee Benefits (food, meals, well-being, leisure, culture and human services)
- Fleet & Mobility Solutions (fuel, tolls, maintenance and business travel)
- Complementary Solutions, including Corporate Payment Services (virtual payment cards, identified wire transfers and supplier payments), Incentives & Rewards (gift cards and platforms, and incentive programs), and Public Social Programs.

The acceptance network is the group of partner merchants that accepts the Group's solutions as payment instruments. There are three types of acceptance networks for the Group's card-based products:

- closed loop: the card is issued by a partner merchant under its own brand (*e.g.*, Carrefour, Walmart or Starbucks) and is only accepted in its outlets;
- filtered loop: the card is issued only under the issuer's brand and is redeemable in a certain number of sales outlets, selected by the issuer who designed the preloaded service (meal card, food card, fuel card, gift card, etc.); and
- open loop: solutions (*e.g.*, gift cards, prepaid cards and payroll cards) that are cobranded by the acceptance network and the issuer. They are accepted anywhere.

In 2018, Edenred had 830,000 corporate clients, with 47 million employee users and 1.7 Million partner merchants. Its business volume reached over €28 Billion. Total revenue grew 9,4% to reach €1,37 Million, with EBIT of €461 Million. The image below provides a picture of business line an EBIT:



(1) Some of the Fleet & Mobility and Complementary Solutions are preloaded and also generate issue volume.
(2) The Complementary Solutions primarily comprise:
- Incentive and Rewards solutions, whose key indicator is generally issue volume.
- Public Social Programs, whose key indicator is generally issue volume.
- Corporate Payment solutions.

(3) For example, maintenance and installation costs, periodic subscription fees and other expenses.

SlimPay

https://www.slimpay.com/

Slim Pay

SlimPay is the European leader in recurring payments for subscriptions. SlimPay's payment solution enables merchants to facilitate acquisition, increase the consumer lifetime value, and maximise revenue – through card and direct debit payments. Created in 2009, SlimPay is the European leader for payments for subscriptions via direct debit. SlimPay provides value-added technologies and services before and after the transaction in order to maximise collected merchant revenue by providing the highest payment success rate. Launched in 2010 in France, SlimPay operates across Europe with flagship offices in Paris, Madrid, and Milan, with a staff of 70.

SlimPay indicates it has an algorithm helping onboarding valuable and safe customers by screening and filtering high-risk debtors and potential fraudsters who are typically associated with failed payments, KYC

In Germany

N26

https://n26.com/en-eu/

N26 was founded in 2013 by Valentin Stalf and Maximilian Tayentha reimagining the retail banking experience for today's mobile lifestyle. Since the initial product launch in 2015, over 3.5 million customers across 26 markets have signed up for N26. In 2018, the firm has raised a total of USD 215 million from some of the world's most well-known investors, including Allianz X, Tencent Holdings Limited, Li Ka-Shing's Horizons Ventures, Valar Ventures, members of the Zalando Management Team, and Earlybird Venture Capital. N26 employs more than 1300 people and has offices in Berlin, New York and São Paulo, as well as TechHubs in Barcelona and Vienna. In 2019, after announcing its $300 million Series D funding led by Insight Venture Partners, N26 received a further $170 million extension in July 2019. The round includes participation from GIC, Singapore's sovereign wealth fund, and existing investors. N26 now ranks amongst the top ten most valuable Fintech companies worldwide. N26 also launches in the US and confirms plans to enter the Brazilian market later in the year.

N26 offers a free basic account and then has two-tiered subscription options from there:

- N26 Black – €9.90 per month. Includes more benefits than Basic, such as free withdrawals abroad
- N26 Metal – €16.90 per month. Includes the sleek card, discounts with certain partner brands, and a few additional benefits beyond Black

N26 also makes UsageFees depending on the account and usage. Basic accounts, for example, are charged a 1.7% forex fee when withdrawing money abroad. There are also limits to the number of ATM withdrawals, and other triggers for fees depending on the account type. The company offers BusinessAccounts where they make additional revenue based on value-added services, and then offer other layers in their core product such as Insurance in categories like Household, Automotive, etc.

