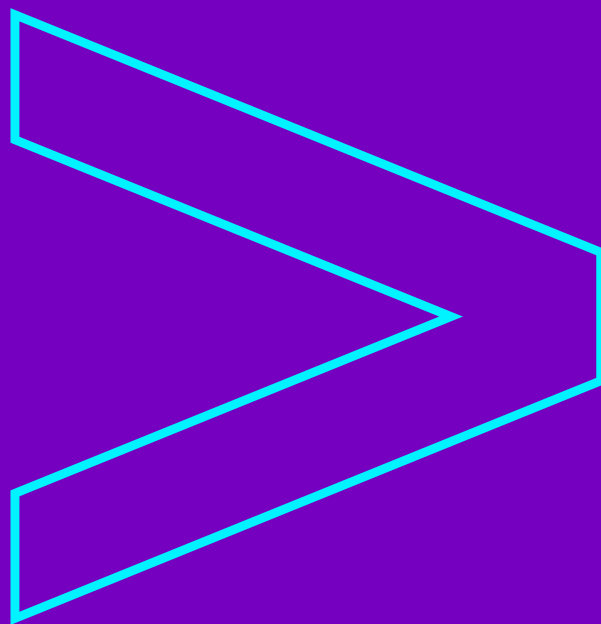


**THE INTELLIGENT  
BANK**



**REDEFINE  
BANKING**  
with Artificial Intelligence

---

# A TECHNOLOGY REVOLUTION LIKE NO OTHER

**Artificial intelligence will enable financial services companies to completely redefine how they work, how they create innovative products and services, and how they transform customer experiences.**

Artificial intelligence (AI) is creating the single biggest technology revolution the world has ever seen. The technology – which enables machines to simulate and augment human intelligence – has finally come of age. Across all industries, it's being used to address a wide range of challenges, large and small, by making interactions with machines and systems simple and smart.

Financial services companies, too, are entering the intelligence age. And they're doing so while already under intense pressure on multiple fronts. Rapid advances in AI are coming at a time of widespread technological and digital disruption. Competition is fierce. More than half of Fortune 500 companies have gone out of business since 2000. And AI is set to take this disruption to a new level.

But it's going to bring enormous business value at the same time. Although AI technologies are still evolving, they already have the capacity to enable tangible, real-world business outcomes – today. AI is more than a productivity

enhancer – it's a completely new factor of production. And its outcomes can be transformational. By letting machines learn, adapt and improve, AI can bring exceptional value to a business and its customers – and lower costs as it does so.

So, whether it's intelligent automation replacing repetitive manual tasks, workers augmented with enhanced judgement, improved interactions with customers, the development of intelligent products, or the use of responsible AI, the technology will drive enterprise growth, profitability and sustainability across the board.

What's more, AI is set to have a truly positive impact on people. By removing monotonous, repetitive tasks from day-to-day work, it will elevate employees to more rewarding, higher-value roles. It will bring completely new opportunities for the workforce – in the form of new jobs and new skillsets. And it will create technology experiences that are far more closely aligned with personal goals than anything an organisation has been able to deliver to date.

## AI EXPLAINER

What is artificial intelligence? Broadly, it refers to the development of machines or systems that can perform complex tasks normally considered to require 'intelligence' and thus thought to be the preserve of humans. Demis Hassabis, CEO of Google Deep Mind, calls it 'the science of making machines smart'. Russell and Norvig describe an intelligent machine as 'a flexible, rational agent that perceives its environment and takes actions that maximize its chance of success at some goal'.<sup>1</sup>

We define it simply as: a computer system that can sense, comprehend, act and learn. In other words, a system that can perceive the world around it, analyse and understand the information it receives, take actions based on that understanding, and improve its own performance by learning from what happened. And by enabling machines to interact more naturally – with their environment, with people and with data – the technology can extend the capabilities of both humans and machines far beyond what each can do on their own.



### SENSE

**Perceive the world** by acquiring and processing images, sounds and speech.



### COMPREHEND

Analyse and understand the information collected by adding **meaning and insights**.



