



The current payments landscape and trends

Payment Council Working Group 1

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Abstract

The purpose of this report is to describe the current payments landscape, as well as domestic and international payment trends which will have an impact on developments in the payment market in the next few years. The overall standard of Finnish payments is good: consumers and industries have at their disposal payment methods suitable for various situations, and standardised transfer of payments supports the automated updating of digital information between information systems, in accord with the principle of a real-time economy. Payment frictions were identified in one-off payments, particularly in information networks and payment methods that are easy to use for various user groups.

The trends challenging the current forms of payment are related to the digitalisation and increasing real-time nature of society, as well as the disappearing of borders, i.e., national solutions and decision-making powers. Changes in working life easily lead to the fragmentation of income flows, which underlines the need for easy-to-use, inexpensive methods of online payment, at least on the European level, and preferably on a global level. If these cannot be provided by traditional payment services, consumers can easily take up alternative practices.

The working group paid attention to the special features that affect developments in payment services: In mature markets, there is generally little incentive for actors to invest in new services. Efforts to develop the banking sector focus on new regulation and measures that are needed in the wake of the financial crisis. New service providers' entry into the market is hampered by the costs that consumers and trade and industry have to bear in order to implement and migrate into new services. Furthermore, the use of information networks requires, in the long run, sustainable and secure customer authentication to limit the escalating information security risks.

The working group sees a need to push for greater competitiveness within the payments landscape. The relevant means are: standardisation of the digital payment proposal, rapid introduction of electronic identity, an enhanced focus on payment services regulation and application of the rules on the use of data collected via information networks to payments data.

1 Introduction

1.1 Purpose of the report

The purpose of the report is to describe the current payments landscape and the domestic and international trends that will have an impact on payment developments in the next few years. In addition to general trends in society, the development of payments depends particularly on advances in payment technology and regulatory reform, and partly on the resulting changes in the supply of payment services. The report was prepared on assignment of the Finnish Payments Council.

The Payments Council is a forum that brings together different interest groups for open discussion and exchange of ideas on payments. The Council analyses and assesses changes in the operating environment, ongoing payments initiatives in Finland and the rest of the world, and changes in regulation. The Council also contributes to the development of payments by publishing assessments and conclusions.

The Payments Council supports the use of advanced, internationally compatible payment methods that are effective for society as a whole, while promoting competition. In the assessment of developments in the payment market, the Payments Council puts particular emphasis on the security and reliability of payments, the availability and usability of payment services, as well as the efficiency of payment solutions for society as a whole.

To accomplish its task, the Payments Council established a working group to analyse the current payments landscape for the purpose of setting out alternative development paths for future payments. The aim is to publish the report and make the contents available to all the interest groups.

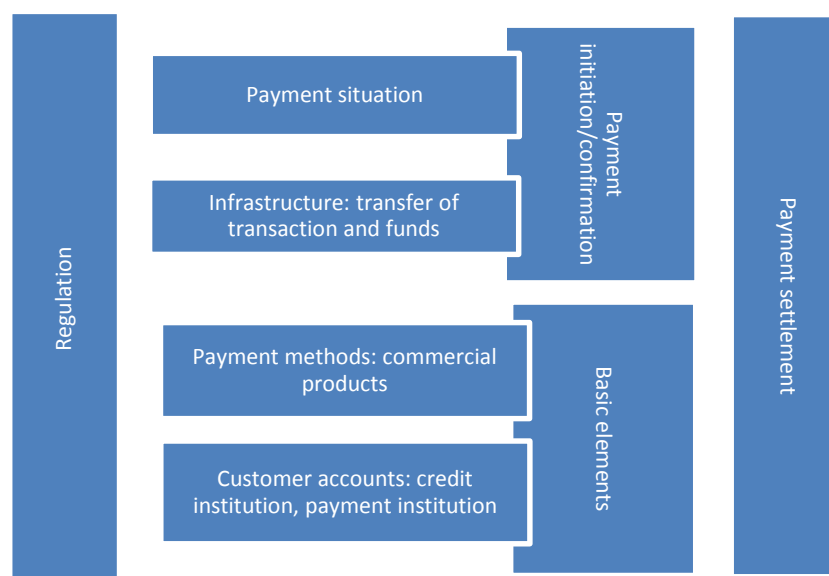
1.2 Definitions and scope of the report

Payment flows are the flip-side of the real economy – a function that enables business activities. Payments are initiated in business transactions: the payee indicates the size of the required payment as well as the terms and conditions of payment/settlement, which the payer accepts and chooses the payment instrument (e.g. cash, card payment, credit transfer, direct payment). That acceptance creates a payment transaction. In the simplest form of payment transaction, cash changes owners. In an electronic payment, the transaction is transferred via payment systems. An electronic payment transaction consists of the transfer of payment data and the funds required for settlement. The payment is executed in the account system defined by the selected payment instrument (between bank accounts in the case of a credit transfer; or between e.g. credit card accounts).

A payment is defined as executed when information on the transaction has been transferred, funds have been settled between payer and payee accounts, and information on successful payment has been sent to both the payer and the payee, irrespective of the payment method and of how many layers or participants are involved in the execution of the payment.

The parties to the payment transaction, i.e., payer and payee, are connected with a payment method approved by both of them. Each payment method has its own special features: user interface (banknote, payment card, online bank), terms and conditions of the service (settlement period, fees), method by which the payment transaction is transferred between the service providers (e.g. SEPA credit transfer, card payment) and by which funds are settled between payer and payee (based on the infrastructure in question, either in central bank money or commercial bank money). Electronic payments usually include also a business concept between service providers, which defines the relationship between the service providers and enables the commercial production of services (pricing, fees and distribution of fees). Service providers and the terms and conditions of payment methods are strictly regulated by the Credit Institutions Act, Payment Institutions Act, Payment Services Act, and the Directive on Payment Accounts.

Chart 1. Payments framework



Source: Bank of Finland.

This paper discusses, by assignment of the Payment Council, the current landscape and trends of Finnish payments, from the perspective of changes in payment situations. The impacts of megatrends in society play a key role in these changes in payment. The report focuses on analyses of one-off payments. The objective is to identify friction in payment situations, caused by the alternative methods of payment, and to present possible models for decreasing the friction.

The report does not take a stance on the variety of payment methods but rather seeks to analyse the various trends so that various commercially operating payment services can benefit from its conclusions. The objective is to facilitate payments in the new digital environment through standardization and a harmonised interface for payments. At their most effective, the current trends are increasing the popularity of payment methods that support competitive payment service markets. This report can be an initiator of development work by commercial providers of payment services, which enables them to address the challenges identified.

The report seeks to be neutral towards the different payment methods and so does not take a stance on current payment systems. It can however assess the impact/requirements of emerging operating models on infrastructure, and assess whether the changes will have an impact on business models.

The report's perspective is European, and it focuses on digital payments. The payment situations described, the related frictions and the possible new practices are presented as general, medium-term forces for change, and they do not imply a particular stance on the current practices related to the various payment methods. The report is non-scientific and is based on the expertise of the members of the working group. The contents and conclusions of the report are those of the working group, and they do not necessarily reflect the views of the related organisations or interest groups.

2 Special characteristics of payment markets

Reliable payment instruments and methods are a prerequisite for a smooth-functioning economy. A lack of these or elongated interruptions in the use of payment instruments and methods have a significant impact on economic activity and society as a whole.

The markets for payment services differ significantly from the traditional consumer goods and services markets because payment execution is

- a peripheral/ancillary service
- an essential service, the total volume of which depends on external factors
- extensively available in developed countries, which leads to 'market cannibalism'
- risky business that requires customer protection and various security features
- an area in which new payment services and the development of old payment services require long-term investments and commitment
- a network service that requires cooperation between service providers and between service providers and users
- a service industry, which leads to natural monopolies
- a field which easily favours restricted networks; i.e., particularly large entities often seek to create internal three-party networks
- a service which usually includes hidden prices and cross-subsidy because of customers' pronounced sensitivity to prices.

Payment is only an ancillary service, a part of the actual goods/service production behind the payment. The volume of payments depends entirely on trade volumes and consumption budgets. An enhancement of payment instruments will at best have only a marginal impact on total consumption or trade. In contrast, the development of payment instruments and services may impact both the methods and forms of trading¹.

