

FUTURING PAYMENTS

A WORLDLINE MAGAZINE 2020 EDITION #2



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WELCOME TO FUTURING PAYMENTS EDITION #2



In this second edition of Worldline's magazine, our primary focus will be on payments seen from the perspectives of the consumers and the B2C merchants.

Growing expectations - fueled partly by the ongoing digitization and the maturing of the e-commerce market - place increasing demands on the retailers' ability to catch and retain the attention of the consumers.

Online shopping today covers a rapidly growing part of the total B2C sales, and retailers operating in the physical world need more than ever to be able to offer new levels of shopping experiences to convince consumers to keep supporting them.

A superior shopping experience may of course consist of many different elements, and the ones related to payments only make up for a part of the picture. But it's an important part, and it's about much more than just the handling of the monetary transaction in itself. In this edition of *Futuring Payments* we will look at several examples one of them being the highly flexible payment device YUMI, which in fact enables merchants to not only offer an enhanced shopping experience but also to merge offline and online shopping in a never before seen capacity.

Regardless of how advanced an experience shops may be able to offer consumers in the future, basic payment security needs to be in place, and we need to be able to fight fraud more efficiently going forward.

Strong Customer Authentication (SCA) is a new requirement as part of PSD2, but since the implementation of SCA has been delayed more than once and has caused a good deal of confusion we try to give a status on the current state of SCA and explain what will happen next.

Another security challenge, which is lurking somewhere in the near future is the fact that once quantum computers become a reality their amazing power will completely disrupt today's means of security and force us to rethink cryptography all over again. We are telling the story about this fascinating and slightly frightening future scenario - and luckily Worldline is already working tirelessly together with the best cryptographic minds in the world to manage this worthy challenge in time.

Futuring Payments was launched in June 2019, and the positive reception reaffirmed our assumption of interest among Worldline's many stakeholders in a magazine dedicated to the new and most significant trends in the payment world.

We like to thank all of our stakeholders, and we hope that you will enjoy this edition of *Futuring Payments* as well.

Happy reading!

Marc-Henri Desportes,
Deputy CEO at Worldline

PERSONALIZED CONSUMER EXPERIENCE MUST TAKE CENTER STAGE



Marc-Henri Desportes,
Deputy CEO at Worldline



Vincent Roland,
EVP Merchant
Services at Worldline

Digitization, globalization, new business models, maturation of e-commerce and new consumer demands have significantly changed the challenges and requirements for merchants who not only want to survive and remain relevant but want to become successful.

In this interview Marc-Henri Desportes, Deputy CEO at Worldline Global, and Vincent Roland, EVP Merchant Services at Worldline Global, will discuss these challenges for the merchants. And they will look into the merchant's abilities to best honor the consumer expectations and consider what it takes for a merchant today to be tomorrow's winners.

Becoming successful as a merchant is certainly not something to be taken for granted. When asked about the currently most significant challenges for the merchants, both Marc-Henri Desportes and Vincent Roland are ready to express their bold opinions.

A PERSONALIZED CUSTOMER EXPERIENCE

Marc-Henri Desportes does not doubt that the merchants must prepare for extensive changes going forward, and as he sees, the main driving forces of the merchant payment market are two steadily increasing types of customer expectations:

"The first one is a personalized and customized shopping and payment experience. Consumers today expect to have freedom to choose their payment instrument, and as a merchant, you cannot afford to frustrate your customer by denying her or him access to a preferred way of paying," Marc-Henri Desportes explains and continues:

"The second expectation is total peace of mind for the consumer when paying - regardless of payment means and no matter if the payment is made in a physical store or a webshop. Payment solutions today have to be extremely easy to use, and they need to take into account the customer's different views on aspects like privacy and sharing of data. Some consumers are very relaxed and don't mind sharing their credentials, while others are much more alert and worried about privacy and security."

THE NECESSARY OMNICHANNEL STRATEGY

Marc-Henri Desportes further elaborates on the topic regarding the physical merchants and the digital webshops. He points out that only a few years ago the brick and mortar merchants were still the masters of the retail space, but suddenly e-commerce showed a shockingly powerful acceleration and managed to take the traditional merchants by surprise - and already now some of the newcomers are becoming the biggest retail players in the world.

"For the merchant, it's imperative not to think that physical and digital are two different things. Instead, the two parts increasingly tend to merge or converge into a whole, and if a merchant is good at both parts, it also needs to be good at combining them."

Vincent Roland agrees with Marc-Henri Desportes in this analysis, and he points out that what is needed is for the merchants to understand the power of an excellent omnichannel strategy better.

"Omnichannel has become a buzzword, but for the brick and mortar merchants it's crucial to face the challenges from the newcomers of the e-commerce space, and omnichannel expresses a highly important question for today's merchants: How is it possible consistently to deliver the same good user experience in and across all the different channels?," says Vincent Roland and continues:

"The traditional merchants need to react and start mastering the omnichannel reality. But at the same time - of course! - the new e-commerce players are carefully analyzing the advantages of the brick and mortar merchants, and the latest trend is that e-commerce players are now opening physical stores to supplement and support their online business and to be able to offer a more localized customer experience."

WHAT THE MERCHANTS WANT

Marc-Henri Desportes points out that all kinds of merchants wish to fulfil their customers' expectations while at the same time being able to manage their business more efficiently. If the merchant has an international scope, it wants a seamless integration across countries, and if its operation is both online and instore, it becomes an important goal to deliver a consistent user experience across these different parts of the business. Marc-Henri Desportes explains:

"Given the diversity of consumers and the high fragmentation of both market and expectations, what the merchants need is a strategic partner who is able to: 1) understand and manage high level of complexity in an omnichannel environment; 2) secure a consistent user experience across online and instore and across countries; and 3) deliver the right level of customization."

"The customization part is crucial since each market and each industry today have specific needs, specific challenges, and consequently, specific customer journeys. And if the merchant is focusing on delivering great customer experience, it wants to integrate the overall customer journey seamlessly with the payment part of the journey. This again requires smart integration and a highly skilled merchant service provider who understands the specific challenges and needs of every particularly merchant."



UNDERSTANDING ALL VERTICALS

Both Marc-Henri Desportes and Vincent Roland underline that a solution that works for one type of retail store may not work for another. Also, merchants may want to differentiate, and they have specific demands and their views on what the right solution should look like. There is no one size fits all solutions, and Vincent Roland explains how important it is for a merchant service provider like Worldline to understand the differences between merchants:

“Customization means that we need to differentiate between verticals because digitizing the customer experience of a pharmacy is not the same as digitizing the customer experience of a bookstore or a fashion shop or a food store. So, we have to understand what is going on in a particular type of merchant and to understand how merchant categories differentiate from each other and how we can help a particular merchant become more effective by adding unique applications.”

THE WORLDLINE MERCHANT STRATEGY

Apart from being able to help the merchants deploy a smart omnichannel strategy based on a deep understanding of the differences between categories, the merchants expect a strategic partner like

Worldline to help them scale their business both in terms of geographical reach, selection of payment means and range of value-added service to supplement the core payment solutions. Marc-Henri Desportes explains:

“This is why Worldline consistently invests in growing the company’s reach and why M&A plays a key role in the Worldline strategy. We want to cover all merchant expectations in the physical, as well as the digital space, be the one also who delivers all payment acceptance solutions in all geographies for all types of merchant categories. So quite an ambition.”

With high ambitions, there are always barriers that must be overcome. When asked what the primary barriers are for Worldline, Marc-Henri Desportes and Vincent Roland point to the ability to act and react quickly in an already accelerated market.

“The main challenge is to be quick enough to deliver timely on all of the market expectations. So it’s about continuously investing in the extension of our omnichannel solutions – The WL One Commerce Hub. And being fast enough when it comes to integrating all pieces of the acquired companies to make sure that the solutions that we are providing to the merchants are constantly becoming smarter and simpler to use,” Marc-Henri Desportes concludes.

THREE PIECES OF ADVICE FOR MERCHANTS



Do not think that physical and digital are two different things. It is more and more becoming a whole, and if a merchant is good at both parts, it also needs to be good at combining them.



Be careful never to narrow your choices too much. As a merchant, you need to stay open to all kinds of paying and to all sorts of consumer expectations.



To all European merchants, be aware of the new requirement for Strong Customer Authentication (SCA) as a result of PSD2. All merchants need to plan for how to comply with SCA and start preparing as soon as possible.

NEW WAYS TO ENABLE PAYMENTS



POS: DEAL WITH THE COMING ANDROID EVOLUTION

When hardware becomes software like in the cases of YUMI and VALINA it opens a whole new world of value creation for merchants and customers, more flexibility and integration options.

Moreover, on a very practical level, the use of software and a touch screen lengthen the longevity of the device simply because it is not subject to the same mechanical wear and tear as a traditional payment terminal.

MERGING OFFLINE AND ONLINE

Simultaneously with the trend described above is another equally interesting and somehow correlated trend of an ongoing fusion of the offline and online world. What characterizes a lot of devices that tend to become platforms is their perpetual connectivity to the internet. Such an always-connected smart device in a physical shop has the potential to create seamless Omnichannel experiences and to remove frictions from customers' experience.



Today's Retail Competition environment has been completely reshaped by the power of Internet and Software. The New Retail equation states that Merchants who want to thrive have to offer the best tool at the best value offering the best possible personal experience to their customers.

Offering the best deal is as old as selling, but delivering the best possible retail personal experience is a completely new factor. Technology driven.

To deliver new customer experiences smart Merchants have to leverage two ingredients: internet (the cloud) and the software. The software is the key that enables the power of the cloud, that helps to shape new scenarios, that transforms hardware into a point of interaction between your business and your buyers.

