Artificial Intelligence

and Digital Banking
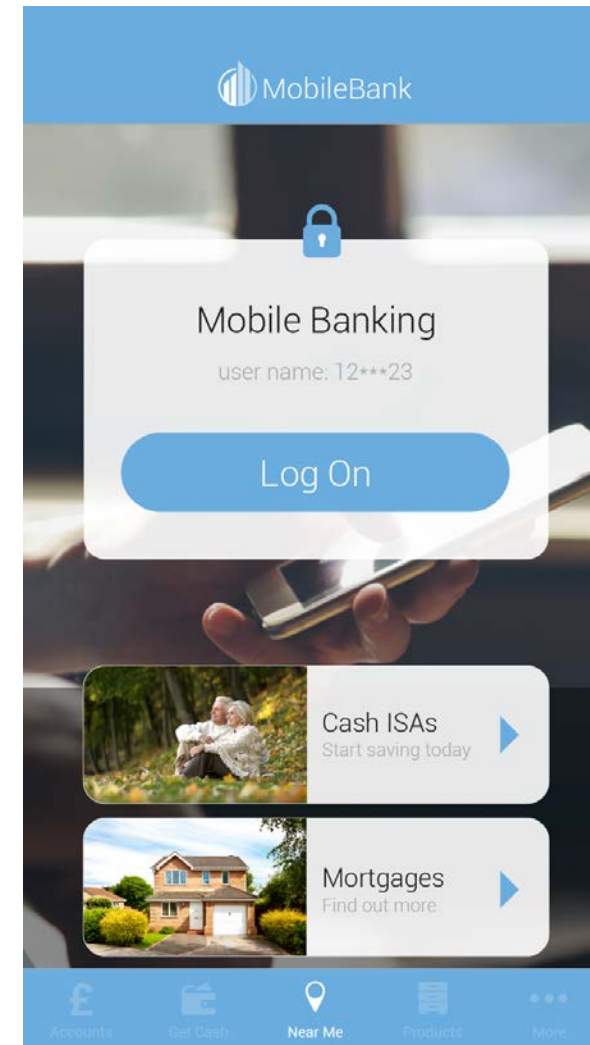
November 2016

Introduction

Mapa Research – experts in digital banking research – provides insights and analysis on customer experience to financial services providers. With a wide range of live bank accounts, Mapa analysts replicate and record the customer journey, on mobile devices and desktop. This helps businesses understand the competitive landscape, and offers inspiration for digital projects and improvements.

This free report takes a look at the world of artificial intelligence and digital banking, with a few examples taken from our ongoing research. For a more detailed overview of this topic, or analysis of specific competitors, please contact us today.

You can also get behind-the-login access via our subscription products: **Digital Banking Dashboards** and **Insight Series Reports**. More information is available on our website.

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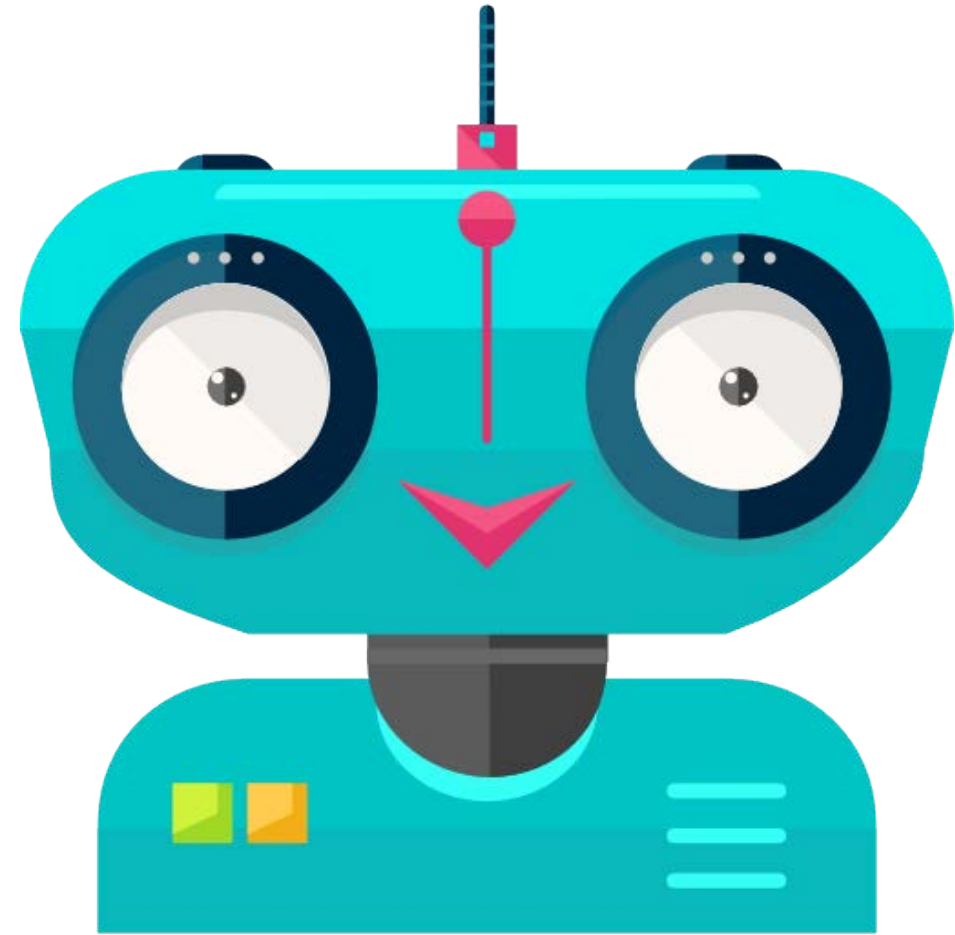
Artificial Intelligence & Digital Banking