Because the volume of payments depends on external factors and payment services are extensively available in developed countries, the payment markets are, from the perspective of payment service providers, totally 'cannibalistic'. This means that new payment instruments introduced into the market eat up the market shares of existing payment instruments, without growing the market. For example, card payments have long been replacing

¹ For example, regulation on auctions has kept banker's bills on the market, and online payment services, e.g. PayPal, have boosted international e-commerce by enabling payments also for persons who are not credit card holders.

cash payments, new online payment methods may replace card payments, and particularly in the 1980s, card payments replaced payment by cheque.²

Consumers and companies must use a payment instrument in order to make a payment³. The fact that payment is a peripheral service, combined with the necessity of payment, means that users are sensitive to the prices of payment services. Moreover, service providers' incentives to develop payment services are relatively weak. Customers must use the payment instruments that are available, and service providers get the profit margins prevailing in the market. As the development of a possible new payment service on the market creates only cannibalism, service providers often find themselves in a situation where possible development creates only investment costs and new fixed costs on parallel payment instruments, without any additional profit. The traditional payment service providers' incentive to service development has thus focused on the enhancement of processes in order to cut costs or bind customerships to other more profitable services.

In the payment process, service providers handle customer funds, and therefore, the providers of payment services – credit institutions, payment institutions and issuers of electronic money – are subject to significantly tighter regulations and supervision than are providers of other services. On the other hand, the risk appetite of service providers may differ from that of customers. Service providers can assess the risk related to payment transactions only based on direct losses, whereas the customer and society carry the extensive indirect losses that incur, e.g., as a result of identity and credit restoration or the general increase of crime. On the other hand, particularly private customers' awareness of risks related to electronic payment services is usually weak, which exposes them to pressures exerted by service providers. Payment systems can be used also for transferring and 'laundering' profits from criminal activities, as well as tax evasion. Authorities seek to prevent these by issuing extensive rules and regulations on the prevention of money laundering and terrorist financing, which require investments. Blocking a participant's access to payment systems is also used as a form of financial sanction. The authorities are thus paying increasing attention to the security and supervision of payments. From the perspective of service providers, these types of additional requirements create a cost burden, without any possibilities for actual additional profit.

The development and introduction of payment instruments requires long-term investment plans. The extensive launch of payment cards in the Finnish market in the early 1980s was preceded by 2 to 3 years of planning. Within some seven years, cards had replaced half of the volume of cheques, and only 12 years later, the use of cheques ended completely. The long introduction period for new payment services is due in particular to the slow transition of consumers and companies to new payment instruments and techniques. This, in turn, is due to the required investments and the frictions involved in learning new things. The situation is similar if we look at the current transition to e-invoices. Service providers' stronger focus on quarterly planning also reduces the interest in taking up projects that require long-term investments and that can be expected to generate a return only after several

² For example www.fkl.fi

³ The role of various time banks and other exchange-based payment methods is marginal.

years. Long-term investment projects also involve a higher risk of uncertainty, miscalculation and surprise than short-term projects.

Solving the chicken-and-egg situation and creating a common technical network that is sufficiently extensive requires coordination of decision-making and agreement on common standards. This type of cooperation between competitors and among other market participants is necessary in network services. Cooperation can however also slow development, as necessary enhancements are delayed to protect existing products and benefits, i.e., to transfer the impacts of cannibalism and to extend the utilisation period of existing investments. Because the various parties have made investments at different times, differences of opinion easily arise on the best possible development schedule. Cooperation may also create competition-restricting structures and prevent entry into the market, in the form of, e.g., access fees to common infrastructures or terms and conditions that favour some of the existing service providers.

The protection of investments and the wish to avoid network impacts often lead – particularly in the case of larger participants – to efforts to create closed three party networks, in which the same service provider serves both the payer and the payee (versus a situation in which payer and payer use different service providers, referred as open four party networks). If both the payer and payee are customers of the same service provider, the provision of services can be kept in one’s own hands⁴. As customers rarely want to be served by several service providers, these type of practices favour particularly large service providers and easily exclude the smaller ones from the market. This creates the risk of monopoly pricing and the shrinking of competition and innovation. In Finland, examples of third-party services are the bank-specific e-payment, “payment-button” payments and the TUPAS identifiers used for customer identification. PayPal is a typical international third-party network in e-payments, and Diners and American Express are examples of third-party networks in card payments.

The establishment of electronic payments requires large investments in IT systems, and therefore the costs of payment services are mainly fixed and the payment process involves significant economies of scale. In addition to a network characteristic, this strongly promotes the creation of monopolies and duopolies. We often talk about natural monopolies because the maintaining of parallel infrastructures also creates more costs for society than benefits. The processing of payments is easily concentrated in centralised infrastructures, such as clearing houses, card transaction processing centres and joint payment networks. For example, Finnish credit transfers and direct debits are processed in STEP2, i.e., the European clearing house of EBA Clearing. Card services and the processing of card payments are also increasingly centralised internationally. A good example of a natural monopoly is the SWIFT network, which is a telecommunication network for inter-bank credit transfers and direct debits. In these types of infrastructure, the administration model is a significant factor in assessing of the impact of a strong market position.

⁴ The best international example of a closed internal network is Apple, which manages the platform and all the services provided by it, incl. ApplePay.

Customers are typically highly sensitive to price signals from payment services. Traditionally, payment pricing has been characterised by hidden pricing and cross-subsidisation. Transaction costs have been covered by wide interest rate margins, the processing times of payment transactions have been kept long, to increase the amount of float revenue⁵, and interchange fees have been used to transfer the costs of the payer's bank to the payee's bank in connection with, e.g., card payments, cheque payments, and in some countries, direct debits. In Finland, interchange fees were introduced extensively only in connection with migration to international debit cards. Retailers have had the possibility to introduce payment transaction-specific pricing, but they have rarely done so, except for some internet services. On the other hand, hidden pricing has boosted the popularity of electronic payment.

From the perspective of users, the basic features of an efficient payment process are:

- user-friendliness, e.g. easy to adopt and use (intuitivity)
- reliability and security
- cost-efficiency and inexpensiveness
- speed
- for companies: effective integration with customer processes underlying the payments, e.g., tender, order and invoicing processes.

Users of payment instruments consider payment a necessary evil. Inexpensiveness and user-friendliness are therefore significant factors affecting the selection of payment method. Making payments is also related to the feeling of personal financial security. Studies show that reliability and security is one of the most important criterion in the selection of payment method. In addition, in terms of the automatism and efficiency of companies' financial administration, the effective integration of payments into the financial administration process – and even the enterprise resources management process is a significant advantage.

Because banks and retailers do not use transaction-specific or cost-based pricing vis-à-vis the consumers, the actual differences in the costs of various payment methods remain undetected by end-users. The customers do not get an idea of the cost-efficiency of the various payment instruments. On the other hand, it is very difficult to assess the actual costs of payment methods according to uniform standards. Customers act in a way that is appropriate for them and often favour, e.g., closed payment methods that offer attractive additional benefits. As a result, customers' use of payment methods may be sub-optimal in terms of social efficiency.

Due to the above-mentioned factors, open competition does not necessarily work in the market for payments; instead the markets are unstable and the pressure for change builds up. Authorities have sought to correct this

⁵ Float income refers to the interest income going to the payment service provider during the settlement period of the payment transaction.

imbalance with multi-level regulation. Changes often happen in waves, and authorities step in only when the backlog of pressure for change has become significant.⁶

⁶ For example, regulation of the SEPA transition period and of the interchange fee for card payments.

3 Assessment of the current state of payment services used by Finns

In the conduct of its tasks, the Bank of Finland uses, in addition to the oversight principles⁷, five criteria for assessing the social efficiency of Finns' use of payment services. This criterion includes the technical efficiency of payment systems and methods, service nondiscrimination, price steering, preparation for various risks, and international compatibility. The sixth criterion involves other aspects of efficiency, i.e., security and reliability.

The first criterion is **technical efficiency**, which concerns economies of scale, speed and inexpensiveness. Finland is considered a forerunner in this respect. Statistics compiled by the European Central Bank (ECB) show that as regards electronic payments, Finland is a forerunner in both credit transfers and card payments via payment terminals. In addition, Finland has systematically migrated to electronic invoicing. This enables the automatic transfer of invoice information to the payment order: in the case of companies, using banking software, and in the case of private customers, to the online bank. Companies, in particular, can take advantage of electronic invoicing and the information transferred in the payment process in the automatization of its financial administration.

To sum up, it can be said that the level of technical efficiency is in Finland excellent in many respect. However, Finns do not have at their disposal sufficiently good online payment methods that are suitable for the changing ways of making payments⁸. The payment services used by private customers and companies have to be developed further, as business transactions increasingly take place in information networks. This report therefore focuses on alternatives for eliminating the frictions in these payments.

⁷ http://www.suomenpankki.fi/fi/rahoitusjarjestelman_vakaus/infrastrukturi_valvonta/Pages/default.aspx

⁸ Domestic bank-specific online payment is problematic for retailers, and it does not meet the challenges of cross-border e-commerce. The services provided by international card systems are not available to everyone, and they are often expensive and difficult to use.

