White Paper

The Nordic Way

- a PSD2 whitepaper from Worldline Nordic

PSD2

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Ready to discuss how to develop your payment services under the PSD2 directive please contact:

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Foreword

On 12 January 2016, the revised Payment Services Directive (EU) 2015/2366 entered into force in the European Union, and will apply from 13 January 2018.[1]

The Payment Services Directive Two - or PSD2 - is one the most radical pieces of legislation aimed at the payments industry and the banking sector to see the light of day since the aftermath of the global financial crisis.

To the surprise of a great many Europeans, who used to believe that the EU system was far too bureaucratic to ever take the lead on innovation, the PSD2 turned out to be disruptive in a way a bank would otherwise only expect from some of the most innovative fintech start-ups.

Obviously, the new directive, conceived by the European Commission and adopted by the European Parliament and the Council of The European Union, did not come out of thin air. PSD2 is an enhancement and further development of PSD1, which was adopted by the EU in 2007. The Commissioner of Competition, Margrethe Vestager, said in a press release at 8 October 2015:

We have already used EU competition rules to ensure that new and innovative players can compete for digital payment services alongside banks and other traditional providers. Today's vote by the Parliament builds on this by providing a legislative framework to facilitate the entry of such new players and ensure they provide secure and efficient payment services. The new Directive will greatly benefit European consumers by making it easier to shop online and enabling new services to enter the market to manage their bank accounts, for example to keep track of their spending on different accounts"[2]

There are several new articles in the PSD2 concerning strong customer authentication (article 97, article 98, and article 74 paragraph 2), liability (article 74), fees and a general ban of surcharge (article 62 paragraph 4). However, the single most important part of the new directive and the main reason for the huge attention that it attracts, is the introduction of new roles in the ecosystem: Payment Initiation Services Providers (PISP) and Account Information Service Providers (AISP). Both roles are open for current and new player in the fintech ecosystem and – this is the single biggest news – the banks will be required to support these new service providers if the banks' customers want to grant access to their (payment) accounts as described in the directive's Article 66 and Article 67. This new practise is commonly referred to as "Access to Account" or XS2A.

1. http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32015L2366
2. http://europa.eu/rapid/press-release_IP-15-5792_en.htm?locale=en

The Nordic Angle

The approach to legislation in PSD2 is truly disruptive, and most articles and whitepapers written so far about PSD2 has been focusing on a general view of the consequences of this novelty within the European payment market.

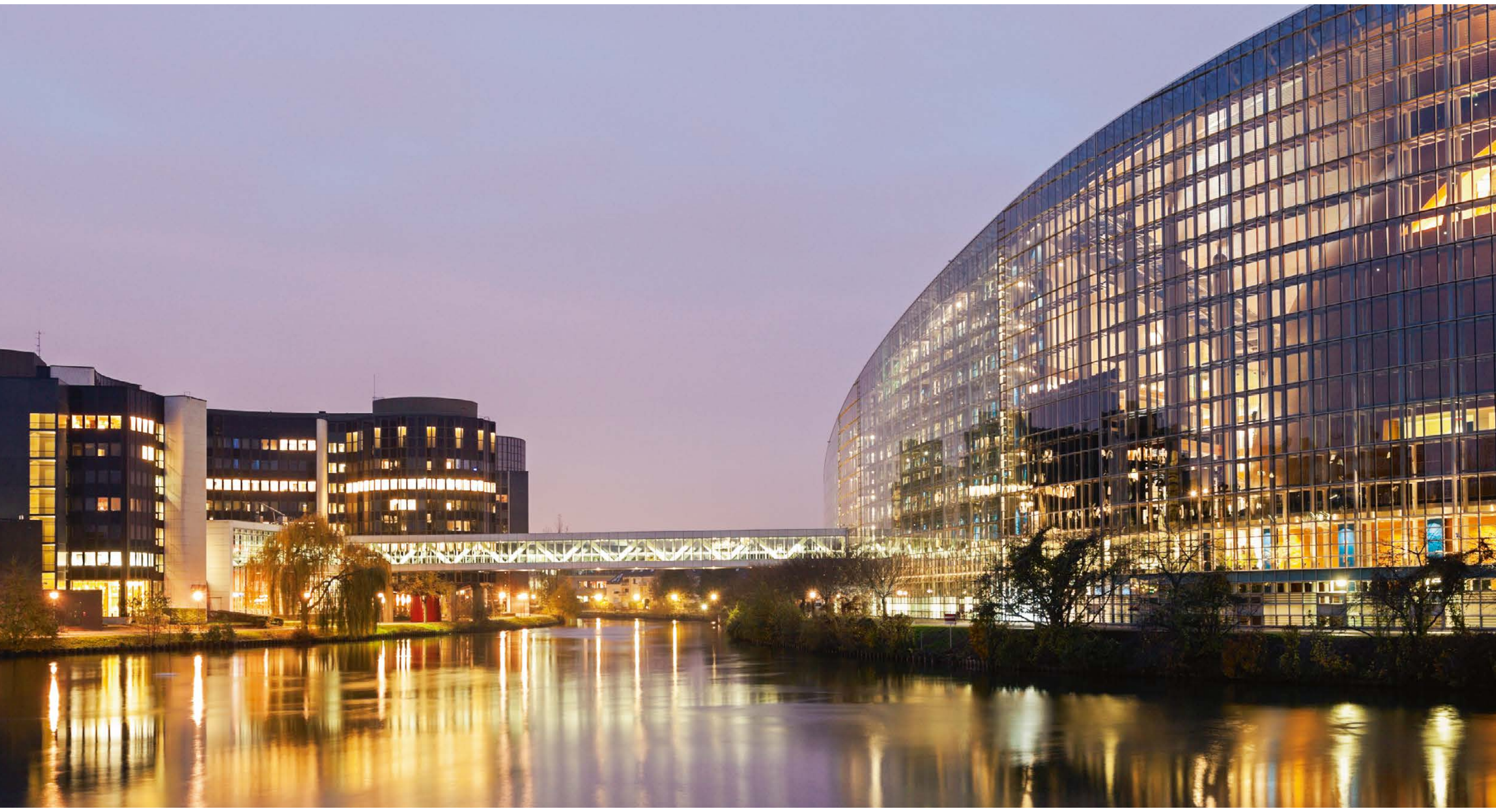
In this whitepaper, the aim is to further qualify the analysis by focusing specifically on the consequences and opportunities from PSD2 for the Nordic region – and especially the Nordic banks. The questions here are:

- Are the Nordic banks particularly well suited to move beyond compliance and fully exploit the strategic opportunities of PSD2?
- If so, what should they do to fully benefit from the new reality defined by EU?
- And finally: what are the main challenges for the Nordic banks in terms of realising the potential within PSD2?