Compared to some of the UK Challenger Banks, N26 seems to be more *commercial-partner focused* and less community-driven. While competitors like Monzo and Revolut both have large, active online communities, N26 has taken a more traditional approach to marketing and customer support. On the retail banking side, the company targets young Europeans aged 18-35, with the goal to acquire approximately 5-10% of that demographic from traditional banks by 2020. They have acquired many of these customers through partnerships, but now with their recent foray into the American market, they are starting to ramp up their advertising. On the customer support front, they have a 400 person in-house team and 200 external agents, handling over 50,000 customer queries per week in multiple languages. Part of the difference between N26 and other Challenger Banks is likely due to culture and long-term strategies. In addition to taking a more commercial approach to marketing and support, N26 has partnered with firms like Mastercard and Wirecard. In turn, this could lead them down a pathway to a middle ground between more aggressive online-only services and traditional banks. [26]

N26 announced recently the launch of its premium product N26 You, replacing N26 Black. The You membership's focus on personalisation is the next big step in N26's mission to give everyone the opportunity to bank and live their own way. With the new N26 You membership, N26 recognises the highly individual nature of personal finance by offering more opportunities to build a tailored digital banking experience aligned with customers' daily financial needs. Customers can now choose from five different colours for their Mastercard - Aqua, Rhubarb, Sand, Slate and Ocean - to reflect their personality and needs. In addition, N26 You customers can customise their N26 app icon and gain access to ten Spaces. This is one of N26's most popular features, providing a fast and easy way to set aside money based on users' personal preferences and goals. N26 You also enables travelers to bank without borders, free from exchange fees when withdrawing cash abroad or making payments in foreign currencies. N26 You will also soon introduce several hand-picked partner offers, enabling customers to save money with additional discounts at WeWork, Babbel, Blinkist and Bloom & Wild, amongst others. N26 You is available for £4.90 per month.

[26] http://lumosbusiness.com/business-model-canvas-n26/

Overall, as of December 2018, the company boasts more than 2 million users across 24 countries, with a growing trend since 2016.

Wirecard

https://www.wirecard.com/

wirecard

Wirecard is a software and IT specialist for outsourcing and white label solutions for electronic payment transactions and the issuing of card and account products. Wirecard offers a constantly growing range of forward-looking technologies and flexible, customizable services for cashless payments. An interdepartmental innovation process in Wirecard Innovation Labs helps to put new ideas into practice as efficiently as possible and provide with groundbreaking financial technologies. The Wirecard Group has been supporting companies in accepting electronic payments from all sales channels. A global multi-channel platform bundles international payment acceptances and methods, supplemented by fraud prevention solutions. When it comes to issuing their own payment instruments in the form of cards or mobile payment solutions, Wirecard provides companies with an end-to-end infrastructure, including the requisite licenses for card and account products. The acquiring and issuing services are linked with one another via the integrated platform and are made accessible via Internet technology (APIs). With regard to issuing own payment instruments in the form of cards or mobile payment solutions, Wirecard provides companies with an end-to-end infrastructure, including the requisite licenses for card and account products. The uniform platform approach and seamlessly integrated value-added services such as data analytics, customer loyalty programmes and digital banking services support customers and partners of Wirecard to successfully master the challenges of digitalization.

It's a global provider of financial technology, which is at home all over the world, from Europe across the Middle East and Africa to Asia Pacific and the Americas. Wirecard provides its international and globally active customers and partners with local support via its regional sites for technology, services and sales which are located around the world. Wirecard's global presence covers Europe, the Asia-Pacific region, Latin America, North America, and the Middle East / Africa. The core European markets are Germany, France, Great Britain, Ireland, Austria and Romania. The global presence of Wirecard is structured around five key locations, to which smaller locations in other countries are assigned. These are the Group headquarters in Aschheim for Europe, Singapore for the Asia-Pacific region, São Paulo for Latin America, Conshohocken (Philadelphia) for North America and Dubai for the Middle East / Africa. They operate regulated financial institutions in several key markets and hold licenses from all major payment and card networks. They have a total of more than 5,300 staff members who work at locations in 26 nations. The 5,743 employees (6M 2018: 5,064 employees) of Wirecard were distributed across the following regions on the reporting date of 30 June 2019: Germany: 1,628; Europe excluding Germany: 747; Asia / Pacific: 2,727; Middle East and Africa: 219; Americas: 422.