The second criterion for payment systems efficient for society is **service availability and nondiscrimination**. Under the current Credit Institutions Act, all customers have the right to basic banking services. Realization of this right is supervised by the Financial Supervisory Authority. In the 2013 survey on basic banking services, the Financial Supervisory Authority expressed its concern about the weakened availability of basic banking services in some areas and for some customer groups, even though as a rule, the services are still readily available. The results of the spring 2014 survey show that alternative services have possibly replaced the services no longer offered at bank branches. The availability of cash, in particular, is improved by the possibility to withdraw cash at grocery stores in connection with making purchases, if the cash situation of the store allows it.⁹

At its best, new technology that is employed intuitively, e.g., in a mobile phone allows persons who are unable to conduct online business with current computers and applications to conduct online business. Despite all the technological advances, there are always situations in which the best and maybe also the only possible user interface is another person. With the help of information systems, personal services can be provided efficiently to those who need it. Submitting paper invoices to the bank in an envelope for payment is still the best method of payment for some customer groups.

Price steering, i.e., pricing that promotes the use of efficient payment methods is the third criterion for payment systems. People are sensitive to price signals when they select a payment method; no one wants to pay for the use of a payment instrument. Cost-based pricing, i.e., the principle that prices charged for services should reflect their production costs, have long been considered an indicator of efficiency. In the case of a necessity such as payments, the situation is not so simple.

In Finland, banks have offered electronic low-price payment services; initially the aim was to save the costs of manual payment service centres. Service fees were not a barrier to the use of online banking services or payment cards in Finland, in contrast to countries where the high (cost-based) pricing has restricted the use of electronic payments. Nowadays services are usually packaged so that customers feel that for a monthly service fee, they get all the payment services they want. The Finnish way of pricing is perhaps not the orthodox way, but from the perspective of the customer and payment efficiency, it has produced mainly good results.

In addition to electronic payment, cash is still used in physical trading. Cash is legal tender, and therefore consumers are not charged for using it. On the one hand, cash is an alternative for card payment which has been suspected of unreasonable pricing. On the other hand, society must have a method of payment that is non-discriminating and available to everyone – such as cash.

The fourth criterion for services is **high usability in all circumstances**. This refers to smooth operations in normal circumstances but also to functionality in unexpected situations. For unexpected situations, financial institutions must have extensive contingency arrangements, and they must prepare for extreme exceptional situations. The

⁹ In Norway, experiences from this practice have been positive, and therefore the model would probably suit also Finnish consumers.

realisation of risks is always a surprise. Therefore preparations have to be made also for risks that in the current situation seem unlikely but which, if materialised, would have a significant impact on the ability of the Finnish society to operate in an orderly manner. An internationally compatible payment system does not mean that contingencies do not have to be made for situations in which international systems are not available for some reason or another.

Overall, payment systems significant for Finnish society and the payment methods and services thus provided meet the requirements of society. Further development is needed in online business and contingency arrangements.

The fifth criterion is **international compatibility**. Timely migration to the Single Euro Payments Area (SEPA) reflects an ability to react to changes in the operating environment and an understanding of the benefits of standardization. Finnish payment service providers as well as end-users utilise all aspects of European standards and payment systems. The EU's regulatory framework and international standards enable market participants to exploit competitive markets more extensively than domestic markets. Now that also other European countries have in practise adopted the single European standards, we should expect a more extensive integration of payment-related systems and greater realisation of economies of scale.

In addition to the five criteria mentioned above, **security and reliability** play a key role in the current electronic environment. The security of payment systems is the sum of several factors: individual service providers, clearing house, settlement, and data links between them must interoperate smoothly. Significant threats arise in connection with information security and cyber threats: the risks of a system based on data communications and digital data are totally different than before. The risks must be assessed on an ongoing basis, using updated threat scenarios. At the same time, payment transfer and processing is tiered, and the production chain involves several participants (particularly compared to the previous domestic bilateral operating model between banks). Staff and organizational changes and strict cost discipline easily lead to a situation in which management of the overall process deteriorates and all the functions significant for risk management are not maintained.

4 Trends that are changing payment

4.1 Social megatrends important for payments

A trend report¹⁰ by the Finnish Innovation Fund Sitra examines changes that have a global impact on society and are important also for Finland. The most common trends are digitalisation and the transfer of operations to networks. The increasing popularity of online shopping is one of the most important changes influencing the development of payment methods. Of these trends, the working group identifies the following as most significant for the development of payments: Fragmentation of society due to major changes in the economy, production and labour; digitalisation, which leads to increasing volumes, utilisation and real-timeness of data; and demographic changes, particularly those related to age distribution. In the following, we examine these megatrends from the payments perspective.

4.1.1 Fragmentation

As a result of fundamental changes in the economy and production, long-term, established careers are no longer customary, and people are increasingly self-employed, work in various networks and earn a living from several part-time jobs. The start-up culture and self-employment are spreading. This leads to a situation in which, instead of a traditional monthly salary, a person's disposable income consists of regular and/or irregular income flows, and the payer may be a company or a private person, paying on an ad hoc basis or as anticipated. This may have an impact even on the total amount of payment transactions. The current types of recurring payments do not fulfil these requirements. They must be supplemented by payment methods that are more suitable for one-off ad hoc payments.

Irregular forms of working, linked to various networks, lead to new types of communities, which reflect 'global localisation' – groups of like-minded people. In these communities, people are ready to use new modes and instruments of exchange.

Various local and virtual currencies will probably become increasingly popular. The digitalization of the economy – and the entire world we live in – creates the need for a virtual currency or payment method. Delayed payments based on payment card data and used only for payments between retailers and consumers does not enable virtual payment. Digital work is performed immediately, and therefore payments too must be immediate. Developments in one sector create expectations in other sectors. People's expectations and hence the world become more real-time oriented.

¹⁰ <http://www.sitra.fi/uutiset/tulevaisuus/sitran-trendilista-2013-2014-valmistui> (in Finnish only).

4.1.2 Exponential growth in the volume of data

As the world becomes increasingly real-time the amount of data used also increases. Not only people who are operating simultaneously in several networks (work-related intra and extranets, social media) but also objects and equipment are connected to the internet. All network communication leaves a trace that can and will be recorded. The cost of data storage space is nowadays extremely low. It is no longer necessary to store data locally; the majority of data is cloud stored. As much as 70% of the new data is produced by consumers – according to Google CEO Eric Schmidt, every two days we create as much information as we did from the dawn of civilization up until 2003¹¹.

The question is, where is all this data used and how can it be managed. So-called big data creates a number of threats, but also opportunities. A person's identity becomes his most valued possession. The question of data ownership is already now acute and is waiting to be resolved.¹²

Utilisation of data, at the consent of the person in question, enables the combining of purchase and payment data with liquidity, health or consumer habit data, and hence the provision of new types of real-time services that support, e.g., a healthier way of living or a better management of finances, as well as the provision of real-time data on a person's financial situation and liquidity position. The financial sector should also have the opportunity to develop these types of added-value services for their customers. They could also be an incentive for the industry to develop payment systems further.

The use of confidential data is not unproblematic. Currently, confidential data on the payer is transferred with each electronic payment transaction, which as a result of multi-level processing is stored in several data storage places. The media regularly reports, e.g., thefts of payment card data. The more personal data is compiled, the more vulnerable a person becomes, unless the procedure for identification of a person is developed further. Payment can be facilitated and payment security improved by unique personal identification, which enables, e.g., biometric payment without the need to give personal identity data to be stored or transferred to retailer or payment networks. In this case, the payment service provider could verify a person's identity and combine the identity data with data required by the payment service, without the data being stored in several data places. The key question for society as a whole is how to protect a person's identity in a digital environment.