The paper will also cover the initiative "Convenient Access to PSD2 Services" (CAPS), which is a new and open framework that aims to help the banks on their way towards the fulfilment of the business potential in PSD2. CAPS is the perfect springboard for progressive banks who want to get the most out of PSD2 by introducing open APIs and take the first steps towards the future of Open Banking.

Finally, this whitepaper outlines Worldline's capabilities when it comes to assisting banks on their PSD2 journey. Worldline has a strong belief in the potential of the Nordic region and significant ambitions for the Nordic market in the coming years. And PSD2 is a perfect opportunity to demonstrate the company's ability to serve the Nordic market.

But before turning our focus towards the Nordics, the whitepaper will provide a more general introduction to PSD2 and the differences between the first payment service directive – PSD1 – and the new one. ●



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From PSD1 to PSD2

A successful realisation of The Single Market Strategy has for many years been one of the most important overall goals of the European Commission and the European Union as such. The strategy has been divided into separate sub-strategies for the Single Market for Goods, the Single Market for Services, and the Digital Single Market.

2.1.1 Legal platform for SEPA

As part of the latter the Single Market strategy for Payments materialised for the first time in 2007 in the form of the first Payment Services Directive or PSD (Directive 2007/64/EF) that became law in November 2009 and - among other things - provided "the necessary legal platform for the Single Euro Payments Area"[3] or SEPA.

The idea behind SEPA was not at all new in 2007. In fact, it was already part of the Lisbon Agenda launched in 2000, and later that year the Commissioner for Internal Market, Frits Bolkestein, stated that: "There is a clear need for a change. [...] The Commission's political objective is exactly that: a modern Single Payment Area for the entire EU where there is no frontier effect for cross-border payments."[4]

2.1.2 Cost reduction of up to 28 billion Euro

In a later speech Bolkenstein said that "A Single Payments Area will mean lower costs for payments, an end to unnecessary delays and much greater certainty over security and legal responsibility."[5] Furthermore, he underlined that a Single Payment Area would also be "crucial for the competitiveness of the EU economy."[6] And the creation of a stronger competitiveness was exactly one of the main reasons for the launch of the first Payment Service Directive – PSD1.

In December 2007, the EU Commission stated its ambition of generating a reduction in costs of up to 28 billion Euro a year thanks to the new directive:

"Currently each Member State has its own rules on payments, and the annual cost of making payments through these fragmented systems is as much as 2-3% of GDP. Payment service providers are effectively blocked from competing and offering their services throughout the EU. Removal of these barriers could save the EU economy €28 billion per year overall."[7]

These significant economic benefits and synergies of this type of European consolidation pave the way for new pan-European legislation.

2.2 PSD2 - the most important news

The PSD2 (Directive 2015/2366/EU) starts out with 113 introductory recitals setting the scene and explaining the reasoning to the new directive.

The main reason for updating PSD1 was the immense development and growth within the retail payment market and the relating digital technologies – such as mobile payments - since the first directive in 2007. The developments "have given rise to significant challenges from a regulatory perspective. Significant areas of the payments market, in particular card, internet and mobile payments, remain fragmented along national borders."[8]

3. http://ec.europa.eu/finance/payments/framework/index_en.htm
4. http://www.europeanpaymentscouncil.eu/index.cfm/newsletter/article/?articles_uuid=D21AD945-5056-B741-DB50AEA554CA2789
5. http://europa.eu/rapid/press-release_IP-03-1641_en.htm?locale=en
6. http://europa.eu/rapid/press-release_IP-03-1641_en.htm?locale=en
7. http://europa.eu/rapid/press-release_IP-07-1914_en.htm?locale=en
8. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L2366&from=DA, recital 4, p. 36

This fragmentation combined with the rapid technological advancement (resulting in many new products and solutions which fall outside the scope of the old directive) had, according to the EU Commission, resulted in "legal uncertainty, potential security risks in the payment chain and a lack of consumer protection in certain areas."[9]

The Commission's conclusion was that the PSD1 framework was no longer adequate and an update was necessary to take the next steps towards full integration across the EU:

> *The continued development of an integrated internal market for safe electronic payments is crucial in order to support the growth of the Union economy and to ensure that consumers, merchants and companies enjoy choice and transparency of payment services to benefit fully from the internal market."* [10]

2.2.1 PSD2 Timeline

13.01.2016
PSD2 enters into force in the EU

08.02.2016
Deadline for responses to EBA's discussion paper on RTSs for SCA

12.12.2016
Deadline for responses to EBA's consultation paper on RTSs for SCA

23.02.2017
Final draft on RTSs for SCA from EBA

Q3 2017 (expected)
Publication of the EBA Guideline for SCA and XS2A

12.01.2018
Deadline for all EU member states to adopt PSD2 on a national level

13.01.2018
Appliance of PSD2

25.05.2018
The new GDPR enters into force

Q4 2018 (expected)
Application of the RTSs for SCA and XS2A

2016 | 2017 | 2018

The final draft of the RTSs for SCA from EBA can be found HERE

2.3 Access to Account (XS2A)

The one most talked about, and most important innovation in the new directive is that banks are required to provide access to payment accounts for Third Party Providers (TPPs) – of course on the condition that the TPP has received a permission from the bank customers to whom the accounts belong. This new requirement is stated in the directives' Article 66 for Payment Initiation Services (PIS) and Article 67 for Account Information Services (AIS):

> *Article 66. Rules on access to payment account in the case of payment initiation services. 1. Member States shall ensure that a payer has the right to make use of a payment initiation service provider to obtain payment services as referred to in point (7) of Annex I."*

9. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L2366&from=DA, *recital 4, p. 36*
10. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L2366&from=DA, *recital 5, p. 36*

And:

Article 67: Rules on access to and use of payment account information in the case of account information services. 1. Member States shall ensure that a payment service user has the right to make use of services enabling access to account information as referred to in point (8) of Annex I."[11]

2.4 Definitions

2.4.1 TPP – Third Party Provider

A TPP is a third party, who the account holder grants access to his or her bank account either as an AISP or a PISP. A TPP should not be confused with the concept of a TTP – Trusted Third Party – as used in cryptography.