### ACT

Take action in the **physical world** based on comprehension and understanding.



### LEARN

Improve performance (quality, consistency and accuracy) based on **real-world experiences**.

<sup>1</sup>Russell, Stuart J.; Norvig, Peter (2003)  
*Artificial Intelligence: A Modern Approach*

While the term 'artificial intelligence' has been in use for decades, the technology's pace of evolution has grown exponentially in recent years. That's because AI doesn't in fact represent a single technology. Rather, it's a multidimensional field encompassing a range of different technologies and methods, each supporting and supported by the others. And it's the multiplier effect of those rapidly evolving underlying technologies – natural language processing, computer vision, machine learning, deep learning, neural networks, and others – powered by huge advances in cloud computing and processing capacity that has brought AI to the fore with such exceptional force.

## THE TERM 'AI' ENCOMPASSES MANY DIFFERENT TECHNOLOGIES AND CAPABILITIES

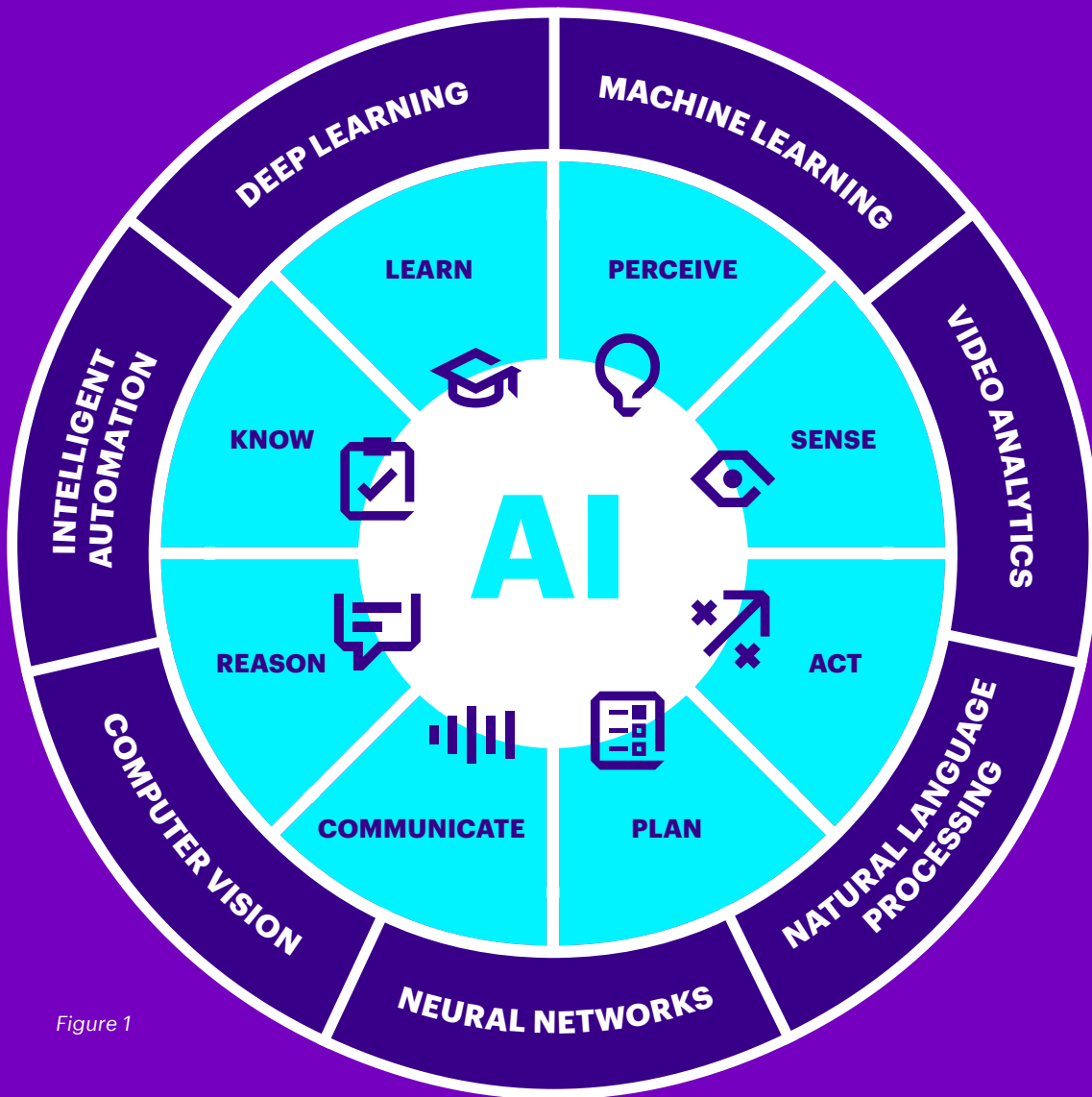


Figure 1

---

# [ HUMAN x PROCESS x DATA ] AI

**The banks that benefit most from AI will be those that are prepared to rethink their approach to their people, their processes and their data.**

AI technologies will clearly have a huge impact on the financial services sector. Banks will redefine how they work (their processes), what they sell (their products and services) and how they interact with their customers and employees (their user experiences). They'll redefine their operating structures for an AI-enabled workforce. Humans and AI will work together to drive process and operational efficiency. And new AI applications will create growth through improved customer and employee experiences.

How should banks best make use of these extraordinary new capabilities? By constantly innovating at pace and scale, reinvesting as necessary, to derive the optimal value from the technologies that underpin AI.

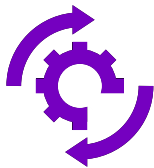
