Opinion paper

Worldline leverages digital trends to design future innovative payment solutions by 2025

WORLDLINE

Payments to grow your world

“Hey ChatGPT, what do you think is going to happen in the next 5 years?”

The mere fact that we can ask this question and expect a well-argued, logical (yet disputable) answer illustrates the magnitude of the technological leap that has happened in the last few years. People feel empowered by these technologies, and their expectations regarding user experiences continue to rise. Moreover, new generations of users are emerging with an unparalleled awareness of economic, ecological, ethical, and geo-political contexts. As a result, they strongly challenge established companies and organisations.

All these reasons lead us to issue a recommendation: **brace yourself… disruptions ahead!**

In today’s fast-paced world, the landscape of financial transactions and payment systems is constantly evolving, driven by technological advancements and changing consumer preferences. As businesses strive to adapt and remain competitive, it becomes crucial to harness the power of **emerging digital trends to create innovative payment solutions**. They must not only meet the demands of modern consumers, especially those from the newer generations of end-users (such as Gen Z, Alpha and Beta) but must also address the challenges posed by current economic constraints, environmental emergencies, and increased geo-political uncertainty.

In this opinion paper, we will explore some of the most significant **digital trends** that can reshape the payments industry. From blockchain and cryptocurrencies to biometric authentication and IoT-enabled devices, these techs are revolutionising transaction processes, offering unparalleled opportunities for the development of cutting-edge payment solutions. As we delve into these trends, we will also examine the **potential challenges and benefits** they bring, providing valuable insights for businesses. Our goal is to help you understand how forward-looking payment solutions can work to your advantage.

We will start by exploring the four key trends that are paving the way for this journey through the rapidly evolving payments landscape. Then we will discover the potential of these major digital trends and demonstrate how they can be harnessed to create innovative, secure, and customer-centric payment solutions that will drive the future of finance, leveraging new payment trends and technologies.

The paper also includes a rich infographic that highlights significant **figures and trends in the digital world**. This resource can assist you in exploring new use cases and technologies. These digital trends are the foundation upon which Worldline’s R&D experts build when **co-innovating and co-designing** with companies on **future solutions**.

From digital trends to innovative payment solutions.

Trend #1 Big players are still impactful but face challenges

Big players like GAFAM (Google, Apple, Facebook, Amazon, Microsoft) remain significant actors in the technology industry, exerting substantial influence across various sectors. However, it is important to note that the business landscape is constantly evolving, requiring periodic revaluation of the workforce and making necessary adjustments to remain competitive and adapt to evolving market dynamics.

Challengers in this field are the Super Apps, which focus on specific geographic markets and offer efficient entry points for many use-cases. They have gained popularity and present a challenge to traditional merchant and payment industry players. Super apps integrate services such as mobile payments, banking, online shopping, travel bookings, delivery services and more. They provide a more fluid and complete user experience by centralising all digital functionalities within a single application **including payments and digital identity as a cornerstone for mainstream adoption**.

Big technology companies are also facing challenges related to democratic **oversight** and **regulatory changes attempting** to keep pace with the rapid evolution of technology usage. As new payment methods and technologies emerge, regulators must adapt and update policies to ensure consumer protection and maintain market stability. For instance, both PSD2 and PSD3 require a strong authentication phase creating new challenges for reducing friction in online payments. The Digital Market Act (DMA), effective since March 2023, allows mobile apps to accept payment without going via Apple or Google payment systems. Numerous initiatives around Artificial Intelligence (AI) technologies are currently under negotiation, like the AI Act of the European Union.

The major players therefore need to innovate and offer additional value-added services to remain competitive in this changing environment.

