AI in risk management

Intelligent decision-making for risk managers

Banks and other financial services firms are using AI to improve their risk management, but there are a few obstacles to overcome, as ***Michael Imeson*** *explains*

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Natural language processing, computer vision, machine learning and other types of artificial intelligence (AI) are increasingly being used by risk managers in banking and other financial services. AI is transforming their ability to manage credit, market and operational risks across many of their activities. It is being used for client onboarding, credit checking, transaction monitoring, investment portfolio management, financial crime screening, cyber security and more.

However, a number of barriers to adoption need to be overcome. A new survey of large British companies, including those in the financial sector, shows that business managers understand the current value and potential of AI and that IT managers are eagerly adopting it. But keeping pace with the speed of growth in data and models is a challenge for the technology teams, according to 80% of the IT executives surveyed.

The research was carried out by SambaNova Systems, the Californian provider of AI software and hardware which earlier this year set up an office in London to cover the EMEA region. The company surveyed 501 business managers and 502 IT managers across the UK in May. It showed that "finding or customising models and algorithms" was the main challenge according to 67% of IT leaders, followed by "setting up infrastructure" (43%) and "preparing data" (38%).

Marshall Choy, SVP Product at SambaNova, says that although top management know the benefits of AI, "the technology teams tasked with delivering on their goals are struggling to keep up, from a technology and resourcing point of view". Some 59% of IT managers said they have the budget to hire additional resources for their IT teams, 82% said that hiring skilled staff is difficult and 53% said retaining staff was a challenge.

Financial institutions are increasingly using AI to manage financial crime risks. "They need to carry out a lot of know-your-customer checks to combat money laundering, terrorist financing, fraud and other financial crimes," says Mr Choy. It is a huge and complex task because of the different risk and compliance models used across an enterprise. "The CRO needs an enterprise-wide view of these risks and AI can make that easier."

Rapid adoption by bank risk managers

BNP Paribas, one of France's biggest banks, is an enthusiastic adopter of AI. "In the banking industry in general, and within BNP Paribas in particular, AI has become widespread," says Chief Data Officer Rim Tehraoui. The bank uses it for a variety of purposes: chatbots to talk to customers, robo-advisers to provide advice to investors, process automation to improve operational workflows… and for risk management.

"We use AI to improve our risk management and compliance practices, like fighting fraud or money laundering," she writes in an article *How to build a trustworthy and inclusive AI.* "Today, AI is a widely spread and maturing practice with dedicated teams and competencies throughout most our business lines and functions."

"In its simplist form, AI combines computer science and data to enable problem solving", says Ms Tehraoui. Yet it is increasingly being associated with computers learning through experience, whereby "an intelligent system capable of executing a task can improve its performance and will be able to perform new tasks and develop new skills".

In Spain, BBVA, one of the country's top two banks, set up a separate legal entity in 2019 called the BBVA AI Factory to develop its artificial intelligence capabilities, fraud detection being one of them. Among its 200 staff are professionals from different disciplines: data scientists, engineers, software developers, data architects, and "business translators", that is, professionals who serve as a bridge between analytical capabilities and business needs.

Last year, the BBVA AI Factory was included in *Global Finance* magazine's list of "World's Best Financial Innovation Labs" based on its work, including the development of its AI-based fraud risk management capabilities.

Commerzbank, the second biggest bank in Germany measured by tier 1 capital, has just published a white paper in conjunction with the Fraunhofer Institute for Material Flow and Logistics which looks at how AI and big data, as well as other innovative technologies, are being used in trade finance. With global data set to grow by 500% between 2018 and 2025, the report says that processing this mass of information will be a serious challenge for banks, but it will be made easier if they use "AI and machine learning solutions to automate decision-making processes and forecast trends in risk management, financial analytics, and portfolio management".

Entitled *"Relevant advanced technologies for trade and supply chain finance"*, the report explains how banks are already using AI for credit scoring. "Artificial Intelligence provides a faster, more accurate assessment of a potential borrower, at less cost, and accounts for a wider variety of factors, which leads to a better-informed, data-backed decision," it says.

"Credit scoring provided by AI is based on more complex and sophisticated rules compared to those used in traditional credit scoring systems. Objectivity is another benefit of the AI-powered mechanism. Unlike a human being, a machine is not likely to be biased. Digital banks and loan-issuing apps use machine learning algorithms to make use of alternative data (eg smartphone data) to evaluate loan eligibility and provide personalised options."

Process automation to reduce operational risk is another use for AI singled out by the report. “Employing robotic process automation for high-frequency repetitive tasks eliminates the room for human error and allows a financial institution to refocus workforce efforts on processes that require human involvement.”

Managing fraud risk is another use. “Fraud detection systems analyse clients’ behaviour, location, and buying habits and trigger a security mechanism when something seems out of order and contradicts the established spending pattern.”