Artificial Intelligence (AI) is being used across the financial services industry, and is becoming more popular in customer-facing digital channels. Broadly speaking, AI involves 'the ability of machines to emulate human thinking, reasoning and decision-making' (eMarketer).

As well as being driven by consumer demand and a need to cut costs, AI is emerging in financial services as banks enjoy better access to improved technology and lower costs for processing tools and data storage than ever before.

However, as Nanette Byrnes writes in the Technology Review, 'despite rapid progress in the technologies collectively known as artificial intelligence—pattern recognition, natural language processing, image recognition, and hypothesis generation, among others—there still remains a long way to go.'

So are we entering an age of reliance on artificial as opposed to actual intelligence? Or is this just a new – but perhaps more efficient – way to present the same information to customers?

Chatbots for Customer Support

Mapa Research has written before about the emergence of chatbots, and we have undertaken projects for clients where we analyse their use across the banking sector (and other industries). Recently, we've seen Bank of America, MasterCard and American Express all launch chatbots, with the aim of solving customer queries faster, helping users navigate apps more effectively, and providing help to customers more cost-effectively.
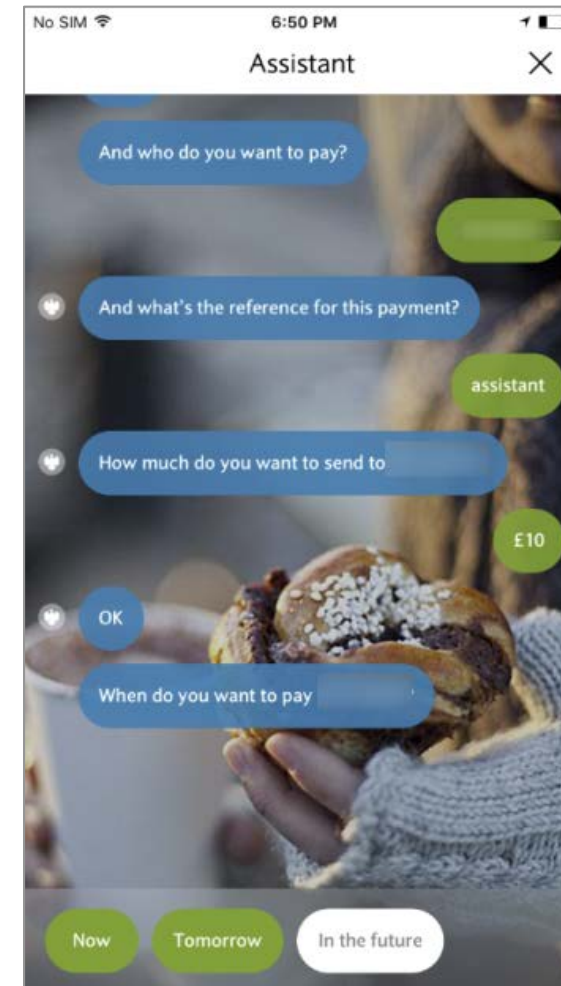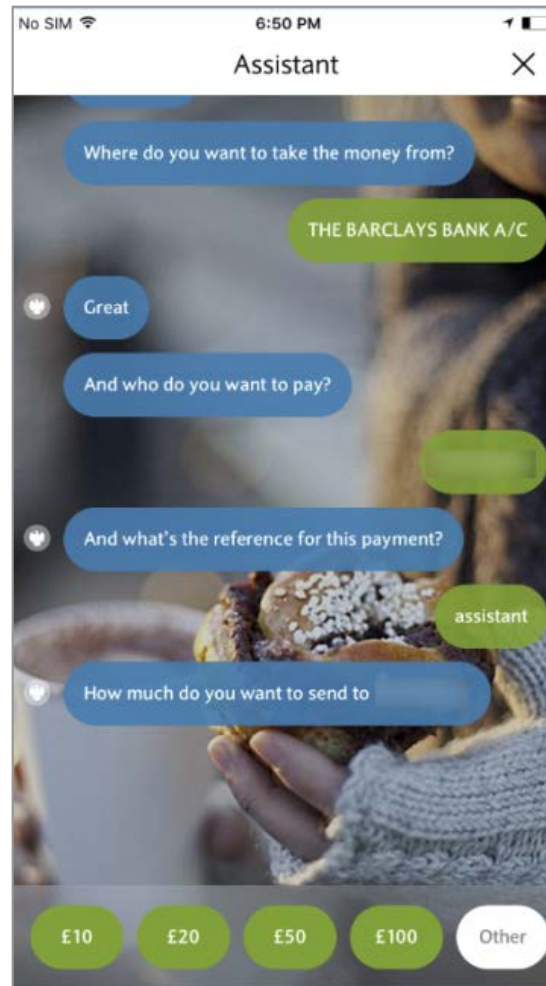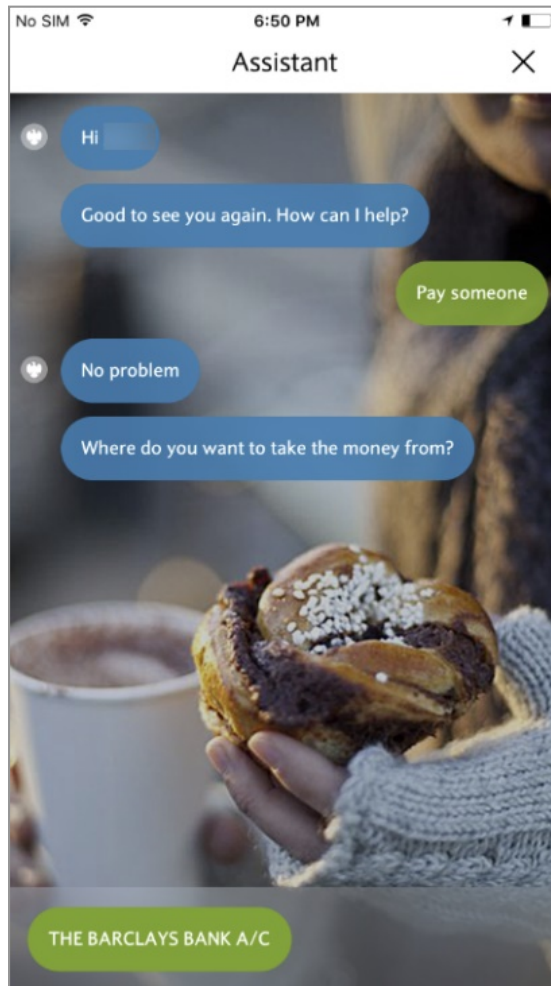
Most examples of 'artificial intelligence' we've seem have revolved around customer support. Many of the examples we've seen, both in financial services and beyond, are not fully artificially intelligent. Chatbots are based on decision trees; even those that accept questions (rather than offering choices) cannot often provide answers beyond the content of a brand's FAQs. While some 'supervised learning' may be occurring, it's far from the 'sentient robots' of science fiction.

