

AI in Banking

How **Artificial Intelligence** is driving innovation and competitive advantage in the banking industry

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Artificial Intelligence: The revolution



Artificial Intelligence (AI) is creating the most significant technological revolution of all time

The term "artificial intelligence" was first coined by John McCarthy in 1956 in order to clarify and develop the concepts around thinking machines, which was divergent at the time mentioned (Marr, 2018). In the today world, McKinsey & Company (2019) defined AI as "the ability of a machine to perform cognitive functions we associate with human minds, such as perceiving, reasoning, learning, interacting with the environment, problem-solving, and even exercising creativity."

Accenture (2018) also framed Artificial Intelligence with 4 main characteristics: "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 – this technology can extend the capabilities of both humans and machines far beyond what each can do on their own. According to Hello Tomorrow and Boston Consulting Group (2017), AI is posing a significant impact on a wide range of industries. Among those, the financial services and banking sectors are ones that are experiencing extensive changes due to the rapid evolution of this technology.

In an industry that is very much based on information exchange and network, AI presents opportunities for companies to create real competitive advantages. In other words, it is not only revolutionising the way banking is done and the relationships between banks and their customers' experience, but also taking technological disruption to the next level.

AI in the banking industry



It is undeniable that AI technologies are playing a massive role in the financial services sector

The aggregate potential cost savings for banks from AI applications is estimated at \$447 billion by 2023, with the front and middle office accounting for \$416 billion of that total, per Autonomous Next research seen by Business Insider Intelligence. Analysts also estimated that AI would save the banking industry over \$1 trillion by 2030 (Maskey, 2018).

Moreover, with the increasing customer demand of convenience and quickness not only at work but in all aspects of everyday life, AI technologies have become indispensable tools for banks to step their game up in this highly competitive market. Accenture (2018) suggested that AI would profoundly change the way banks work, the products they sell and the way they interact with customers and employees. With the emergence of AI, the banking workforce will be able to move away from repetitive, process-driven tasks towards the more strategic and innovative kinds of work that will ultimately drive the industry forward.



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 & processes

Smart machines will continually review end-to-end processes and apply intelligent automation to refine and optimise.



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.

(Accenture, 2018)

It will create seamless interplays among customers, employees and AI-led services. And it will break through the silos and practices of process-driven banking, allowing banks to become analytics-driven entities, using data to dynamically inform and shape what they do in real time.

AI: Tools for competitive advantage



Improving customer satisfaction

Chatbots and virtual assistants can be seen as the most visible form of AI being adopted across this sector. Chatbots have proved to be able to reduce hours of waiting through helping customers with basic questions and simple tasks. These automated service assistants are providing customers with the convenience of resolving their queries via an online messaging system, perhaps using their laptops or smart - phones, instead of having to visit a branch.

Through machine-learning techniques, more importantly, chatbots are improving consist - ently with regards to their ability to accurately identify the customer's issues and respond with the appropriate solutions. For example, in 2016 Bank of America introduced their intelligent virtual assistant named "Erica" (Sennarr, 2019). Claimed by Bank of America, Erica is a chatbot leveraging "predictive analytics and cognitive messaging" that provides financial guidance to over 45 million customers of the bank.

Furthermore, Erica is designed to be accessi - ble to clients 24/7 and perform "day-to-day transactions" in addition to anticipating the unique financial needs of each customer and helping them reach their financial goals by providing smart recommendations. And the investment paid back, as 2016 was claimed to be the second-most profitable year for the large bank.