2.4.2 AISP – Account Information Service Provider

An AISP is a Third-Party Provider (TPP) who, with access via a standardized interface (e.g. an API), can draw information from a customer's (payment) account in a bank. This could be for instance PFM tools who aggregates data and create an overview or lending companies who will use the access to create a precise credit scoring of a customer.

2.4.3 ASPSP – Account Servicing Payment Service Provider

An ASPSP is "a payment service provider providing and maintaining a payment account for a payer." For the time being the role of ASPSP is namely covered by banks.

2.4.4 PII – Payment Instrument Issuer

Not only ASPSPs issue payment instruments. There is an increasing number of merchant or airline issued payment instruments. PII can utilise AISP or PISP (see below) to conduct fund check and/or transactions.

2.4.5 PI - Payment Instrument

The directive defines the PI as "a personalised device(s) and/or set of procedures agreed between the payment service user and the payment service provider and used in order to initiate a payment order."

2.4.6 PISP – Payment Initiation Service Provider

A PISP is a Third-Party Provider (TPP) with an access via a standardized interface (e.g. an API) can carry out payments directly from a customer's account through the banks' own account based payments infrastructure. Examples of this kind of services are Sofort (owned by Klarna), Trustly and Swish.

2.4.7 PSP – Payment Service Provider

This category covers all providers that offer services for accepting electronic payments. This includes card based payments (credit/debit) as well as account based (real-time) transfers.

2.4.8 PSU – Payment Service User

A PSU is a legal entity – e.g. an individual or a corporation – with an ASPSP account "making use of a payment service in the capacity of payer, payee, or both." Throughout this whitepaper we will often refer to PSUs as "consumers".

2.4.9 SCA – Secure Customer Authentication

To increase security of electronic transactions, the PSD2 imposes higher demands for authentication. This requires two factors out of three following: 1) knowledge (something only the user knows), 2) possession (something only the user possesses), and 3) inherence (something the user is). ●

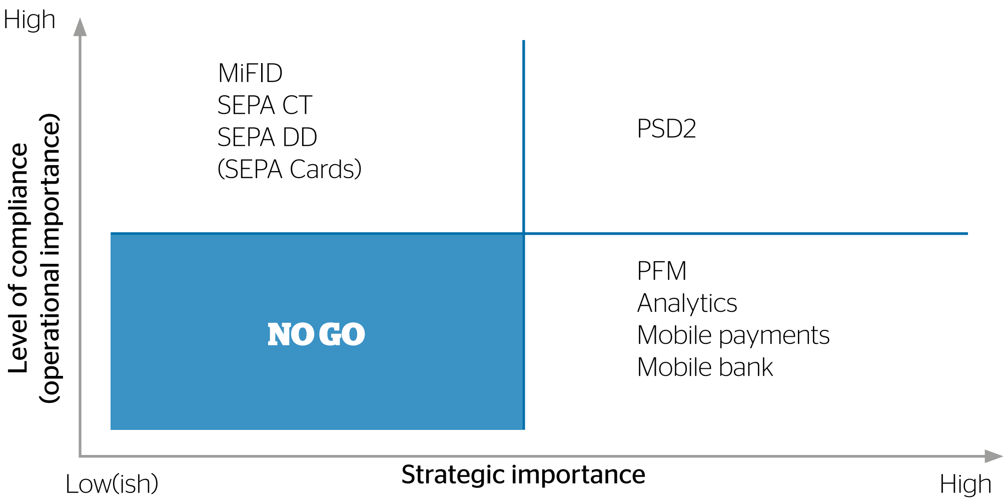
11. *http://eur-lex.eurowpa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L2366&from=DA, p. 92 and p. 93*

3

Disrupted by the EU

The two XS2A articles, written and proposed by the European Commission and adopted by the European Parliament and the Council of The European Union, are nothing less than ground breaking in their perspective and potential impact on the entire European financial sector.

Strategy VS compliance



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As this diagram from Norfico shows PSD2 is unique in the sense that it represents both a strategic and an operational importance at the same time. This is also challenging for many organisations as the compliance teams and the strategy teams are often unfamiliar with working together.

3.1 Concern among bankers

The access to account requirement is disruptive in several ways. It imposes both operational risks and costs on the banks since they have the responsibility to find secure and efficient ways to provide access for the potentially huge number of very diverse TPPs.

Furthermore, as the banks continue to have the liability for all transactions – also those initiated by a TPP. At the same time, the banks must give the TPPs access to the bank customers' accounts. The TPPs can include both the most innovative fintechs of the world as well as the global tech giants. All of this means that banks face the risk of losing money as well as the risk of losing the direct relationship with their customers and thereby risk being reduced to a role as basic infrastructure provider.

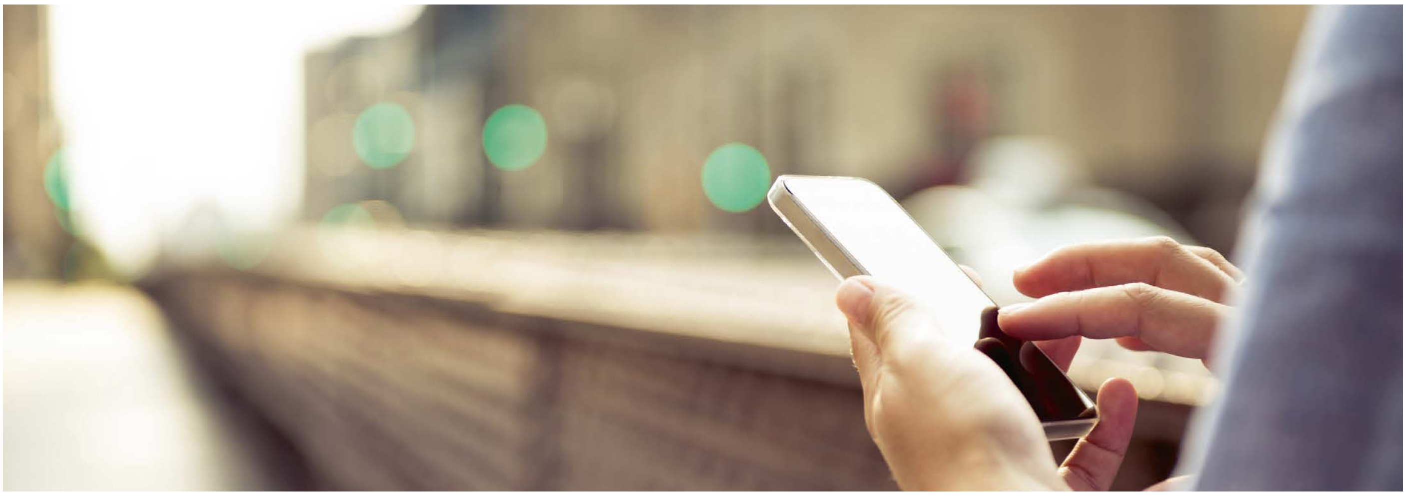
Seen from this perspective it comes as no surprise that 88 % of all bank senior executives in a survey conducted by PwC in 2016 expressed their concerns about the possible direct consequences of these new requirements for the European banking industry.[12]