And by using an intelligent framework that augments their people's work, redefines how they operate with intelligent automation, and unlocks growth through data. Focusing on any one of these elements in isolation just won't be enough – understanding the interplay between all three is essential in truly gaining the maximum benefit from the technology.



## HUMAN

### **Transform relationships**

Using AI, people will be able to spend more time on exceptional work: the 20% of non-routine tasks that drive 80% of value creation.



## PROCESS

### **Re-imagine business models and processes**

Smart machines will continually review end-to-end processes and apply 'intelligent automation of process change' to refine and optimize.



## DATA

### **Illuminate dark data**

Companies will apply AI to greatly enhance large data analytics, evolve algorithms with transactional data faster, and combine data in new ways to discover trends.

Crucially, a bank's AI goals should look beyond cost reduction, welcome though that is. This technology has the capacity to do much more. Indeed, it can completely transform an institution from the core. It can unlock growth from the huge

amounts of data that banking institutions hold. It can automate simple and predictable functions, as well as augment the human working experience across more complex and creative workstreams.

That will enable the banking workforce to move away from repetitive, process-driven tasks towards the more strategic and innovative kinds of work that will ultimately drive the industry forward. It will create seamless interplays between customers, employees and AI-led services. And it will break through the silos and practices of process-driven banking, and let banks become analytics-driven entities, using data to dynamically inform and shape what they do in real time.

Understanding both AI's potential and its limitations across the value chain is critical. Banks must know that this is not a replacement for employees – it's a tool to release pressure points, and derive greater creativity and value from the workforce.

