A close-up photograph of a person's eye looking through a glass pane. The background is a bright blue bokeh of light spots. The glass pane has a grid-like pattern of small holes. The person's face is partially visible through the glass.

worldpay

AI now. AI next.

How AI can help businesses increase acceptance, reduce fraud, and improve customer experience – now and in the future.



# Powered by intelligence

## An introduction to AI

**Artificial intelligence (AI) has been the subject of a lot of noise in the tech world for some time now – and it's not going away anytime soon.**

Most people will have already seen articles and think-pieces attesting to its importance for the payments industry. But among the buzzwords and hyperbole, it can be hard to grasp the tangible, real benefits AI can potentially bring to a business.

Why, after all, should businesses invest in AI for payments? How much of a positive impact can AI have? What opportunities does AI offer now – and in the future?

Questions like these are what this white paper is all about. Over the following pages we'll discuss how AI can work for businesses, the main benefits for consumers, and its potential impact on the future of payments.

## AI now. AI next.

**Why is this so important now? Because AI is no longer some futuristic technology; it's happening now and it's evolving fast.**

AI and machine learning (ML) have the ability to process, understand and operationalize huge amounts of data to help improve efficiencies and decision-making. They're smart. They're efficient. They're the future.

And implementing them in a business can be like giving staff superpowers.

Some merchants are at an advanced stage in AI adoption, while others might be tempted to think about it as something they don't need to worry about for a few years.

But the truth is that AI isn't some far-off technology anymore; it's here. And that means it's time to get ready.

# Learning, developing and reasoning

## Defining AI and ML

AI and ML are terms that are often misused, which is leading to a fair amount of confusion in the market.

### Clever creations

AI is a broad way of describing how computer systems can grow to become more human in the way they think. It considers the fact that modern computers can take in information in the same way we do, and can then use that information to reason, learn, and develop.

New technology like virtual reality, augmented reality, the Internet of Things, and wearables, aren't AI in themselves, but platforms that can be best optimized by AI and its use of data. Ultimately, they rely on AI and ML to create value.

And when it comes to the way merchants use their customers' data, they should always make sure it's anonymized and only used with permission.