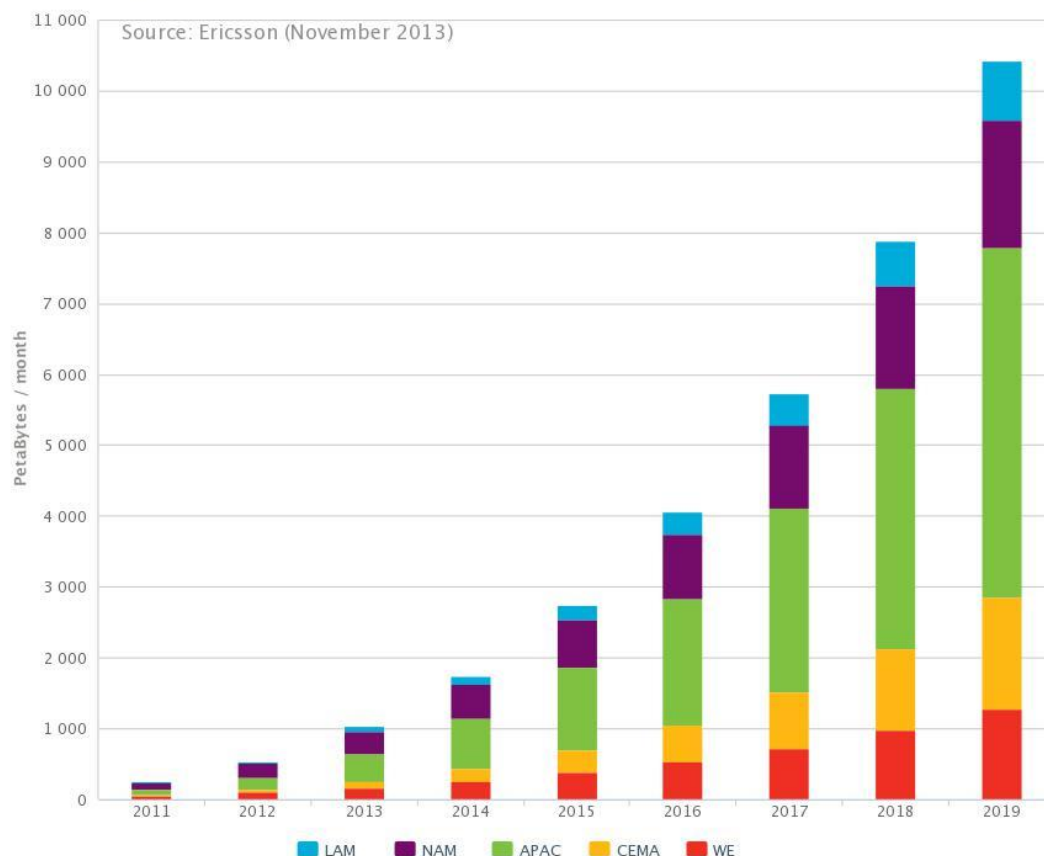
¹¹ See <http://techcrunch.com/2010/08/04/schmidt-data/>

¹² See a report by the Ministry of Transport and Communications at <http://www.lvm.fi/julkaisu/4417803/big-datan-hyodyntaminen> (in Finnish only).

Chart 2. Growth in the volume of data produced and sent with smartphones

Data Traffic – Smartphone

in All Technology



Source: Ericsson Mobility Report 2014.

4.1.3 Demographic changes

In a society with an upside-down population pyramid, there is an increasing number of 'super senior' citizens who have both the ability and willingness to lead an active life. On the other hand, the challenges of ageing, as the ability to function decreases, are also reflected in the way we make payments. Payment solutions should be intuitive, so that learning and using a new technology does not become a barrier to using a payment method. Biometric identification and payment methods are easier to adopt than those based on various equipment and system requirements. User-friendliness is important for everyone, but whereas the open-mindedness of the younger age groups enables experimentation with various types of equipment and methods of payment, for older people these new equipment and methods may become a barrier to payment, which could increase the fragmentation of society.

The ageing population has used e.g. direct debit/direct payment more than the other population groups. Even though recurring payments from one account to another have been excluded from this study, their usability and particularly their availability must be examined critically.

4.2 Industry trends

4.2.1 Importance of bank accounts and changing position of banks

The providers of digital services are interested also in payment services. Payment systems that have traditionally been owned by banks are threatened by many competitors, such as the internet giants and various start-ups. Amazon has developed the famous '1-Click' payment method within its online shop, Google is actively marketing the mobile wallet, and PayPal, with its e-mail based payment transfers, is an extraordinary success story. Both Apple and Facebook have set their eyes on payment services. Many start-ups have succeeded in areas formerly dominated by large and established companies. An example of such an area is mobile payment terminals¹³.

A typical characteristic of a financial technology start-up is that it focuses on a very narrow special area underestimated by companies dominating the payments market, e.g., banks and those responsible for processing payments. If successful, these start-ups can provide flexible services, but they may also fragment the payment markets. Those who usually suffer the most are retailers because they have to adapt and implement various types of payment methods. Many start-ups also employ the strategy of price skimming, particularly in pricing for retailers: they do not usually adhere to the money laundering and other monitoring requirements that banks are subject to, and they are not always supervised.

Even chip-based credit card payment is undergoing changes: NFC mobile payment is based on a physical chip, but in February 2014, Visa and MasterCard announced that they will support non-physical payment based solely on software.¹⁴

The development of payment methods is private sector business. Electronic payment services are based mainly on a bank account. Other forms of payment require the transfer of funds from a bank account to the payment service provider's receivables ledger or into cash. Confidence in a bank account is strong in many countries. The Payment Accounts Directive will provide all European consumers access to payment services. The income flows of the majority of people are concentrated and limited, and therefore distributing them to several places/accounts is not reasonable in terms of the use of funds. Funds that are set aside for saving are often transferred to a separate savings account.

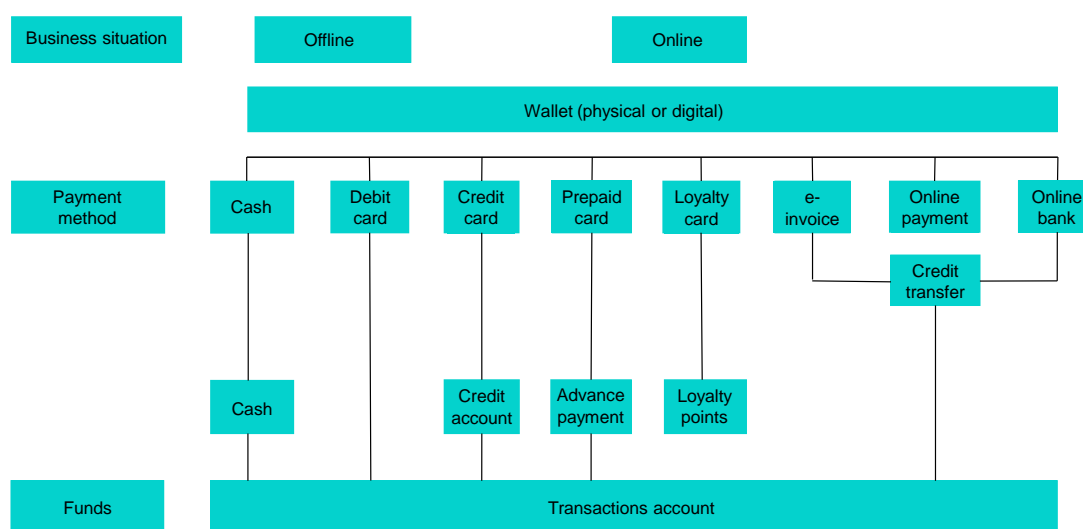
¹³ iZettle, Payleven, Square

¹⁴ <http://www.androidauthority.com/everything-need-know-host-card-emulation-347626/>

The problem in the business logic of new payment methods is often that new participants enter the current value chain, but the returns in the value chain do not increase. This means that, e.g., the developer of a mobile payment application may need the help of the equipment manufacturer and the operator to be able to provide the service. In addition, the payment method must be linked to the customer’s basic payment account (either directly or via a credit transfer mechanism). As end-users are very price price-conscious, it is difficult to see how all the members of the value chain could obtain sufficient income flows.

Due to the current types of payment flows and the trusted position of banks, banks continue to hold a strong position in the provision of payment services (Chart 3). The situation may change if the structure of payment flows changes radically and the receipt and consumption of funds take place in separate networks. Another possible force for change is banks’ withdrawal from the development of online payment, so that they would only be the source of the ‘raw material’, and card companies or third parties, such as internet or social media companies would take over in the payments function.

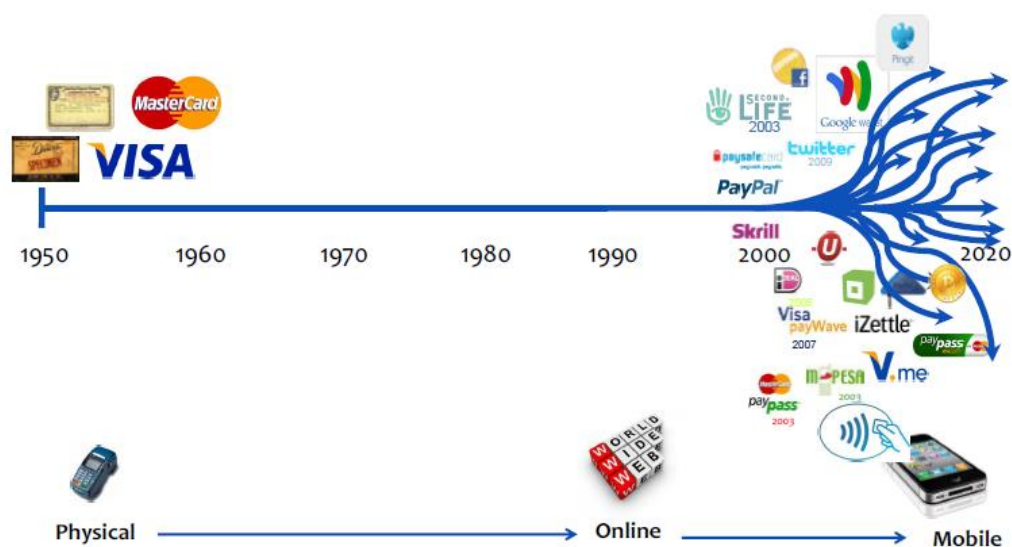
Chart 3. The variety of payments method



Sources: Equens, Pay Square and Innopay together with Bank of Finland.