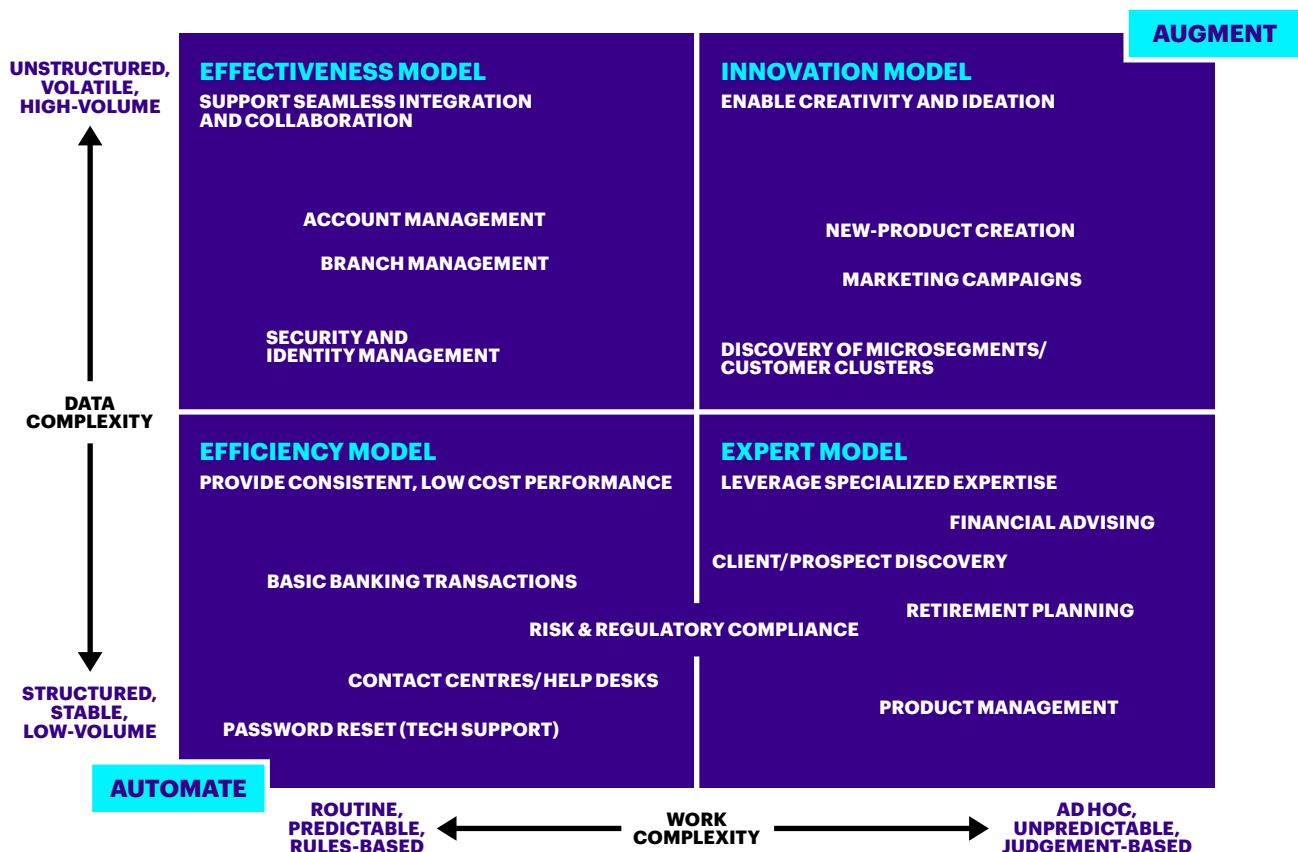


Figure 2

Banks must help their workforces understand how they can work with AI technologies for enhanced productivity and job satisfaction. A code of practice, written in plain language, will help. For example, the framework set out in Figure 3 could be used to ensure the

business has a greater understanding of where AI should and should not be implemented. This will be a critical step in reassuring the workforce that they have a crucial role in the future business, working alongside AI technologies.

# AI IMPLEMENTATION FRAMEWORK

## RESPONSIBLE AI

Building trust within the organisation through the way AI is used (e.g. compliance, transparency).

## ETHICAL DESIGN

Implementing AI solutions that are ethical and build transparency into the process.

## REGULATION AND COMPLIANCE:

- Building auditable and regulatory-compliant AI solutions.
- Identifying illicit behaviour by customers and employees more accurately and more efficiently.

## PRINCIPLES

Defining guidelines for deploying AI within the organisation.