Wirecard provide both business customers and consumers with a constantly expanding ecosystem of real-time value-added services built around innovative digital payments by using an integrated B2B2C approach. This ecosystem concentrates on the areas payment and risk, retail and transaction banking, loyalty and couponing, data analytics and conversion rate enhancement in all sales channels (online, mobile, ePOS). More than 279,000 companies rely on Wirecard's innovative technologies and services for conducting business internationally. They include global players, small and medium-sized enterprises and start-ups in the travel & mobility, retail, e-commerce, banking and telecommunications sectors.

In 2018, Wirecard reached over €2,000 Million, with an EBITDA of €560 Million generating a net income of over €347 Million.

In Italy

Poste italiane

https://www.poste.it/

Posteitaliane

Poste italiane is the postal service in Italy. The Group provides several services including financial and payments. With its 157-year history, a network of more than 12,800 post offices, a workforce of approximately 134 thousand, total financial assets of €514 billion and around 35 million customers, Poste Italiane is an integral part of Italy's social and economic fabric, occupying an unparalleled position in the country in terms of size, recognisability, reach and customer loyalty. In 2018, the Group's activities involving the production and delivery of goods and services generated direct, indirect and induced impacts on the Italian economy amounting to

approximately €12 billion in terms of GDP, employed a total of approximately 184 thousand workers and resulted in the distribution of income amounting to approximately €8 billion to workers. Listed on the Milan Stock Exchange since 2015, Poste Italiane's leading shareholders include the Ministry of the Economy and Finance with a 29.26% stake and Cassa depositi e prestiti with a 35% interest. Since April 2017, Maria Bianca Farina has been the Company's Chairwoman and Matteo del Fante its Chief Executive Officer and General Manager.
The Poste Italiane Group constitutes the largest service distribution network in Italy. Its activities range from letter and parcel delivery to financial and insurance services, payment systems and mobile telecommunications.

In line with the strategic guidelines set out in the Deliver 2022 Strategic Plan, the Group's activities are divided into four Strategic Business Units (also referred to as operating segments in Poste Italiane's financial statements): Mail, Parcels and Distribution; Payments, Mobile and Digital; Financial Services; Insurance Services. These Strategic Business Units are supported by two distribution channels for retail customers, on the one hand, and business and Public Administration customers, on the other. These channels operate alongside a series of corporate functions responsible for policy, governance, controls and the provision of business process support services.

The Group has an integrated, multichannel distribution network, which serves the country's entire population via a physical network of post offices and staff on the ground and digital infrastructure with state-of-the-art multimedia channels. The customer contact channels are managed by two Poste Italiane functions dedicated to the sale of products and services and specialized by type of customer: Post Office Network and Business and Public Administration. The digital Web and App channels provide access to online services for 17.6 million retail and business users (15 million at 31 December 2017) and operating as both direct sales and after-sales channels. Numerous new functions were added to the Web and App channels for end users in 2018 and, in line with the digital transformation process, work continued on improving the Group's online offering. A single Customer Care and Back Office unit operating at Group level was created in 2018, partly by reorganizing the geo-graphical structure of operations based on a hub and spoke model.

From October 2018, the Payments, Mobile and Digital segment, together with PostePay, has been authorized by the Bank of Italy to operate as an Electronic Money Institution in line with the Plan's objectives. Operating as an internal Fintech, it will enable full advantage to be taken of the growing convergence between market segments. This division will also serve as a competence centre for the implementation of the Group's digital strategy. Regarding Financial Services, the model focuses on the distribution of third-party products without credit risk, controlled by a distribution platform. The model aims at promoting sustainable growth, through a more efficient allocation of capital and a wider range of products. Important steps in the implementation of the Plan include the renewal of the postal savings agreement signed at the end of 2017 with Cassa Depositi e Prestiti, the three-year distribution agreement signed in April 2018 with Intesa Sanpaolo, the agreement with Unicredit regarding the distribution of loans, and reaching in March 2018 a series of agreements with the Anima Group regarding closer cooperation for savings management services

Axerve

https://www.axerve.com/site/en/

axerve

Axerve develops omnichannel payment solutions for E-commerce and retail businesses, giving the opportunity to manage over 250 payment methods in 87 countries. With over 70.000 active clients, Axerve is the first payment Hub in Italy. Born from the experience of the Sella group in the field of electronic payments, it is now part of the Fabrick ecosystem. Axerve offers simple solutions for the acceptance of payments within a shop, on the way and in digital form, adapting to the specific client's needs, while presenting everything with the utmost transparency. Originally, the company was named Gestpay (1998), an online payment system. This platform integrated Apple Pay in 2017. In 2018 it became a part of Axerve Group. Another brand associated is Hype, an Italian Fintech with mobile payments and digital marketing aimed for the consumer market.