Banks are in a key position as keepers of accounts and providers of customer identification. They however have to decide what will be their role in the production of future services: they must either develop their own services or relinquish the standardisation interface for account usage to third parties. Currently, most of the service development is done by international payment card companies.

Chart 4. Fragmentation of payment



Source: Nets.

(Chart 4) also nicely illustrates the dispersion of online business into various types of equipment and the growing importance of such equipment in digital trading¹⁵. The laptop has already replaced the tabletop computer. Current smartphones have more processing and memory capacity than tabletops 20 years ago. Tablets have become increasingly widespread, and with the help of applications (apps), the use of tablets has become smoother and easier. The telephone feature can be considered an additional feature of mobile equipment – the majority of people use a mobile more as a computer than as a telephone¹⁶. In addition to a telephone, the English word 'mobile' nowadays refers to, in general, a portable data terminal, and therefore tablets and other portable equipment are referred to as 'mobile'. PayPal reported that 2012 was a turning point: the amount of payment transactions executed via mobiles exceeded the amount of transactions made via desktop or laptop computers.

According to a survey by Accenture, full-service banks (collectively) could lose around 35% of their market share by 2020, due to changes brought on by digitalisation.¹⁷ Banks' payment services are thus experiencing the same types of changes that newspapers and the music industry have already faced: technological advances cause major changes in consumer behaviour. We are already witnessing 50% growth in mobile banking transactions and 100% growth in mobile payments.

¹⁵ "70 percent of mobile searches lead to action within one hour. It takes a full month for the same percentage of desktop users to catch up." Source: MobileMarketer.com

¹⁶ FierceWireless.com reports that Cisco projects 18-fold growth in mobile data traffic from 2011 to 2016.

¹⁷ http://www.accenture.com/us-en/Pages/insight-retail-banking-survey-2013-us-retail-banking-digital-era-summary.aspx?c=fs_usrtlbnkst_10000001&n=otc_1113

4.2.2 Regulation

Changes in competitive conditions are also due to regulation, the objective of which is, e.g., to increase innovation and competition between the various payment services and their providers. On the European level, the harmonisation of retail payments has been supported by, e.g., issuing regulations on the terms and conditions of payment services, the rights and obligations of service providers and users, and the technical standards to be used. Regulators have also intervened in the business logic of service providers, mainly by prohibiting or restricting interchange fees between providers of payment services.

Before regulation, European authorities used up all their means of exerting influence: following the sector surveys and green papers produced in the early years of the current century, the authorities moved directly to regulation because the dynamics of the markets and self-regulation did not generate the desired outcome. The latest example of the gradually tightening position of the authorities is the availability of basic payment services. EU authorities first examined how many citizens lack a bank account and payment instruments provided by banks in each country. This was followed by discussions particularly in those countries with a large number of “bankless” citizens. As the situation did not improve sufficiently, the European Commission issued an EU-wide recommendation on the provision of basic banking services to consumers. Because this alternative also had only a minor impact, in spring 2014 the European Parliament adopted a directive that requires that all EU citizens must have access to basic payment services at reasonable terms and conditions.¹⁸

Payment regulation also covers rules and regulations on the prevention of money laundering and terrorist financing, and the monitoring of financial sanctions. All these require that financial institutions take strict measures; if they fail, they risk losing their authorization. Transaction-level monitoring requires efficient and intelligent systems, and their acquisition and maintenance is expensive. Banks’ operations are restricted also by other banking regulations, e.g. capital adequacy requirements. Regulation therefore forces payment services into a certain direction while weakening the industry’s ability and willingness to innovate and invest.

4.2.3 Consumer behaviour and expectations

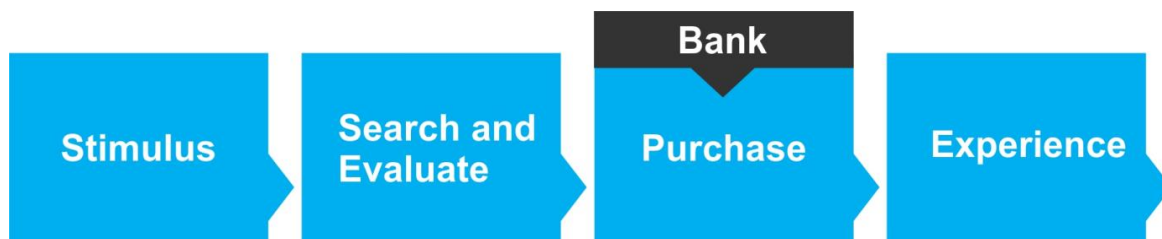
Consumer behaviour is also at a turning point, which is reflected in expectations about payments. The change is related to general trends in society, progress with digitalisation and changes in practices enabled by the latter. Public and private services are transferred to online provision to enhance both cost efficiency and availability. Services are easily provided across borders, and the most successful online shops are those that can offer the best customer experience irrespective of a store’s location. In fact, with respect to location, the only important factor in goods trade is the location and efficiency of the logistic centre. As regards intangible goods, e.g. media consumption, consumption based on ad hoc decisions is increasing. The youngest age groups have been the fastest

¹⁸ http://europa.eu/rapid/press-release_STATEMENT-14-123_en.htm

to switch to online shopping and services. The newest trend also points to online shops' willingness to open brick-and-mortar stores, so that it is still difficult to estimate when the development will come to an end.

In a traditional shopping process, the payer's role has been limited to 'checkout', i.e. making a payment. This has been preceded by a purchase stimulus and search for and evaluation of the product to be purchased – all stages that do not involve the payment instruments provider in any way. The consumer also has to separately check that they have enough funds available and make sure that the receipts and warranties are valid. This traditional role of banks is depicted in the Chart below (Chart 5).

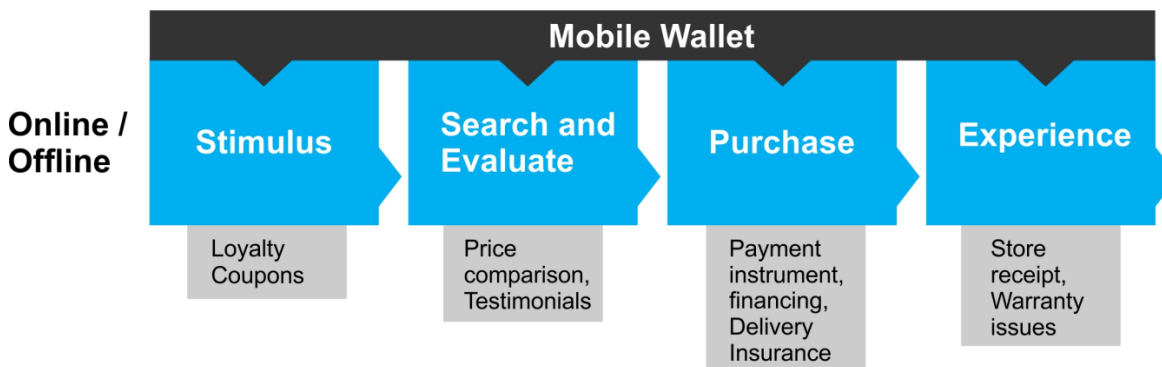
Chart 5. Traditional shopping process



Source: Mobey Forum.

Consumers who make use of real time and different mobile devices see the shopping process as a continuum in which the whole process can be steered by a mobile device and its application(s), which also easily enable the payment transaction. The term **mobile wallet**¹⁹ can be used to describe such an app or group of apps that integrates the whole consumer experience seamlessly from selection and comparison to purchase, receipt and warranty.

Chart 6. Shopping process as a continuum



Source: Mobey Forum.

Even though the new form of digital shopping has been evident since the early days of smartphones, service provision has not yet changed. Apps that steer the shopping experience have gained ground only gradually and

¹⁹ Mobey Forum defines mobile wallet as a 'functionality on a mobile device that can interact securely with digitized valuables'.

with restrictions, and very few apps interoperate with the actual payment process. Despite the obvious advantages, there is no owner for the process integration in whose interest it would be to invest in it. This shortfall is particularly apparent in paying for media consumption, but areas for application are innumerable. The situation could change if and when online merchants and social media participants recognise that interoperability is a source of competitive advantage, i.e. that it is especially in the interest of commerce to invest in better payments.