Banks are trialing this technology both on their own sites and apps (see Barclays Launchpad, for example) and on third party platforms such as Facebook Messenger. Facebook, which launched chatbots for Messenger back in April and now has 34,000 on the channel, claims that the quality of bots built for the platform is improving greatly.
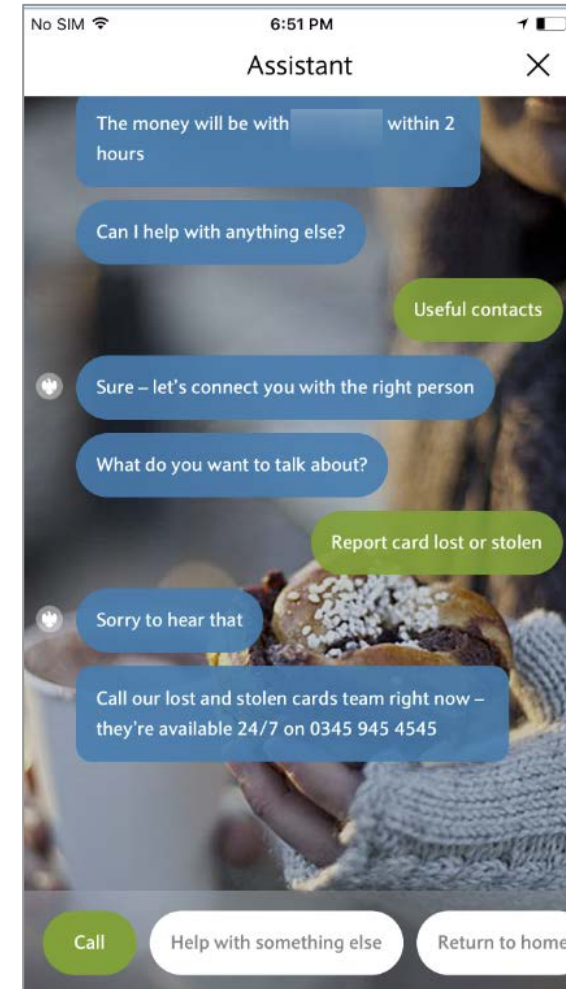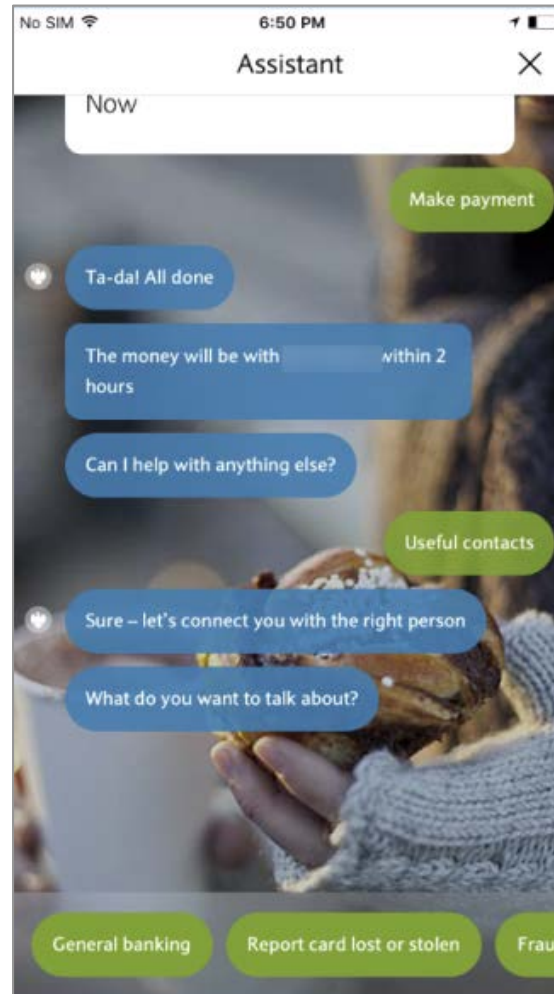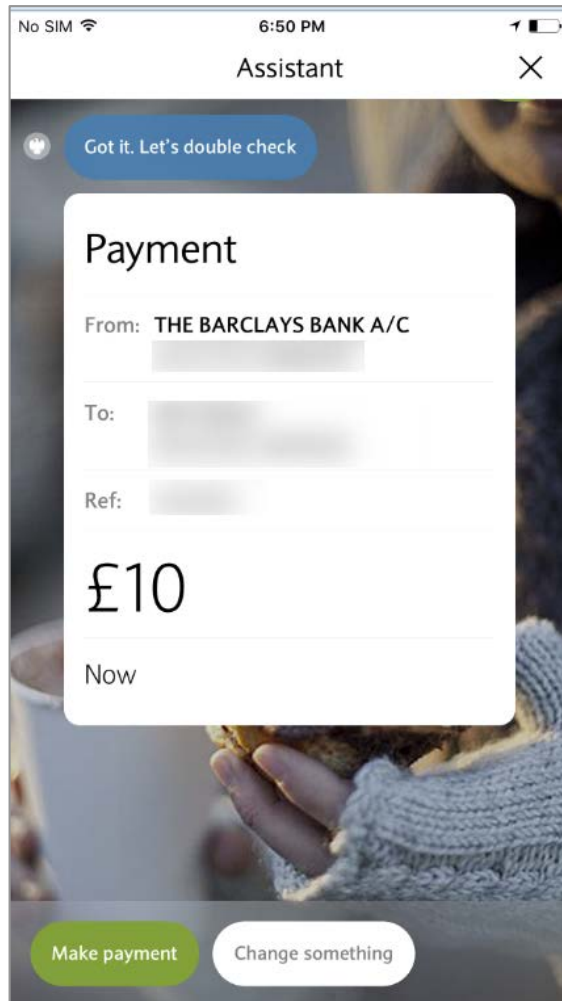
Barclays: Chat-based navigation

In its Launchpad app, where customers can test new features before they are rolled out, Barclays allows users to perform tasks in the app based on pre-set options. It is arguably harder work than simply performing the task (for example, the long route to paying a contact, shown here) via the standard process. However, this is in Launchpad, the Barclays app