Figure 3



Inevitably, some may feel trepidation about the impact of these new technologies. But it's helpful to look at what happened when basic banking functions were first offshored. Many feared the loss of jobs and revenues in banks' home countries. However, in practice, skilled and highly valuable workers were freed to do more strategic and creative thinking. The AI phenomenon is no different. And demonstrating where and how the technology could work (or is already working) alongside human employees will help inspire greater trust in the technology.

It is worth noting the successful use of AI calls for ongoing investment. The technologies are continually evolving, and there is a risk of creating a perpetual cycle of legacy costs. Those banks that fail to keep pace with the technology risk seeing their customer proposition disintermediated by other market participants, particularly in the era of Open Banking and the Second Payment Services Directive (PSD2). This investment should be balanced out by the efficiencies that AI can support.

Optimal efficiencies are likely to first be seen in back-office functions, where robotic process automation (RPA) is already having a significant impact.

But a greater use of intelligent automation – that is, virtual workforces that can learn and adapt to the needs of the business – is already filtering through to some middle- and front-office operations. That includes, for example, the use of robo-advisory services. As humans and AI start to work together in this domain, banks will really begin to feel the benefits of AI.

And those benefits will typically be distributed evenly between cost reduction and revenue growth. A bank can expect potential savings of between 20 and 25 percent across IT operations, including infrastructure, maintenance and development costs.<sup>2</sup> And it should expect new revenues across product lines, increased development of new products and improvements in income per product, volume, customer retention and acquisition.

**A bank can expect potential savings of between 20 and 25 percent across IT operations, including infrastructure, maintenance and development costs.**