Confidence in banks is still strong, and regular payments flow via bank accounts. Studies²⁰ show that consumers still perceive banks and credit card companies as the most reliable payment instruments providers. A surprising number of consumers would also trust in Apple and Google which, with their mobile wallet solutions, are taking on the role of traditional banks. Banks' interaction with customers will change markedly if consumers begin to make payments and manage their other financial matters via internet or mobile giants' wallet models.²¹

²⁰ For example according to Ovum's Consumer Insights Survey 2014, 43% of respondents chose banks as the most reliable providers of mobile payment services. Banks were followed by credit card companies (13%), online payment service providers (9%) and mobile operators (6%).

²¹ So far e.g. ApplePay is dependent on international credit card companies' infrastructures.

5 Payment frictions

Frictions in payments can be analysed in several dimensions, such as type of payee and payer (company/private individual), distance (remote/proximity payment), and the urgency and frequency of payments (recurring/one-off payment). One major source of friction is the lack of intuitiveness in user interfaces for payment services. Making a payment requires the customer to both know the app and to take a number of steps to complete the process. This impedes, in particular, the possibilities of persons who have physical or other functional disabilities. Factors causing frictions in various payment situations are outlined in (Table 1).

Table 1. Friction in payment situations

	Frequency	Proximity	Explanation	Remote	Explanation
P2B	Recurring			😊	E-invoice via online banking
	One-off	☹️	Payment authentication, online banking No micropayments.	😐	One-off e-invoices: storage of payment data on service provider's servers involves risks.
P2P	Recurring		To replace cash	😊	Recurring payments via online banking
	One-off	😐	To replace cash	😐	Payment transfer via online banking, but real-time payment? Laborious.
B2P	Recurring		Credit transfer, anticipated	😊	E.g. payment of wages via online banking
	One-off		Credit transfer – Not in real time	😐	Time and process costs

Frictions experienced by payer and payee, outlined in the Table above, are described further in (Table 2).

Table 2. Description of friction in payment situations

Payment situation	Friction
Services, shopping and payments online	<ul style="list-style-type: none"> • Many different payment methods, merchants need to adapt, e.g. credit cards, payment by bank account, card payments, PayPal, limits user groups. • Storage of confidential information on servers of webshops and providers of transfer services. Information security risk. • No micropayments (e.g. ad hoc media content) • Multi-step shopping experience: registration with webshop, payment service provider and verifying party (Verified by Visa/MC SecureCode).
Payments between private individuals/micro enterprises (P2P, person-to-person payment). Usually small sums, e.g. hairdresser's, splitting of taxi fares. Ticketing	<ul style="list-style-type: none"> • Credit transfer the most common alternative • No alternatives for micropayments • Introduction of (closed) mobile payments by some banks²²
Physical store/Card payment	<ul style="list-style-type: none"> • Insecurity of card information, payment situations • Dominance of international card companies: no alternatives from the perspective of commerce • Slow, payment authentication vs. settlement of funds

It is surprisingly difficult to make a payment online compared to payments at physical stores.²³ Most shopping sites require the customer to first log into the service, and only after that can the customer select the product and pay for it. Paying involves typing of payment data and often also authentication of the payment transaction over a bank's authentication service. Micropayments required by the media and other digital services are still completely underdeveloped (payment walls). According to the logic of the sector, micropayments do not generate such revenue or savings that would justify much investment.

²² Danske Bank's MobilePay in Finland since December 2013.

²³ See simulation of online checkout at a traditional cash register: <https://www.youtube.com/watch?v=3Sk7cOqB9Dk>.

Considering payment frictions described above, attention is especially drawn to the amount of work involved in e-payments in person-to-person (or person-to-business) transactions and the fact that, in e-payments, customer information is registered and transferred in information networks between several parties within the value chain. The basic form of a P2P payment is cash payment, which is quick, unambiguous and final, occurring here and now irrespective of whether the sum is few cents or hundreds of euros. Sharing of confidential information generates an information security risk, as sensitive data on the customer and payment instrument alike are distributed widely and without always sufficiently ensuring information security, despite efforts within the sector to do so.

6 Conclusions and proposal for further work

According to the working group's assessment, payment transactions are generally smooth in Finland. Payments are processed utilising European standards, which ensures efficient processing. As a rule, the security level of payments is good and basic payment services operate in a reliable manner.

Frictions in Finnish and global payments primarily relate to the lack of payment apps that are suitable for online use, sufficiently secure, intuitively user-friendly and genuinely digital. Such payment methods are needed particularly in P2P (or person-to-micro enterprise) payments, irrespective of the amount to be paid. The development involves path dependence, and current developments – or the lack thereof – in payment habits and systems are affected by the following factors:

- Saturation of payment markets, i.e. new services take away customers from the existing ones
- Difficult penetration of innovations into the market e.g. due to dominance of large international card companies
- Large investments necessitated by development and introduction of payment methods and systems
- Lack of unambiguous customer authentication that can be used by all parties and is guaranteed by a third party.

The working group analysed trends that are changing payments transactions and concluded that increasing regulation of payment services and the banking sector in general further impedes the banking sector's willingness to invest in long-term development projects. Fragmentation of society may lead to an increase in one-off P2P payments. It is a given that the real-time feature of the digital world is also required for payments. If it is not possible to use such payment methods in a controlled environment (e.g. bank account and controlled payment systems) people are prepared to adopt alternative payment methods (e.g. social-media payments, virtual online communities). The flip side of development may be that digitally illiterate persons easily fall out of the reach of all payment services.

The working group assessed factors underlying payment frictions and identified four potential areas for positive development:

1. Standardisation of interfaces of the payment proposal and of infrastructures, to open up markets for services that are designed from the perspective of the customer and shopping situation
2. Customer authentication provided by a trusted third party

3. Focusing of regulation separately for payment instruments and infrastructures
4. Rules on the use of so-called big data also for the banking sector.

6.1 Standardisation of payment proposal

Standardisation can increase competition in mature markets where new companies have barriers to entry.²⁴ The Single Euro Payments Area (SEPA) was designed to increase interbank efficiency and competition by standardising credit transfer and direct debit messages between banks. Extension of the standard to payers/payees enables customer mobility between service providers without excessive cross-over costs (e.g. technology migration) and economies of scale in processing of payment transfers. Electronic invoices, which allow information content to be directly used when the payment is made, also increase efficiency. The aim should be to create an environment of real-time-economy where information that has once been given in digital format can be used automatically where needed, e.g. order – warehouse – delivery – billing – ledgers – payment – accounts – taxation – reports, etc. Depending on the technical and functional solution, data can flow between systems of different participants or transfer in real time inside of a cloud service.²⁵

The corresponding standardisation has not been achieved with card payments that still use national or participant-specific standards for POS-transactions. There, one of the basic tasks in payment processing is to modify transactions for the receiver. The same pertains to online payments and new payment methods in the market: they always require at least the seller – and sometimes also the payer – to invest in new technical solutions. By standardising also one-off payment transactions, markets for payment solution providers can be opened up to new actors without users' investment costs becoming an obstacle.

To enhance P2P payments, an analogous approach with e-invoicing could be used: standardisation of ad hoc payments would make it possible for innovations to enter markets via a standardised interface. Standardised payment proposal would create a basis for the development of various payment apps and their implementation in the payment infrastructure, as well as for the recording of payment-related information in accordance with the principle of real-time economy, in the relevant processes and databases. The working group proposes that a **standardised payment proposal be created within SEPA payment standards** (for details, see Appendix A).

A standardised payment proposal means that the payee supplements, in a standardised proposal template, certain information on that particular payment: the amount due and e.g. the available payment methods, payment terms and conditions, delivery terms, warranties and possible additional information. The payment proposal is transmitted in a digital format to the payer who can approve the payment proposal as such, or choose from the given alternatives the most convenient payment method and conditions and then approve the payment proposal.

²⁴ Competition in the market.

²⁵ <http://information.aalto.fi/fi/research/rte/>.

The payment proposal can be created and approved via selected terminals, computer or a mobile device, in proximity and remote payment transactions.

Developers of payment methods would have incentives to offer their customers easier and more convenient ways to create, receive and accept a payment proposal if they could be sure that a standardised message operates in all payment infrastructures. According to the present understanding, it would be most natural to use payment proposals with digital wallets (e.g. mobile wallet) in which payment methods available for the user (credit transfer from bank account, debit and credit card information and other possible payment options) are integrated.

A standardised payment proposal can be created and processed with or in any terminal or digital environment – it does not limit innovation of payment apps but rather encourages it. Competition in payment apps promotes development of user-friendly payment methods. In such markets it is also possible to create supplementary services relating to payments which, in turn, help to make payment services profitable. Because payments infrastructure is inclined to economies of scale and easily leads to natural monopolies, all apps should be able to connect to existing infrastructures. For this reason payment messages generated on the basis of a payment proposal should follow the existing credit transfer standard, so that the infrastructure of the selected payment method can accept payments for transmission without separate configurations.