Big players' challengers

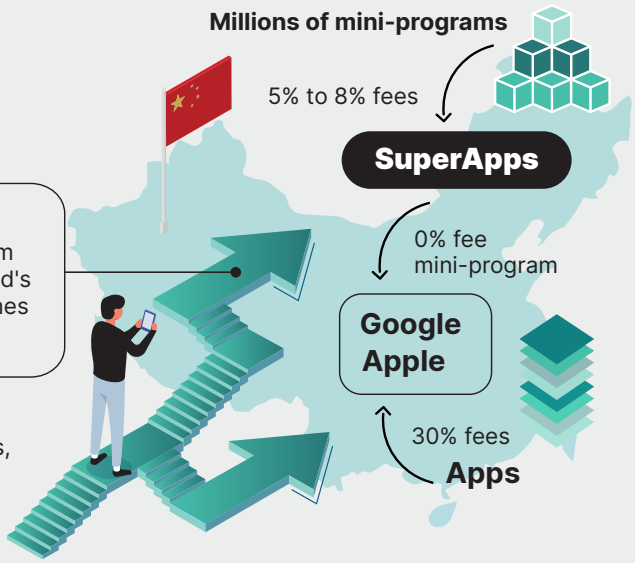
SuperApps

Wechat has **1 billion** monthly users in China

Source: Statista

Super apps bypass **Apple** and **Google**'s in-app payments, cutting their revenue from sales. Despite China being **19%** of the world's population, only **3%** of Apple's income comes from China

AliExpress offers 100M product references, while **Amazon** only offers 12M



Big Players impacts & defiances

SuperApps include payment & identity cornerstone for user adoption.

Trend #2 e-Ethics is no longer optional

e-Ethics refers to the ethical considerations and principles that guide the use, development, and application of technology in the digital realm. It focuses on promoting responsible and ethical behaviour, considering the impact of technology on individuals, society, and the environment. e-Ethics encompasses a range of ethical issues relevant to the digital domain, including privacy, security and data protection, fairness, inclusion, equity, accessibility, transparency, accountability, and digital rights.

e-Ethics emphasises the protection of **individuals' privacy and personal data**. It involves respecting individuals' rights to control their personal information, obtaining informed consent for data collection and usage, and implementing robust security measures to safeguard sensitive data from unauthorised access or misuse.

Furthermore, e-Ethics advocates for **digital inclusion**, ensuring that technology and digital services are accessible and available to all individuals, regardless of their socioeconomic status, abilities, or geographic location. It promotes equal access to information, digital skills training, and the elimination of barriers that may exclude certain groups from participating in the digital world.

For example, e-Ethics addresses the **ethical implications of artificial intelligence (AI) and algorithms**. It emphasises the responsible development and deployment of AI systems, including considerations such as fairness, bias, explainability, and accountability. e-Ethics promotes transparency in algorithmic decision-making processes and the disclosure of how AI systems operate. Additionally, it encompasses societal and environmental impact, such as AI's role in business evolution and its consequences on the jobs market, as well as the digital carbon footprint. On the user side, AI opens up new perspectives, especially with its remarkable ability to create images or textual content from generative AI models. However, these same features could also be used for malicious purposes, leading to new ways of manipulating people and capitalizing on the trust users place in natural interfaces based on human language. Moreover, people can be easily deceived by deepfakes.

e-Ethics emphasises the importance of **cybersecurity** and maintaining **digital trust**. It involves protecting digital systems, networks, and infrastructure from cyber threats, ensuring the integrity and security of digital transactions and communications, and promoting responsible behaviour to mitigate the risks associated with cybercrime, hacking, or data breaches.

e-Ethics encourages the **ethical use of digital technologies**, such as social media, online platforms, and digital advertising. This includes promoting responsible content creation, respectful online interactions, combating online harassment or cyberbullying, and avoiding the dissemination of misinformation or harmful content.

e-Ethics is an evolving field that **recognises the importance of ethical considerations in the digital age**. It compels us to find a balance between more complex functionality that adds processing complexity and optimisation that improve efficiency and reduce overhead. It requires us to find a balance between the added value of a service (in relation to the quality users are expecting), the environmental impact (life cycle analysis, energy, and carbon footprint), and the societal impact (how to benefit from aligned people's value). It provides a **framework** for individuals, organisations, and policymakers to **navigate the ethical challenges** and **responsibilities** that arise from the use of technology. Its goal is to create a digital ecosystem that is fair, inclusive, secure, and respects individuals' rights and values.