### The engine room

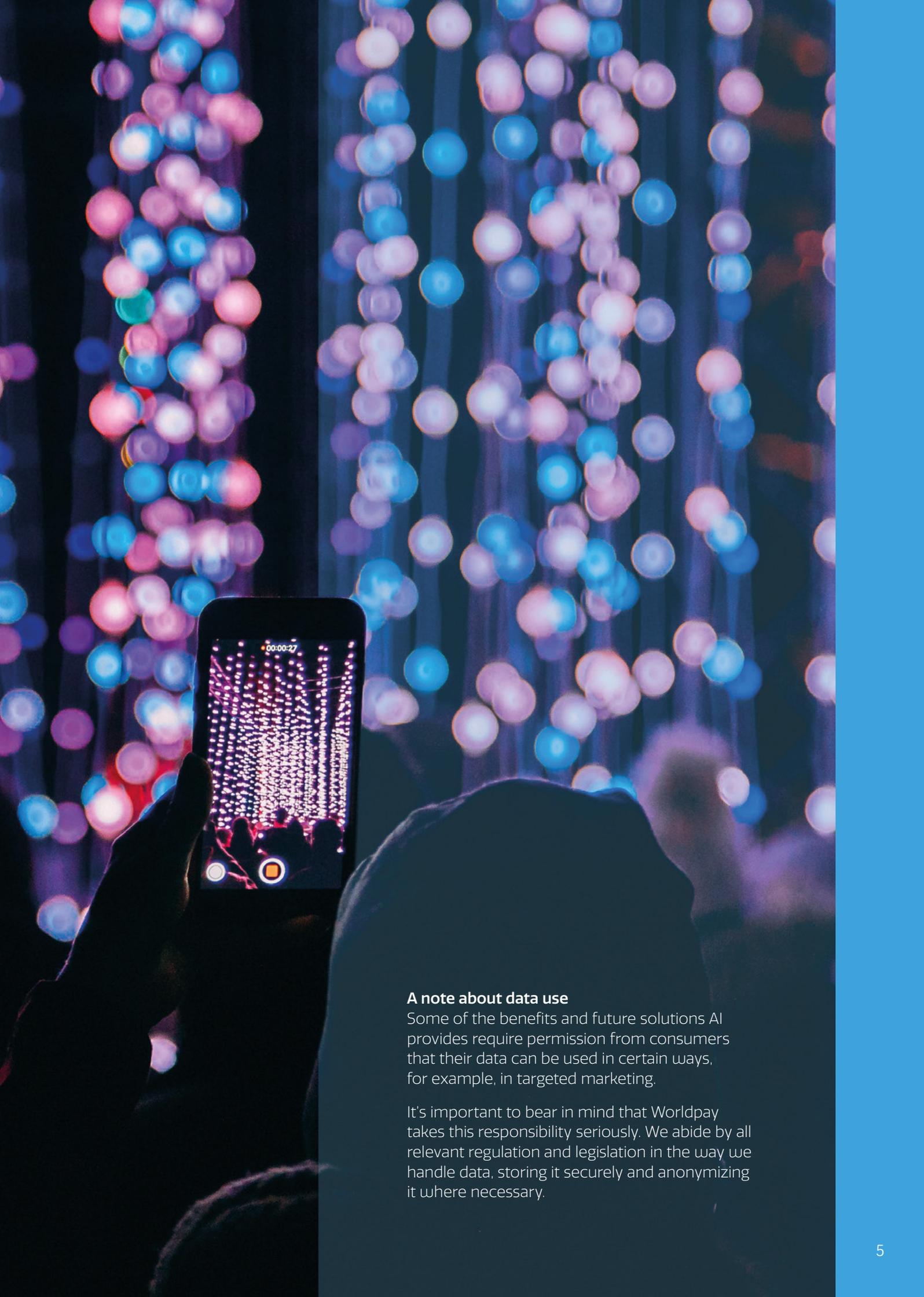
ML is really what powers AI, which can't exist without it. It's the process whereby machines can learn and improve by themselves – thanks to the information they receive – to act in the kind of ways we would describe as 'Artificial Intelligence'.

Usually, this is through computer-based algorithms designed to learn from data – and adapt to new information – without being explicitly programmed.

When we talk about AI in this white paper, we sometimes mean it to encompass ML as well.

"ML is what goes through and finds anomalies, connects data and finds important pieces. AI is a layer that sits on top of the data that can interact with a human; it's so critical."

**Nicole Jass, SVP, Integrated Payments, Fraud, and Data Products, Worldpay**



**A note about data use**

Some of the benefits and future solutions AI provides require permission from consumers that their data can be used in certain ways, for example, in targeted marketing.

It's important to bear in mind that Worldpay takes this responsibility seriously. We abide by all relevant regulation and legislation in the way we handle data, storing it securely and anonymizing it where necessary.

# Generating momentum



## Why AI-powered payments just keep on growing

Momentum is where something increases in size or importance at a faster and faster rate – and that's how AI could transform the world of payments.

So, when it comes to AI, the more data a business can process, the smarter it can become.

It's a process that's already happening today, but just a little more slowly – and with a lot of human input. Add the AI of the future into the mix, though, and it becomes something more special.

"AI is a catalyst for accelerated change. The development cycles and consumer adoption cycles are increasing at an accelerated rate, changing how we interact with our world."

**Jon Pollock, SVP, Product, Worldpay**

## A potent combination

AI uses ML to securely and anonymously examine and analyze payment data to create chains of insights and wisdom businesses didn't even know they had.

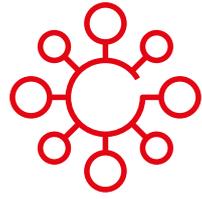
Those insights can boost acceptance through things like seamless payment journeys, stronger protection from fraud, and more personalized consumer experiences.