<sup>2</sup> Accenture Research analysis of IDC data

# BANKING HEAT MAP

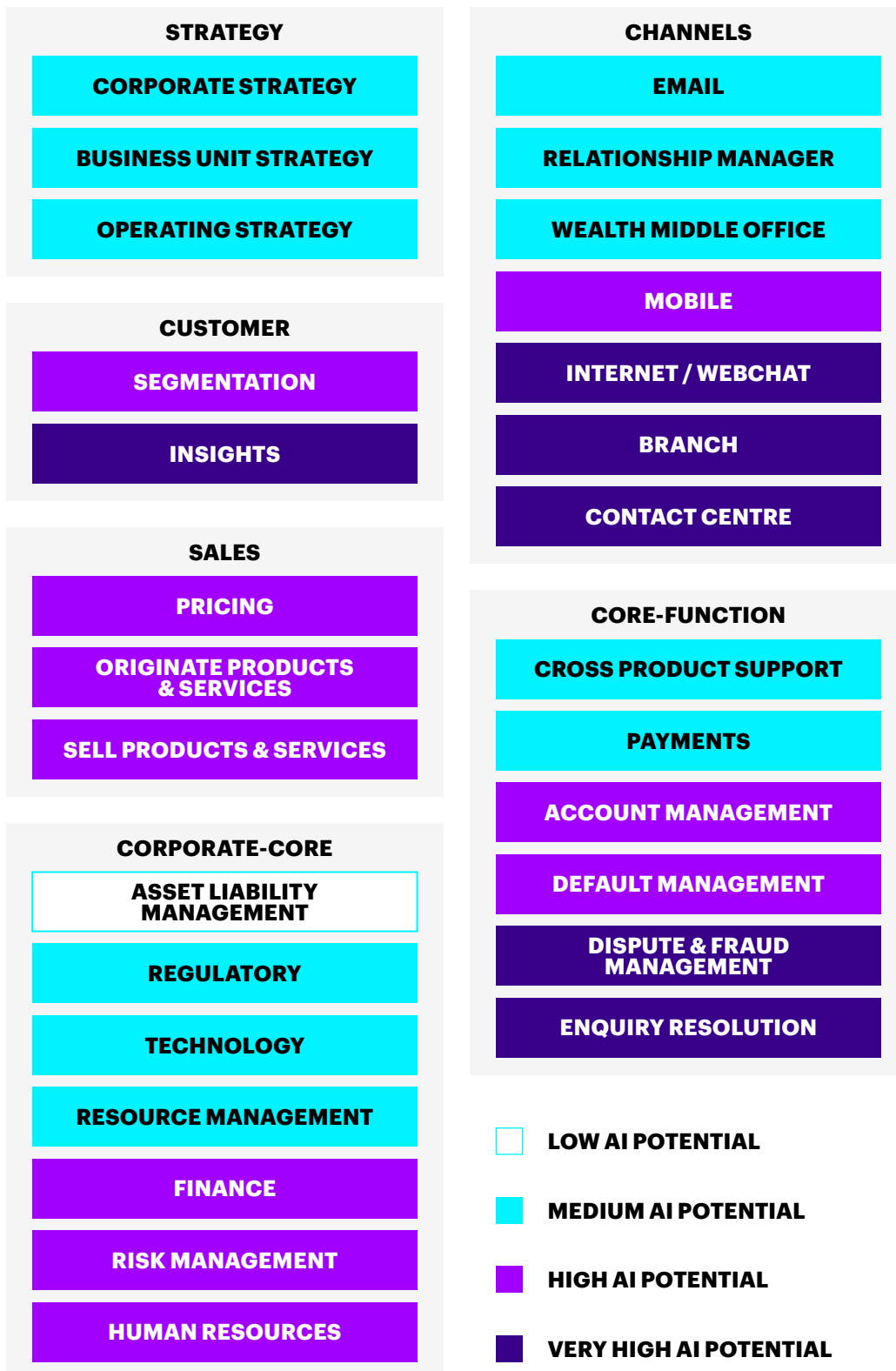


Figure 4

The challenges of implementation are often cited as a barrier to the adoption of what some see as highly advanced technology. That said, only 23 percent of banks in the UK and Ireland think a lack of IT expertise explains the slow adoption of AI in the industry. And Accenture's latest TechVision survey found that 78 percent of banking executives see these technologies having an impact on the industry over the next few years.<sup>3</sup>

Although AI technology can seem complex, a simple and highly adaptable framework can be used to identify the potential benefits in a particular process: create a measurable strategy, pilot and test it, deploy it, then manage it.

In addition, the role that FinTech start-ups can play in this area should not be forgotten. What these specialist technologists may lack in industry expertise, they more than make up for in AI-building capabilities. Banks should engage this knowledge base to help them build the capabilities they need, while also recruiting and training a specialist in-house workforce.

Of course, the core bank is just the start of this transformation. On the product side, AI will help to bring the customer and the bank closer together. It has the capacity to aid retention and customer acquisition and provide the frictionless experience that customers increasingly expect from all their financial services providers.

That AI is having a huge impact on the banking industry is now beyond doubt. Processes, products and employee and customer experiences will be reimaged. But how exactly? By focusing on the three core areas that AI will impact: people, processes and data.

<sup>3</sup>Accenture TechVision 2017 - UK and Ireland sample

# HUMANS: AUGMENTING YOUR WORKFORCE

**Forget about ‘humans versus machines’ – AI is about ‘humans augmented by machines’.**

The workforce has changed greatly over recent decades. The job for life has become the portfolio career. And with this fluidity comes employee expectations that are now highly geared towards a work/life balance. The nature of their work has become an essential part of their quality of life. That means, if an employer gets it right, they’ll drive higher productivity. And if an employee is engaged, so too will be the customer, whose expectations have also changed over the years, and who has come to demand ever more personalised services at a competitive cost.

Delivering these experiences for both the employee and the customer is at the forefront of what AI can offer a business. But to make that happen, banks need a workforce strategy that maps the skills agenda, highlights areas to improve, and upskills their workforce accordingly. Forging partnerships with third-party providers where necessary, and building an ethical approach to AI, are two steps that will help attract skilled digital talent to their businesses.

By changing how banks work at a fundamental level, and incorporating AI along the whole spectrum of a new value chain, human capital can be redeployed into higher-value areas. And that can begin to build new revenue streams. Providing the energising and motivating experiences that employees are looking for in a career will trickle down into banks’ product offerings and enable competitive rates through scalable productivity.