Today, emerging techs are becoming increasingly critical and unavoidable for many businesses. As a result, **e-Ethics demands a delicate balance between added value, environmental impact, and societal transformation.**

e-Ethics is no longer optional

Societal and political challenges

- Climate change
- Inflation
- Energy crisis

New challenges for

- Inclusion
- Equity
- Accessibility

83%

of companies state that they support the SDGs

Source: commercialrisk

UN sustainable development goals are taken into account by most companies at global level

Source: United Nations Sustainable Development

Trend #3 Best-in-class customer experience

Customers now have higher expectations due to increased competition and advancements in technology. They expect seamless, personalised, and delightful experiences throughout their interactions with a brand. In today's competitive landscape, companies strive to provide exceptional experiences to their customers, surpassing their expectations and setting **new standards**.

As the **best-in-class customer experience has become the new normal**, companies must embrace a culture of continuous improvement and innovation. By listening to customer feedback, analysing data, and staying attuned to market trends, companies can identify areas for improvement and develop innovative solutions to exceed customer expectations.

Companies that can consistently deliver exceptional experiences gain a competitive edge and foster customer loyalty because providing a best-in-class experience helps companies differentiate themselves from their competitors and **contributes to long-term business success**.

Focusing on this customer experience requires an **obsessive and compulsive customer-centric approach**. From the merchant's standpoint, providing the best customer experience can mean different things: some customers want the fastest shopping journey, choosing items from a wide range of products made far away, and getting them delivered by drones. Other customers might want a second-hand product available nearby, renting it for a couple of hours. To match this diversity in preferences, new types of shopping like alternative commerce (alt-commerce) and re-commerce are appearing. Companies need to adapt their business and culture to include these new business models.

Companies need to understand their customers' needs, preferences, and pain points to design tailored experiences that meet and exceed their expectations. By placing customers at the centre of their strategies, companies can build stronger relationships, enhance customer satisfaction, and **boost their business**.

Today's customers are children of the GAFAM's...

3.5
checks of the tracking page per order!

1/5
of consumers won't forgive brands who don't deliver on time
Source: EY Research

80%
of shoppers in 2022 want same-day shipping
Source: Invesp

Putting pressure on existing players to adjust to this new normal

GAFA's have raised drastically customer expectations in terms of services

Trend #4 Digital and Online overboost

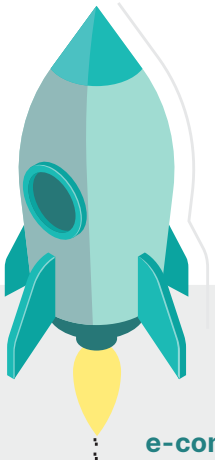
The excessive reliance on digital and online technologies, often resulting in an accelerated pace of adoption and usage, highlights the significant impact of digitalisation and the rapid expansion of online platforms and services in various aspects of our lives. This overboost is primarily driven by the ongoing **digital transformation across industries**. Companies are increasingly adopting digital technologies to streamline operations, improve efficiency, and enhance customer experiences. This includes the automation of processes, integration of data-driven analytics, and the utilisation of cloud computing, artificial intelligence, and other emerging technologies.

The overboost is particularly evident in the **growth of online services and e-commerce**. Consumers are relying more on digital platforms for activities like shopping, banking, entertainment, communication, and even healthcare. The convenience, accessibility, and wide range of options offered by online services have led to a significant shift in consumer behaviour: **digital reflex** is now a reality.

While digital and online overboost bring numerous benefits, they also pose challenges. Greater digital dependency can lead to issues such as information overload, digital fatigue, privacy concerns, cybersecurity threats, and social isolation. The digital divide is a key consideration for the payment industry. Striking a balance and ensuring responsible use of digital technologies are essential to mitigate these challenges.