Increasing security

While chatbots are becoming increasingly popular in the industry, banks are further seek - ing competitive advantages through personal isation. This sense of personalisation goes far beyond product customisation and into securi - ty. Cybersecurity is a current hot topic for the financial services sector and regulatory com - pliance is another. AI can add real value in both of these areas. Machine Learning platforms can be coded to identify user patterns and detect anomalous network behaviour, some -



thing that's increasingly essential as cyber-attacks are often disguised with inconspicuous data or code. Instead of password and security questions, AI technologies are finding new innovative ways to improve customers' data security, such as facial recognition, voice recognition, or other biometric data that is unique to individuals. A report by Goode Intelligence forecasts that 1.9 billion bank customers will be using some form of biometric identification by 2021. The Guardian (2015) reported that U.K. bank Halifax even experimented with Bluetooth wristbands that identified a client's unique heartbeat to authenticate account access. With the development of AI technologies, biometric authentication techniques are becoming more sophisticated and secured, which will lead to the increasing popularity of the technology.

Fighting fraud

Besides improving the customer experience and increasing security, AI and Machine Learning solutions are also used to prevent fraud and money laundering. According to McAfee (2018), cyber crime and financial fraud are currently costing the global economy up to \$600 billion per year. The emergence of AI technologies is expected to considerably reduce this number. At present, many banks and financial institutions use a two-layered detection process to identify the possibility of financial fraud. The first screening stage is undertaken by AI, but the second stage involves manual checking — a system that

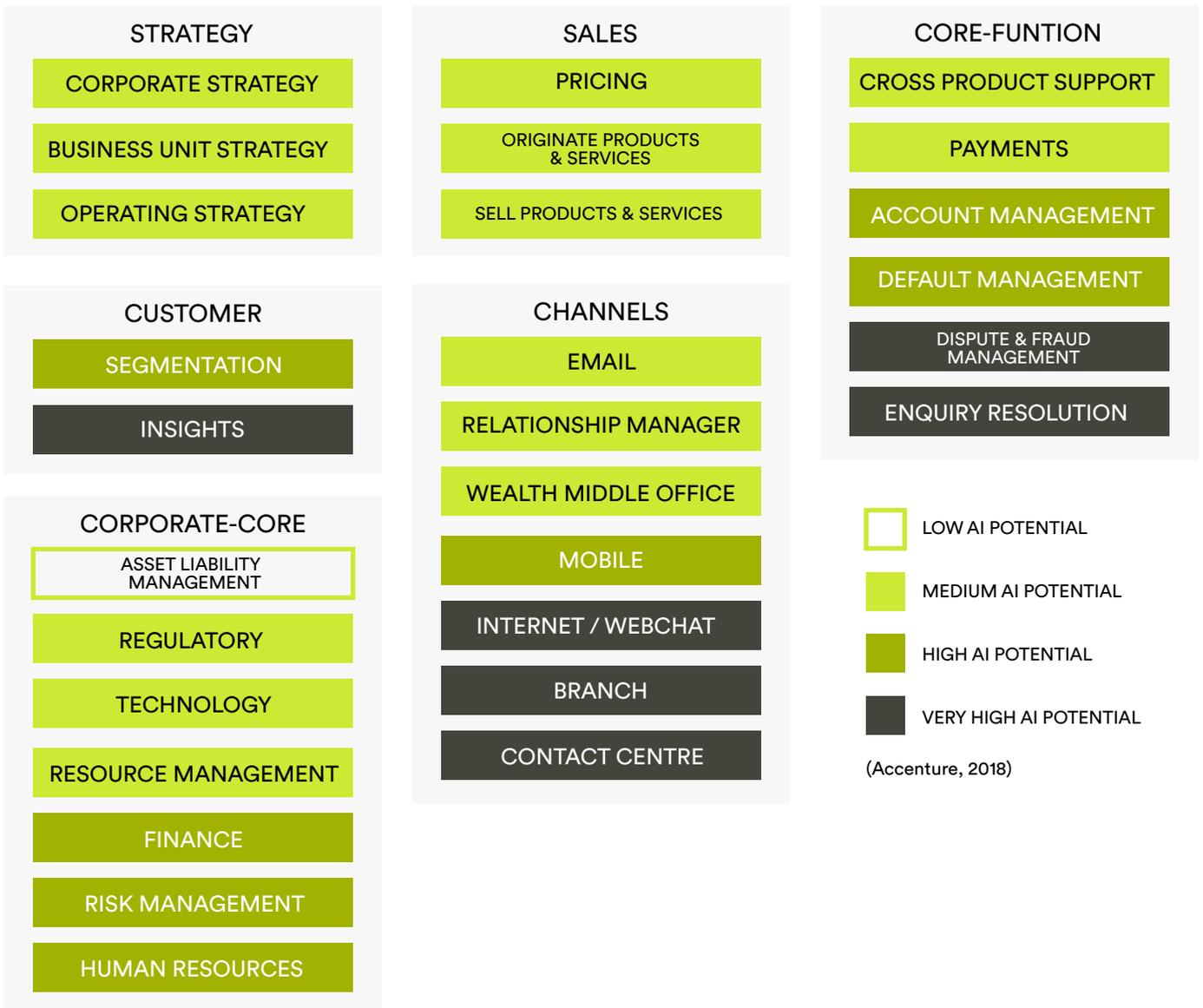
is still vulnerable to the possibility of human error or tampering — and AI technologies are expected to replace this process in the very near future. Financial fraud has been a constant throughout human history, and advancements in technology have made it more complex and difficult to contain. However, banks and financial institutions now have the ability to leverage self-learning technology to identify such activities and prevent them. For instance, by using AI in risk management, Mastercard was able to reduce the rate of false declines its customers faced by 80% (Business Insider, 2016).