In the Netherlands

Adyen

https://www.adyen.com/

adyen

Adyen was founded in 2006 by a group of entrepreneurs, including Pieter van der Does and Arnout Schuijff. The existing payments technology consisted of a patchwork of systems built on outdated infrastructure. With the aim of helping businesses grow, the co-founders set out to build a platform capable of meeting the rapidly evolving needs of today's fast-growing global businesses. Adyen's founding team called the business Adyen – Surinamese for "Start over again" – and focused on building a modern infrastructure directly connected to card networks and local payment methods across the world, allowing for unified commerce and providing shopper data insights to merchants. The Adyen platform enables merchants to accept payments in a single system, enabling revenue growth online, on mobile devices and at the point of sale.

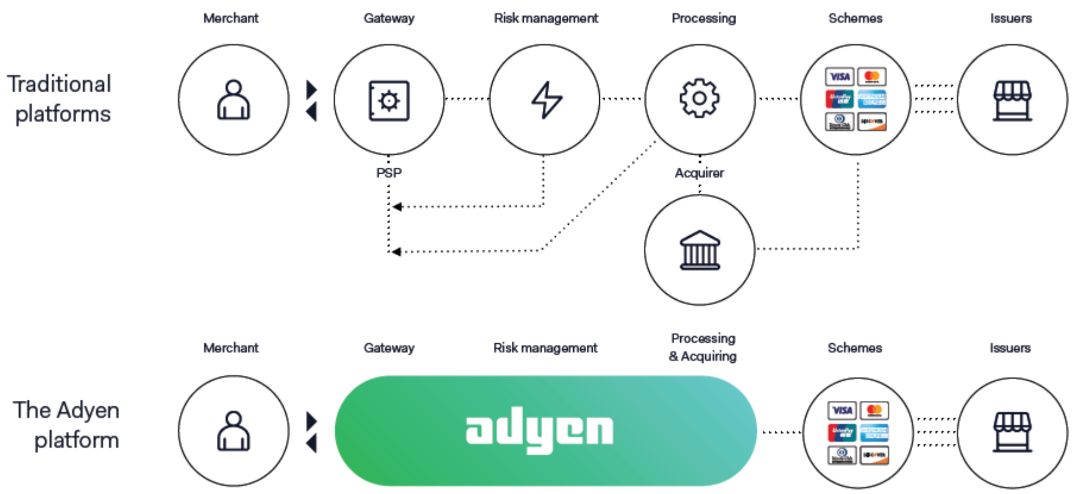
Adyen is a payment gateway, service provider, acquirer, and processor for online and brick-and-mortar commerce. Adyen requires only one system, one process integration, and one contract for a multinational enterprise to serve customers in 150+ countries and to accept 200+ methods of payment. The Adyen platform integrates the full payments stack (gateway, risk management, processing, acquiring and settlement) with a common back-end infrastructure for authorizing payments across merchants' sales channels as well as offering feature-rich APIs. This integrated platform allows for the delivery of products and services on a global scale with local capabilities, directly connecting merchants to Visa, Mastercard and many other payment methods, and across sales channels, including its merchants' online, mobile and POS channels, while providing a high level of reliability, security, performance and data insights.

One of Adyen's propositions is transparent fees. They provide a full list of prices for supported payment methods on their website. Adyen charges a processing plus payment method fee per transaction. The processing fee is a fixed amount collected by Adyen, $0.12 in North America, Asia Pacific, Latin America and €0.10 in Europe. Depending on the payment method, an additional fee is charged specific to the interchange fee charged by the issuing bank, scheme fee charged by the card scheme, and applicable acquirer markup. These fees are clearly outlined on their website and can be predicted by merchants before the transaction is executed. According to an analysis by vator[27], the company makes its money based off of processing fees and payment method fees