3.2 New opportunities

Despite these reasons for concern PSD2 primarily represents a unique strategic opportunity for the banks, if only they have the courage and the innovative power to seize and unfold it.

Although the typical TPP will most often be a fintech company providing a dedicated online payment solution, banks can become TPPs too and tap into competing banks'

12. In Q1 of 2016 PWC surveyed senior executives in 30 European banks revealing "a mixed, but mostly negative, perception of PSD2." 88% of those interviewed believed that PSD2 would impact their business, but only a minority had a PSD2 strategy. https://www.strategyand.pwc.com/media/file/Catalyst-or-threat.pdf p. 12 and p. 22.



accounts in case they want to launch payments solutions themselves (as a PISP) or launch information/data aggregating services in the role of an AISP.

It is not only in the consumer-facing services that the opportunities lie – the banks also have the option of offering the TPPs services beyond those stipulated by the PSD2. These premium services could for instance include real-time account information access for AISPs.

These new opportunities for banks are key reasons why the access to account requirements might be in favour of the creative and forward thinking banks. But more than this, the PSD2 requirements might animate the banks to start using open APIs (although there is no obligation in the directive for the banks to do so) and gather initial experiences with the concept of Open Banking.

3.2.1 Two examples – Fidor and Saxo

One of the European frontrunners within the use of open API is the German challenger bank (and CAPS participant[13]) Fidor (now acquired by French Groupe BPCE). Fidor explains how the bank's open APIs enables customer centric platforms:

> *"The APIs' openness and modularity allow customers to experiment and innovate. The standards allow them to connect their systems very quickly. Openness to 3rd party solutions (e.g. FinTechs) enable platforms for partnerships and integrated value chains."*

Another example of an early adopter of open APIs is Danish Saxo Bank. In September 2015 Saxo Bank announced the open access to its trading platform and explained that the open API "allow its partners, clients and external developers to access over 20 years of trading infrastructure innovation and enable them to customise their trading experience and create new revenue streams."[14]

In conclusion, PSD2 points in the direction of Open Banking and is likely to inspire banks to innovate faster than they otherwise would and keep the bank account in the centre for this innovation. We will come back to this important point later in this white paper, but first we will narrow our focus from Europe to the Nordics.

13. https://www.caps-services.com/about-us#tab-five
14. https://www.home.saxo/campaigns/global-campaign/pr/2015-q3/saxo-opens-access-to-its-trading-infrastructure-with-the-launch-of-openapi

4 PSD2 and the Nordic region

4.1.1 Collaboration as a hallmark

More than anything else the Nordic region is characterized by a longstanding tradition of collaboration. As early as 1397 Denmark, Sweden and Norway formed The Kalmar Union that lasted more than a hundred years until 1523. And even though the Nordic countries fought several wars among each other in the following centuries, ever since the 19th century the Nordic relationships have been marked by peace and extensive collaboration - at grassroot level between organizations as well as business partnerships and more formal cooperative relationships between the Nordic States.

Inspired by the Latin Monetary Union Denmark and Sweden formed The Scandinavian Monetary Union in 1873, which was joined by Norway two years later.[15] The Norden Association[16] was formed by Denmark, Norway and Sweden in 1919 and joined by Iceland and Finland in 1922 and 1924 respectively. Later, in 1952 the Nordic countries formed the official inter-parliamentary Nordic body called The Nordic Council[17]

4.1.2 Banks working together

Over the past decades, the relationships between the countries have only grown stronger, and in the financial sector we have seen several cross-Nordic examples of both collaborations and mergers, most prominently the merger of Finnish Merita Bank, Swedish Nordbanken, Danish Unibank, and Norwegian Christiania Bank into the largest Nordic bank, Nordea.

Sharing financial infrastructure has also been common practice across the Nordic countries. This has accelerated the digitation of services including digital identity and real-time payment infrastructure further raising the bar for costumer expectations.

New examples of cooperation between the Nordic banks occur regularly. For example, in 2016 Nordea and DNB - Norway's largest financial services group – decided to join forces in the Baltics.

Also in 2016, the Nordic financial technology network - Nordic Finance Innovation (NFI)[18] – was formed as a meeting place for key players in the financial industry. NFI already has around 50 members including banks, insurance companies and international technology companies – Worldline being one of them.

4.1.3 A mature market

In 1996 the Finnish bank OP was the first in Europe and the second in the world to launch an online bank. Other Nordic banks were frontrunners too within online banking, and now that banking is entering the mobile space the Nordic banks are still amongst the global first movers.

Today the Nordic region is the world's 10th largest economy , and the Nordic payment market and payment industry is known for maturity and a high level of innovation. Card usage and digital payments are prevalent, and currently there is a lot of innovation going on especially within P2P payments where the Nordic banks are leading the European and global development.

4.2 Is the Nordic banking sector particularly well suited for PSD2?

Although PSD2 applies equally to the entire EU area the actual translation and implementation will differ at least to some extent between the European countries.