Barclays: Chat-based navigation

Is this AI? We may have moved from a graphical user interface to what people are calling a 'conversational interface' – where it feels like a conversation is taking place – but if the bot cannot understand natural language and isn't learning as it collects data, it's not really worthy of the name 'artificial intelligence'. But it is an interesting first step.
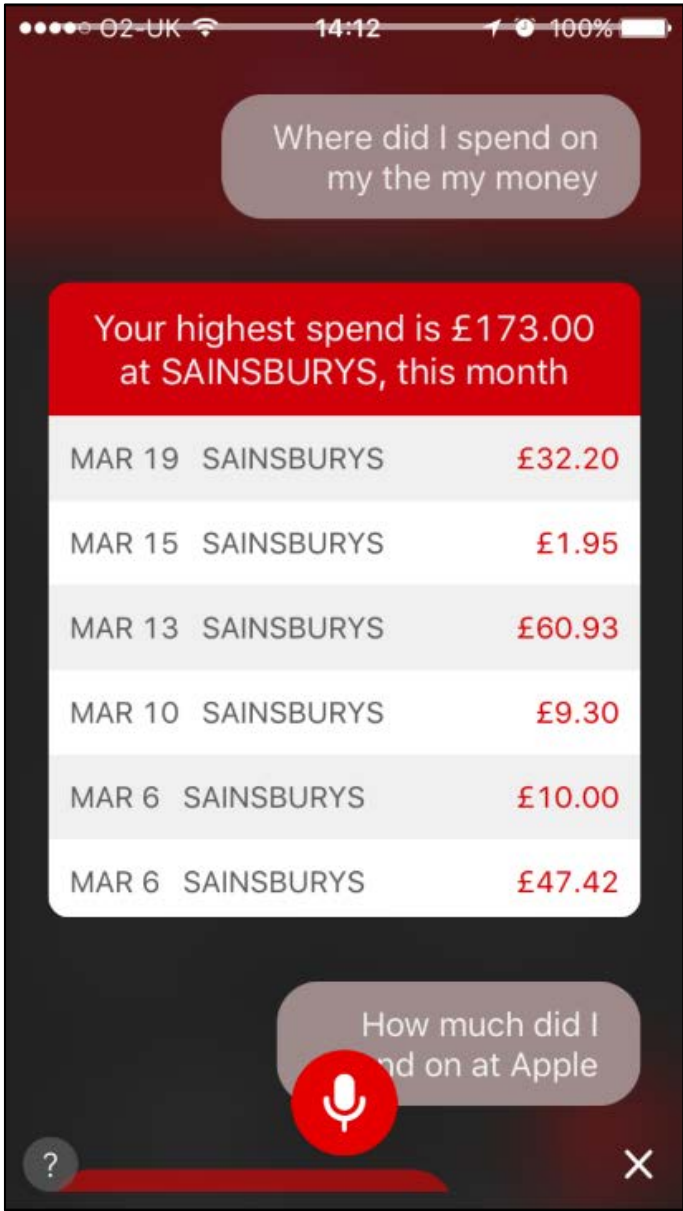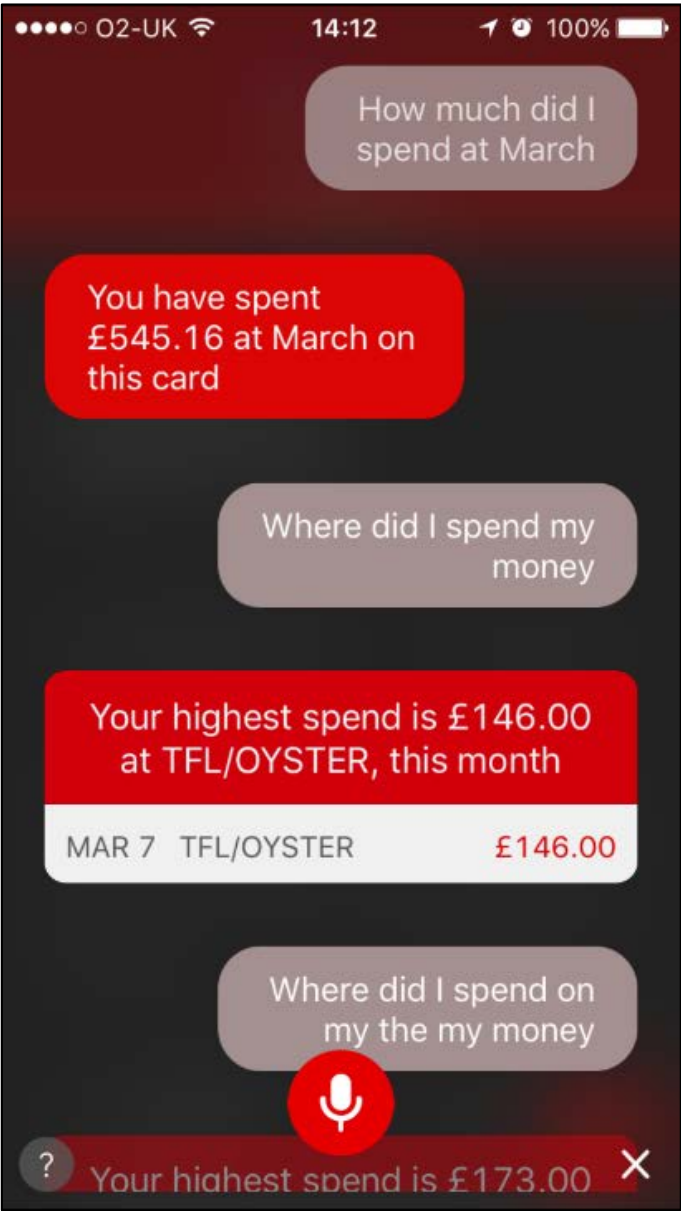
Voice Assistants for Account Servicing