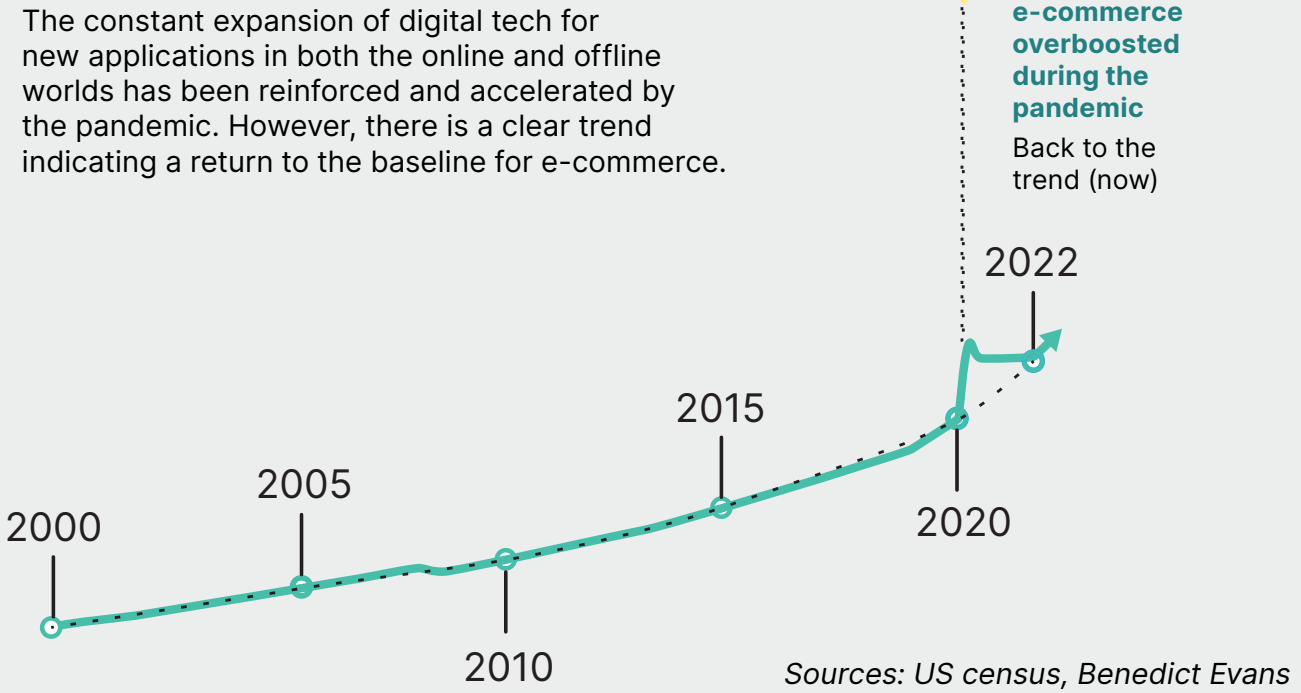
To effectively harness the potential of digital and online overboost, individuals, organisations, and policymakers must focus on aspects like digital literacy, cybersecurity measures, data privacy regulations, and fostering a more digital inclusive society. From a business and payment perspective, **merchants are embracing trendy techs** which are now the norm, such as contactless, mobile payment, autonomous stores and click & collect. They have **introduced innovative solutions**, like live shopping, new smart- and soft-POS. They are also **exploring new techs** like Artificial Intelligence, Web3, or Immersive VR/AR payment experiences.

Companies must strike a balance between leveraging **digital technologies** for **enhanced convenience** and being mindful of its potential drawbacks. This balance is crucial for sustainable digital growth.



Digital & Online overboost (almost)

The constant expansion of digital tech for new applications in both the online and offline worlds has been reinforced and accelerated by the pandemic. However, there is a clear trend indicating a return to the baseline for e-commerce.



Sources: US census, Benedict Evans

New technologies have accelerated digital trends but they are not the only driving force.