The best way to thrive in the New Retail environment is to create experiences based on smart and open software that connect multiple aspects of your buyers' life and needs. Online and offline. In your eCommerce website and inside your store. Together. At the same time.

Software helps Merchants to constantly improve the experience offered to customers, while not impacting their hardware and hedging their investment. Merchants can outperform competition if their Software is based on an evolving platform, open to evolutions and new applications: a Tesla Model S bought today will likely have a different behavior in six months because software can reshape

hardware indefinitely, exceeding the speed of customer demands.

To help Merchants winning in the new competitive arena and creating memorable experiences, Worldline has created a new tailored and evolving business enabling platform where VALINA and YUMI are the first two incarnations. Evolving applications, a unified experience across different devices, a single cloud based platform, all key features of the new WL Business Platform are all the necessary software elements that make possible the creation of astonishing new experiences.

PLATFORM QUALITIES OF YUMI AND VALINA

Both YUMI, the market's first consumer-facing, large-sized interactive payment device with a full-touch display and VALINA, the first all-in-one Android-based unattended payment terminal for PIN-secured transactions, possess these platform qualities. Prepared for any method of electronic payment and based on Android 9 as operation system both YUMI and VALINA support value-added business applications and can be adjusted seamlessly to the user's individual preferences.



YUMI allows the cashier in the physical shop to seamlessly open the door to the merchant's web shop if necessary to fulfil the need of the consumer. For instance, if the physical shop does not have a specific item in stock, that the consumer wants, the cashier can instantly switch on to the merchant's web shop via YUMI. The cashier is now able to order the item immediately from the web shop using YUMI, and the customer can make the payment on YUMI right away using a mobile phone, a contactless card, or a chip card.

VALINA is capable of something similar when it goes online and collects information about mailbox delivery and package pickup linked to specific lockers, which tend to enrich the user experience of the consumer.

SOFTWARE AS A SAFER BET

With YUMI and VALINA, Worldline empowers smart merchants with solutions capable to deliver that new shopping experiences highly sought by their customers.

Differently from your stocks, from your real estate, from your hardware in general, software is allowed to change much faster than the hardware, which means that in changing markets like retail, it is safer to bet on software. YUMI and VALINA software can create connections between online and offline, between your data and your customers. Connections, the engine of our future economy.

YUMI BRINGS EMOTIONS INTO YOUR CUSTOMER EXPERIENCE



Like many other aspects of our society the today's Retail environment is driven by the technology innovation. This is however nothing new: technology always helped smart merchants, attentive to offer best service and best experiences to their customers.

Department stores with elevators revolutionized the industry during '30s imposing shopping as an enjoyable all day activity. Until '90s fully enclosed shopping malls and supermarkets, based on the appearance of the "motorist buyer" (as more people relied on their cars) became the "new standard". Smart merchants of the time began to leverage sophisticated logistic chains offering a huge variety of products displayed on shelves and made possible for their customers to avoid bringing with them lot of cash thanks to the widespread of plastic cards.

The breakthrough of the century that completely changed the game-rules have been the appearance of the eCommerce, removing of the international borders, and the adoptions of smartphones making possible for customers to shop in the exact moment they want something wherever they are in the world. Lines between online and offline channels instantly ceased to exist (what a wake-up call for merchants !) and offering outstanding personalized technology driven experiences has become essential for merchants' survival.

To help Merchants flourish in the New Retail **Worldline launched YUMI**: a game-changing business facilitator that revolutionizes merchant-customer interactions by answering the customer's needs to have a new shopping experience. YUMI is a consumer-facing, large-sized interactive payment device with a full-touch display that opens a new world of value-added services for merchants and their customers during the shopping experience. This business facilitator enables merchants to open an online window in the store(s) making possible whatever new interaction with the buyers. Thanks to YUMI it's also now easy to recognize customers in-store, the mandatory starting point for offering personalized experiences, offers, advices or anything relevant to buyers.

With YUMI, merchants get a fully customizable, all-in-one business enabling platform that, like bricks, can be shaped to draw unique flows. Each App is focused on brilliantly solving a problem or implementing a well-defined task that Merchants can chain creating ad-hoc flows.



FOR FURTHER INFORMATION:
WORLDLINE.COM/YUMI



SO FAST IT'S INVISIBLE



Nick Kerigan from Barclaycard puts it well: "Modern consumers are busy, so it is perhaps unsurprising that they prioritize efficiency and convenience."¹ Payment is no exception. When Uber started removing the traditional payment process at the end of its experience, it was then clearer than ever that payment was a mere distraction, a friction that needed to be addressed. Major online retailers offered easier-than-ever ways to smoothen the customer's journey. And the customers proved them right. For every step of the way, consumers want it fast. To the point they want it gone. Everywhere. Online and offline.

Retailers who thrive fully come to grips with what technology has made possible. A study from Juniper Research shows that payment technologies that aimed to reduce or remove physical checkouts from the retail experience "will process over \$78 billion in transactions by 2022, up from an expected \$9.8 billion in 2017."² Saying that the future of payment is invisible seems more like an understatement.

The line between online and offline is more blurred than ever before. A customer ordering online wants to be able to get it from his nearby store. And customers in the store still use their smartphones. A survey from HRC Retail Advisory (HRC) found that 59% of US smartphone shoppers used their device in-store to compare costs or search for deals and coupons³.

Worldline's Scan & Pay solution addresses this groundswell of change in customer habits and practices while providing retailers with a fantastic opportunity to get to know their customers better and to grow customer loyalty and satisfaction.

The friction of downloading an app on the phone disappears with a simple scan of an in-store QR Code that automatically takes the customer to the PWA, an app directly accessible through his browser. He then scans the item, let's say a pair of pants. And right on his phone, some matching shoes are offered to him. Because the cross-sell function has been designed to

provide the best value to the customers, he is excited about the idea of saving the time trying to find new shoes. He indicates the size, and soon after, an available salesman brings him the box of shoes.

Excited by his new purchase, it is now time to leave. And there is no need to wait in line. Over 75% of shoppers say that queuing to pay for a product is the worst part of the in-store experience⁴. Payment is the ultimate friction that the customer has the power to avoid. He can, as usual, pay on a dedicated payment terminal with his credit card. But the most invisible option will be to use his in-app wallet to validate his payment and walk out of the store.

The well-known and traditional steps of waiting in line and paying become so efficient to the point that they are virtually gone. And with Worldline's Scan & Pay solution, it becomes so fast that it is practically invisible. Welcome to the future of payment!

SECURE PAYMENTS OVER THE PHONE



How to trust that online payment is secure via contact centers and phone calls? Worldline offers an easy-to-use and non-intrusive solution to facilitate payment via voice channel: our IVR payment solution called WL Pay by Voice.

Payment through IVR (Interactive Voice Response) is an important enabler in customer relationship management, and today, we can pay all our bills through IVR or contact centers.

The main challenge of this way of payment is that call centers need to be PCI-DSS compliant, which can prove to be very complex from an organizational standpoint, as well as expensive to operate.

Worldline, through the WL Pay by Voice solution, offers to implement secure payment through IVR with minimal complexity.

WL Pay by Voice also offers full security with PCI-DSS certification, automatic caller identification (no need to identify again on WL Pay by Voice), customized IVR script to match brand requirements, and real-time notification to your information system in order to take the payments into account.

LOTS OF VALUE-ADDING FEATURES

For organizations, WL Pay by Voice isn't just a plain IVR; but brings many features. It comes with built-in statistics of payment, and also detailed behavior of the customer actions. That includes the possibility, for every single call, to consult detailed events of the call: landing on IVR, entering PAN attempt, expiry date attempt, CVV number attempt, payment information, and notification to your information system.

Worldline's dedicated team analyzes specific requirements of each project to make it easy for companies to understand best how they can enable IVR payments for their customers.

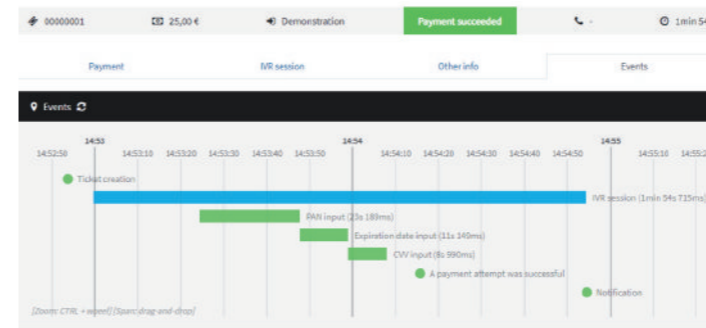


Figure 1: Call tracking

FULLY PCI-COMPLIANT

The transformation to a fully PCI-compliant solution is easy to implement with WL Pay by Voice solution that is natively connected to many PSPs (Payment Service Providers) including, of course, to Worldline's PSP solution: WL Sips. Worldline's solution thus reduces transformation cost.