[27] https://vator.tv/news/2018-06-08-how-does-adyen-make-money

for every transaction. Those fees change based on the method of payment, and also the region in which the transaction takes place. In North America, for example, there's a $0.12 processing fee, and a $0.25 payment free, for the use of a debit card. For using an American Express card, there's the same processing fee, but a 3.95 percent payment fee. For using Interac Online, the payment fee is CAD 0.60, +2.00% when no local entity. Ayden uses what it calls its Interchange++ pricing model for credit card like Visa and Mastercard. "Interchange++ is a pricing model which accurately tracks Interchange rates and scheme fees right down to a transaction level. This means we can calculate the cost of each payment even before it is completed. So as well as knowing how much you can charge your customers, you get total visibility into the process, and can see exactly what you're being charged for each transaction," the company says. While Ayden does not have any monthly fees, setup fees, integration fees or closure fees, it does have a minimum invoice of €100 ($120 U.S.) per month, depending on transaction volume and region.

The picture below compares traditional platforms to Adyen's platform:



Adyen has offices in 20 locations worldwide. It provides services related to infrastructure, focusing on: availability, uptime and processing speed; hosting facilities; software and hardware; and development. In 018, it has processed €159 Billion (increase of 47% year-on-year), obtaining a net revenue of €349 Million (up 60% y-y) and an EBITDA of €182 Million (up 83% y-y).

Payconiq

https://www.payconiq.com/en/

Payconiq is a European payments Fintech active since 2014 in Benelux[28]. With the support of major European banks, Payconiq leads the transformation of the payment industry through an open-API approach and flexible microservices. 60,000 merchants across Belgium, Luxembourg, and the Netherlands trust Payconiq's secure, plug-and-play platform. 600,000 consumers use their app for P2P, invoices, in-stores, or online payments. It is an omnichannel digital payments (in store, online and between friends) provider, working via an app, requiring a payment account and a smartphone.

[28] Belgium, the Netherlands and Luxembourg

Payconiq indicate that they adhere to the highest security standards. All data is encrypted and secured by the user's PIN or fingerprint, and they only transfer necessary payment data such as IBAN, the amount, and the identity of the beneficiary to the user's bank with the highest level of encryption.

In Spain

Sistema de tarjetas y medios de pago, S.A.

https://www.sistemapay.com/

Sistema de tarjetas y medios de pago, S.A. was created in 2018 as a result of a merger of the 3 card payments systems in Spain: ServiRed, Sistema 4B and EURO 6000. This is a combination of the majority of payments institutions in Spain (including the major banks). The system aims to establish the rules and technical standards for card based operations in order to guarantee that national and international payment and cash withdrawal operations work correctly. It supervises and maintains transactions' clearing and liquidation, interchange fees application and service delivery.

Bizum

https://bizum.es/

Bizum is a project by all Spanish banks providing payment solutions to all clients. It combines immediate (instant), universal (integrating all banks without a need to change) and integral (allows for payments between consumers, on online and offline shopping) payment options. Bizum is the brand under which the services are provided by Sociedad de Procedimientos de Pago, S.L. This company is owned by 27 banks that operate in the Spanish market.

UniversalPay

https://www.universalpay.es/

UniversalPay is the Spanish branch of EVO Payments International (USA). It provides services in payment acceptance for companies.

EVO was founded in 1998 and now offers an array of innovative, reliable, and secure payment solutions to merchants ranging from small and mid-size enterprises to multinational companies and organizations across the globe, providing integrated payment solutions through EVO Snap, an Omni-Channel Processing that supports merchants globally and across all points of interaction through a single integration.

With business activities in 50 markets and 150+ currencies around the world, EVO is among the largest fully integrated merchant acquirers and payment processors in the world. It currently processes over $100 Billion in transactions annually.