These developments, in turn, can bring more payments to businesses. Which means more data.

"When consumers don't have valid transactions declined, it creates a more seamless experience."

**Spiros Theodossiou, SVP, Product Management, Worldpay**

AI. It's an art. But there's nothing mysterious about it. And to prove it, let's look at it in more detail, using voice-enabled payments as an example.



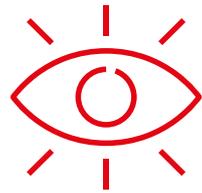
## 1. Start with anonymized data

Let's say a business pilots voice-enabled payments on smart speakers, which generates a large amount of new data.

### **What's going on:**

Thanks to new technology on the market, it's now possible to cultivate new types of data, in large amounts. As well as smart speakers, think sources as diverse as web and mobile device engagement, interactive voice response, POS systems, wearables, the Internet of Things, voice assistants, and chatbots.

**Chatbots are expected to cut business costs by \$8 billion worldwide by 2022.<sup>1</sup>**



## 2. Add better insights

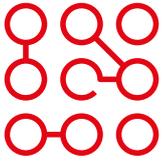
ML helps identify the fact that consumers tend to abandon the payment process at the point where they're asked to confirm payments through another channel for security (perhaps via email or text).

### **What's going on:**

ML algorithms can help make sense of lots of data by progressively learning from patterns, anomalies, and connections. In effect, by imitating human intelligent behavior, AI formulates insights in ways that are easily understandable – and actionable. The kind of insights, for instance, that can help a business curb cart abandonment.

**Around one in four consumers don't actually complete their eCommerce purchase once they've added items to their online cart.<sup>2</sup>**

1. Juniper Research, Chatbot Conversations To Deliver \$8 Billion In Cost Savings By 2022, 2017 [www.juniperresearch.com/analystxpress/july-2017/chatbot-conversations-to-deliver-8bn-cost-saving](http://www.juniperresearch.com/analystxpress/july-2017/chatbot-conversations-to-deliver-8bn-cost-saving)  
2. Baymard Institute, 40 Cart Abandonment Rate Statistics, 2018 [www.baymard.com/lists/cart-abandonment-rate](http://www.baymard.com/lists/cart-abandonment-rate)



### 3. Gain improved capabilities

With the insights gained, the business can now make the entire experience more user-friendly by getting the voice assistant to ask security questions, rather than redirecting its customers to different channels.

**What's going on:**

Those valuable insights mean that a business could now adapt – or even create – new capabilities that could:

- › Improve payment processes to save costs, time, and resources
- › Enable transactions to be processed in faster, more secure ways
- › Improve customer experiences



### 4. Generate more payments

A new, seamless 'voice' checkout encourages consumers to complete payments – and hopefully makes them more likely to want to shop with that business again (and again).

**What's going on:**

Now, improved capabilities have led to better payment experiences, and more broadly, a better consumer experience. That can mean merchants serve happier customers, happier to buy more in the future, as well as increased acceptance rates for businesses – and more transactions.

**That means more data... and the cycle continues.**

"The constant evolution of AI will hopefully contribute to acceptance rates getting higher and higher, as well as bridge stronger acceptance rates for card-not-present transactions."

**Spiros Theodossiou, SVP, Product Management, Worldpay**

# What's the big deal?

## **The main benefits of AI today**

This section takes a closer look at some of the big benefits AI can bring, at a glance, before we dive deeper into the possibilities in the next section.



## Save time and money

Because AI can process data and complexity more efficiently than humans, it allows automation of processes that the workforce would otherwise have to do manually.

But, of course, it's more than just automating. AI gets faster and smarter with time, which can make it possible to save on costs over time. For example, reports packed with insights could be generated more quickly. And that gives humans more time and freedom to use their skills on other, more valuable, tasks.

There's also less need for complex, in-depth technical knowledge or skills, as the data and insights provided are more accessible.