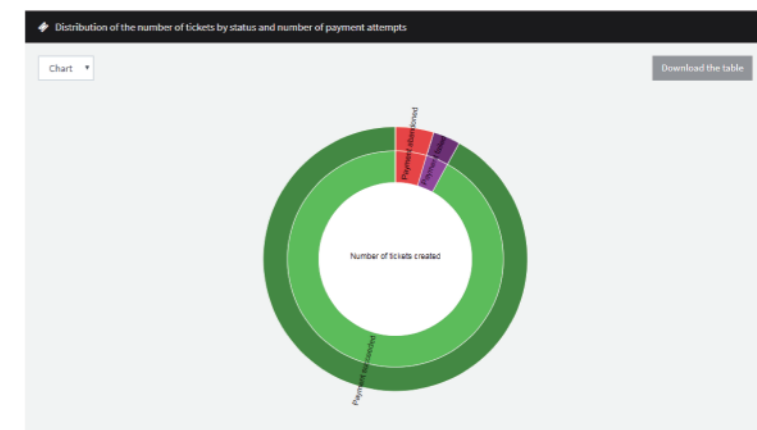


Figure 2: Payment status statistics

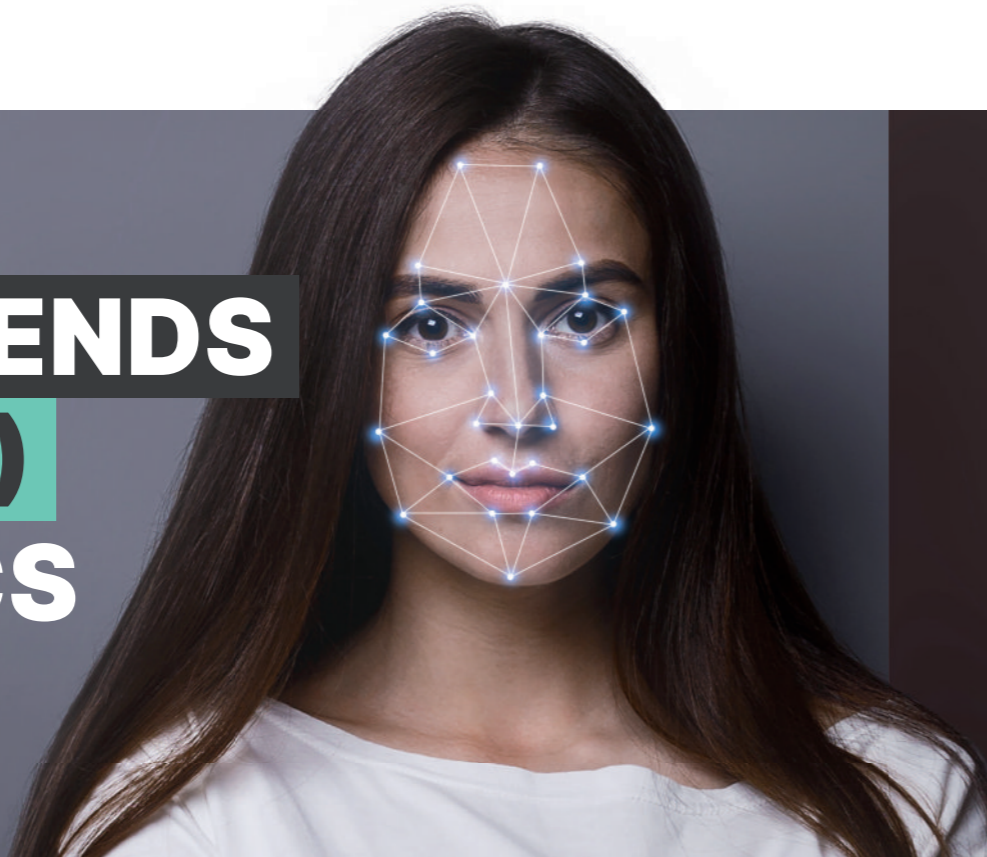
¹ <https://www.fintechfutures.com/2018/11/invisible-payments-finding-success-in-a-convenience-driven-market/>

² <https://www.juniperresearch.com/press/press-releases/smart-store-technologies-generate-over-78bn-2022>

³ <https://www.emarketer.com/content/two-thirds-of-internet-users-check-phones-in-store-for-product-information-skipping-store-associates>

⁴ <https://www.qminder.com/cost-customer-service-wait-times/>

LATEST TRENDS IN (MOBILE) BIOMETRICS



With Strong Customer Authentication (SCA) becoming new requirement for all future digital payments, biometrics is more relevant than ever. Worldline's biometric experts are in the frontline of the development, making sure to be able to fulfil all future needs of Worldline's clients. However, since the success of a biometric solution depends on much more than the technology itself, Worldline's Deputy CEO, Marc-Henry Desportes, underlines that even a technically excellent biometric solution needs to be embraced by users and community to become successful, which means that the future of biometric-based solutions is hard to predict.

Biometric is defined as the automatic identification or verification of living individuals by using their physiological or behavioural characteristics. Biometrics are generally classified as Physiologic Biometrics (such as digital fingerprint, iris, face, vein or DNA) and Behavioral Biometrics (such as voice, gait or keystroke dynamics).

Translated into two-factor Strong Customer Authentication (SCA) terminology an authentication factor based on biometrics is a so-called "Inherence factor" as opposed to the "possession factor" (like a chip card or a personalised device) or the "knowledge factor" (like PIN or pass codes). And since SCA, as a consequence of the PSD2, is now becoming mandatory for all future digital payments in Europe, further developments of authentication methods secure enough to be accepted as an SCA authentication factor - like the "Inherence factor" in the case of biometrics - is more relevant than ever.

For Worldline, working with authentication methods is nothing new. For example, banks and governments have been using the WL Trusted Authentication solution for years. However, Worldline is continuously investing in the area of strong authentication, and with the maturation of new technologies, biometrics is naturally becoming a focus area.

THREE TRENDS OF MOBILE BIOMETRICS

R&D Researcher at Worldline, Wael Elloumi, who is specialized in biometrical authentication on mobile devices, points at three overarching trends. One is the physiological biometrics on smartphones like face recognition solutions and fingerprint scanners. Those are highly user-friendly solutions, but the drawback at the current level of development is their vulnerability to cleverly made spoofing attacks. For instance, it is possible in some cases to fool a face recognition system by replacing the real person with a photo or a 3D mask; and likewise, fingerprint solutions may be deceived by silicone fingerprint fakes. However, as these technologies evolve further spoofing is becoming more and more difficult.

The second trend is the behavioural biometrics on personal devices like smartphones and smartwatches. These devices support behavioural biometrics by collecting data and analyzing unique individual behavioural patterns of how the user of the smartphone or the smartwatch interacts with the device. An example is BioTyping that monitors the way the user of the device enters his or her PIN or pass code both in terms of pressure (is it a light or a heavy touch), surface (does the user touch a small or a larger area of the button), and touch motion (how does the user move his finger from button to button). The main advantage compared to physiological biometrics is that a behavioural biometric technology like BioTyping is much harder to spoof than facial recognition or fingerprint-based biometrics. It also has the advantage that users generally feel behavioural biometrics less intrusive than e.g. face or iris scans. A current limitation of BioTyping is that it requires a six-digit pass code to collect sufficient data for a secure output.

Finally, the third trend, which, according to Wael Elloumi, points a bit into the future, consists of so-called Continuous Behavioral Biometric Authentication and Multimodal Biometrics. The first part continuously monitors the way the user interacts with this smartphone when navigating on the mobile browser, in the apps and the user's digital wallet. Besides pressure, surface and touch motion, the method uses the smartphone's gyroscope and accelerometer to collect data and create behavioural patterns. Moreover, Multimodal Biometrics is a way of obtaining even stronger authentication by combining elements like PIN code, face recognition, BioTyping and elements like voice recognition and lip motion.

UNPREDICTABLE FUTURE FOR BIOMETRICS

When asked by Futuring Payments about how far these new trends of biometrics will take us in the coming years, Deputy CEO at Worldline Global Marc-Henri Desportes' frank answer is that the future of biometrics is tough to predict.

Not just because biometrics is a relatively new technology offering undreamt-of possibilities, but primarily because whether technology is accepted and becomes popular in a particular market is influenced by many other aspects than the technology itself.

"Whether biometrics becomes successful in a certain market is determined by a lot of factors that have nothing to do with the technical design of things. Facial recognition, for instance, is a very efficient solution, but some people just don't like the idea and tend to be against it. And we do not know yet how the different countries and regions will decide on the use of biometric solutions such as facial recognition."

"Remember that our role as a provider of services and technology is to handle all cases and adapt to all possible needs and demands. So instead of trying to guess what the future will bring, I prefer to make sure that Worldline is open and prepared. We are not a consumer brand, we are not pushing certain solutions directly to the consumers, and we are not in a position to dictate or influence the development in one particular direction. Our role is to adapt to the development and customer expectations at any time."

FIGHTING FRAUD



TOWARDS POST-QUANTUM SECURITY



In a not too distant future, lightning-fast quantum computers will begin to take over the most demanding computational tasks. However, as a direct consequence, public-key cryptosystems like worldwide-used RSA, DSA, ECDSA and Diffie-Hellman key exchange will no longer be unbreakable.

Security needs to be significantly upgraded, not least to keep digital payments safe. As the only company representing the payments industry, Worldline is at the forefront of securing payments by playing a significant role in creating standards of quantum-resistant security.

Classical computers use a binary code system built out of bits, which are small strings of combinations of binary digits – like zeros and ones. The binary code system has enabled us to develop high-speed supercomputers, and it has made it possible to drive the digitization of industries and societies to a somewhat mature stage.

However, what if a computer code system could use not only the binary positions of zero and one, but include in-between positions as well as both positions simultaneously? Like a flipping a coin which is not just in a flat in a head or tail position but both at the same time as well. What would that do to the number of possible combinations and the calculation power of a computer?

Quantum computers can utilize such middle positions – so-called quantum superpositions – and soon, these new machines are expected to exceed the capacity of today's supercomputers with a factor of hundreds or even thousands. Quantum computers will be incredibly fast, and they will be able to help scientists solve even extremely tough problems. Such as developing vaccines for complex diseases or resolving some of the world's most critical issues like the imminent global climate crisis.

THE IMPENDING SECURITY CHALLENGE

Nonetheless, despite all the positive qualities of quantum computing the flip side of the coin is that quantum computing makes it extremely demanding to create a security system that a quantum computer will be unable to break. Consequently, to retain and increase the level of IT security of today, new security systems are needed.