Some take a more considered approach to AI

David Coleman, Managing Director, Risk Management, at the European Bank for Reconstruction and Development (EBRD), says that for every bank leading the way on the use of AI in risk management there are many others taking a slower approach, for several good reasons. “AI is better suited to organisations with high volumes of repeat activities because then it’s easier to get a return on investment,” he says.

The EBRD has a low volume of transactions. Owned by 71 countries, as well as the EU and the European Investment Bank, and headquartered in London, the bank provides development finance to nearly 40 countries in central and eastern Europe, Asia and Africa. “Our transactions are highly bespoke – loans to businesses with complex structures, loans to sovereigns and equity investments – and we only do about 400 a year, so in the risk space they don’t lend themselves to being processed by AI.”

However, in his role as Chairman of the Professional Risk Managers International Association (PRMIA), Mr Coleman is familiar with how ordinary banks are using AI to manage risk for high volumes of relatively simple transactions, such as interpreting accounts and producing basic analysis in a pre-designed framework.

“I’ve seen machine learning used in integrity screening and anti-money laundering processes. Because of its ability to read natural language it learns how to acquire data, search Companies House and other databases, collate information on company owners and produce reports that assign confidence levels. The human supervisor who then takes over can ignore the reports with 90-100% confidence levels and investigate the ones lower down. The supervisor will tell the machine how well it’s done its job, so it can learn from the feedback and gradually improve.”

Although the EBRD is not currently using AI for risk management purposes, Mr Coleman says it probably will in the longer term. He is well-placed to say that because he led the bank’s recent change programme which looked at automation, outsourcing, agile working and efficiency improvements.

“We are already experimenting with robotic process automation (RPA) in other areas, the first of which was in human resources. The HR function uses robotics to handle basic ‘joiner, leaver, mover’ processes such as keeping track on the number of times our people change address or jobs roles or go on secondment.” He is at pains to point out that RPA is software that mimics human *actions* and not AI which is software that simulates human *intelligence*.

The first instance of where the EBRD is likely to use RPA or AI in risk management is for repetitive activities like creating and analysing spread sheets and balance sheets. “At the moment we use people because of the nature of our portfolio. We operate in 36 emerging markets where very few use IFRS accounting methods, so we would need to teach AI to work in multiple languages and multiple accounting standards. The initial effort to get started would be expensive and time consuming.

“But I think the economics of it will change as more banks establish similar protocols and the companies selling the AI build their capabilities so they can offer us pre-made packages we can develop much more easily. In fact, we have invested in an AI company in one of the countries where we operate.”

More resources needed to boost AI take-up

Although risk managers appreciate the benefits of AI, in many cases adoption is being held back because of a lack of resources, says Evgueni Ivantsov, Chairman of the European Risk Management Council,a “knowledge centre” for risk executives in banks and other financial organisations. This lack of resources echoes one of the findings of the SambaNova research mentioned at the beginning of this article.

“We have observed a similar pattern in the past, when senior management sets priorities for the front office but doesn’t allocate enough resources to the back office to invest in new technology to support those priorities,” says Mr Ivantov. “It reflects the mindset of senior managers who often underestimate the value created by risk management because investments in risk management, unlike investments in front office activities, don’t provide an instant boost to income or market share.”

Because of this senior management attitude, the “massive potential of AI in risk management” is not being realised. “Risk management departments struggle to scale up AI technology and are stuck in the experimentation phase with the selected AI solutions,” says Mr Ivantsov.

So far, the most successful uses for AI can be seen in financial crime and fraud prevention, he says. “For example, by using natural language processing, speech recognition and surveillance systems powered by AI some banks are successfully tackling insider trading, market manipulation and violation of customer conduct rules. Other areas where banks are enhancing their traditional risk management tools with AI solutions are in preventing credit card fraud and retail payments fraud.”

Lead the way and the rest will follow

The European Banking Federation certainly recognises the value of AI in managing financial crime risk. The federation, which represents 32 national banking associations, has hosted a series of virtual and in-person events this year on the use of advanced analytics and AI in detecting and deterring money laundering.

“Rapidly evolving business and technology render conventional methods for anti-money laundering (AML) inefficient and call for a more innovative approach for fighting financial crime,” says EBF CEO Wim Mijs. “The future of AML is rooted in the use of innovative

technologies and shared solutions that, in practice, enhance experts' judgment and reveal the full picture when dealing with complex criminal networks."

The ERMC's Evgueni Ivantsov is right to highlight the fact that not all financial institutions are using AI to its full potential for managing risk. But as those who trail behind see the great strides forward being made by the likes of BNP Paribas and BBVA, it is only a matter of time before everyone else follows.

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