"AI democratizes data. [...] It allows a real business person (not just a data scientist) to drill through it without having to be an expert at using special programs."

**Nicole Jass, SVP, Integrated Payments, Fraud, and Data Products, Worldpay**

## More revenue

To put it simply: AI-powered payments can lead to better acceptance rates, smoother payment experiences, fewer abandoned carts and fewer chargebacks. And that means you're more likely to keep more of your earnings.

Until now, basic rules have been used to process large numbers of transactions, but they can mean losing out on potential revenue, particularly on marginal cases. With AI, every single transaction can be processed in the most efficient way possible, depending on its unique context – and it can be done in milliseconds.

It's scalability, accuracy, and speed working together to create an enhanced consumer experience. It's exciting stuff.

"AI is going to drive more efficiency in transaction processing. It will help merchants transact more sales."

**Spiros Theodossiou, SVP, Product Management, Worldpay**

## Get stronger protection

AI makes possible new forms of authentication that are better able to analyze consumer behavior patterns in the context of transactions.

That means businesses are no longer bound by a one-size-fits-all approach; additional authentication checks are only carried out on selected transactions, where the analytics flag something unusual.

And in situations where merchants don't have a lot of information to go on (like fraudsters striking for the first time), AI can still enhance fraud detection thanks to its real-time predictive features.

"ML can find what it is about the specific cardholders and what it is about the specific transactions that make them have a higher propensity to be fraudulent. [...] It puts businesses in a much better position to deal with fraud and let the good guys get through."

**Nicole Jass, SVP, Integrated Payments, Fraud, and Data Products, Worldpay**

## Generate innovation

Innovation can be a slow process, requiring plenty of human input. But AI speeds up that process, working efficiently and quickly on problems that might be tricky for a person.

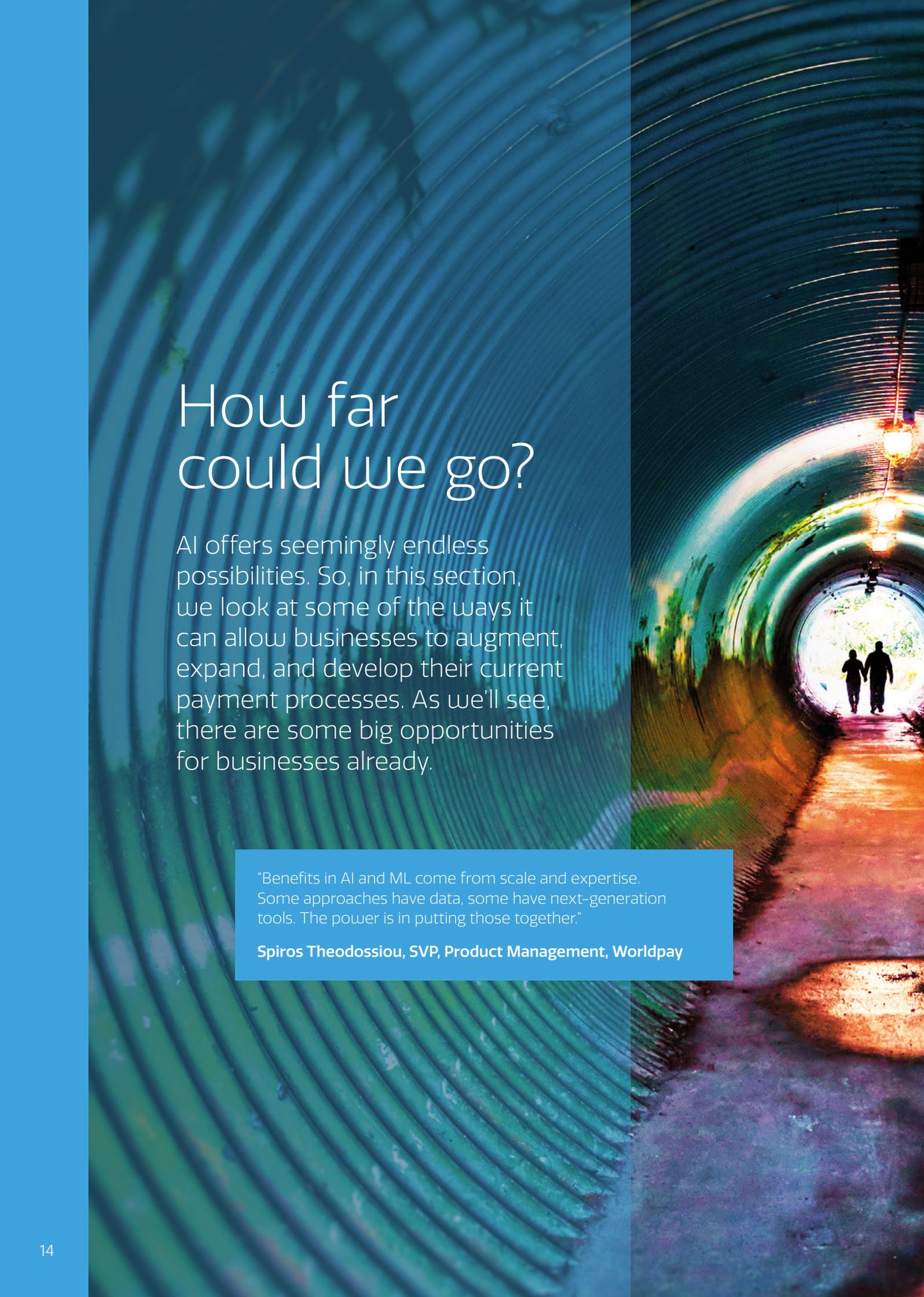
Better yet, the insights it generates are clear and actionable and can help propel a business forward and generate long-term momentum.