Today's public-key cryptosystems like worldwide-used RSA, DSA, ECDSA and Diffie-Hellman key exchange will not be able to withstand the enormous computing power of the quantum computers of the future. Chief Innovation Officer of Worldline, Nicolas Kozakiewicz, explains:

"Quantum computing is no longer science fiction, it is science fact, and these computers are getting more powerful every day. As we design the payment security systems of the future, we need to be thinking about how powerful these computers will be and working towards future-proofing our security needs."

INVESTING IN QUANTUM-RESISTING PAYMENT SYSTEMS

To keep up with the development of quantum computers, some of the best cryptographic minds of the world have

taken on the task of developing next-generation quantum-resistant security systems.

As the only company representing the payments industry, Worldline is at the forefront of this necessary work. The Worldline Research & Development crypto team works together with academics, technology laboratories and industrials within the National Institute of Standards and Technology (NIST) of the U.S. Department of Commerce.

"We are very proud as Worldline is a part of the worldwide project established by NIST to address Quantum risk in payments and develop quantum-resistant Cryptographic tools to protect payments from Quantum attacks that we believe are not at all unlikely," says Nicolas Kozakiewicz.

A NEVER-ENDING STORY

Nicolas Kozakiewicz predicts that the first quantum computers will be commercially operational in about 7 to 12 years from now, and he expects Worldline in cooperation with other partners to be ready with the first NIST standardized quantum-resistant security systems in about 3 to 7 years. But Nicolas Kozakiewicz underlines that keeping IT systems and digital payment systems safe is going to be a never-ending task since:

"Since the increase in computing power has no upper limit, we will have to keep developing world-class security solutions. That is our task, and we have to take that extremely seriously."

STRONG CUSTOMER AUTHENTICATION – WHERE ARE WE NOW?

WHAT MERCHANTS NEED TO DO

Regardless of the length of any transition period applied by national regulators towards full implementation of the new rules, online retailers need to start preparing for Strong Customer Authentication and 3DS now. As a first step, merchants should contact their PSP to confirm that they support at least 3DS 1.0 for SCA and will be compliant with the new regime. If a PSP cannot support SCA, an issuer bank may decline to authorize a merchant's non-authenticated transactions. Although 3DS 1.0 is compliant

with SCA for now, a PSP should also have in place a roadmap for migrating merchants to 3DS 2.x when the improved protocol is supported by banks. PSPs must explain how merchants will be affected by the new requirements and what they are doing to ensure full compliance with SCA. Merchants will also need to discuss the exemption rules with their PSPs and acquirers and agree which exemptions to request in order to achieve frictionless flow. The management of exemptions will be essential to reshaping the online payment experience and increasing the confidence of cardholders. If an

acquirer does not request the exemptions on behalf of a merchant, issuers may demand strong authentication for all online transactions covered by the rules, potentially reducing the merchant's conversion rates. By working closely with their PSPs and acquirers, merchants will be able to minimize the number of authentication requests from issuers and ensure high levels of frictionless flow. As various markets and banks may interpret the rules differently during the transition period, it is important at this time for merchants to develop strong partnerships with their PSPs and acquirers.

The final part of the EU's new payment directive, PSD2, which has not yet entered fully into force, are the so-called Regulatory Technical Standards (RTS) comprising the security element Strong Customer Authentication (SCA). September 14 of this year was set as a deadline, but it did not hold water. In this article, we give a status on the SCA process and the current situation.

Fraud levels in digital payments have increased over the years in Europe as well as the rest of the world. As the European Commission agrees with the payment industry that combating fraud is critical to the further development of digitization, Strong Customer Authentication (SCA) became a key part of EU's Revised Payment Services Directive, PSD2.

PSD2 came into force the 1st of January 2018, but the so-called Regulatory Technical Standards (RTS) on SCA were delayed, and it was decided that the standards should be fully implemented no later than the 14th of September 2019. Consequently, from that particular date no digital transaction in Europe - with certain exceptions (see fact box) - should ever take place without the use of Strong Customer Authentication.

However, as the September deadline came closer, more and more European countries realized that a vast number of their national e-commerce companies and banks were unable to comply with this already once postponed enforcement date.

It was estimated that on average European online shops would lose around 20% in revenue if they were unable to comply timely, and the European Banking Authority (EBA), who is responsible for the Regulatory Technical Standards, finally decided to allow yet another postponement.

The new and final deadline announced in an EBA opinion is the 31 December 2020, and the National Competent Authorities (NCAs) around Europe have announced the postponement to their respective countries' relevant national players, i.e. banks, PSPs and internet shops.

However, to avoid a situation where the extension of the deadline could lead some of the parties to take no action until the new deadline comes dangerously close, EBA - via the NCAs - have demanded concrete SCA implementation plans from the parties as a condition for a postponement. In other words, EBA has ensured that they will not face the same situation again as the next deadline approaches.

Finally, it is important to underline that merchants and their PSPs should be technically ready no later than the end of H1 2020 in order to get enough time to test the full chain with their acquirers, the schemes and the Issuers, since it is likely that there will be different interpretations of the new rules, and the fine-tuning can take time and must be completed before the winter period - with all the special events like black Friday, single day and Christmas events.

THREE SECURITY FACTORS CAN BE USED FOR AUTHENTICATION

- Knowledge ("something you know"), which will typically be a username and password.
 - Possession ("something you have"), which can be, for example, a physical debit card, a "personal" app on the phone (e.g. mobile banking) or the phone's SIM card (where possession is confirmed via a one-time code sent via SMS).
 - Inherence ("something that one is"), which can be a biometric factor, such as a fingerprint or an iris scan.
- To comply with the SCA requirement, two out of three safety factors must be used.

STRONG CUSTOMER AUTHENTICATION (SCA) APPLIES TO BOTH PAYMENTS AND DATA

PSD2 RTS applies to all kinds of digital payment transactions, with the exception of electronic payments initiated by the payee, electronic payments at an unattended payment terminal for the purpose of paying a transport or parking fare, and one leg out transactions. SCA must be applied unless the transaction can be categorized as SCA exemption, e.g. Trusted Beneficiaries, Transaction Risk Analysis, Low value transaction, Recurring payment.

In addition to payment transactions, SCA will apply in cases where a Third Party Provider (TPP), with the account holder's approval, wishes to access account information in the account-holding bank, but without a payment transaction.



A FRESH LOOK AT PAYMENTS

For their part, merchants need to review their payment processes and flows to take advantage of these changes and improve the experience of their customers. They may have to implement 3DS Server to benefit from 3DS 2.x. If a bank requires strong authentication for a transaction, a merchant must be ready to support SCA as seamlessly as possible, minimizing any inconvenience to online shoppers. Merchants may also want to take the opportunity to positively engage with their own end-users about any changes they will see when making online payments in future. All players in the payments ecosystem, from banks to PSPs to merchants, will need to ensure that the e-commerce marketplace adapts to the new rules with the minimum of disruption. The long-term result of SCA and 3DS 2.x will be lower fraud rates in e-commerce, higher cardholder confidence and increased convenience. With a simpler and more secure payment process, merchants may expect to see higher online conversion rates when the new rules are implemented.

WORLDLINE: READY TO DELIVER

Worldline was one of the first payment providers in Europe to process 3DS 2.0 transactions in a live environment. In Q4 2018, we launched a project with banks, card schemes and a selected group of merchants, leading to a pilot phase which since May 2019 has been authenticating real-world transactions with 3DS 2.0. Thanks to our payment acceptance solution, which is dedicated to securing and managing e-commerce payments, we are the clear-cut European partner of choice for merchants looking to maximize frictionless flow, manage exemptions and optimize online user experience. Worldline experts have been sharing our expertise and practical experience in this area over the course of the past year in a series of workshops with merchants, PSPs and banks to explain how payment platforms can effectively apply 3DS 2.0. We are already working with a growing number of merchants of all sizes to deliver compliance with the new regime. Our experts are ready to help all merchants successfully embrace these challenges and reap the benefits of online payment processes that will be safer, smarter and easier to use.



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MULTICHANNEL COMMERCE



WL ONE COMMERCE HUB: HOW TO INCREASE EFFICIENCY AND ENHANCE CUSTOMER SATISFACTION

The customer experience is now a strong differentiator, a new competitive advantage, and merchants who can create a seamless experience across channels will be the number one choice in terms of recognition from consumers. Worldline has developed the payment platform WL One Commerce Hub to assist merchants in utilizing and mastering the opportunities of today's omnichannel reality.

Today, merchants have to facilitate, more aggressively than in the past, the convergence of their in-store and their online experiences since consumers have become pain point intolerant. They have new expectations when it comes to their shopping experience, whether it is in-store or online. Click and collect, click and return, and the overall customer journey through the different points of interaction must be facilitated.

Merchants are also facing the urgent need to accept new ways of payment to have a strong market presence in the different countries where their activity is, online and in-store. Moreover, merchants are also encouraged to create new concepts like self-service, more and more kiosks in stores, totally autonomous client services popping up in the retail environment. This is why merchants must find partners, including technical partners, to help them ease this journey across online, in-store and new concept's touchpoints.

- ### THREE MAIN CHALLENGES
- In short to mid-term merchants need to focus on three key challenges:
1. The first one is to continue to **grow their business**, meaning **expansion in new markets and new channels**. Merchants have to expand across countries and regions, both in-store and online. They have to optimize transaction processing and to secure it, to facilitate and make this convergence a reality.
 2. The second challenge is to **increase customer engagement** by leveraging digital solutions. Merchants also want powerful payment devices, which are not just for payment anymore but also points of interaction, making online and in-store payments convenient and customized. This last point aims to create a differentiator during this check-out process, before, during and after the payment.
 3. The third challenge is to **boost business agility** by offering new services, introducing new concepts and using innovation on the different points of interaction.