Voice is being used more and more as an interface, and more often in allowing mobile users perform (banking) tasks easily.

The virtual assistants we already know, such as those from Apple and Google, can work with third party APIs to help us use banking apps. TNW reports that Google's new and improved AI algorithm is 'more conversational' and 'has also learned how to understand and factor in the context of the questions asked. In contrast, Siri tends to ignore context in some cases, merely pulling up results from Bing and other search engines.'

Thanks to Siri, Cortana, and Amazon's Alexa, humans are becoming more comfortable talking to 'robots' in order to get things done. These tools also have massive accessibility implications. However, many examples of this leave something to be desired.

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Santander

Santander SmartBank lets you understand your spending, as long as you ask it questions it can understand – how much did I spend, where did I spend it, and when did I spend it.

PayPal (UK)

PayPal has capitalised on the features available within iOS 10 by enabling users of its mobile app to make payments through the Apple voice assistant Siri. This functionality enables customers to ask Siri to send money or send a request for payment, which are made through PayPal. To use the Siri payment feature the customer first needs to authenticate their device within the PayPal app.

Machine Learning

The tricky part, for both voice and chat-based assistants, is understanding actual human language. Again, as bots get more sophisticated, and true artificial intelligence is the aim, their ability to process complex requests, understand natural language and teach themselves to update their own algorithms will increase.

While banks are taking tentative steps in creating bots and virtual assistants that can actually teach themselves and improve over time based on customer interactions, we are seeing more interesting applications of artificial intelligence from FinTechs.

IBM's Watson

[Watson from IBM](#) has been in a lot of articles recently, as more and more brands take advantage of the AI platform to make improvements to their customer experience.

Watson can give financial services organisations in particular a 'deeper understanding' of their customers, and balance this with risk and compliance considerations. 'Cognitive systems can deliver unprecedented personalized support to financial services customers in a way that fundamentally changes the experience of the brand,' claims the website.

Many banks are already using the technology, such as City Union Bank (CUB) – the first bank in India to launch a robot for customer service – and RBS.