**By changing how banks work at a fundamental level, and incorporating AI along the whole spectrum of a new value chain, human capital can be redeployed into higher-value areas.**



## **CASE STUDY:**

### **THE SME BUSINESS RELATIONSHIP MANAGER**

---

Connecting a prospective Small and medium-sized enterprises (SME) business client with a relationship manager with the right skills and experience is critical. The client relies on them for information about the bank's products, insights into how their business is running, and support with applications for new financial products and services. A robo-advisor could channel a new client to a suitable relationship manager for the product or service offering they need.

It could also give critical insights into their social style and preferences before they're introduced, through natural language processing or tone analysis. And it could provide detailed analytics and machine learning-driven information in real time to make sure the relationship manager is well informed throughout the course of their first conversation. That would make for a frictionless introduction and increase the likelihood of onboarding or retaining a customer.

# PROCESS: INTELLIGENT AUTOMATION

**Traditional automation degrades over time – intelligent automation gets smarter all by itself. It's time to move up the maturity curve.**

Creating the more personalised services that today's consumers expect requires well trained and motivated employees to make them a success. But it also requires scalable data-driven processes alongside those employees. Taking repetitive and easily automated work away from skilled and experienced staff means that more personal services, with a human face, can be provided for customers. How many more calls and appointments could a relationship manager fit into their day if they didn't have to manually fill in a potential customer's details each time they took a new enquiry?

RPA is already being used to implement this kind of operational efficiency across banking businesses. However, looking at broader opportunities, intelligent automation has the potential to create frictionless experiences for the customer. By using the full spectrum of AI technologies, through dynamic and constantly adapting analytics, banks can

ensure more processes are revolutionised by intelligent automation. For instance, using voice recognition to assess the sentiment of a customer interacting with a robo-advisor, and switching them to a human well before they become frustrated, could ensure they see an application through from start to finish across many products and services.

**By using the full spectrum of AI technologies, through dynamic and constantly adapting analytics, banks can ensure more processes are revolutionised by intelligent automation.**



## **CASE STUDY:**

### **MORTGAGE APPLICATION**

---

The experience of getting a mortgage is rarely enjoyable. But, through the application of AI, this well-known customer pain point is on the turn. Initially, machine learning will accelerate the component parts of the process – faster and better affordability checks, for example. This will be followed by more complicated processes, such as product recommendation. While the long-term impact of AI on the mortgage journey is hard to predict, more advanced propositions such as real-time hyper-customised product creation could be viable.

# DATA: UNLOCKING GROWTH

**Unlocking trapped value will do more than save costs – it will create entirely new products and services for future growth.**

Banking providers are the custodians of vast amounts of data. Many GAFAs (Google, Apple, Facebook, Amazon), despite their huge successes with public data, would dearly love to be in possession of so much customer information. A bank is, of course, bound by a code of ethics in using personal data, and maintaining customer trust is paramount. However, customer sentiment is leaning towards a willingness to let banks use their financial data – if it means a better service. Indeed, almost two-thirds said they would be comfortable letting their bank do this.<sup>4</sup>

That said, there are limitations in what customers will accept – two-thirds also say they wouldn't be happy for a bank to use social media to gather information about them, for example. This perhaps shows that, while many consumers still trust their bank to do the right thing, they have less trust in the security of social media. This sentiment may not last for long - especially as customers become increasingly happy to use services provided by GAFAs.

The wealth of information at a bank's disposal represents a truly unique advantage. It can offer insights into the lives of customers, their ambitions, their dreams, their needs and their challenges. Importantly, this data can feed the analytics which guide the development of ever more personalised services for customers. Breaking down the silos of data, and creating more dynamic ways of accessing it, will make banks the standout financial services providers in an increasingly fragmented industry.