4.2.1 Security and fraud

Security and the fight against fraud plays a prominent part in the directive, and for a good reason, since fraud in digital payments has increased significantly in most

15. The First World War made it difficult to uphold the union and it formally ended in 1924.

16. The association has the goal of promoting Nordic corporation and it still exists today: http://foreningen-norden.dk/

17. http://www.norden.org/en/nordic-council

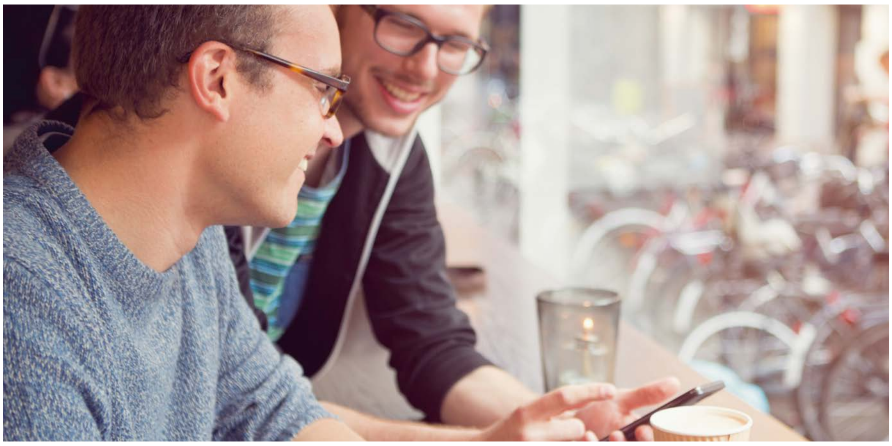
18. http://www.nordicfinanceinnovation.com/

countries and regions around the globe in recent years. The directive's Recital 95 states:

Security of electronic payments is fundamental for ensuring the protection of users and the development of a sound environment for e-commerce. All payment services offered electronically should be carried out in a secure manner, adopting technologies able to guarantee the safe authentication of the user and to reduce, to the maximum extent possible, the risk of fraud."[20]

4.2.2 Beyond compliance

However, if we look at the Nordic region in particularly, fraud is a relatively modest problem compared to the widespread use of digital payments. Even though the Nordic countries still have some way to go, fraud is already reasonably well contained and controlled using solutions such as chip & pin and different kinds of strong user authentication. And consequently, it makes sense to assume that the parties from this region who are responsible for complying with the increased security requirements are both able and more likely to focus more on other parts of the directive.



In addition to the Nordic advantage of a relatively low fraud rate, there is little doubt that the Nordic countries have a further advantage when it comes to the implementation of PSD2 simply because of the high level of digital readiness, the high penetration of digital payments – including mobile payments – and consequently the low use of cash in the region.[21] In the latest global Networked Readiness Index[22] from the World Economic Forum Finland (2), Sweden (3) and Norway (4) are only bettered by Singapore, and Denmark[23] is ranked as number 11 out of 139 countries.

4.2.3 Long tradition for digitisation

The digitisation of the Nordic societies started decades ago. If we take Denmark as an example the first version of the so-called common public digitisation strategy was adopted already in 2001, and in 2016 the Danish government launched the fifth version of the strategy, which will run until 2020. Director-General Lars Frelle-Petersen at the Danish Agency for Digitisation said earlier this year about the new digital strategy:

When we compare Denmark internationally, we're typically in the top three or four, and there are several reasons for that: First of all, we have a very digitised population that frequently uses IT in its everyday life [...] Furthermore, we have a long tradition of close collaboration in the public sector, with whom we have built several advanced digital infrastructures within the last few years. But the collaboration also spans across sectors, and when it comes to digitisation, particularly the public sector's collaboration with the Danish financial sector has been successful for a number of years."[24]

20. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32015L2366&from=DA, Recital 95, p. 51
21. This has been documented for several years, and media from all over the world have told the story: http://www.nordicstartupbits.com/2016/01/29/will-the-nordics-be-the-first-to-go-cashless/, Nordic Cash Survey by Nets 2014: http://www.slideshare.net/Netsgroup/nets-digitalvaluesissueone2014, p. 56
22. http://reports.weforum.org/global-information-technology-report-2016/networked-readiness-index/
23. In Digital Economy and Society Index (DESI) Denmark is ranked at number one: https://ec.europa.eu/digital-single-market/en/desi
24. Fintech Copenhagen, https://issuu.com/tverskov/docs/fintech_cph, p. 40

A combination of digitisation and collaboration is a major driver of innovation in the Nordic countries, and the Nordic citizens are already used to do almost everything online. A good example of that is digital identification. Every Nordic country has its own and widely used digital identity system - NemID in Denmark, BankID in Norway, BankID in Sweden, and Tupas in Finland. This is not the case in the southern part of Europe, and even the Netherlands have only just begun working on a national bank-ID solution.

4.2.4 Collaboration on financial services

The Nordic collaboration culture within financial services also stretches beyond the e-ID solutions. Within financial services collaboration has been key to sustain the high number of banks services the relatively small populations of the different Nordic countries. This has led to many shared services and shared ownership of service providers. The most prominent example of an entity created to deliver shared infrastructure to the banks is the Nordic payments company Nets, which is the result of the merger of the Norwegian BBS and the Danish PBS, both of which were owned by the banks they serviced. In terms of services, the Nordics have seen many financial services which were results of a collaborative effort. The successful direct debit solutions Betalingsservice from Denmark and AvtaleGiro from Norway as well as the two countries popular debit card schemes BankAxept and Dankort. A more recent example from Sweden is the mobile P2P payment solution Swish. In a PSD2 context, Swish is an interesting case as it in many ways shares the characteristics of a PISP as it operates as a TPP initiating payments directly on the banks account based payments infrastructure.

4.2.5 A Nordic head start

This digital savviness both in society in general and in the financial sector gives the Nordic region a head start in terms of ability to handle the new compliance requirements as well as to implement new processes and services following the PSD2.

Due to these preconditions, it is very likely that many – and probably a majority – of the Nordic banks possess both the aptitude and the willingness to adapt faster and more smoothly to the new directive than their counterparties especially in the southern and eastern parts of Europe.

Undoubtedly, the single most important challenge for all European banks is, as described earlier in this whitepaper, how to turn the requirements of access to account - and everything that goes along with it in terms of liability and increased costs - into a business opportunity and a competitive advantage going forward?

The requirement to the banks to open access to the consumers' payment accounts for TPPs is by far the most significant news in PSD2, and the way the banks chose to attack and handle this might very well influence their future digital journey.