It is important for payment industry players to stay agile and adapt to the evolving digital landscape. By embracing these digital trends, companies can unlock new opportunities, enhance customer experiences, and stay competitive in the rapidly changing payment industry.

Below we list the main payment trends and new technologies that Paytech rely on to build new solutions and make them useful for end-users:

Payment trends

Contactless Payments
The Covid-19 pandemic has accelerated the adoption of contactless payments. Companies should focus on enabling contactless payment options using NFC technology or QR codes. This allows customers to complete payments by simply tapping their cards or scanning a code, reducing the need for physical contact.

Mobile Payments
Given the widespread adoption of smartphones, mobile payments have become a significant trend. Companies can develop mobile payment applications that empower users to conduct secure and convenient transactions using their smartphones. Integration with mobile wallets and digital payment platforms like Apple Pay, Google Pay, or Samsung Pay can also be beneficial.

Instant Payment
Also known as real-time payment or immediate payment, this term refers to a form of electronic payment that allows for the near-instantaneous transfer of funds between bank accounts. Unlike traditional payment methods that could take hours or even days to finalise, instant payments are processed and settled in near real-time (less than 6 seconds).

Open Banking
Companies can leverage open APIs (Application Programming Interfaces) to securely share customer data with authorised third-party providers. This allows for the seamless integration of payment services into other applications, providing customers with enhanced financial experiences.

SoftPOS (Software Point of Sale)

These are software-based solutions that turn compatible smartphones, tablets, or other mobile devices into point of sale terminals. With SoftPOS, businesses can accept card payments by using the device's built-in Near Field Communication (NFC) features. They provide a convenient way to expand payment acceptance capabilities and enhance the overall customer experience.

Techs for new way to pay

Blockchain technology for cryptocurrencies like Bitcoin has disrupted the traditional payment landscape. Companies can consider incorporating cryptocurrencies into their payment systems, allowing customers to carry out secure and decentralised transactions. Moreover, blockchain can enhance security, transparency, and efficiency in payment processes.

Artificial Intelligence (AI) and Machine Learning (ML) have immense potential in the payment industry. Companies can leverage AI-powered chatbots and generative-AI to provide personalised customer support and answer payment-related queries. ML algorithms can be utilised for fraud detection, risk assessment, and credit scoring, enhancing security and facilitating decision-making in payment processes.

Biometric authentication, such as fingerprint, palm or facial recognition, enhances security and convenience in payment transactions. Companies can harness biometric data to verify users' identity, reducing the reliance on passwords or PINs. Integrating biometric authentication into payment apps or devices can provide a frictionless and secure payment experience.

Web3 for payment in the Metaverse offers new channels for interactions. These could be immersive in 3D, in VR, in AR, or just on mobile, or web (with or without a web3 decentralised approach). This approach may involve token-based payment or online micro-payment solutions, coupled with a powerful set of new tools and services including identity and payment functionalities.

Internet of Things (IoT) and **Artificial Intelligence (AI)** used for **autonomous payments** can revolutionise the payment industry. They allow AI and connected devices to initiate transactions. Smartwatches, connected cars, or smart home devices can be integrated with payment systems, allowing users to pay seamlessly. Today we can also talk about "invisible" or "autonomous" payments done without any human input.