CASE STUDY

DIGITAL WALLET

SMARTER USE OF DATA

To better serve the customers and improve efficiency, merchants need to start smartly using data. Merchants have to leverage data to understand how customers behave and navigate across channels; they need to understand the customers' preferences in terms of payment methods, and they need to know how to recognize the customers better to reward them with discounts or coupons, and so on.

Directly supported by tokenization technology, WL One Commerce Hub, which is a centralized payment platform, which empowers the merchants by making it possible for them to gather all transaction data in one place. All data can be kept updated, synchronized and transparent across the organization, which make critical and otherwise massively time-consuming tasks like transaction lifecycle management, data analytics, business reporting and reconciliation considerably more efficient.

MODULAR DESIGN AND BROAD OVERVIEW

WL One Commerce Hub as a single platform for all payments in Europe and beyond allows merchants to expand their business in new markets with optimized transaction costs. It also enables them to deliver an omnichannel client experience, such as 'try and pay later' services.

The WL One Commerce Hub has a modular design, which allows Worldline to provide end-to-end one-store shop services, combining payment devices, digital solutions, commercial acquiring, alternative payment methods acceptance and data management. But it also allows for "à la carte" solutions, where merchants can pick from Worldline's wide portfolio of solutions and products. Chief Merchant Officer at Worldline, Frederic Loos, explains:

"What you need as a merchant to maintain the broad overview of channels and points of contact and to offer the same high service and user experience both across channels and geographies, is a platform which allows central management and at the same time has an open and modular

design so that it can adapt to new future requirements and needs. This is how the WL One Merchant Hub is designed."

Moreover, WL One Commerce Hub makes data management more effortless. Frederic Loos explains:

"One thing is to settle what has already been sold, but another is to make consolidation and appropriate reporting of the different payment methods and different channels. This takes a lot of reliable, high-quality data, and to that end, a data platform like WL One Commerce Hub is the perfect tool, because the platform enables the merchant to easily gather and break down data from many sources in one place."



Digital Wallet is no ordinary mobile wallet. It is a platform that connects the retailer and the end-consumer and enables merchants to push sales by reducing queue and offer digital value-added services that enriches the customer's shopping experience.

Worldline forecasts that mobile payments will triple within the next couple of years. Certain countries have been quick to convert to "cashless" societies, as mobile is already an established payment method, whereas in other countries, for cultural, social, or economic reasons, cash is still king. However, the trend is clear, and especially amongst younger generations who are more likely to demand the option of paying with mobile.

THE CHALLENGE FOR MERCHANTS

These trends represent both challenges, but also opportunities for retailers. But one thing is certain, merchant retailers must develop mobile-friendly payment solutions to attract younger customers in the future. Having a clear mobile strategy is paramount for merchants, as this payment solution is not just about sales, but an

integrated part of the customer journey, and an essential conversion mechanism, as well as a marketing tool. Customers expect a convenient and efficient shopping experience that emphasizes customer centricity. These expectations create tremendous pressure on merchants, as both physical and e-commerce retailers must adapt to survive.

WORLDLINE MERCHANT WALLET

Currently, most customers are familiar with mobile wallets, which are generally restricted to peer-to-peer money transferring and payments. WL Merchant Wallet, the wallet produced by Worldline, does not affiliate with "traditional" mobile wallets, and is not confined to payments and money transfers, as it contains a wide range of functionalities and value-added services that are not typically seen in mobile wallets. The aim with the WL Merchant Wallet is to provide a richer and more pleasant user experience during physical and online retail shopping. The wallet does not only make the customer journey more fluid by providing an improved and transparent payment stage, it also reduces a true customer pain point:

"The core of WL Merchant Wallet is to deliver a seamless checkout experience for the end-consumer. It is configured to meet one of the most common causes of customer dissatisfaction: queuing. To do this, Worldline is delivering a software platform that allows the merchant to develop an app that connects them with the customer, thus significantly decreasing checkout related queues," says Eric Van Zurk, Head of Products & Solutions, Mobile Merchant Wallet at Worldline.

In all reality, there is no such thing as a positive payment experience. Giving away money is rarely associated with a happy feeling and should not be treated as such. In an increasingly competitive and busy world, retailers cannot afford to take up customers' time with slow payment processes. Payments must be as easy and fast as possible when a customer decides to spend their money to buy a retailer's product.



CASE STUDY

DIGITAL RETAIL A ROMANTIC SHOPPING EXPERIENCE



VALUE PROPOSITION FOR MERCHANTS: NEW CUSTOMERS, UPSELLING, AND CROSS SELLING

Besides improving the satisfaction rate of the merchants by offering an easy checkout payment method, eliminating the queue is likely to attract new, engaging customers.

WL Merchant Wallet platform provides merchants with a concrete link to their end-consumers, which generates an opportunity for upselling by producing digital, contextualized interactions with customers in real-time before, during, and after the purchase. These additional digital touchpoints generate behavioral data that enriches customer knowledge. By having a stronger data foundation, retailers are able to offer customized deals while the customer shops, which will allow them to push more products, hence increase sales while generating value for the customer through attractive deals.

But this wallet platform does not only connect retailers to the end-consumers; it also connects merchants to other merchants, hence offering a unique opportunity for cross-selling:

“We are able to simplify the process of linking different merchants. Based upon the agreement between Worldline and the merchants involved, retailers are able to utilize the WL Merchant Wallet platform to engage in cross-industry partnerships and manage the cross selling efforts,” Van Zurk states and continues:

“For example, customers are able to buy gas at a gas station to refuel their cars and pay using their favorite gas app. Furthermore, they will, at a certain stage, receive a discount coupon to, for example, a nearby fast-food restaurant, and can use the Fuel App to pay directly at the restaurant.”

Here, WL Merchant Wallet facilitates the mixing of two merchants from completely different industries and empowers cross selling by attracting new customers.

Digital technology has changed retail forever. To succeed in today's increasingly diverse and competitive environment, retailers must look for new ways to improve efficiency and reduce costs. Global retail giants are constantly pushing the boundaries of competition and innovation, due to this smaller retailers must embrace digitalization to stay competitive.

RETAIL MARKET CHALLENGES

While digital technologies represent opportunities to reach new customers, they also represent challenges in terms of customer engagement and loyalty. Teaming up with a partner that has the necessary expertise to support the entire customer journey is essential. Retailers are also challenged to engage their customers with a consistent high-quality experience, both in-store and online, engaging in a more meaningful and personalized way. Lastly, many retailers struggle to stay profitable, as global competition forces lower prices and investments in digital transformation. Optimizing payment processes by enabling alternative payment solutions can be a tremendous step in the right direction and give SME retailers financial breathing room.

Through digital retail, Worldline aims to convert the negative perception that is generally associated with payments into a positive one by providing world-class value-added services that enhance the overall customer experience. Worldline is present at every step of the value-chain and assists B2B and B2C merchants in placing customers at the heart of the business.

SUPPORTING THE DIGITAL RETAILER THROUGHOUT THE CUSTOMER JOURNEY

Worldline meets the merchants during the initial communication and the fully automated onboarding stages and supports their digital agenda throughout their digital life cycle. In Worldline's Digital Retail, the focus is not directly on the payments. Instead,

the strategic attention is on the value-added services around the transaction that tie the merchants to Worldline. These services enrich the payment experience for the merchant and the cardholder.

PACKS

Payment is a crucial step in the buying journey, and as such is an opportunity to engage and delight customers. The modern customer wants to pay cashless everywhere they go, and merchants must be prepared for this demand. With Worldline's self-onboarding system called Pack, merchants can go online and order complete, cashless payment processing solutions that accept all conventional credit and debit cards from a single source at the point-of-sales. Merchants can pick a plug & play payment package that fits their business, and their customers, and start accepting secure online and in-store payments almost immediately. Worldline is the reliable partner that can help retailers seize the opportunity of comprehensive digital and cashless payment solutions to reach for new customers and increase sales.

THE ONE LINK SOLUTION

In a digital world, customers want action within just a few taps on their smartphone. The One Link program by Worldline is a one touch experience that puts all of an individual's loyalty schemes behind one or multiple payment cards. With this solution, customers can register all of their loyalty cards and programs in one app. By linking multiple merchant loyalty schemes through the One Link app, the user can collect loyalty points at every purchase, allocate them to the linked payment card, gather all their loyalty points within one interface and access them directly in the dashboard in the app. If the merchant offers loyalty points for a purchase, then the amount of points, time, and location will show up automatically in the app.

THE SCAN & PAY FUNCTIONALITY

WL Merchant Wallet is a platform that bundles merchant services together for customers. The customer journey exists purely through the app, as the end consumer can scan the QR code and pay directly through the app, while also receiving additional product information and recommendations, geolocation, monitoring expenses and use loyalty cards and discounts.

One of these value-added services is called Scan & Pay, which can, upon the merchant's wishes, completely eliminate interaction with employees throughout the entire shopping experience and introduces the joy of convenient online shopping into the live environment of supermarkets with the frictionless mobile payments. In other words, this means no waiting in line, no grocery packing, and no waiting on a paper receipt, as the customer receives this, along with potential loyalty points and cashback, within the app.



CASE STUDY: SKIING REGIONS IN AUSTRIA AND SWITZERLAND

Austria and Switzerland are homes of some of Europe's most prestigious and beautiful skiing areas, with different regions extending throughout the countries. Worldline is playing an active role in both countries to enhance the digital customer experience with simplified, value-added payment solutions.

In Austria and Switzerland, certain skiing areas have regional tourist cards, where the skiing customers can become members of a bonus scheme by connecting the tourist pass to their credit card when they arrive to the ski resort. Once the membership terms have been accepted, customers will start receiving points on their accounts when they use their credit card within the ski area. This provides the skiing region with an opportunity for partnerships, which can be also be particularly beneficial for local SME merchants. By becoming a member of the tourist bonus card program, the local bakery can receive and give out loyalty points from the system to its customers, which functions as a local token. This gives the skiing region a totally new approach to partnerships because they now have a program that could potentially include all the merchants in the region. The customers will also benefit, as they receive an easy payment method and are able to accumulate bonus points and save money on various purchases throughout the customer journey.



