WHITE PAPER

THE INTERNET OF THINGS

Rise of the Machine Shopper

ingenico ePayments

Executive / Summary

> Neither a new idea, nor a full-fledged reality, the Internet of Things (IoT) is an important force of the future. As machines take over the task of making regular consumer purchases (for example: fridges ordering groceries and bathrooms ordering toiletries), consumer behavior is likely to alter drastically. Instead of shopping on the way home or conducting weekly trips to the supermarket, consumers will have their goods delivered automatically and the payment process will become automatic as well, much like an electricity bill, in the form of a monthly payment.

Goods and services that do not come under the remit of a regular purchase will require a payment process that lives up to the new age promise of convenience and that achieves a point of near invisibility without disappearing completely.

This will have huge implications for eCommerce merchants around the world and there will be many things to consider: the IoT impact on retail store space and staff, sales strategies that target machine audiences, and the increased necessity of B2B partnerships and relationships, to name a few. eCommerce merchants should be looking towards the IoT as a source of great potential and new opportunities.

However, it is also essential that they partner with a proven payments provider that can keep them at the forefront of payments innovation and that can ensure their and their customers' safety.

The Internet of Things /
Rise of the Machine Shopper

As the Internet of Things moves closer to an everyday consumer reality, Michel Léger of Ingenico, explains how the payments and retail industries can adapt to a new era of convenience.

As one of the world's leading payment service providers with decades of payments experience, we have seen billions of consumer transactions, via various payment channels and across numerous technologies. And one thing is clear – the payments model is changing and retailers can expect to see changes in their revenue models as well.

The Internet of Things (IoT) is coming and it will inevitably change the dynamics of shopping. We are headed towards a world where consumers, and sometimes even their machines, complete certain transactions automatically on a regular or semi-regular basis. This shift in transaction trends will be accompanied by a payment process that is driven to the point of near invisibility, without becoming fully invisible. Retailers must be ready for these changes in order to capitalize on the opportunities that these developments present.

Technologists are already taking the logic presented in the 'smart phone' and applying it to 'smart wearables' and the 'smart home.' For example, the launch of the Apple Watch (and its competition) are making heavy inroads into the consumer market. Working in tandem with the user's smartphone, the watch displays Internet pages, map directions, emails and recording options. Samsung's latest 'smart fridge' has a built-in interface that allows users to buy groceries from multiple stores, right from their fridge door. The device will also connect to the user's smartphone or watch, to provide live images of the fridge's contents and allow users to access the household's schedule remotely. These are just two examples of many that we are seeing in the market, which are already being adopted by consumers and are by far the most significant development yet, especially from a payments perspective.

More tactile technology like this could soon make its debut in the home, transforming consumer buying and paying patterns. This could be done by either creating millions of new low-value transactions, or by migrating to subscription models for essential items that we already purchase.

We are already preparing for the future that is coming by investing at the forefront of payment innovation. In 2015, Ingenico Group collaborated with the Marie Curie charity and enabled them to accept contactless and NFC donations via advertising screens in a shopping mall. Our efforts exceeded expectations, so this year we took things a step further by installing connected screens in the Paris Saint-Lazare train station. Passers-by were able to make donations of different amounts by simply pressing their contactless bank card on the screen, and in addition, people were able to purchase a pin or a daffodil (the symbol of the campaign) through the screens and then collect the item at a purchasing area in the station. These advancements have been hugely successful in triggering new consumer behaviors and represent a major milestone in the integration of payment acceptance into new connected devices.

We can soon expect integrated household operating systems that coordinate all appliances under one management platform, becoming a 'smart' home rather than simply a 'connected' home. Central heating will be managed by tracking the homeowner's movements, bathrooms will make routine orders to replenish toiletries, laundry supply purchases will take place automatically and even health-related buys and refills will be automated. Our lives as smart home consumers are about to get easier and the key to this success of this network will be the integration of a secure, accessible payment processes.