And when a business' innovation cycle is spinning ahead of the rest, it has an opportunity to adopt new technology faster and gain a real competitive advantage.

"AI is the next level of taking learnings and driving those back into the innovation cycle very, very quickly. You are accelerating that through ML and AI without having to have a human do that work."

**Jon Pollock, SVP, Product Management, Worldpay**



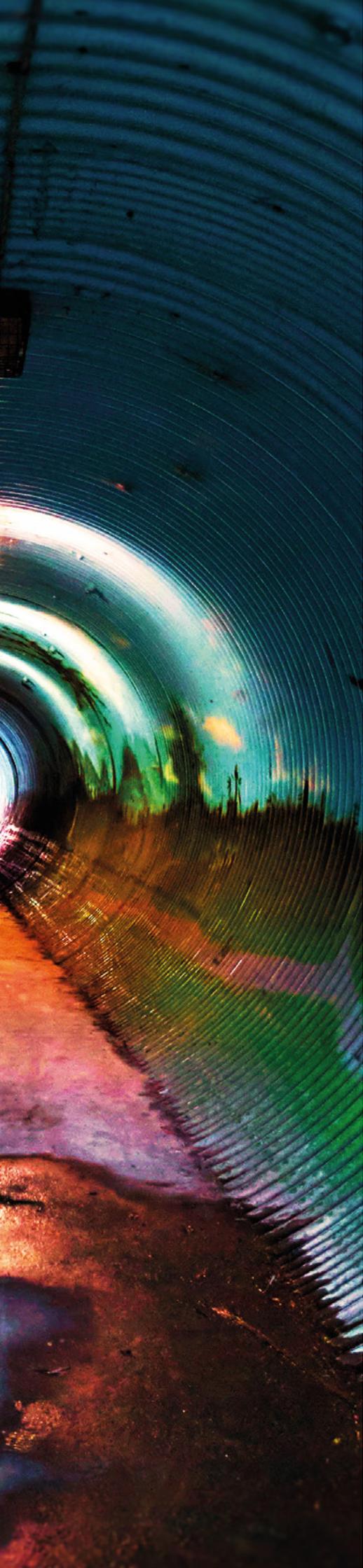


# How far could we go?

AI offers seemingly endless possibilities. So, in this section, we look at some of the ways it can allow businesses to augment, expand, and develop their current payment processes. As we'll see, there are some big opportunities for businesses already.