Instead of perceiving PSD2 primarily as a threat the Nordic banks can be expected to take a more progressive stand and use the requirement to open the account infrastructure as a springboard for a more profound digital transformation and a leap into an open API economy and start experimenting with the concept of Open Banking.

Having common e-ID solutions across banks in the individual Nordic countries will allow for a simpler a faster implementation of XS2A services – at least in the individual markets – unlike markets that do not have shared e-ID services.

However, the use of the same e-ID credentials across both financial services and public authorities as seen in the Nordics could become at least a theoretical issue in case of any fraudulent activity by a TPP as this would also compromise government services. Mitigating this risk would require a separation of financial services e-ID and public e-ID – however this would be a major setback for the digital agenda of the Nordics.

4.3 What are the main challenges for the Nordic banks?

Worldline's dialogue and collaboration with several Nordic banks over the recent years shows that the Nordic banks in general are eager to exploit the opportunities of PSD2 and do more than just becoming compliant.

However, the Nordic banks face one major challenge that they need to address in order not to come up short and miss the opportunities of PSD2.

Because the Nordic societies have been digitally in front of most other regions in the world for a long time already, there is the risk of a growing degree of self-complacency that can hinder innovation.

This goes for the Nordic citizens as well as for the Nordic governments, and the Nordic businesses including the banks. This means when the banks start believing that they are comfortably ahead, they are in danger of losing innovation power and drive. If they feel no burning platform, simply because they trust that they are born to stay in front they are almost already lagging behind.

Accenture underlines the same point in the whitepaper Digital disruption in Nordic retail banking:

"The good news: Nordic banks are running very profitable businesses, especially compared to other European players. The bad news: This has led to a degree of complacency and a lower sense of urgency for Nordic banks to transform in the digital space."[25]

As PSD2 is bound to accelerate innovation, the banks must be up on their toes if they want to stay relevant and avoid losing out to the countless numbers of ambitious fintechs who are trying to steal their market share.

4.4 How can Worldline help Nordic banks turn PSD2 into an opportunity?

The number one challenge for all banks caused by PSD2 is how to implement the requirement of providing access to accounts in a cost-efficient manner without jeopardizing the bank's security, losing customer relationships and basically without reducing themselves to the proverbial "dump pipes" (still with the potential cost of liability!), while the TPPs take over the end-consumer relationship.

Obviously, this overall challenge is comprised by many layers of underlying challenges that belongs on different levels, which all require different sets of tools and services, and Worldline can assist the banks with all of them. Worldline has developed

25. https://www.accenture.com/t20150924T055551__w__/se-en/_acnmedia/Accenture/Conversion-Assets/DotCom/Documents/Global/PDF/Strategy_7/Accenture-Digital-Disruption-Nordic-Retail-Banking-Study.pdf

for a group of European banks, fully functional proofs of concepts for the Payment Initiation Services (PIS) and the Account Information Services (AIS), build on APIs and fully integrated into existing routing applications. These demonstrate both how these services work in practice as well as how the user experience can be.

Being a European company with profound knowledge of the European and Nordic financial market with a comprehensive suite of services and solutions that are either created for or translates perfectly into the PSD2 ecosystem, Worldline is in at unique position to assist the banks in asking and answering the important strategic questions brought on by PSD2.

Worldline plays an active role in two of the central entities shaping the future of PSD2 implementations across Europe – The Berlin Group and CAPS.

The Berlin Group is (despite its name) an international group focused on developing interoperability standards for payments across Europe. The group has several Nordic members. Worldline has been part of the group since its start in 2004 and is a central participant in the group's PSD2 taskforce. The ambition is to help ensuring that PSD2 will also work in practise as a potential failure of PSD2 is only more likely to lead to more rigid legislation.

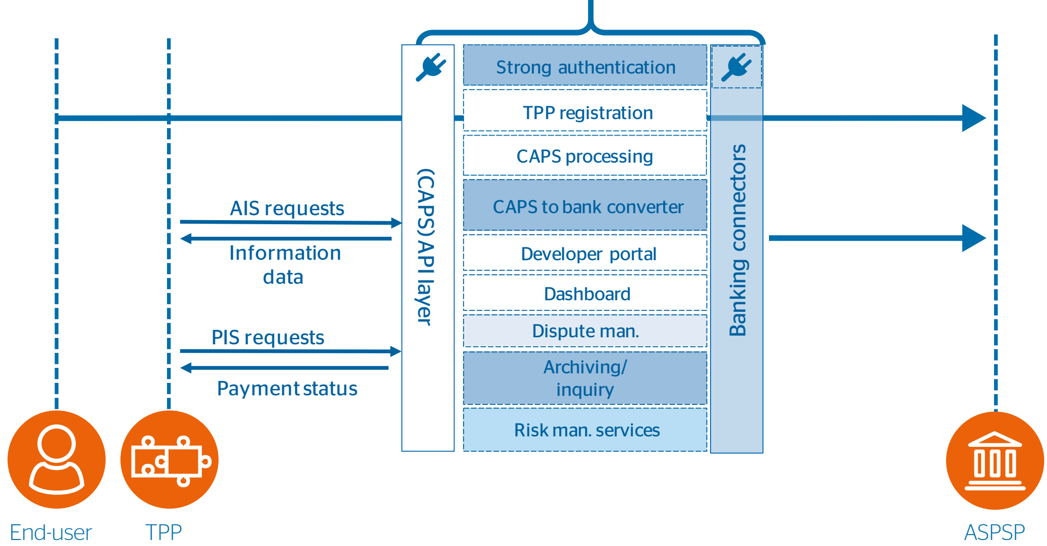
By participating actively in this work, Worldline contributes with its pan-European insights and experience in the standardisation work while at the same time ensuring that Worldline stays in the forefront information-wise. All to the benefit of Worldline's clients.

The same ambition underlines Worldline's involvement in CAPS (more details on CAPS later in this paper). One thing is the basic compliance, but in order for PSD2 to really work and get traction and scale, a number of other things needs to be put in place. This can be everything from directory services, dispute management services, development tools, authentication solutions, mobile integration to name but a few. By gaining insight and influence through its involvements, Worldline can ensure that its service offerings remain relevant to its clients.

Worldline can also provide the banks with secure, solid and compliant infrastructure components and help them prepare for open banking if they want to venture into this line of business. Worldline already has several PSD2 related services available in its portfolio such as routing services, secure customer authentication services, and risk management solutions services that are all elements in a typical PSD2 compliance package for banks.