B2B technology has been the forerunner in practical implementation of machine-to-machine (M2M) communication. General Electric, for instance, has had great success using IoT sensors to collect data that allows engineers to monitor engine performance more accurately and conduct more targeted and efficient maintenance.[1] Similarly, Cisco is currently planning for a future where motion sensor streetlights save energy by dimming in quiet periods.[2]

Online merchants in the B2C world can learn some key lessons from these examples, as they strive to create a more connected relationship and improve internal efficiencies through predictive modelling and recurring purchases. Consumer loyalty will become increasingly more about the shopper's personal experience and the product's quality. And cost savings on store space and merchandising will go up as merchants get to know their customers even better.

Invisible / Payment

Without a doubt, as the promise of the Internet of Things is getting stronger, the demand for efficiency and convenience is also intensifying. As retailers develop strategies to capitalize on new market opportunities, the need for a more intimate relationship between retailer and consumer has increased, which by extension also includes payment providers.

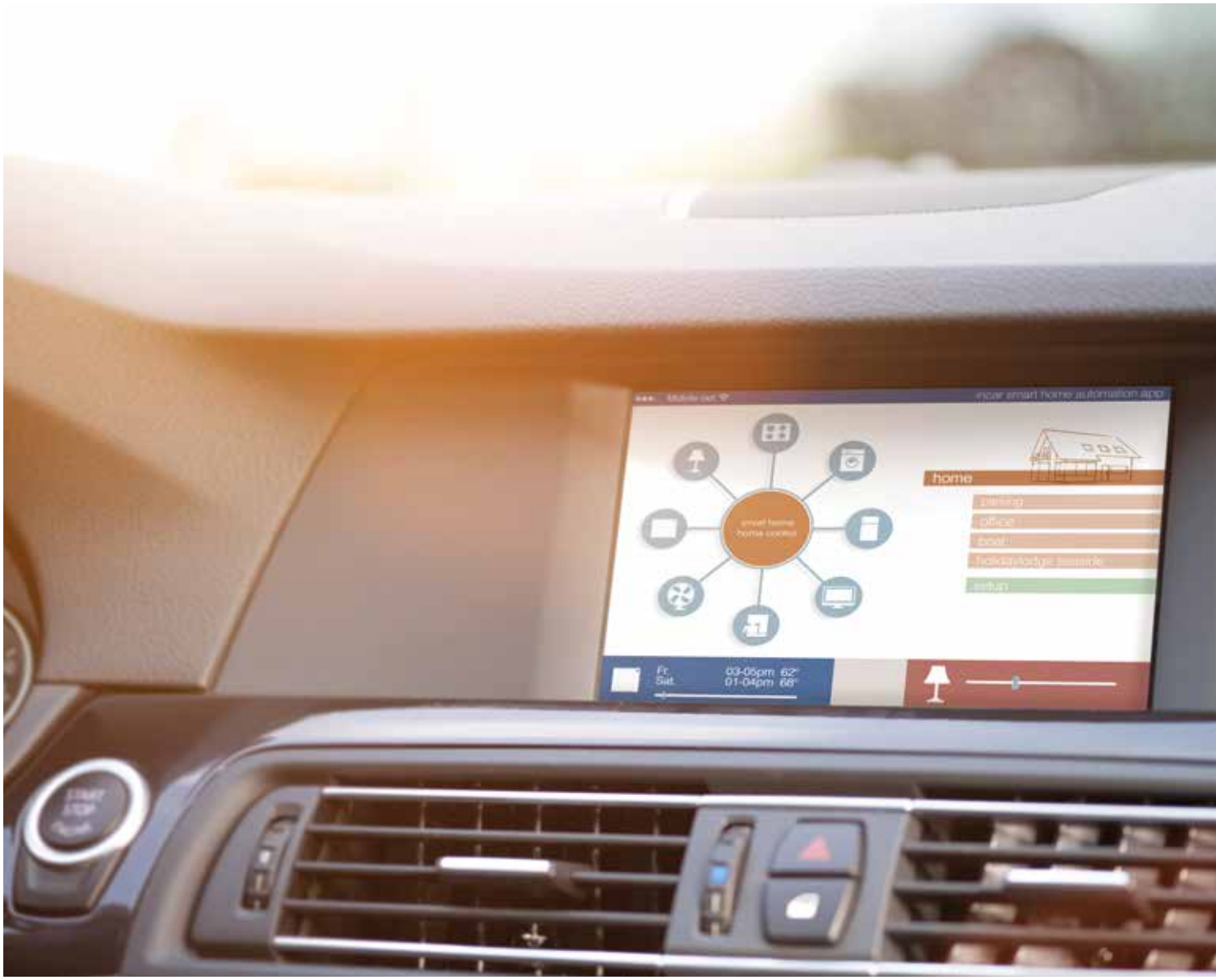
The IoT payment solution will require a payments infrastructure based on cloud architecture and connectivity. For this, huge standardization in the payments process is needed – for example, point-of-sale (POS) and coding will have to be consistent across all platforms, including those of companies newer to payments such as Apple and Google.