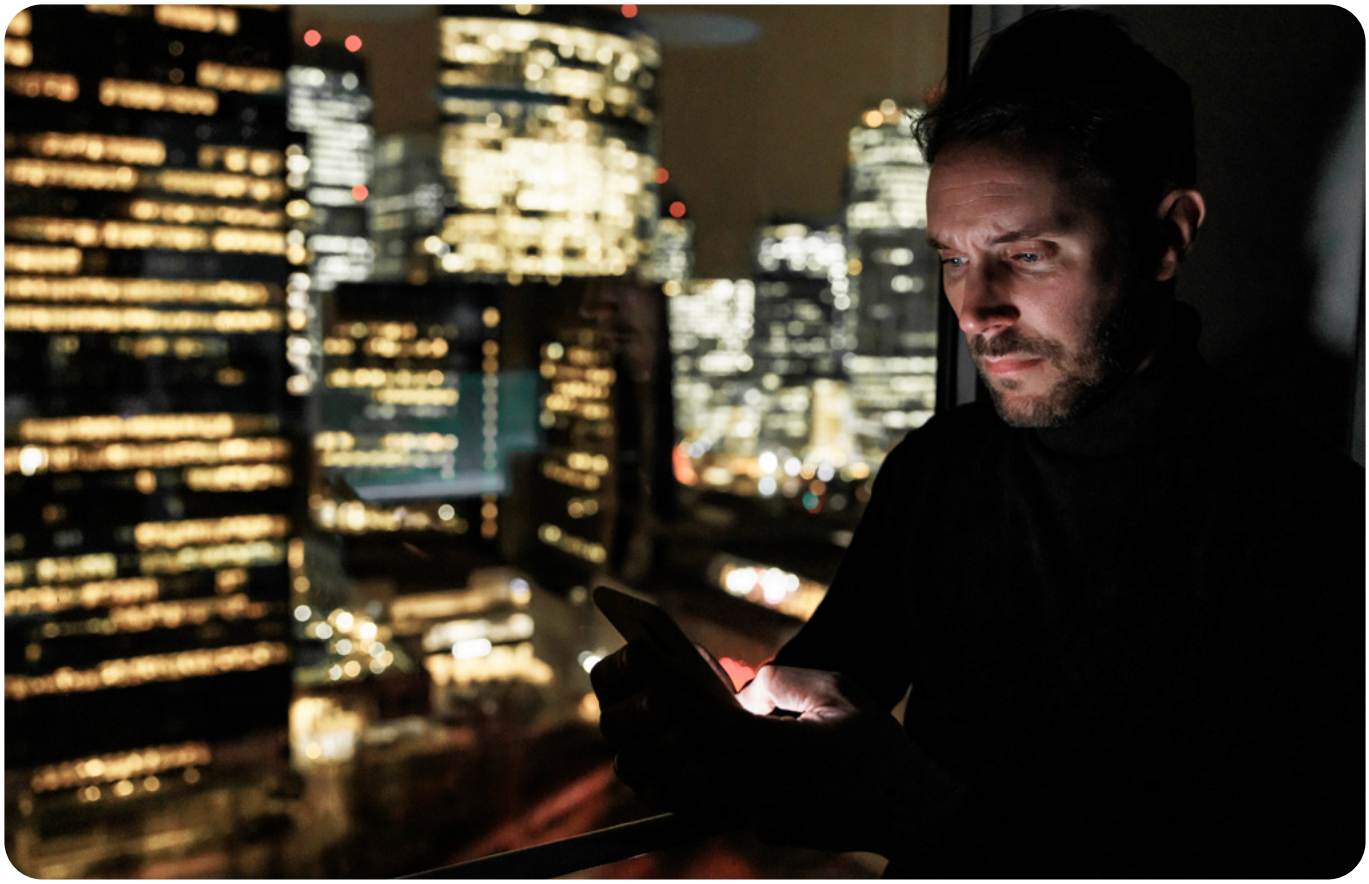
Payment paradoxes & challenges that can cloud our mind.

Will the cashless society become a reality?

Cash usage is closely linked to strong cultural and geographical habits. Some countries, like Sweden and India, are actively working on reducing cash usage through mobile wallets. In other countries, where small businesses are not always equipped with payments terminals and many citizens are unbanked, cash remains dominant. Even in countries where the vast majority have access to digital payments, such as Japan or Germany, there is a strong bond to cash for cultural reasons. Overall, society is gradually moving away from cash due to the benefits of digital payments such as convenience, traceability, and cost savings.

How to balance the benefits of emerging technologies (such as Blockchain & AI) with their societal and environmental impacts?