In the UK

Sumup

https://sumup.co.uk/

Sumup is a leading mobile point-of-sale (mPOS) company in Europe. It started out 6 years ago and built our payment service from scratch to shake up the industry and wake up the entrepreneur within anyone. We created a unique device that with the smartphone that's in your pocket, allows small merchants to accept card payments anywhere. Launched in August 2012, the company enjoys a global reach and has since expanded into 31 countries, including Germany, the U.S. and Brazil. SumUp continues to grow and is backed by American Express, BBVA, Groupon, Holtzbrinck Ventures and other renowned venture capital investors. Today, hundreds of thousands of small businesses around the world rely on SumUp to get paid. Beyond its original hardware, mobile and web apps, they have gone on to develop a suite of APIs and SDKs for integrating SumUp payment into other apps and services. SumUp is authorized as a Payment Institution by the Financial Conduct Authority (license no. 900700) and is EMV (Europay, Mastercard, and Visa) and PCI-DSS certified, ensuring that payments are processed in accordance with the highest security standards.
Sumup's pricing model indicates that whichever card reader is chosen, the same conditions apply: no rental contract; 30-day money-back guarantee; 1 year warranty. No other recurring costs are involved: free delivery; free iOS / Android app; free dashboard and reporting; free telephone & email support. Payouts to the customers' bank account take 2-3 days.

6. Bibliography

ACPR - 2017 ACPR statistical report
https://acpr.banque-france.fr/en/2017-acpr-statistical-report

Banco de España – estadísticas de pago e del SNCE

Bundesbank - Statistics on Payments and Securities Trading, Clearing and Settlement in Germany 2014 to 2018 (as of July 2019)
https://www.bundesbank.de/resource/blob/621384/3c752951ebc19c6adfc3c6c10707a4e4/mL/zvs-daten-data.pdf

Bundesbank – Payments in Germany – payment statistics for 2017

CapGemini/BNP Paribas - World Payments Report 2018
https://worldpaymentsreport.com/wp-content/uploads/sites/5/2018/10/World-Payments-Report-2018.pdf

De Nederlandsche Bank (DNB) – DNBulletin Overview Payments
https://www.dnb.nl/en/news/dnbulletin/dnb245424.jsp?thema=Payments

EBA Consumer trends Report 2018/19
https://eba.europa.eu/documents/10180/2551996/Consumer+Trends+Report+2018-19.pdf

EBA Report on the impact of Fintech on payment institutions' and e-money institutions' business models
https://eba.europa.eu/documents/10180/2551996/EBA+thematic+report+on+the+impact+of+Fintech+on+PIs%27%20and+EMIs%27%20business+models.pdf

ECB - Card payments in Europe – current landscape and future prospects: a Eurosystem perspective
https://www.ecb.europa.eu/pub/pubbydate/2019/html/ecb.cardpaymentsineu_currentlandscapeandfutureprospects201904~30d4de2fc4.en.html#toc1

GlobalData - Payments Landscape in France, Germany, Italy, the Netherlands, and Spain: Opportunities and Risks to 2022

Lafferty Research France Country Report
https://www.laffertyresearch.com/doc/france-report-table-of-contents-D363845.pdf

Lafferty Research Spain Country Report
https://www.laffertyresearch.com/reports/country-reports/europe/spain-country-report.html