Our future challenge at Ingenico ePayments and for our fellow payments providers, will be to support the value proposition of the IoT by offering the same secure and optimized user experience that merchants and customers expect, while also innovating solutions that address these potential barriers. And equally important, we will need to ensure that the element of trust, which is so vital in eCommerce, remains for a successful IoT payments process.

This is the challenge of the 'invisible payment', which should ultimately take the customer's mind away from the payment specifically and focus them on the overall convenience and user experience.

Invisible payments are indeed a necessary goal in terms of efficiency and competitiveness. And certainly from a merchant perspective it does not hurt to minimize the guilty twinge often felt at the POS. However, payment providers must tread a fine line when it comes to user awareness of the payment transaction. In other words, the consumer environment must be optimized for easy and nearly automatic payments, but the act of conscious payment should not completely disappear.

Not only is this important for the consumer's money management, it can also be hugely beneficial for the retailer who uses the checkout as a prime marketing opportunity. Retailers such as Amazon, who suggest further items to buy right before the checkout, provide a good example of the importance of maintaining the upsell opportunity, even in the future IoT.



To be sure, consumers will respond differently to purchases when the payments process is automated. Sam Court, UX Director of The White Agency in Australia, made this point last year by asking, "When we decouple payments from the goods and services we are acquiring, do we still appreciate these things as much?".[3] To answer, we need to analyze customer experiences in industries where we are already at the point of near payment invisibility.

Passenger transport company UBER, for instance, has already removed the transaction at the end of a taxi ride in most geographies and apps such as Clipp allow users to set up a bar tab remotely with participating pubs. In these situations, the payments process is still visible albeit subtle. The success of these business and many others with similar offerings suggests that consumers are starting to get comfortable with small or recurring near-invisible transactions.

The next steps will be for gas stations, parking lots and fast-food drive-throughs to charge according to license plate number. Gyms will monitor memberships through smart wearables and stores will track shopping through beacon technology. None of these options are out of the realm of possibility in our near future.

Machine / Shopper

The Internet of Things will take us beyond removing all friction from the transaction process and to a point where our machines become the purchasing decision makers. This will drastically alter how people engage with the market and potentially alter the culture of consumer shopping. Imagine that instead of stopping at the store on the way home or purchasing groceries on a weekly basis, a computer is responsible for replenishing basic household supplies and making purchasing choices based on the user's predefined preferences.