"Benefits in AI and ML come from scale and expertise. Some approaches have data, some have next-generation tools. The power is in putting those together."

**Spiros Theodossiou, SVP, Product Management, Worldpay**



## Voice

**40% of adults now use voice search at least once per day.<sup>1</sup>**

Thanks to the popularity of voice-enabled services, we're now at the stage where humans have gotten used to speaking to machines in a natural, conversational way. With AI systems enabling secure and efficient voice-enabled payments, speaking to machines while completing a transaction is very likely to become more widespread.

**There will be nearly 800 million smart speakers active globally by 2022, or about one for every 10 people.<sup>2</sup>**

## Prediction

Long-term, consumers might be able to authorize purchases based on AI-generated insights about their preferences. Those predictions can lead to useful innovations, like automating orders and payments, fighting fraud with data learning patterns and behaviors, providing a smooth browsing and checkout experience, and personalizing offers based on previous consumer experiences.

## Speed

What used to take days now takes far less time – and that means a world of opportunities is opening up. For instance, real-time payments are fast becoming the norm. In fact, consumers may start to expect everything payment-related to just happen, in real-time. And the way to meet those expectations? AI.

## Authentication

AI can become even more indispensable for its ability to improve payment security. That's because it's able to take many factors into account to determine if consumers are genuine. It's like putting a human brain – or a team of experts – behind every transaction.

Whether it's using biometrics, learning from the context of the transaction, or the history and patterns of past transactions, it's likely AI will relieve merchants of some of their biggest payment headaches.

So, let's take a look at what all this means in practice.

1. NewVoiceMedia, Eight Stats About AI In Customer Service And What They Mean For Your Business, 2018 [www.newvoicemedia.com/blog/eight-stats-about-ai-in-customer-service-and-what-they-mean-for-your-business](http://www.newvoicemedia.com/blog/eight-stats-about-ai-in-customer-service-and-what-they-mean-for-your-business)

2. MediaPost, Speakers Pushing Smart Home Market To 800 Million Devices, 2018 [www.mediapost.com/publications/article/313842/speakers-pushing-smart-home-market-to-800-million.html](http://www.mediapost.com/publications/article/313842/speakers-pushing-smart-home-market-to-800-million.html)

# Smarter every step of the way

## AI and the payment journey

We've talked a lot about how AI enables the development of the kind of high quality insights that can put businesses on the fast track to success. But just what do we mean by good insights?

Let's go a bit deeper by taking a look at every stage of the payment journey.



### 1. Engagement

79% of consumers said brands have to demonstrate that they understand and care about them before they consider purchasing.<sup>1</sup>

#### AI now

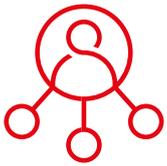
Merchants are starting to understand the potential in creating branded or personalized experiences and using AI-powered technologies to engage with audiences.

**Sizing it up:** In 2017, an outdoor sports specialist introduced an app that uses AI to help shoppers find clothes perfectly suited to their sizes, needs and even local weather.

#### AI next

By 2020, the consumer experience will largely be defined by two-way discussions rather than by a one-way flow of promotional content. This should give merchants the chance to attract more qualified prospects.

For example, a B2B software provider could build a chatbot that gets to know businesses by interacting with them in a conversational way – enabling them to provide more targeted and relevant recommendations.



## 2. Personalization

54% of shoppers anticipate a personalized discount in a day, and 32% within just an hour of sharing their information.<sup>2</sup>

### AI now

We can understand consumers' interests and provide highly relevant recommendations based on their previous behavior and preferences.

**Take a break:** A global travel company started ranking hotel images using deep learning (a part of ML that learns how to classify data with a high degree of accuracy) and then ordering them in different ways depending on the person viewing.