Solutions for ASPSPs

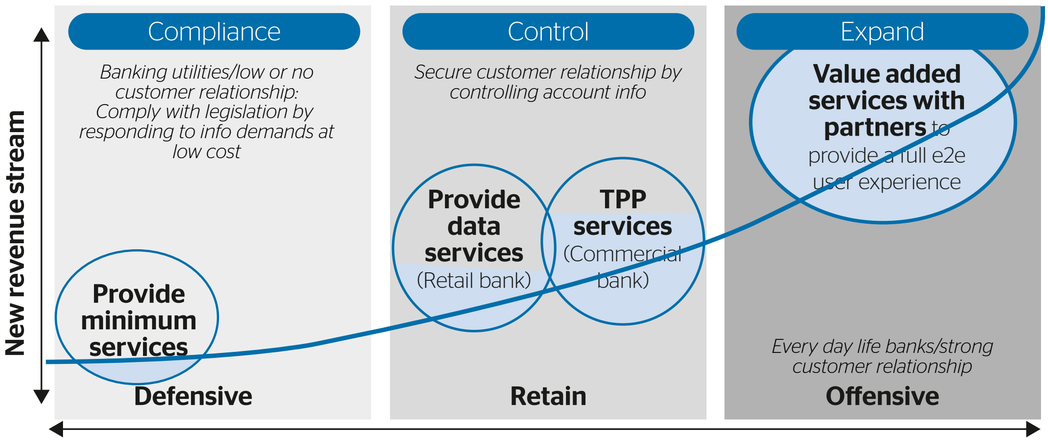
and banking API



Some of the most progressive banks are already scanning the new area of Open Banking (more on that later), and others have set out to become a TPP themselves. Those aiming for the TPP role are mainly banks, who are very active in the acquiring business. But also, retail banks with a lot of accountholders might have strong interests in developing PISP and/or AISP services available to their end customers.

Define the strategy for XS2A opportunities

Moving up the value chain will expand revenue pool



Regardless of whether a bank aims just for basic compliance or wants to go much further Worldline has the ability and the competences to act as trusted strategic advisor as well as technical service provider all the way. Worldline does not offer any of its services directly to the consumers which allows for a clear division of roles and responsibilities when servicing its bank clients.

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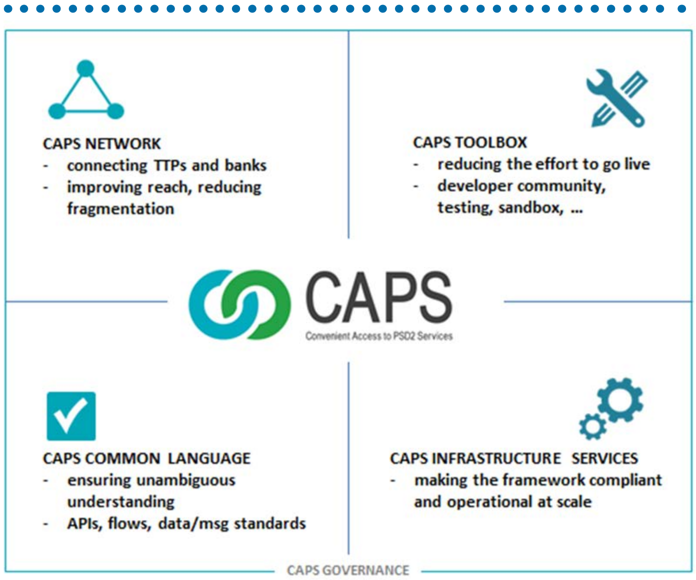
Convenient Access to PSD2 Services (CAPS)

As a point of reference for all PSD2 activities Worldline together with equensWorldline have co-developed an open framework concept called CAPS (Convenient Access to PSD2 Services) with the aim of defining joint pan-European PSD2 standards - both technical standards, standards of operation procedures, standards for dispute management, and a standard directory, which can be used like a search engine and for instance allow for the TPPs to easily reach in principle all of Europe's around 4,000 banks at once instead of having to reach out to them one at a time.[26]



The reason why CAPS is necessary is that neither the PSD2 itself nor the Regulatory Technical Standards (RTS) from European Banking Authority (EBA) will be sufficient to make PSD2 work in practice. The directive and the RTSs only offer broad guidelines that could potentially lead to a highly fragmented market. We saw that with SEPA, which unfortunately led to many different SEPA implementations and even different standards.[27]

The CAPS concept was first developed by the payment processors Equens[28], Nets and Vocalink in 2015. The three companies realised that for PSD2 to take off and follow the timeline and for the different stakeholders to overcome the obstacles and utilise the opportunities in the directive there was a need for a standardised and open framework that could act as a catalyst and secure a smooth and effective process especially between the TPPs and the ASPSPs (primarily the banks).

This common realisation led to Controlled Access to Payment Services (CAPS), which was later changed into Convenient Access to Payment Service (CAPS), and the concept was first described in the White Paper on CAPS for PSD2 published in August 2015[29].

The white paper outlines several challenges expected to be caused by PSD2 that CAPS intends to help to mitigate. This to the benefit of the TPPs and the ASPSPs - but also the merchants and even the consumers:

> *"For PSD2 to be a success it must be embraced and adopted by the market to foster and promote innovation and competition. In reality, this must be underpinned by simple, modern and flexible API infrastructure and authentication methods."[30]*

Furthermore, basic standards and common principles are needed across the thousands of European banks to avoid that the TPPs - whether AISPs or PISPs -

26. The TPP's main interest is to get easy access and if possible one single entrance to all the banks.

27. As the old joke goes: "Standards are wonderful because there are so many to choose from!"

28. Shortly before the announcement of the merger between equens and Worldline.

29. https://equensworldline.com/Images/CAPS%20%20PSD2%20White%20Paper%20-%20August%20201528-20333.pdf

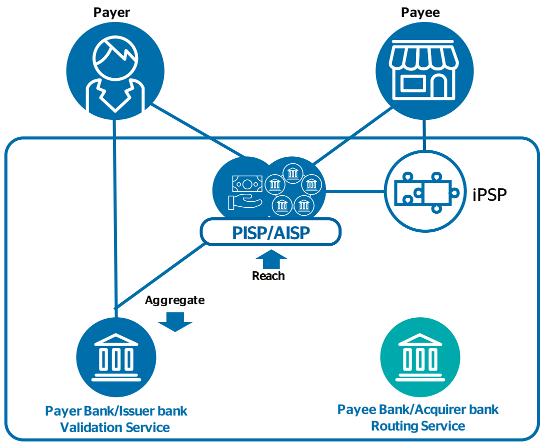
30. https://equensworldline.com/Images/CAPS%20%20PSD2%20White%20Paper%20-%20August%20201528-20333.pdf p. 2.

must comply with new rules and demands for every new ASPSP they engage with. Instead, CAPS suggests that all Access to Account should be granted through a fully standardised API.