Cutting costs

Furthermore, AI can be further applied to various departments within the financial service sector in order to save costs, human resources and improve customers' experiences. Accenture (2018) noted that a bank can expect potential savings of between 20 and 25 percent across IT operations, including infrastructure, maintenance and development costs. Accenture (2018) also showed the potential of AI applications across the bank's functions in the present and future. The below table shows that with the exception of "Asset Liability Management", which has low AI potential, other departments are seeing great opportunities to apply Artificial Intelligence in order to improve customers' and employees' experiences and create true competitive advantages.



BANKING HEAT MAP





The future of AI in the banking industry

A customer survey by Accenture has found that the younger a customer's age, the more technology they expect to find when engaging with banks. They expect these technologically-supported services to be intelligent and they see them as a reward for sharing their data, which banks analyse and exploit for strategic ends. Accenture's latest Techvision survey also found that 78% of banking executives see these technologies having an impact on the industry over the next few years. Hohmann (2019) proposed that through using cognitive computing systems, including real-time insights and information processing, banks can seize an opportunity that will grow revenues up to 30 per cent by 2022.

On the other hand, there are concerns that AI is taking jobs away from financial professionals. Indeed, over the past decade, the digitalisation of customer service has led to a decline in the need for front-of-house staff in banks and the subsequent closure of many branches. According to consulting firm Opimas, 230,000 jobs in the sector could disappear by the banking industry 2025, filled by "artificial intelligence agents" (Huff Post, 2017).

This is inevitable as the principle of the banking industry is built on information processing and this process can be easily digitalised in today's world. Banks and financial institutions are rapidly adopting a new generation of artificial intelligence-enabled technology (AI) to automate financial tasks usually carried out by humans, like operations, wealth management, algorithmic trading and risk management. Moreover, as AI is learning to be more human-like and sophisticated, it will soon become the primary way banks interact with their customers.

Innovation: The only way forward

While chatbots are becoming increasingly popular in the industry, banks are further seeking competitive advantages through personalisation. This sense of personalisation goes far beyond product customisation and into security. Cybersecurity is a current hot topic for the financial services sector and regulatory compliance is another. AI can add real value in both of these areas.



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About Us

Nexus FrontierTech is a London-based tech company specialising in the development and integration of AI solutions that help organisations save time, money and resources by tackling process inefficiencies and data waste. Whilst industry agnostic, many clients are in the financial services space and are seeking to streamline their operations.

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