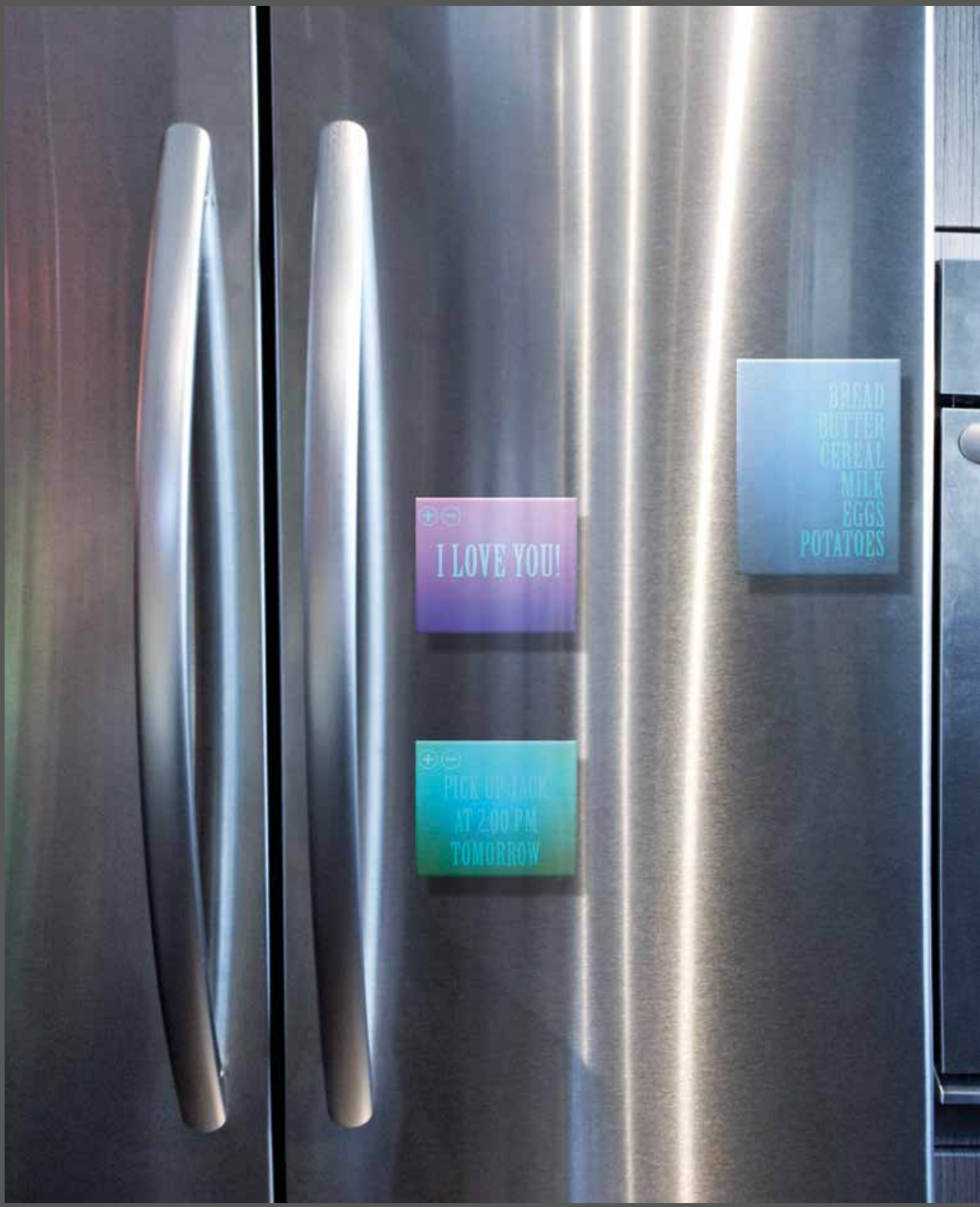
Retailers will have much to consider when it comes to the opportunities and risks associated with M2M commerce, including:

- Preparing sales strategies that target a machine audience in addition to a human one
- Developing new branding strategies, taking into account that computers may generate product oriented decisions
- Reassessing the impact of special offers and sales promotions
- Addressing the new reality's influence on retail store space and staff
- Acknowledging the increasing necessity of strong vendor partnerships and third-party relationships

Much is still unknown about the future of retail in the IoT age. But when it comes to payments and eCommerce, we have a clear vision and are headed in the right direction. Many consumers already have rudimentary machine shoppers in the form of smart energy systems that are programmed to turn on at specific times, use certain amounts of energy and make records for transactions that occur at the end of every month. This utility bill approach is one that retailers are most likely to adapt when handling IoT payments. In other words, rather than paying for each individual transaction the smart fridge makes, we foresee a scenario in which customers simply pay one monthly bill for groceries. Milk, bread and toiletries will become much like electricity consumption, based on the principles of constant access and postponed payment.

This development will dismantle the next major obstacle that exists between merchant and consumer: payment friction. The transition might not be smooth or easy but we are preparing for it already. US retailers in particular, will vividly recognize the ongoing EMV integration friction as payment chip cards are introduced over a 9.857 million km^2 land mass. IoT payments infrastructure will require a much more radical shift as many more devices integrate ever more sophisticated payment mechanisms.

With the challenges, however, come opportunity. So far, the Apple Watch has smoothed in-store purchase friction and the Samsung smart fridge could also ease online purchase friction. The next step will be to eliminate the friction that exists in the consumer's mind, and even to address the consumer's potential of forgetting to purchase at all.