**The wealth of information at a bank's disposal represents a truly unique advantage. It can offer insights into the lives of customers, their ambitions, their dreams, their needs and their challenges.**

<sup>4</sup>Accenture Banking Consumer Survey 2016





## **CASE STUDY:**

### **AN INSTANT RESPONSE TO A CREDIT APPLICATION**

---

Risk is a key factor in any credit application. And mitigating that risk usually starts with a credit check of a potential customer via an outside agency. While this check may be carried out more or less in real time, the data on which it is based is usually only updated monthly. What if, in the era of Open Banking and cloud data storage, a machine learning algorithm could instantly draw on multiple sources – financial services providers, utility companies, electoral registers, say – to make a decision based on a customer's real-time data? It could then channel the customer towards the appropriate product for their requirements, be it a loan, credit card or other product. What if natural language processing technology could recognise any suspicious answers given during an application? Or if biometric/face recognition technology could identify fraudulent applications? AI thus offers the potential to save banks millions in fraudulent or poor credit applications, and ensure that genuine customers, with good credit profiles, can receive the best possible product for their circumstances and the most straightforward application process.

---

# EMBRACING INTELLIGENCE

**AI represents a technological revolution like no other. Unleashed from the realm of science fiction, this is a real-world technology that is ready to be implemented in any business – today.**

And as high-powered computing becomes ever more readily available, and as vast data sets needed for training AI solutions become more accessible, the capabilities will continue to grow exponentially. The world has barely scratched the surface of AI's possibilities.

That creates an imperative for all financial services companies. The time to move on AI is now. Low barriers to entry will bring ever fiercer competition for AI talent, AI patents and AI capabilities. And coming AI advances will be so all-encompassing, and so fast-paced, that high-performing organisations will inevitably accelerate away and leave the slow movers far behind.

Those high performers will use AI to transform the way they organise, run and grow their businesses. They'll implement the technology in innovative ways to reduce cost and create better experiences for customers and employees alike.

But to do so, they'll need to completely rethink how their organisations, and their workforces, operate. They'll need strict guidelines to ensure AI is used responsibly and ethically. And they'll show their employees that AI represents nothing like the threat that some believe it to be. Rather, that it's a means to elevate human working lives to new heights of self-fulfilment.

And, by drawing together the core elements of their people, their processes, and their data, banks can position themselves to lead their industry as it enters a new era of AI-driven enterprises. Now's the time for banking to get smart and embrace the transformational power of artificial intelligence.

# AUTHORS



## **Roy Jubraj**

Digital & Innovation Lead,  
UK & Ireland Financial Services  
kadesh.r.jubraj@accenture.com



## **Tom Graham**

Artificial Intelligence Lead,  
UK Banking  
tom.graham@accenture.com



## **Eve Ryan**

Banking Research Lead,  
UK & Ireland  
eve.ryan@accenture.com

## ABOUT ACCENTURE

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions – underpinned by the world’s largest delivery network – Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With approximately 425,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives. Visit us at [www.accenture.com](http://www.accenture.com)

## ABOUT ACCENTURE RESEARCH

Accenture Research shapes trends and creates data-driven insights about the most pressing issues global organizations face. Combining the power of innovative research techniques with a deep understanding of our clients’ industries, our team of 250 researchers and analysts spans 23 countries and publishes hundreds of reports, articles and points of view every year. Our thought-provoking research – supported by proprietary data and partnerships with leading organizations such as MIT and Singularity – guides our innovations and allows us to transform theories and fresh ideas into real-world solutions for our clients. Visit us at [www.accenture.com/research](http://www.accenture.com/research)

## STAY CONNECTED



**Follow us @BankingInsights**

[www.twitter.com/BankingInsights](http://www.twitter.com/BankingInsights)



**Connect with us**

[www.linkedin.com/showcase/10412359](http://www.linkedin.com/showcase/10412359)



**Banking Blog**

[bankingblog.accenture.com](http://bankingblog.accenture.com)

Copyright © 2018 Accenture  
All rights reserved.

Accenture, its logo, and High Performance Delivered are trademarks of Accenture. Any third-party names, trademarks or copyrights contained in this document are the property of their respective owners.