The difference compared to the current payment model is clear: instead of entering information on herself and the payment method e.g. over a webshop server, the payer receives a summary of her purchases and a proposal for available payment methods to her device. The payer selects the payment method and approves the payment. The payment message is created when the payment is approved. Payment message can be delivered to the payee in accord with the current model, but it can as well be delivered to the payer's payment service provider or payment infrastructure for immediate execution. The payee receives a confirmation of the payment, to the address specified in the payment proposal.

In order for a standardised payment proposal to genuinely open the market for secure development of payment apps and methods, an authentication service to verify the participants' identity, provided by a trusted third party, is required.

6.2 Customer authentication

To put it simply, making a payment involves using the funds in a customer account. The funds can be used by referring either to an account number or a card number, but in the end the **payer** – the **account holder** – always **authorises** (mandates) the transaction. The fact that personal identifiers and payment account data are registered with the transaction and transmitted via multiple participants within a payment service provider's value chain,

often unencrypted, creates a fundamental weakness in payment security. Webshops and payment processing servers are constantly subject to hacking, endangering the security of card and online payments.

The simplest solution would be to create a method for approving a payment proposal with a person's own identity that is not saved on the internet; only the authentication of the identity would be saved in the payment transaction. This would require one trusted party that unambiguously authenticates the parties to the transaction. Again, analogy can be found in the real world: in a society, the state creates and guarantees the citizen's identity in the population register centre, the identifier being the personal identification number, and a person's identity authenticated via an official ID card. Companies' customer cards or other business identifiers are not accepted as genuine IDs. The digital world requires similar unambiguous identification. However, in a digital environment it is not enough to 'show' one's personal ID. Rather, the parties need to verify their identity to each other. When such a verification is connected e.g. to a payment message, all parties involved in processing the payment message can trust that the transaction is made by the parties between whose accounts it is to occur.²⁶ Unambiguous digital authentication promotes innovation not only of payment apps but also of all digital services.

There are several techniques to authenticate digital identity, and the working group does not take a stand on these. An EU project has been ongoing for a number of years to create an electronic identity for all Europeans, which can and should be used in dealing with authorities in any of the EU countries. Finland should introduce, without delay, such a **digital identity for citizens** that genuinely supports citizens' activities in a digital environment.²⁷

6.3 Focusing of regulation

Regulation relating to payments focuses in many respect on improving the security of payments. Provision of payment services necessitates at least payment institutions' authorisation, and terms, conditions and responsibilities relating to payments are defined in detail e.g. in the Payment Services Directive. Many other regulations apply on top of these. This has led to the possibility for developers of new payment methods in initial stage to be less disciplined than service providers that have already become established. However, in order to expand, new participants must apply for an authorisation and fulfil all requirements e.g. on the prevention of money laundering and terrorist financing, and on the control of financial sanctions. By contrast, global actors can circumvent all regulations, if they wish to do so.

Focusing of payment regulation selectively on payment methods or infrastructure would help to support particularly the development of payment apps used by consumers and commerce. Regulation should consider at which phase of the value chain or payment process it would be most effective. With respect to e-payments, three layers are identifiable: provision of digital wallets, provision of payment methods and transfer of payments

²⁶ With the increasing popularity of digital services, it is necessary, in terms of confidence, that both the service provider and the user verify their identity to each other.

²⁷ The e-ID used in Estonia will be made available also for non-Estonians.

(infrastructure). Many of the controls required by regulation are most effective when they focus on the infrastructure. By contrast, the requirements on digital wallets relate especially to the security of their design and use. The terms and conditions of payment methods are already effectively regulated by the Payment Services Directive.

In practice, it is difficult for consumers and businesses to know whether a new payment app and services offered to them are secure. Especially in developed countries where there is much confidence in supervision by authorities, it can easily happen that authorities are believed to supervise also new services, even when this is actually not the case. To help end users to evaluate the situation better, authorities should communicate more openly about their assessments of the various payment services. A kind of a 'control mark' could also be worth considering.²⁸

6.4 Use of data

The ongoing debate in society about the collection and use of data on individuals is closely related to the development of payments. The principles relating to the ownership and use of data are yet to be established. It is essential to provide a level playing field for all parties to develop their services on the basis of available data. At present, banks' possibilities to develop value-added services on the basis of customer data are regarded with suspicion. Responsible use of data requires awareness and consent by the subjects. The working group did not discuss in detail the current considerations of the Ministry of Transport and Communications on the use of so-called big data. However, the working group was of the opinion that Finnish decision-makers should work for EU regulation that sets rules concerning data that honour individuals' legal and data security and provides a level playing field for commercial actors.

6.5 Other factors: real-timeliness and provision of payment services

Digital services and functions are offered in real time, regardless of the time and place. It is difficult to understand why the related payment transactions do not occur in real time. In the end, however, real-timeliness must be defined separately for end-customers' user experience and settlement of payments in infrastructures. From the end-customer's viewpoint, the transaction occurs in real time when the customer receives an irrevocable payment confirmation and the availability of funds has changed, even if the final settlement would be delayed. Real-timeliness is most genuine if the whole process occurs in real time (e.g. Faster Payments, SWISH). Such real-time settlement systems are expensive to build and maintain. In the same vein, payments that are usually known of in advance (recurring credit transfers and direct debits, which account for almost half of all payments) do not require real-timeliness.

²⁸ For example, the Financial Supervisory Authority maintains on its website a list of the payment service providers it supervises.

Another way to achieve real-timeliness from the payer's and payee's perspective is via authentication of the payment transfer. In case of an authenticated transfer, the payee receives a commitment from the payer's payment service provider ensuring that the covering funds will be delivered. The amount of the covering funds can be taken into account in calculating the payer's available balance. The transfers and covering funds can be transmitted between the payment service providers in batches, e.g. 5 times a day as per the current model. It is much simpler to build e.g. controls required by risk management for such batch-based processes. In this context, the working group highlights the concept of **right-timeliness** (vs. real-timeliness) where the service level and underlying infrastructures are synchronised optimally from the perspective of both processes. The model also supports updating of digital data according to the principle of real-time-economy, enabling all participants in the process to optimise their own activities.

The proposals presented in this paper would enable creation of a competitive payment market. It is evident that banks' dominance in payment services in its current form will not last. The sector's internal logic and external conditions do not support innovative investment that favours the specific needs of different customer groups. Other companies – startups, social-media companies and virtual communities – will enter the market. This could lead to a total disintegration where confidence in payment services may be jeopardised. Neither national nor EU law can tackle global phenomena. Therefore, it is more efficient to change the operating conditions and rules in the sector so that competition takes place within the framework of secure and reliable payment services. The working group is of the opinion that the four principles presented above would move development in the right direction.

Appendix A: Payment proposal

Electronic invoices and their integration into the payment process provide a framework for one-off payments as well. In one-off payments, information related to the payment is generated during shopping where interaction between participants leads to an agreement of the purchase and payment. Hence, an e-invoice should be generated on spot and real time. This ad hoc information as a basis of a one-off payment means the generation of a payment proposal. Transfer of a payment proposal in digital form to the payer's payment app enables flawless data transmission, reduction in manual work phases, faster overall processing and development of added-value services. The payment proposal fits the needs of commercial deals, orders or e.g. less formal compensation between private persons or donations.

Digital environment calls for digital payment instruments. The most promising development is seen in so-called mobile wallets, i.e. apps in which consumers can download their preferred payment instruments. There are various kinds of mobile wallets available, but the working group did not separately study their functioning or message formats. In fact, today, many mobile wallet payments are actually card payments. In mobile wallets, application-based payment methods work best and, combined with secure user authentication, they create a platform for payments where confidential information on the payer may not need to be provided to the payee. Instead, the payment service provider would send a payment confirmation/settlement to the seller, after having received for execution a payment proposal approved by the payer.