I LOVE YOU!
BREAD
BUTTER
CEREAL
MILK
EGGS
POTATOES
PICK UP JACK
AT 2:00 PM
TOMORROW

The Internet of Trust / Security in the IoT

A key element in the success of the Internet of Things will be trust. Undoubtedly, for the IoT to work, it must also be an Internet of Trust. By 2020, the number of connected devices could reach 50 billion worldwide, driven in a large part by the B2B world. We expect around ten per cent of these, or around 5 billion devices, to integrate payment features.

The only (rather substantial) question that remains is: how do merchants make sure that they create and operate within a trustworthy IoT ecosystem? Given the technological developments we are looking towards, this question should not be ignored or taken lightly.

The dilemmas that arise from the intersection of technology, privacy and security are not new. But with more than twice as many devices connected to the internet by 2020, hackers will enjoy many more points of entry and online defense mechanisms will be required to expand as well.

Currently, only 33% of companies believe that their IoT products are highly resistant to cyber-attacks.[4] This number is quite telling. As we move towards a widespread IoT, we must not assume that all future IoT devices will be properly fortified, leaving many exposed to hackers looking to crack into a wider system. Payment processors will play a significant role in helping to maintain consumers' trust in the purchasing process through the IoT. Without it, the system will fail to thrive.

We know more needs to be done to turn the IoT future into a reality with agreed industry standards and rules for compliance. Encouragingly, the UK government has now pledged nearly £140 million to develop applications for the IoT and smart cities.[5] However, for eCommerce merchants looking to explore the varied opportunities that will come with IoT, state security simply isn't enough.

eCommerce merchants must look to fraud prevention products, such as Ingenico Fraud Expert or Managed Fraud Services, to help reduce fraudulent charges and chargebacks. The need for support will only increase as the IoT expands and partnering with an experienced and agile payments provider will be crucial.

Many alliances and consortia have been created to address these challenges, and at Ingenico we are active members of the Thread Group, Open Interconnect Consortium, All Seen Alliance and the Industrial Internet Consortium. We strongly believe that it is important to collaborate with our industry peers to develop best practices and tackle these issues as they are presented by the evolution of the IoT.

Strategizing / an IoT future

Payment innovation has been at the heart of all forms of retail technology advancement, from the invention of the credit card, to NFC and the ascendency of e- and mCommerce. This will continue to be the case as the IoT drives significant societal and cultural change.

With a well-planned strategy, retailers and brands can continue to focus on consumer engagement within this new system of digitalized decision making. The reduction of transaction frequency will require a new approach to revenue unlike anything retailers have experienced before and with it come many new opportunities.

Here at Ingenico, we're building the future on the merchants' terms. Our rich heritage allows us to be one of the few payments providers capable of building a payments infrastructure that can utilize the IoT to its fullest potential. We will work alongside our merchants as they prepare to go forward and adapt to a new era in the consumer revenue model.

Additional / Sources

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As Executive Vice President Global Innovation at Ingenico, Michel Léger is responsible for managing the Ingenico Labs all over the world and defining Ingenico's next generation of innovative products and services.

Prior to his current role, he was the Executive Vice President at Ingenico, in charge of Global Sales and Marketing. In his long career at the company, he has also served as EVP R&D and Technology, and Managing Director for the Eastern Europe Middle East and Africa region.

Before joining Ingenico, he was CEO at Netsize, a worldwide leader in the mobile payment industry, and spent 6 years heading its world-wide POS business. Earlier in his career, Léger was involved in the early stage development of smart card technology at Schlumberger Axalto and Gemalto.

Michel Léger is a member of the Ingenico management board. He holds a master's degree from the National Institute of Applied Science, with a major in Telecommunication.

About / Ingenico ePayments

Ingenico ePayments is the online and mobile commerce division of Ingenico Group. We connect merchants and consumers, enabling businesses everywhere to go further beyond today's boundaries, creating the future of global commerce. As industry leaders since 1994, our innovative spirit drives us forward across all channels. We are the trusted partner of over 65,000 small and large merchants who rely on us to make payments easy and secure for their customers. With advanced data analytics, fraud management solutions and cross-border commerce expertise, we help merchants optimize their business and grow into new markets around the world.

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