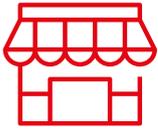
### AI next

In the future, we will be able to anticipate what consumers are looking for, and take personalization to the next level with tailored, curated content. That, in turn, makes it easier and quicker for consumers to order.

It could be, for example, an airline recommending trips with specific add-ons, fully tailored to each individual depending on their purchase history, behaviors, and known preferences. In effect, they only get the content that interests them, which increases the likelihood they'll make a purchase.

1. PR Newswire, Wunderman Study Reveals 79% Of Consumers Only Buy From Brands That Prove They Care About Earning Their Business, 2017 [www.prnewswire.com/news-releases/wunderman-study-reveals-79-of-consumers-only-buy-from-brands-that-prove-they-care-about-earning-their-business-300386618.html](http://www.prnewswire.com/news-releases/wunderman-study-reveals-79-of-consumers-only-buy-from-brands-that-prove-they-care-about-earning-their-business-300386618.html)

2. Business Insider, Shoppers Expect More Personalisation, 2017 [uk.businessinsider.com/shoppers-expect-more-personalization-2017-10](http://uk.businessinsider.com/shoppers-expect-more-personalization-2017-10)



### 3. Checkout

The average cart abandonment rate is 75.6%, meaning more than 3 out of 4 consumers leave their order behind instead of purchasing.<sup>1</sup>

#### AI now

Merchants can use authorized customers' data to fix common issues at checkout by learning from behavior and patterns. That said, cart abandonment is increasing and will continue to as more consumers shift to mobile shopping.

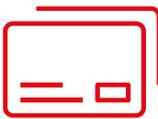
**Taking off:** One airline's app allows travelers to determine the size of their luggage (and prepay for it) before they even leave home.

#### AI next

Consumers won't have to go through the process of filling in forms online or standing in line at POS, making checkout very different.

For example, consumers could allow a retail store to use sensors to track their purchases, so they can check out with less friction – and less hassle.

**The average large-sized eCommerce site can gain a 35.26% increase in its conversion rate though better checkout design.<sup>2</sup>**



### 4. Payment

Voice assistant is set to grow 1,000% to reach 275 million devices in homes by 2023.<sup>3</sup>

#### AI now

Consumers paying through voice assistant-enabled devices is transforming the way we pay and could soon become closer to the norm.

**Money talks:** An eWallet firm gives its customers the option of using simple voice commands to make payments.

#### AI next

By becoming fully automated, payments might not even need any action, beyond authorizing them, from consumers in the future.

For example, an online travel agency could automate orders and payments (airline ticket and hotel room) for a consumer who travels to the same destination every week for work.

Their consumer is happier – and more likely to return.



## 5. Loyalty

91% of consumers said they would be more likely to shop with brands who provide relevant offers and recommendations, and 83% are willing to share their data to make it work.<sup>4</sup>

### AI now

By making sense of payment data, merchants are able to share content or offers that are targeted to individuals.

**Betting on AI:** A data analytics company now offers enhanced analysis products to gambling firms to allow them to offer an improved customer experience.

### AI next

Consumers will be able to purchase from the same merchant more easily, encouraging them to stay loyal to specific brands.

That means consumers could authorize, for example, a supermarket, to use its AI to predict and automate future orders for their convenience.

1. SaleCycle, The SaleCycle Ecommerce Stats Report, 2018 <http://www.salecycle.com/2018-stats-report/>  
2. Baymard Institute, 40 Cart Abandonment Rate Statistics, 2018 [www.baymard.com/lists/cart-abandonment-rate](http://www.baymard.com/lists/cart-abandonment-rate)  
3. Juniper Research, Smart Homes, 2018 [www.juniperresearch.com/researchstore/iot-m2m/smart-home-vendor/vendor-analysis-impact-assessments](http://www.juniperresearch.com/researchstore/iot-m2m/smart-home-vendor/vendor-analysis-impact-assessments)  
4. Accenture, Making It Personal, 2018 [www.accenture.com/t20161011T222718...w.../us-en/\\_acnmedia/PDF-34/Accenture-Pulse-Check-Dive-Key-Findings-Personalized-Experiences.pdf](http://www.accenture.com/t20161011T222718...w.../us-en/_acnmedia/PDF-34/Accenture-Pulse-Check-Dive-Key-Findings-Personalized-Experiences.pdf)