Blockchain and AI are still at their early stage of development. Blockchain has already undergone a revolution in terms of environmental impact with major cryptocurrency platforms shifting from resource-intensive proof-of-work to more eco-friendly proof-of-stake systems. AI, on the other hand, brings about mixed consequences: some machine learning applications could increase emissions, while others might help mitigate climate change. To address this, we must consider the impacts from a holistic system-level perspective, beyond just computational and hardware aspects. There are two significant challenges: improving AI training and interference efficiency to use resources wisely.



How can we handle privacy as we increasingly adopt biometric solutions for more seamless and invisible experiences?
Biometric solutions provide seamless and unobtrusive security, but the challenge lies in effectively managing the mandatory privacy requirements. To address this issue, organisations must establish strict data protection protocols, adhere to relevant regulations and, most of the time, manage biometric sensitive data on users' devices. Additionally, building trust with users by openly discussing collection, storage, and use of their biometric data is crucial.

End-user adoption is key. How can we balance the complexity of security with users' expectations for simple and seamless experiences?
End-user acceptance of technology is crucial for its success, and while security is mandatory, a seamless experience can significantly impact user adoption. However, some users may not be ready for these new technologies due to concerns or lack of trust and understanding. Educating and helping users to adapt is key to ensure a positive experience with emerging technologies.

There is not only one best-in-class customer experience for all digital services.
There is no one-size-fits-all approach for creating the best-in-class customer experience, as different industries and customer segments have unique needs and preferences. For example, a seamless online shopping experience for an e-commerce platform may involve personalised product recommendations and an easy checkout process.
In contrast, a top-notch experience for a banking app might prioritise robust security features and user-friendly account management tools. Additionally, with e-Ethics considerations, some customers might prioritise a speedy delivery within 15 minutes, while others might value a best-in-class experience that involves upcycled products with traceable materials used.

How can you leverage digital trends?

All these **trends** are essential for any company wishing to **prepare for the future**! The major players in the payments industry can respond to these challenges by developing **strategic collaborations and partnerships to co-innovate future payment solutions**. They must work with fintech startups, banks, merchants, and other ecosystem players to offer complementary services and create integrated payment experiences. The key lies in not fixating solely on tech for tech's sake but rather in identifying real challenges encountered by merchants and banks and addressing them using innovative techs from fintech startups and industrial payment solutions. These solutions are capable of managing billions of transactions across all end-users' channels. This is precisely what Worldline does during its industry-leading annual hackathon: the e-Payments Challenge. Collaboration allows them to leverage the strengths of each participant to deliver innovative and competitive payment solutions.

How can you co-innovate concrete new payment solutions?

Building new payment solutions in line with digital trends requires **vision, tech expertise** and an understanding of evolving customer needs and **market dynamics**. Worldline has the capacity to support key players in the payment sector, including merchants and banks, by fostering co-innovation through specialised workshop sessions tailored to their requirements:

- **Discovery sessions** where banks and merchants come together to identify solutions for specific opportunities or challenges they face. Worldline organises full-day workshops on specific themes where we demystify the topic through definitions, concrete examples, and explanations of the underlying emerging techs. This is reinforced with demonstrations, showcasing concrete and tangible solutions that are tested, challenged and commented in real life.

- **Parallel tracks:** Following the initial steps, parallel tracks are established each focusing on two axes. The first axis revolves around business value (use case ideation, business canvas evaluation, and feasibility prioritisation) to define a business value proposition. The second axis explore technology in depth (Tech deep dives, value extraction and discussions) to define common tech experiments. The outcome of this process is the definition of one or more Proof-of-Concept (PoC) or Proof-of-Value (PoV) addressing concrete challenges and generating business value. Importantly, this process culminates in an agreement on the practical next steps.

- **Innovation workshops** allow us to listen to the needs, share tech expertise and insights to identify potential areas for closer collaboration between major payment players, banks, and merchants. The outcome is simple: agreeing on the next steps for further collaboration paving the way for innovative solutions to address real business concerns.

- **Multi-client sessions** are instrumental in sharing and challenging visions, expertise, and solutions in an open forum as the entire payment ecosystem needs to better understand trends. Networking with peers facilitates, learning about solutions, and identifying new opportunities.