CUB's Lakshmi speaks English, can gesture and engage in conversations, and can interact with customers on more than 125 subjects, including interest rates on loans and checking the account balance.
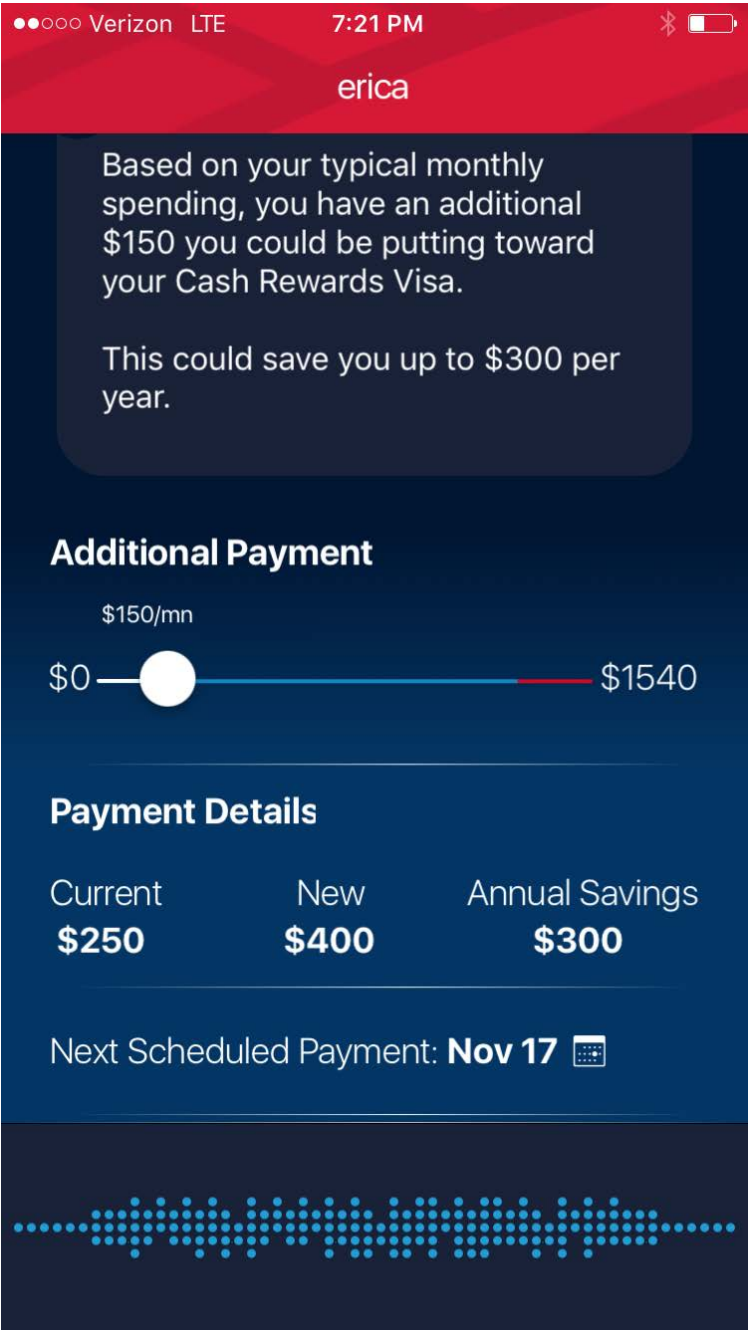
Erica from Bank of America

Erica, the new bot from **Bank of America**, can take inputs via text or voice, and is intended to 'get smarter' the more data 'she' collects. Customers will be able to but also make better financial decisions, apparently, as they have an advisor who will crunch more numbers than any given bank teller.

Announced at Money2020, it's not being used yet, but it will use 'cognitive messaging and predictive analytics to assist customers with payments and checking balances.'

Erica will help customers make payments, check balances, save money and pay down debt. She will also direct people to look up their FICO score and check out educational videos and other content. The bank hopes Erica will provide the personal service of a top-tier customer, to the masses.

AI for Personal Financial Management

A big challenge is that bots rely on data, and FinTechs in particular are starting to pull data in from a range of bank accounts rather than just one.

In its Future of Fintech report, Starling Bank comments that customers no longer need 'educating' - most can manage a budget and indeed use technology to keep track of their finances. What AI will do, it claims, will provide 'highly personalised services, all delivered in the context of what different customers want next, their location, and the type of service they appreciate.'

Cleo is one 'intelligent assistant' chatbot powered by AI. It lets you interrogate your bank accounts and credit card data and helps you manage your spending and budgets. The startup uses machine learning to automate the 'boring stuff', such as categorising transactions or making sense of graphs. According to TechCrunch, 'the bigger picture for Cleo is to offer a full range of banking products using the data you've handed over and its algorithms to make sure you're always getting the best deal.'

Meanwhile, chatbot Plum and the Chip app have both recently launched to help users save small amounts of money with no effort. It connects to your current account and the AI learns your spending habits, allowing it to automatically deposit small amounts of money into your linked savings account on a regular basis.

AI for Investing & Wealth Management

There has always been a complicated layer behind investments and managing wealth. Advisers don't just 'know' where to put money for the greatest yield – there are algorithms doing a lot of the work. So why not slap an intelligent interface over the top of these?

Wells Fargo plans to introduce this in the first half of next year (partnering with SigFig, a San Francisco-based fintech start-up, to provide the bank's clients with its robo-advisory tech and wealth management tools, according to *Reuters*.)

Meanwhile, FinTechs like Wealthfront are using AI in wealth management – and not making deals with big banks but dealing directly with young tech-savvy customers who are perhaps new to the investment game.

So the question is: Will banks be able to keep up? Or will it be FinTechs who aggregate information and apply a layer of Artificial Intelligence who hold the customer relationship in the future?

Other Applications for AI in Banking

Security & Fraud Prevention

Some FS providers and card issuers are beginning to use AI to identify unusual spending patterns and detect fraudulent account activity. USAA does this, for example.

Product Pricing

As Econsultancy comments, 'Dynamic price optimisation using machine learning can help [identify the elasticity of pricing]- correlating pricing trends with sales trends by using an algorithm, then aligning with other factors such as category management and inventory levels.'