CAPS's intention is to avoid a rapidly increasing 'fragmentation effect' as a direct result of PSD2, which could lead to plain chaos in the market amongst the many TPPs across Europe and work against EU's intention of creating a level playing field and an open and competitive market.

Additionally, CAPS intend to develop a suite of tools for TPPs to ease their adaptation and utilization of PSD2 and to outline standardized processes for resolution of for example liability disputes between TPPs and ASPSPs caused by consumer chargebacks.

Benefits of CAPS for Banks and ASPSP



For Banks

- Cost effective compliance to PSD2 and the regulatory technical standards (RTS)
- Put bank account at the centre of innovation
- Higher level of security at lower costs and increased responsiveness
- Efficient and effective dispute handling process
- Access to new functions and business opportunities

For TPPs

- Single standardized access to many banks
- Simple enrolment and integration process
- Access to development portal & standard and value adding APIs
- Standardised procedures such as dispute and fraud management

CAPS provides banks with an efficient and effective way to connect to a potentially large number of TPPs. This places the bank account at the centre of the payment experience.

Likewise, the TPPs gain access to numerous bank accounts simply by using CAPS through equensWorldline.

Additionally, the framework provides banks and TPPs with a way to work with standards for the on boarding procedures, secured service levels, harmonised operational procedures for areas such as dispute handling, standardised authentication for TPPs, support of different authentication models and, finally, extensive risk management services.

Since the beginning, the CAPS group has grown from three to a large cross-industry cross-country community and in September 2016 CAPS published a second, updated white paper[31] describing how the CAPS concept and the CAPS principles are now developed as specific services by the growing number of CAPS Service Providers.

While agreeing on standards, these CAPS Service Providers – including equensWorldline and Worldline – compete directly to provide their services to banks, fintechs, and merchants.[32]

31. https://www.caps-services.com/documents/CAPS_Open_Framework_White_Paper_2.pdf

32. *" First pilot implementations with the first TPPs and AS-PSPs are expected to be available shortly after EBA publishes the Regulatory Technical Standards in the beginning of 2017 and several groups of ASPSPs are considering CAPS as their basis for implementation before PSD2 becomes law."* https://www.caps-services.com/documents/CAPS_Open_Framework_White_Paper_2.pdf, p. 10.

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Conclusion

Long before any European bank started thinking about Open Banking companies like Amazon (2002), Twitter (2006), LinkedIn (2009), and IBM (2013)[33] realized the value of opening (some of) their APIs to the outside world.[34]

Within the payments industry PayPal took the lead by introducing open APIs as early as 2004, when they first launch their developer portal and started inviting external developers to build new services to enrich the PayPal community. Since then both MasterCard (2010) and Visa (2016) have now opened their own developer portals.

Among the banks, the use of open APIs is still relatively new and only few banks would be able to claim to have an implemented Open Banking strategy. Some of the current frontrunners are BBVA[35], Crédit Agricole, challenger bank Fidor (acquired in July 2016 by French Groupe BPCE), and Danish Saxo Bank. The latter has frequently highlighted the qualities of what they call a "collaborative economy"[36] through the use of open APIs, as a prerequisite for innovation.

Worldline strongly believes that PSD2 has the potential of significantly boosting the use of open APIs in European banking and that CAPS is the perfect framework for progressive banks who wants to monetize on their PSD2 investments and use PSD2 as a springboard for a digital transformation into the Open Banking space.

> *Open access to bank accounts has the potential to lead to an explosion of innovation, competition and new services. New revenue streams will evolve and the banks themselves could even be one of the main beneficiaries from this dynamic environment - if they position themselves in a timely and proactive manner."[37]*

Finally, Worldline believes that the Nordic banks are very well positioned to cope with the compliance part of PSD2, but certainly also to go beyond compliance with the right strategic partners and become European frontrunners within the Open Banking space - which Worldline strongly believes is the place to be if banks want to embrace innovation to stay relevant and grow their customer relationships and their businesses in the years to come.

33. *In the case of IBM developers outside IBM are invited to join Watson Developer Cloud and start exploiting the fascinating world of cognitive computing https://www.ibm.com/watson/developercloud/*
34. *EBA has put together some very informative lists in this whitepaper: https://www.abe-eba.eu/downloads/knowledge-and-research/EBA_May2016_eAPWG_Understanding_the_business_relevance_of_Open_APIs_and_Open_Banking_for_banks.pdf*
35. *https://bbvaopen4u.com/en/actualidad/psd2-and-open-apis-banking-start-exponential-era-fintech-and-online-payments*
36. *https://www.home.saxo/campaigns/global-campaign/pr/2015-q3/saxo-opens-access-to-its-trading-infrastructure-with-the-launch-of-openapi*
36. *Michael Salmony: http://www.europeanpaymentscouncil.eu/index.cfm/newsletter/article/?articles_uuid=42210000-5056-B741-DB0CD1AA4E9F34EA*

About Worldline
Worldline [Euronext: WLN] is the European leader in the payments and transactional services industry. Worldline delivers new-generation services, enabling its customers to offer smooth and innovative solutions to the end consumer. Key actor for B2B2C industries, with over 40 years of experience, Worldline supports and contributes to the success of all businesses and administrative services in a perpetually evolving market. Worldline offers a unique and flexible business model built around a global and growing portfolio, thus enabling end-to-end support. Worldline activities are organized around three axes: Merchant Services & Terminals, Mobility & e-Transactional Services, Financial Processing & Software Licensing including equensWorldline. Worldline employs more than 8,600 people worldwide, with estimated revenue of circa 1.5 billion euros on a yearly basis. Worldline is an Atos company.

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