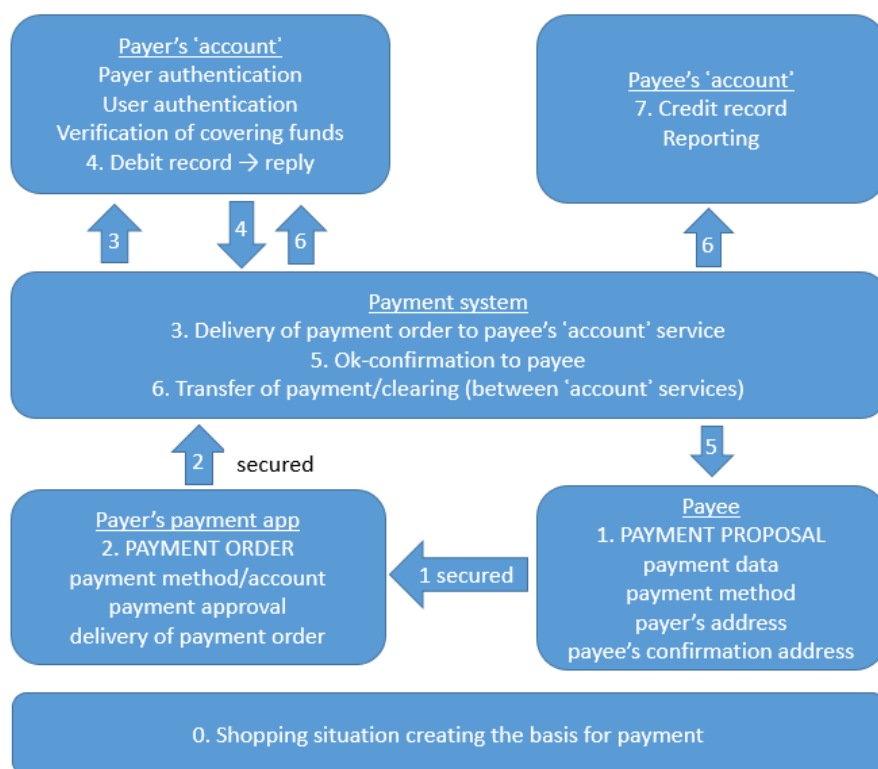
The payee has a real interest in getting the payment executed as smoothly and securely as possible. Payments should therefore be integrated into the selling process as well as possible (from the perspective of both payer and payee) so that the payment process would support shopping. The payee also has all information relating to the payment amount and reconciliation. The payee can compile all this information and use it to generate a standardised payment proposal which the payer can receive in their own payment app. In the case of consumers, the payment can be received in a mobile wallet, which can offer several payment methods to choose from, such as e.g. credit card or direct debit. In business-to-business transactions, a payment proposal would generate an e-invoice and electronic credit transfer.

In addition to information on the payment itself, a payment proposal may also contain a proposal for applicable payment terms and conditions, such as due date, payment method or other contractual terms.²⁹ This enables e.g. different pricing for different delivery times and payment methods. By approving the payment proposal – and by choosing within the payment proposal the desired payment terms and other conditions – the payer can send the payment transaction directly to be executed in their service provider's systems. Depending on the chosen payment method, the covering funds can be transmitted in real time or the payment can be authenticated.³⁰

²⁹ The same process and model could also be used to deliver a direct debit authorisation for approval.

³⁰ The contents of a payment proposals could make use of the existing international XML standards and their 17 elements.

Chart 7. Payment process enabled by a standard payment proposal

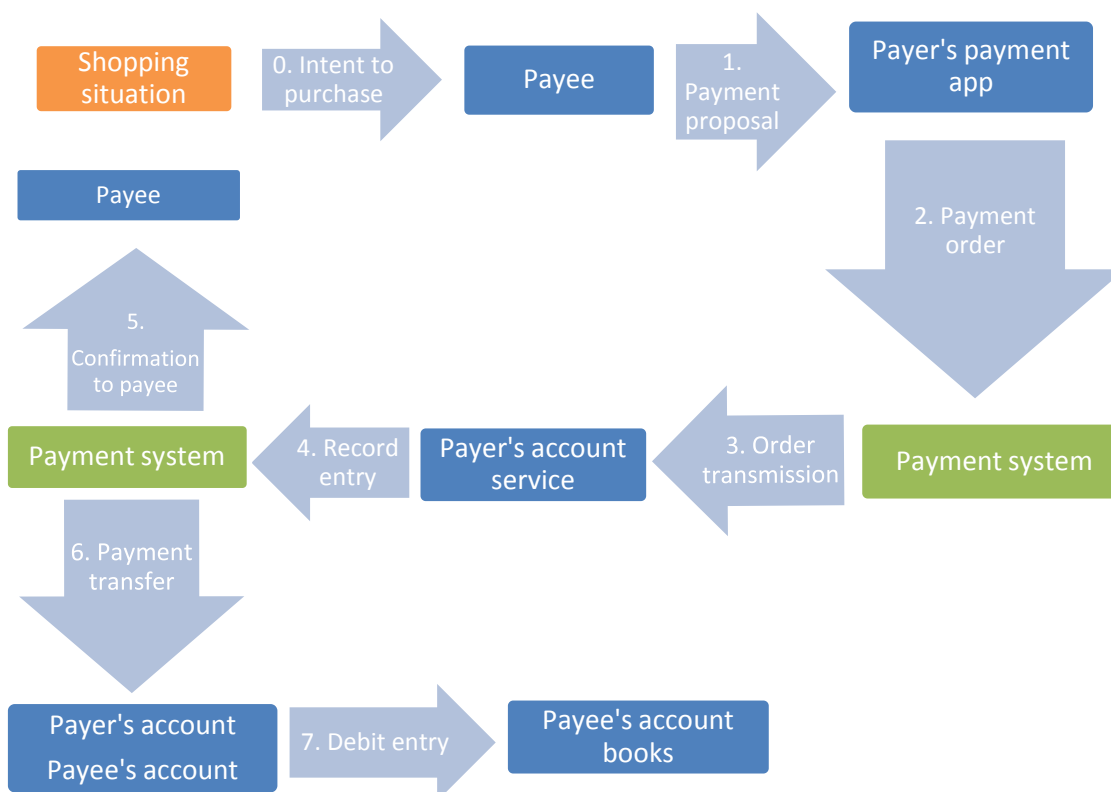


Source: Working Group of the Payments Council.

0. In a **shopping situation** that creates the basis for a payment, the payer has a purchase **intent**. This stage already creates a lot of data, e.g. product choice and delivery time and address. Some level of authentication is needed already at this stage.
1. **Payment proposal**. The payee (merchant) creates a payment proposal on the basis of the payer's purchase intent and sends it to the payer's payment app.
2. **Payment order is created** when the payer accepts the payment proposal sent by the merchant in their payment app. At the same time, the payer chooses the payment instrument. The payer must have at their disposal a payment method that is also accepted by the payee. The more payment methods each party has, the greater the likelihood that the payment can be made. A payment order is sent from the payer's payment app to the payment system.
3. **The payment order is transmitted** to the payer's account service where the payer is authenticated and the availability of covering funds is checked. Account holding party may be a bank or some other service provider.

4. A **debit entry** is recorded in the payer's account (e.g. in a bank's system). After the debit entry is made, the payer's account provider sends to the payment system a reply that funds are available in the account.
5. **Confirmation to the merchant** that the payment can be executed.
6. **Payment transfer between payer's and payee's account**, i.e. the funds are transferred between the accounts via the payment system.
7. **Credit entry**. The sum debited to the payer is recorded in the payee's account (e.g. in a bank's system) and the payment is recorded as having been executed.

Chart 8. Flow chart of payment process enabled by a standard payment proposal



Source: Working Group of the Payments Council.

In many payment situations it is important that the payer can prove forthwith that the payment has been made. A payment proposal created within the payee's process contains payee-related data and the address for confirmation of payment. These data need not be supplied to the payer in visible format. Instead, the data are transmitted between the systems electronically, and it flows from the payment proposal to the payment processor which can verify the payment also to the payee.

It is worth noting that in this context payer's and payee's account refer to any ledgers through which the payment service provider transmits the payment transactions. In other words, an account may be a credit card limit, a bank account, a separate payment account offered by a closed service provider (e.g. PayPal) or even a virtual wallet. Communication between seller and purchaser can occur via various technologies or their combinations. The same pertains to communication between the buyer's app and the payment infrastructure. It is natural that communication would be mainly wireless.

A payment proposal is an obvious and simple object for standardisation. Standardised payment proposal allows innovation in both merchant apps and mobile wallets. However, it would also be beneficial to standardise the interface visible for the merchant and the purchaser, such as the display view of consumer's mobile wallet. It would be essential to bring all payment instruments into a single interface able to communicate with merchant applications. The customer downloads payment apps from her service provider (the bank and/or card companies or other parties). Connection between mobile wallet and merchant application needs to be secure and it may be managed by e.g. wallet-provider or an issuer of payment instruments.

Standardisation would enable the payer's payment app (e.g. mobile wallet) to contain payment methods using many different infrastructures. Once the payer chooses the desired payment method, the transaction is routed to the payment service provider's infrastructure where it is processed according to the service description and terms and conditions. In this way the payer can choose, in addition to different card payment methods, a credit transfer, express payment or any other payment app in the mobile wallet. Standardised practices create the preconditions for competition in wallet apps and, above all, competition in payment services applicable for wallets. Standardised payment proposal allows the merchant to accept various kinds of payment methods without having to renew technical devices or applications.