But the One Link program can do more than loyalty program management. One Link supports several identifier schemes, such as debit and credit cards, IDs, phone numbers, or even car license plates, which can be connected with both payment and loyalty schemes, which creates a broad range of possibilities for merchants:

“For example, if a customer has listed his license plate number in the One Link system and wants to park his car, the One Link program can support the parking space provider by authenticating the potential new customer through the app, and then we can confirm that the person has an active payment card and is a paying customer. This generates value for both the merchant and the customer by linking multiple sources of information into one platform, which optimizes the authentication and payment processes,” Christian Baumann, Global Head of Digital Retail at Worldline.

JARIS WORKING CAPITAL

For SMEs, money can sometimes be a bit short at the end of the month. With just a single click, retail merchants can request a loan and will receive the money in their account the following day. Working Capital is a blockchain based solution that supports merchants' cashflows as they look to grow their business. Worldline's partner quickly evaluates the retail merchant's payment history, and then offers three different loan options. Once approved, the money is transferred. This service is highly successful, as it frees up merchants and supports them to go in new directions with their business. The transparency is a key element here. Worldline, the third-party financial partner, and the customer share information through a secure, but transparent system that discloses relevant transactional and financial information about the involved parties, which enables confidence in the system. Worldline believes that the combination of transparency and one-click function is the best way to serve modern retailers.

One of Worldline's service provider partners offers a seasonal membership card for skiers that provides access to 37 key geographical ski districts for a fixed, annual fee. The service provider partner wanted to add a payment method to their product. Through Worldline's One-Link solution, the ski service provider can combine payments, bonus schemes, promotional offers, and other services by linking to the customers' credit or debit card, which the customer registers directly through the ski service provider's app. When the customer uses their payment card, they receive loyalty credit that they can use at any of the membership regions for additional services, such as extra ski days or new gear at ski rental shops, food or drinks at restaurants on the mountains, groceries at the local supermarket, etc. In this case, the One-Click solution enables a multi-partner, cross-industry ecosystem of merchants within the Swiss and Austrian skiing areas.

The service provider and the merchants do not need an additional payment card, and Worldline is responsible for the customer identification at the point of sale. Worldline delivers an integration of the scheme and serves everything through APIs. Thus, the skiing service provider connects its app and system through Worldline's APIs. By using Worldline's infrastructure, an integration is not required by the partners, and the APIs mean that this particular service is not limited by geographical borders. This means that a similar service could be easily implemented with any similar service provider that wants to connect and collaborate with numerous skiing districts to create a broader, cross-region ecosystem that offers value-added services to support the customer journey of the tourist, while also strengthening the local communities.

CASE STUDY

BLOCKCHAIN IS HERE?

The wait is over. Blockchain technology is now being used in the real world solving concrete, practical problems for companies, organisation and societies. Worldline wants to play a key part in this movement because blockchain is one of the new technologies – together with AI, quantum computing and IoT – to fundamentally disrupt existing business ecosystems. And Worldline's ambition is to be the preferred strategic partner for its customers also when it comes to utilizing blockchain in the best possible ways.

When the mysterious Satoshi Nakamoto introduced Bitcoin to the world at the beginning of 2009, what he really did was to release a package of three innovative news: a cryptocurrency, a peer-to-peer payment system, and an underlying technology called blockchain.

This article is about blockchain, but for a long time, the bitcoin cryptocurrency and the bitcoin payment system made it rather difficult to have an objective and unbiased discussion about the potential of blockchain as an independent technology.

PRACTICAL USE OF BLOCKCHAIN

However, those days seem to be over now, and what we see today is the emergence of a lot of incredible new blockchain-related projects across a wide range of sectors. Use of blockchain technology is no longer just limited to vaguely defined experiments and pilot projects; blockchain

is for real, and blockchain is on its way to becoming an integrated part of daily business in many different industries all over the globe.

Companies all over the world now view blockchain as an important opportunity, and for Worldline working with blockchain projects in collaboration with its clients has been high on the agenda already for some time. Worldline's Head of Payment Strategy, Sylvie Calsacy, explains:

“In Worldline we have been aware of the potential of blockchain for a long time. The focus from the beginning has been to become a credible blockchain facilitator for our clients, enabling them to distinguish between hype and genuine practical use of this new technology.”

WHY WORLDLINE FOCUS ON BLOCKCHAIN

Sylvie Calsacy explains that for Worldline the reason why blockchain has become an important focus area is that this is an example of a truly disruptive technology as important as technologies like AI, quantum computing and IoT.

What blockchain does, and the reason why it has the power of disruption, is that it allows programmable digitized assets to be transferred in a distributed online network in a both secure and transparent way in close to real-time.

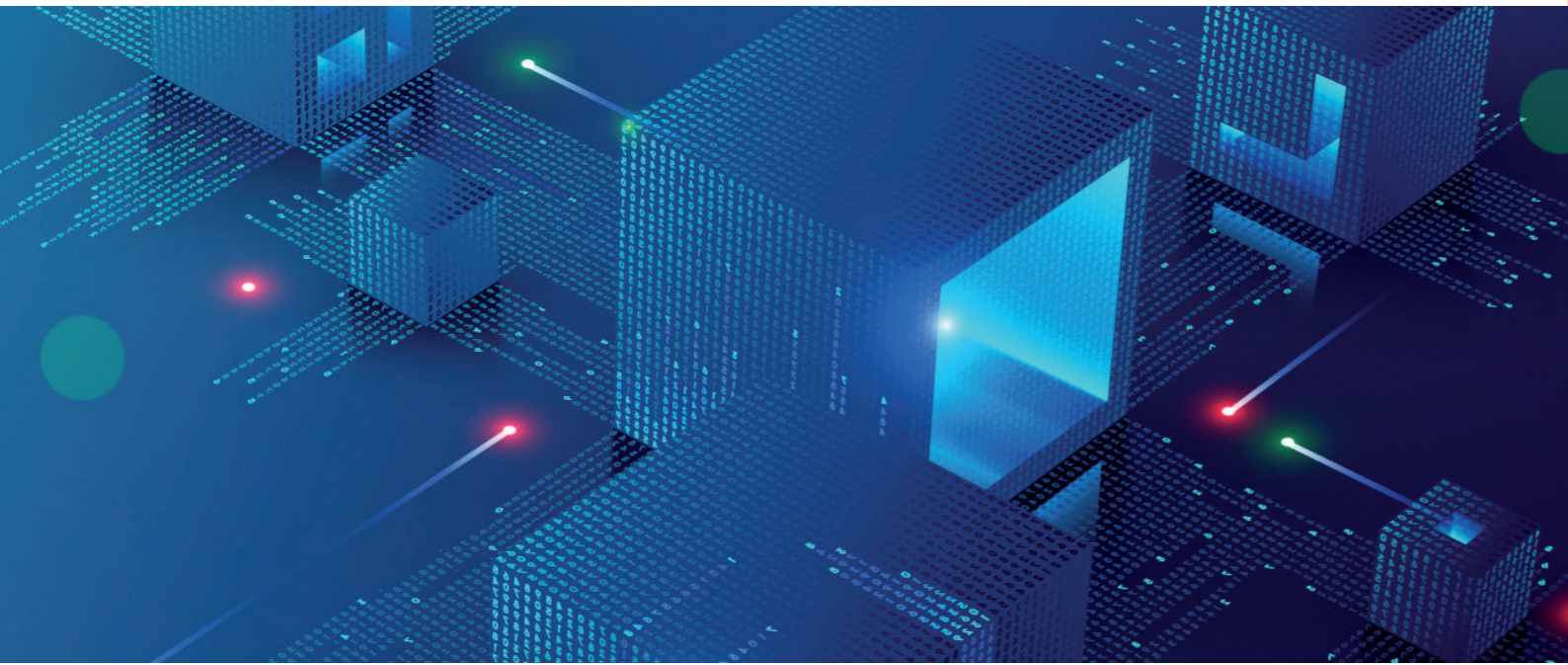
“For many of our customers using blockchain technology will enable them to optimize and partly automate important processes and at the end to safe costs and strengthen their competitiveness. And that is a very good reason for us in Worldline to focus on blockchain technology. Blockchain is not just about innovation. It allow us - and in some ways even forces us - to rethink existing business ecosystems,” says Sylvie Calsacy.

Worldline wants to help establish these new ecosystems based on blockchain, which partly means to lay out the fundamentally new infrastructural rails that will enable businesses to operate solutions on a blockchain and to ensure that using a blockchain is, in fact, tantamount to optimized processes and not the opposite.

THE FUTURE OF SOCIAL NETWORKS

Worldline is currently involved in a line of blockchain projects in several countries and regions, and an excellent example of a cross-European blockchain-based project that clearly points into the future, is the social media platform HELIOS.

HELIOS is a three-year research and innovation project, which has received funding from the European Union's Horizon 2020 Research and Innovation Programme.



The project focuses on the development of a blockchain-based decentralized and secure social media platform that will allow developers to create easy-to-apply social networking features that reduce the cost and complexity of developing a platform. Helios is likely to redefine the future of social networks and become the European alternative to the current global giants of social media.

Out of the 15 partners, including world-renowned universities and research centers, who have been invited to take part of the development of HELIOS, Worldline is the only representative of the payments and transactional services sector. Worldline's primary focus within the HELIOS project will be on two areas: Security & data protection on the one hand, and the development of value-creating strategies on the other.