## 6. Protection

79% of North American businesses conduct manual reviews. On average, these businesses manually review 25% of orders, making it a costly aspect of fraud management budget.<sup>1</sup>

### AI now

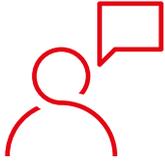
AI can review transactions in milliseconds, allowing experts to focus their attention on the most suspect transactions. New forms of authentication are also helping to reduce fraud.

**In the limelight:** One ticket reseller built its own bot to fight scalper bots that buy tickets and sell them for higher rates.

### AI next

A fully automated security process could use AI-powered behavioral biometrics to help achieve the right level of authentication. It means reducing manual reviews, possibly cutting operating costs, and approving more valid orders.

For example, an online gambling merchant could determine from context and behaviors whether the buyer is a fraudster, with no action needed from the consumer.



## 7. Customer service

64% of Americans say 24-hour service is the primary benefit of chatbots (but only 32% cited 'friendliness and approachability').<sup>2</sup>

### AI now

Tools, technology, talent, and time are progressively evolving chatbot capabilities from simple decision trees to open-ended requests for services.

This is great news for businesses looking to outsource repetitive, everyday queries that would otherwise take up a significant portion of their staff's time. In dealing with more difficult to manage, or sensitive issues, it's worth noting humans are still very much ahead.

**Plane sailing:** A major airline's initiative allowed its consumers to use voice-enabled speakers to check in, see flight statuses and ask about on-board amenities.

### AI next

Consumers will express needs in more natural interactions with chatbots.

For example, a digital content provider could use intelligent voice-enabled bots to deal with consumer complaints and resolve queries faster.

1. CyberSource, Annual Fraud Benchmark Report: A Balancing Act, 2017 [https://www.cybersource.com/content/dam/cybersource/2017\\_Fraud\\_Benchmark\\_Report.pdf](https://www.cybersource.com/content/dam/cybersource/2017_Fraud_Benchmark_Report.pdf)

2. Drift, The State of Chatbots Report, 2018 [www.drift.com/wp-content/uploads/2018/01/2018-state-of-chatbots-report.pdf](http://www.drift.com/wp-content/uploads/2018/01/2018-state-of-chatbots-report.pdf)

# The age of AI is here

## The last word

**By 2035, AI technologies have the potential to increase productivity by 40% or more.<sup>1</sup>**

The last few pages should make it clear that AI has already started to shake up the payments industry – even at this relatively early stage of its development.

And although predicting the future is tricky, one thing seems certain: AI will continue to transform the industry, and it will do it fast. Businesses that start implementing it properly now, could find they have one of the strongest competitive advantages for years to come.

Which is not to say that it's easy – legacy systems, data silos, and other realities can make it difficult to make the move to AI-enabled solutions. But it is time for businesses to start making the move towards AI and evaluating how it could be implemented into their payments processes.

1. Forbes, Artificial Intelligence Will Enable 38% Profit Gains By 2035, 2017 [www.forbes.com/sites/louiscolumbus/2017/06/22/artificial-intelligence-will-enable-38-profit-gains-by-2035/#3a7613321969](http://www.forbes.com/sites/louiscolumbus/2017/06/22/artificial-intelligence-will-enable-38-profit-gains-by-2035/#3a7613321969)

A person is shown from the back, holding a smartphone up to capture a vibrant, multi-colored light spectrum against a dark, starry background. The scene is overlaid with a semi-transparent blue gradient that covers most of the page.

AI: It's empowering.  
It's supercharged.  
It's the future.

**Are you ready?**



Now take the  
next step

Discover all the ways  
AI could help power  
your business at  
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