Sentiment Analysis (Semantic Deep Learning)

Brands across industries are seeing the benefits to their product, sales and marketing efforts by monitoring customer comments – but using AI rather than manpower to assess the feelings behind swathes of customer data could be very powerful.

Customer Views on Artificial Intelligence

According to HBR, more people see AI as positive rather than negative (45% vs 7%), saying it will have a positive impact on their personal lives - and 92% are expecting 'proper' artificial intelligence to arrive eventually. Of those surveyed, more than half would trust AI to give them financial advice, despite around the same proportion being concerned over cyber attacks and data protection.

Of course, people still prefer dealing with people when it comes to customer service – 4 in 5 according to a recent study. However, in the same research, 67% of consumers and 91% of businesses said they felt that customer service online and via mobile devices needs to be faster and more intuitive to serve end users.

And this is the same as any technology in this regard: consumers will embrace it if it enhances their lives. What we've seen so far is technology-first, making it easier for the supplier (resources and management wise) but not necessarily for the end user. The potential of artificial intelligence to help customers manage their finances is huge – but it has to be refined, and then offered to the people who want it in the right way.
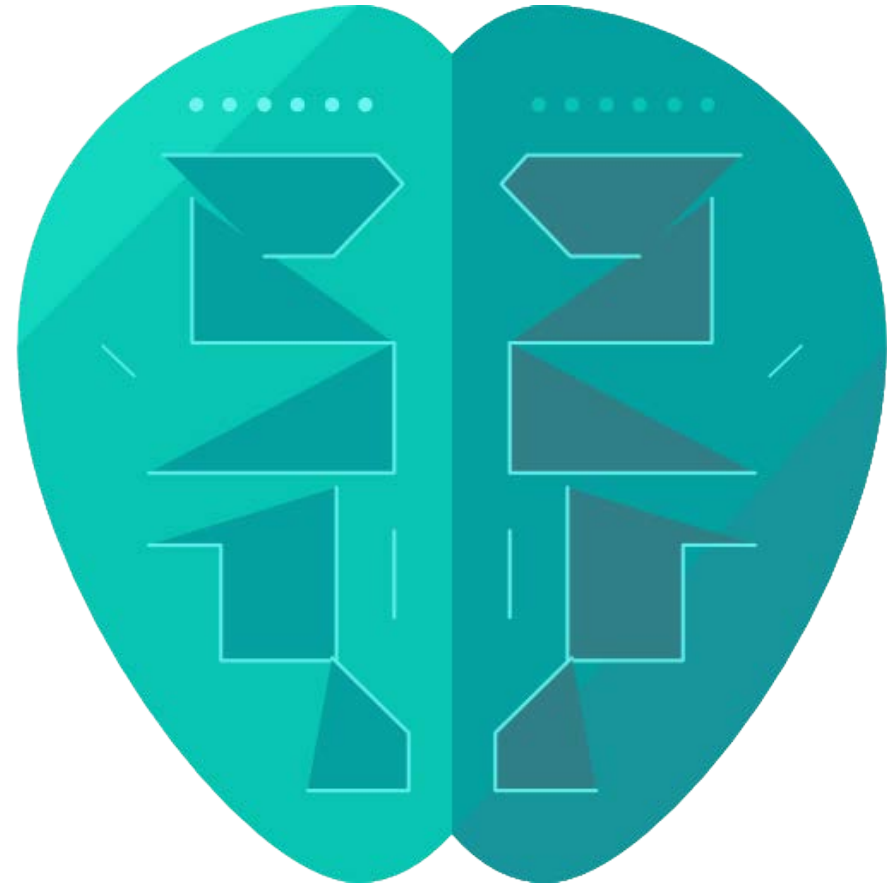
Conclusion

HBR notes that 'If a typical person can do a mental task with less than one second of thought, we can probably automate it using AI either now or in the near future.'

Following his attendance at Money2020, Keith Armstrong writes the following prediction in Chatbots Magazine: 'Intelligent conversational software will eliminate the cognitive load required to plan and manage a person's financial life. These intelligent systems will "think" and "act" to optimize long-term financial health.'

PSDII and technological developments will make it possible for banks to grab this opportunity – to use AI and data to optimize the long-term health of their customers, identifying 'unmet customer needs' quickly and cross-selling relevant products at the right time.

However, it's the culture of a startup to try these things faster and iterate on innovations like AI. As they gather the data through aggregation, there's the potential for newer FinTechs and challenger banks to steal market share, as they use data and technology to offer a far more useful (and perhaps holistic) banking experience.

At Mapa, we see a huge potential for AI in banking, particularly as it relates to the Internet of Things (IoT). Our latest Insight Series Report explains more, as we analyse the 10 Things That Digital Teams Should Be Doing in 2017. Do contact us to find out more.

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