NATIONAL SPANISH BLOCKCHAIN ECOSYSTEM

Worldline is currently deeply involved in several blockchain projects throughout the world. Some are currently confidential, but several projects are not, and below we will mention a handful of projects that show how Worldline believes that blockchain technology is adding value and benefitting companies and organisation.

Blockchain is particularly well suited for optimization of digital infrastructural processes, and Worldline being a supplier of processing services for both acquiring, issuing and clearing knows the value of efficient infrastructure. Thus, it is only natural for Worldline to be involved in Alastria, which is one of the largest and most ambitious infrastructural blockchain-based projects in the world today. Alastria is a national Spanish blockchain ecosystem project with the vision "to democratize access to Blockchain" in Spain and "quickly, opt for a multi-sector international expansion."

"Worldline has a deep understanding of infrastructure and processing and we know how and where blockchain technology is able to play a meaningful role by optimizing some processes and replace others through automation," says Sylvie Calsacy.

STABLECOIN AND CRYPTO ACCEPTANCE

Besides focusing on blockchain in relation to infrastructure, Worldline is currently involved in different projects in Switzerland where the Swiss Valley offers a very innovative ecosystem for these new businesses.

These projects include a stablecoin project with Davinci Gold coin and another with Bitcoin Suisse to offer Crypto Payments Acceptance in Switzerland.

The Davinci Gold stablecoin project makes it possible to avoid volatility, which is currently one of the critical barriers for using cryptocurrencies in daily life transactions. Worldline will assist Davinci Gold to manage the conversion of the stable coin into gold and to handle the processing of transactions.

In November, Worldline and Bitcoin Suisse signed a letter of intent for a partnership to offer cryptocurrency payment services to Swiss merchants and consumers both in-store and in web-shops. The cooperation will leverage the existing nationwide payments infrastructure of SIX Payment Services, which is now part of Worldline.

With these payment related blockchain projects Worldline is at the DNA of the company.

MERCHANT LOANS VIA SMART CONTRACTS

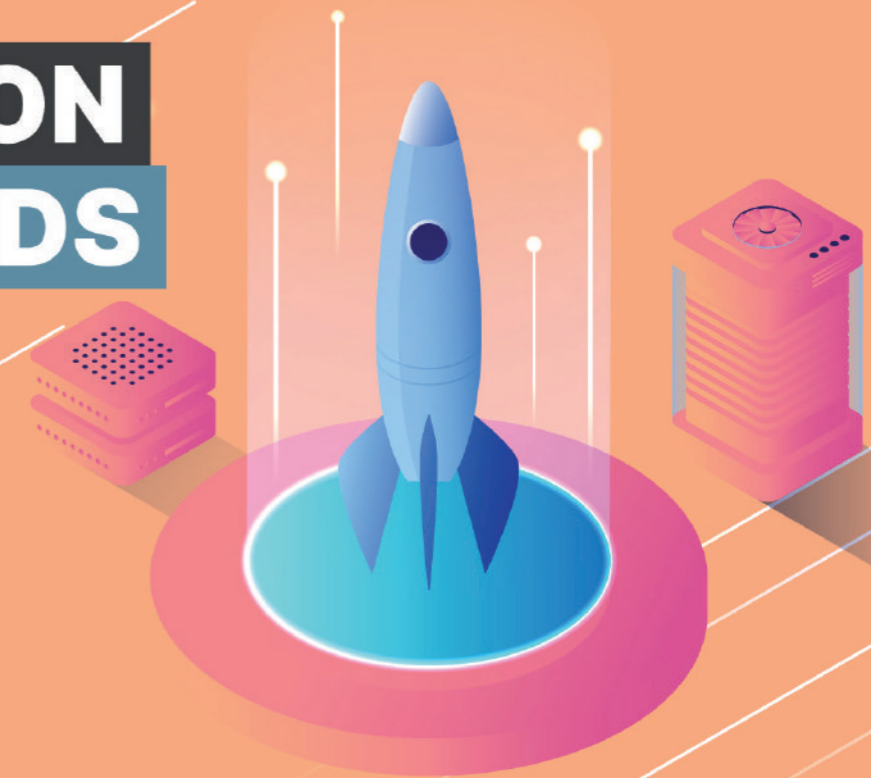
Another highly innovative blockchain-based service that Worldline is developing to the benefit of its merchant clients is the ability for the merchants to offer end consumers a so-called 'Merchant Loan'.

The idea is to enable the merchants to grant their customers an instant low-cost credit line by using a smart contract on a blockchain. The smart contract will make sure to handle the internal credit process between the acquirer, the merchant and the credit institution, including a credit scoring of the consumer before granting the credit.

MUCH MORE TO COME

The list of real-world blockchain cases that Worldline is already investing time and resources in and assisting clients with goes on – including smart payments with almost instant KYC and settlement – but these examples easily goes to show that blockchain is about to unfold its huge potential, and Worldline intend to be in forefront of the development for the best of its clients.

INNOVATION AND TRENDS



THE SUBSCRIPTION ECONOMY: HOW DOES WORLDLINE HELP COMPANIES SET UP PAY-PER-USE OFFERINGS?



Subscription based business models is driving new customer behaviour and opening up new business opportunities. Velib, Netflix, Cdiscount Location, Nike – in just a few years, the subscription-based business has grown and changed consumers' daily lives.

Rather than occasionally buying a product or service, more and more consumers now choose to receive them on a recurring basis. New words such as "streaming", "on-demand", "collaborative" and "as-a-service" have appeared to refer to this new consumption model. And companies have to adapt their offerings to the new needs of consumers.

The latter seek immediacy; they refuse to wait in lines and want immediate delivery as well as a wide range of services and options. They are always on the move and want data transparency and control. Consumers want their needs anticipated to enjoy peace of mind. From the merchant's perspective, a recurring model can create a longer relationship with a customer than a one-time commercial touchpoint, thus optimizing the customer lifetime value.

"EVERYTHING AS-A-SERVICE", A MULTISECTOR TREND

Fully subscribing to grocery or everyday staples as a service is a behavioral transformation that needs a few steps before it reaches the mainstream. This evolution directly impacts companies' business models, irrespective of their activities.

The subscription economy is a multisector trend, one of the high-potential sectors being home appliances. 22% of French people say they are ready to rent home appliances and multimedia goods, a proportion that is three times what it was two years ago (Source: Opinionway / Lokeo Study – 2018).

On the luxury market, Kering has been studying subscription models for certain types of products. On the furniture market, Ikea loans furniture to customers instead of selling it. In the CPG industry (Consumer Packaged Goods), Colgate-Palmolive's strategy is to expand direct-to-consumer initiatives in selected product categories by experimenting with online subscription offerings. In 2018, 29% of the total value of the top 100 brands in the world was generated by subscriptions. (Source: Best Global Brands 2018 Rankings – Interbrand Report).

WORLDLINE'S PARTNERSHIP WITH OPENCELL

In the subscription economy, organizations must adopt a new system that enables them to evolve their pricing, billing, collections and revenue accounting.

With its partner Opencell, Worldline proposes a modular end-to-end solution to help companies provide their customers with more value and services.

Opencell was created in 2015 to leverage an open-source telco billing project initiated in 2007 by current CEO David Meyer. Its mission is to provide the first agile monetization platform capable of filling the gap between costly, complex legacy billing solutions and overly simplistic "one size fits all" SaaS solutions that only meet the most basic requirements.

Opencell is now the leading open-source monetization and billing platform with over 40 successful implementations in multiple industries and countries.

In addition to a core rating and billing engine, this solution provides everything that is needed to manage customers and revenue cycles from start to finish: business enabler, omnichannel subscription, digital platform - and payment!

SUBSCRIPTION-BASED PAYMENT

Payment is only one step of this customer journey, but it can be considered as pivotal because it is the one that provides value. Subscription-based payments provide a "request one, use many" way of working that benefits both merchants and consumers. The latter enjoy the convenience of receiving goods and services without the extra effort of paying bills periodically, while merchants benefit from the automation of payments.

In general, most payments are made through SEPA Credit Transfer, SEPA Direct Debit, E-wallet or some sort of cards. At country level, major differences are observed, and the emergence of PISPs (Payment Initiation Service Providers) can be predicted.

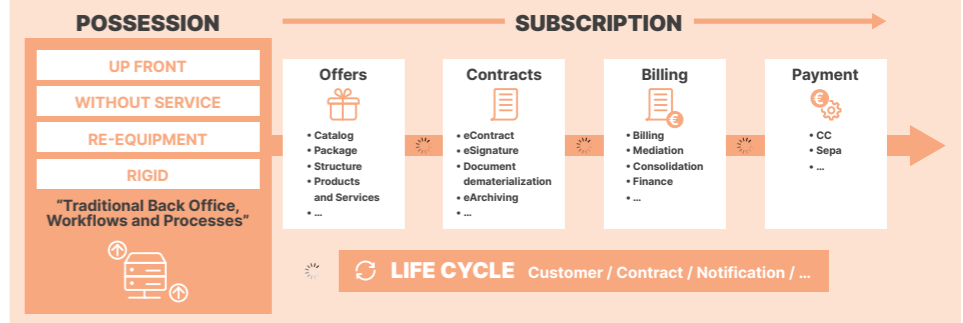
SUSTAINABLE CONSUMPTION

Subscription services can help consumers manage their finances more effectively. Many consumers believe that monthly subscriptions can help them use money wisely. On a macroeconomic level, the subscription economy could help mitigate the risk of personal credit bubbles. Moreover, it can promote more sustainable consumption, i.e. "You pay for what you use." And subscription models could have a significant impact on sustainable energy and transportation. In other words, the subscription economy has incredible potential to transform our lives for the better by fostering innovation, choice and sustainability.