- **Co-creation and innovation incubation process:** the co-creation process involves collaborating closely with customers in short test-and-learn cycles to iteratively design, develop, test, and pilot new payment solutions. Leveraging business data from customers enables a critical evaluation of existing solutions and the creation of new proof-of-concepts that can be transformed into market-ready products. This process requires several well-organised steps:

  - ✓ Scoping workshop: define the project's objectives, scope, and desired outcomes in collaboration with the customer.
  - ✓ Specification workshop: detail the technical and functional requirements of the solution, ensuring alignment with customer needs.
  - ✓ Exploration phase: utilise tech labs, solution configuration, and new model creation to develop and refine the proposed solution.
  - ✓ Test phases: conduct technical validation and user tests to ensure the solution meets requirements and performs as expected.
  - ✓ Production via a pilot: implement the solution for a limited time and target segment to evaluate its real-world performance and gather valuable feedback.
  - ✓ Final review: analyse pilot results, including technical performance, functionality, user acceptance, and feedback, identify areas for improvement and determine how to transition the solution into full-scale production, generating new business opportunities.

Through this structured co-creation process, the collaborative development of innovative payment solutions can effectively meet customer needs while driving business growth.

Building **new payment solutions** based on digital trends requires **agility, innovation**, and a **customer-centric approach.** Stay up to date with emerging trends and Paytech, collaborate with industry stakeholders, and be open to adopting new technologies to create compelling and future-proof payment solutions.

Conclusion.

The future is already here. To successfully navigate the future of the payment industry, it is essential to harness **digital trends** and analyse both **strong and weak signals** to be ready to face the paradoxes and address the major disruptions ahead.

Co-innovation between startups, major industry players, banks, and **merchants** can lead to the development of cutting-edge solutions that address current challenges and anticipate new ones.

Collaboration between various stakeholders can also help **identify and address specific pain points** for banks and merchants. For banks, this may involve developing advanced fraud detection systems, streamlining regulatory compliance, and offering innovative financial products. For merchants, the focus could be on **simplifying payment processes, expanding payment options**, and **enhancing customer engagement & adoption**.

Furthermore, it is crucial to stay ahead of **emerging technologies**, such as cryptocurrencies, digital wallets, contactless payments, and digital identity for payment, which are rapidly gaining traction among an increasing number of people.

By closely **monitoring market trends**, fostering a culture of co-innovation, and **continuously evaluating the benefits of tech solutions**, the payment industry can adapt to the evolving needs of consumers and ensure a future-proof, customer-centric ecosystem. **Tech must stay invisible but safe and implicitly trusted**!

”One more thing”: one of the key challenges to consider is the **emergence of Gen-Z and Gen-Alpha consumers**, who are highly adept at using AI technology and embracing digital immersion. In 2030, these two generations of consumers will represent 45% of the workforce! To cater to their needs, payment industry stakeholders must focus on creating seamless, secure, personalised, and immersive experiences. For instance, incorporating AI-driven personalisation, continuous behavioural biometric authentication, and instant payment processing can enhance user experience and build trust among these full digitally native generations.

And keep in mind that **wide embracement is required for any trend to take off successfully**!

Are you really ready?

https://wrl.li/digitaltrends

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About Worldline

Worldline [Euronext: WLN] is a global leader in the payments industry and the technology partner of choice for merchants, banks and acquirers. Powered by c. 18,000 employees in more than 40 countries, Worldline provides its clients with sustainable, trusted and innovative solutions fostering their growth. Services offered by Worldline include in-store and online commercial acquiring, highly secure payment transaction processing and numerous digital services. In 2022 Worldline generated a revenue close to 4.4 billion euros.

worldline.com

Corporate purpose

Worldline's corporate purpose ("raison d'être") is to design and operate leading digital payment and transactional solutions that enable sustainable economic growth and reinforce trust and security in our societies. Worldline makes them environmentally friendly, widely accessible, and supports social transformation.

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