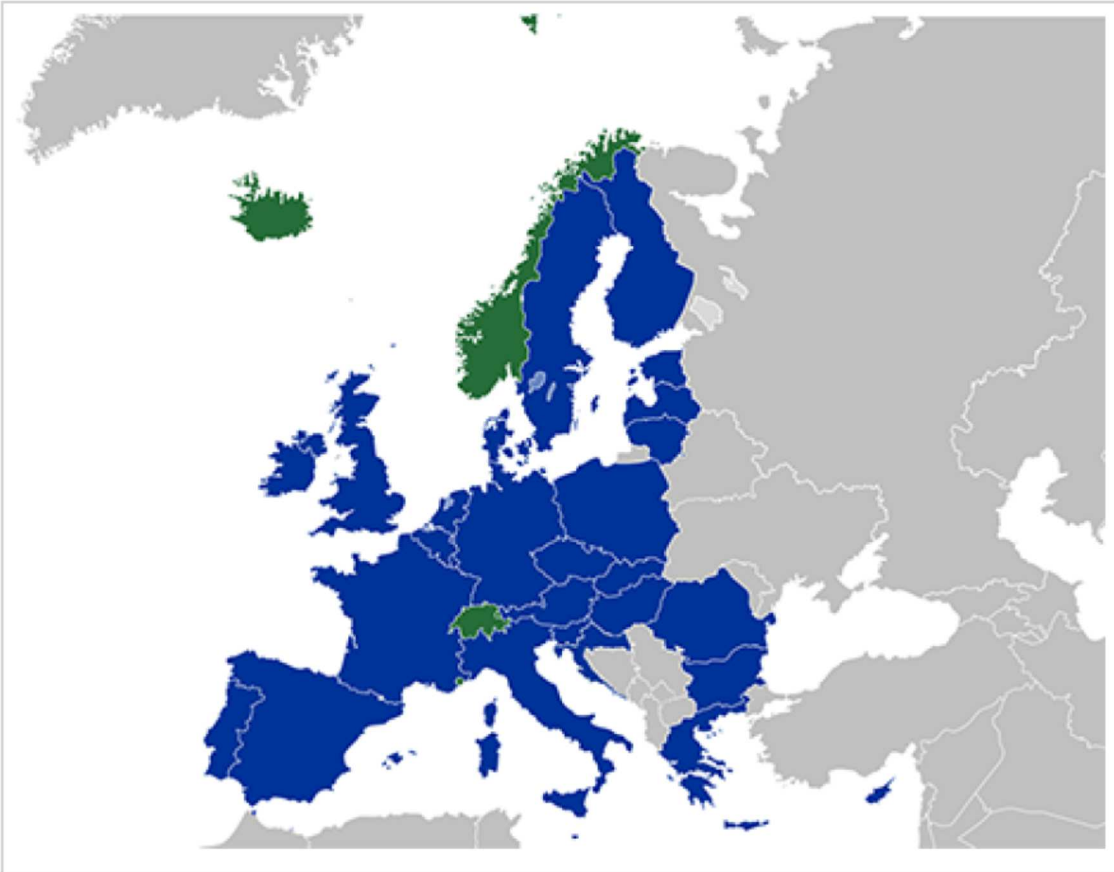
SWIFT - The transformation of the European payments landscape

7. Annexes

Annex I. The Eurosystem's oversight of non-systemically important large-value and retail payment systems (reference year 2016)

Non-systemically important large-value payment systems	Prominently important retail payment systems	Other retail payment systems
POPS (Finland)	Clearing Service Austria (Austria)	Clearing Service International (Austria)
	PSA (Austria)	MasterCard (Belgium)
	CEC (Belgium)	Cyprus Clearing House for Cheques (Cyprus)
	JCC Payment Card System (Cyprus)	JCC SDD (Cyprus)
	Ühiskasutuse süsteem (Estonia)	SEPA.EU (France)
	Interbanking Systems S.A. - DIAS (Greece)	RPS (EMZ) (Germany)
	SICOI (Portugal)	STEP2-CC (Germany)
	SIPS (Slovak Interbank Payment Systems) (Slovakia)	Athens Clearing Office - ACO (Greece)
	SIMP-PS (Slovenia)	IPCC (Ireland)
	SNCE (Spain)	CSM Banca d'Italia (Italy)
		ICCREA/BI-COMP (Italy)
		Nexi/BI-COMP (Italy)
		SIA/BI-COMP (Italy)
		Electronic Clearing System EKS (Latvia)
		Local clearing system for card payments (Latvia)
		CENTROlink (Lithuania)
		Malta Clearing House (Malta)
		Equens CSM (Netherlands)
		SIA Slovakia (Slovakia)
		Multilateralni kliring Activa (Slovenia)
		Plačilni sistem Moneta (Slovenia)
		Poravnava bankomatov (Slovenia)
		Poravnava kartic (Slovenia)

Annex II. SEPA - Single Euro Payments Area



Annex III. The Netherlands – Competent authorities

Statutory framework	**Competent authority**	**Target group**
Bank Act 1998 (*Bankwet 1998*) - Section 3(1)(e) - Section 4(1)(b)	DNB	All institutions operating in the area of payments
Treaty on the functioning of the European Union - Article 127(2)	European System of Central Banks (ESCB)	All institutions operating in the area of payments
Regulation on oversight requirements for systemically important payment systems	ESCB	Systemically important payment systems
Financial Supervision Act (*Wet op het financieel toezicht – Wft*) - Section 5.27 - Section 5.30(e) and the underlying supervisory framework	AFM and DNB	Central counterparties and central securities depositories for stock exchanges or trading platforms
European Market Infrastructure Regulation (EMIR) *	DNB and AFM	Central counterparties
Regulation on Central Securities Depositories. **	AFM and DNB	Central securities depositories
Financial Supervision Act *** - payment processing service providers	DNB and AFM	Payment processing service providers

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