SEIZE THE OPPORTUNITIES OF THE SUBSCRIPTION ECONOMY

Before embarking on this journey, companies must:

- work on their business transformation: from purchasing to subscription
- select a catalogue of offerings in rental mode or subscription-based services
- think about omnichannel subscription as a way of increasing the conversion rate
- work in collaboration with an ecosystem of partners: brokers, suppliers, insurance companies, funders, etc.





AN EDUCATIONAL EXPERIENCE WITH TANGIBLE OUTCOME

The Fintechs mission is to design the best solutions to the business challenges proposed by Worldline's customers in less than 48 hours, and to pitch it in front of Worldline's management, partners, and customers. This requires from participants to handle time pressure while relying on their ability to pitch their solution:

"The deadlines brought out the best in us. We had to work together and utilize the available resources and mentors to meet the requirements and deliver the best possible presentation of our solution, which taught us a great deal about time management. We learned to really deploy our speaker skills and tweak the pitch to convey our message as effectively as possible to the different stakeholders," Gajjala states and continues: "Depending on the product, the event allowed 2-3 team members to pitch, which allowed us to present alongside our partners. These little details are rare, but they mean a lot to smaller companies."

Worldline emphasizes interactions between participating Fintechs and top management, but the customer focus is also an essential part of the e-Payments Challenge which adds unique and valuable dynamics to the event:

"Worldline brings customers to the event and the customers also provided feedback. We were able to engage in dialogues, negotiations and even add opportunities to our pipeline. I would definitely recommend this event to other Fintechs and startups that are searching for relevant feedback, networking prospects with potential customers and partners, and boosting growth all while learning new skills and having fun around highly competent people who are genuinely interested in what you do," concludes Gajjala.



Since the event, OneVisage has experienced positive results. The company is currently pursuing a partnership with one of Worldline's main customers and they are currently in active discussions. OneVisage is evolving at a fast pace and see Worldline as a key partner throughout the journey.

WORLDLINE E-PAYMENTS CHALLENGE

On September 17-19, 2019, Worldline hosted its second annual e-Payments Challenge in Frankfurt, Germany. This large-scale event gathered 24 pre-qualified Fintechs and startups to find solutions to 15 business challenges raised by 11 Worldline existing customers from different industrial domains and markets. During 48 hours, Fintechs had the opportunity to collaborate with these leaders of the payment services industry to co-create tomorrow's e-payment services leveraging Worldline core e-Payments APIs, while taking advantage of the most recent developments in the payments landscape, such as PSD2, instant payments, data value, GDPR, and cyber-security.



AND THE WINNER IS...

The grand prize was won by OneVisage for its biometric digital identity solution to the Digital Identity challenge which was proposed by ACCOR, leveraging WL Merchant Wallet, WL Trusted Authentication & VALINA. OneVisage is a cybersecurity company with three different Strong Customer Authentication technologies that help to drastically reduce digital identity theft and cyber fraud in many industries. OneVisage Premier Face, Premier Secret and Premier ID Software Development Kits (SDKs) implement data privacy by design and can run in standalone mode without requiring any Internet connection or cloud services. Solutions are fully PSD2 and GDPR compliant.

A COMPLETE 3-DAYS INNOVATION JOURNEY

Before starting to compete, Fintechs were invited to an Opening Conference where Worldline shared its vision and strategy around co-innovation and the future digital payments. They also had the opportunity to interact and debate with specialists from Worldline about digital experience and the business opportunities and impacts that new technologies bring. The demo corner concretely showcased future payment situations with new products and customers journeys.

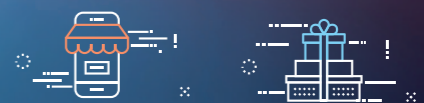
EXPOSURE TO MANY DIFFERENT STAKEHOLDER GROUPS

The e-Payments Challenge aims to be an interactive and fun event, where Fintechs and Startups have a unique chance to collaborate with Worldline's experts and mentors, and highlight their assets to the biggest companies in Europe while fostering new relationships with significant potential for product adoption. A Win-Win open-innovation ecosystem where everyone learns from each other. A formula which has generated positive responses from contestants:

"The event contained many exciting and effective sessions but also had side-sessions that were hosted by Worldline's top management, including board members and company executives which gave us an opportunity to have one-on-one time with decision-makers to discuss how Worldline can help us achieve our business goals," says Praveen Gajjala, Business Development Director, EMEA and Asia at OneVisage and continues:

"Implementing solutions in large corporations can take years, and it can take months to receive a response from key stakeholders. At the e-Payments Challenge, we had the opportunity to present our technology and receive feedback from industry experts immediately after, which is rare in our field. We were able to meet personnel that were responsible for a wide range of departments, from marketing and sales to payments, which was very enriching".

CONNECT TO THE #1 EUROPEAN PAYMENTS PLATFORM AND ACCELERATE YOUR BUSINESS



START ACCEPTING PAYMENTS ON-LINE

Sign-up today and benefit from free transactions during the first 6 months.

Discover Worldline's e-Payments Booster Program:
worldline.com/epayments-booster

EMPOWERING SEAMLESS, SECURE & LOW-IMPACT PAYMENT TRANSACTIONS



It is a worrying fact that up to 13% of the global electricity will be consumed by the IT sector in 2030. Worldline believes that green growth should be accelerated by greener payment transactions and terminals.

As electrical equipment enabling digital transactions that are operated through data centers, payment terminals impact our environment and energy resources, both in their production and in their use, all along their lifecycle.

That's why Worldline commits to provide secure and reliable transactions not only to Merchants but also to the most environmental-friendly payment terminals of the market. This way, Worldline contributes to the sustainability performance of Merchants through their supply chain and impacts positively their brand image through eco-designed and ethics products.

1. ROBUST AND RELIABLE PAYMENT PLATFORMS AS A MUST

A robust cybersecurity strategy entailing:

- A high coverage of ISO 27001 security certification throughout the organization (38 out of 42 eligible sites certified in 2018) to address the emerging cyber threats.
- An utmost alignment with regulations such as PSD2 and GDPR to fight against cyberattacks.
- A continuous monitoring and testing to ensure highest possible platform availability.
- A stringent implementation of Business Continuity Plan.

A comprehensive data protection covering:

- All solutions from the design phase: data privacy as a standard and as a default.
- 97% of relevant services with Compliance Assessment of Data Processing (objective of 100% by 2020) to ensure adequate measures to protect personal data in our systems.
- All employees with an objective to train them all on a yearly basis to strengthen awareness regarding data security and PCI DSS.

2. LOW-IMPACT ECO-DESIGNED TERMINALS FOR GREENER GROWTH

CO₂ neutral Worldline payment terminals:

- Merchants using Worldline solutions improve their carbon footprint and can declare "zero" on CO₂ emissions for services hosted by Worldline.
- By reducing CO₂ emissions through energy efficiency and renewable electricity programs, and by neutralizing the remaining CO₂ emissions through a certified offsetting program, Worldline neutralises 100% of the CO₂ emissions induced by its activities (including data centers, offices, business travels, and terminals over their entire lifecycle).

Circular economy for terminals through:

- 100% of Worldline terminals are labelled with the ECMA 370 eco standard already used worldwide and recognized as high level of compliance and environmental performance guidelines.
- Eco-design workshops and environmental assessments of the terminals from the design phase to the recycling, taking into account criteria such as: energy efficiency to limit power consumption, use of recyclable materials and eco-friendly packaging to limit waste, delivery through low-carbon transport (boat vs. freight).
- Efficient repair and after-sales services to increase terminals' life duration.
- In 2019, Worldline marketed the first terminal delivered without ticket printer to reduce thermographic paper waste.

3. ETHICAL TRANSACTIONS FOR A FAIRER PAYMENT ECOSYSTEM

Inclusive solutions:

- Worldline terminals are designed to ensure users with disability are taken into account. R&D teams have developed "Worldline Hear 2 Pay", a payment terminal accessible to the visually impaired and people with cognitive impairment.
- By choosing Worldline products, you support the European Commission's workshops around Disability Technologies and the definition of evaluation criteria related to the European Accessibility Act.
- By valorizing electrical waste: recycling materials and including the adapted sector in the processes.

Ethics in our supply chain:

Worldline also strongly supports, through its sustainable procurement strategy, the efforts of the OECD Due Diligence Guidance, to ensure that the minerals used in its products are not sourced from conflict regions, nor finance armed group.

“ Worldline, by providing secure, innovative and CO₂ neutral payment solutions, contributes to the United Nations Sustainable Development Goals, thereby supporting its customers' own CSR challenges through their supply chain. Our CSR performance influences theirs ”

Sébastien Mandron,
Corporate Social Responsibility Officer
at Worldline



CHECK WORLDLINE'S TOP SCORES AMONG MOST RECOGNIZED EXTRA-FINANCIAL RATINGS IN OUR 2018 INTEGRATED REPORT AND LEARN MORE ABOUT OUR SUSTAINABILITY AMBITIONS AND INITIATIVES AT [REPORTS.WORLDLINE.COM](https://reports.worldline.com).



ABOUT US

Worldline [Euronext: WLN] is the European leader in the payment and transactional services industry. With innovation at the core of its DNA, Worldline's core offerings include pan-European and domestic Commercial Acquiring for physical or online businesses, secured payment transaction processing for banks and financial institutions, as well as transactional services in e-Ticketing and for local and central public agencies. Thanks to a presence in 30+ countries, Worldline is the payment partner of choice for merchants, banks, public transport operators, government agencies and industrial companies, delivering cutting-edge digital services. Worldline's activities are organized around three axes: Merchant Services, Financial Services including equensWorldline and Mobility & e-Transactional Services. Worldline employs circa 11,000 people worldwide, with 2018 pro forma revenue of 2.2 billion euros.

GLOBAL REACH WITH TRUE DOMESTIC EXPERTISE



C. 13BN
payment transactions per year



320+
financial institutions



400K+
merchant clients in Europe

For further information
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