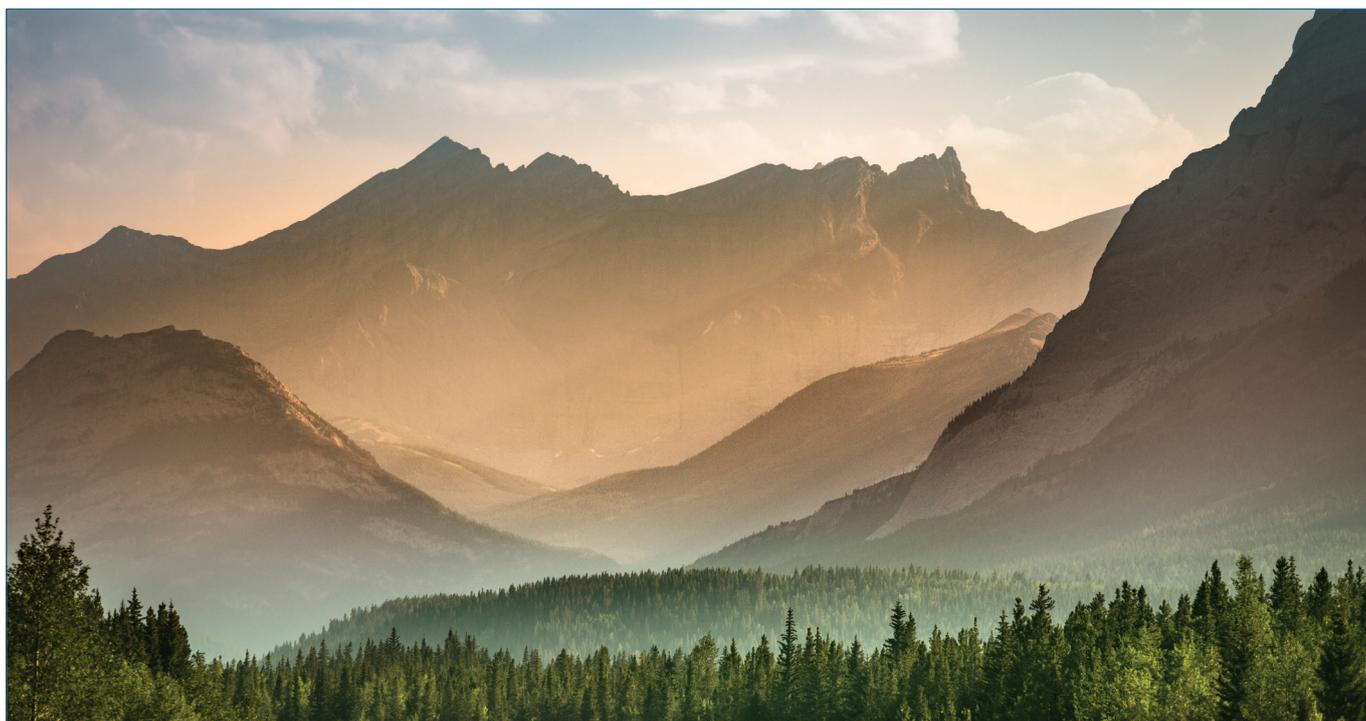# Exploring a new frontier

Using cognitive technology to strengthen credit risk management

Cognitive technology has the power to enhance the efficiency and accuracy of credit risk management practices, but views on implementation remain mixed. As these new technologies become more established, organisations that embrace them can become more agile and competitive

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Financial institutions are increasingly interested in learning about the ways cognitive technology can enhance risk management practices in areas such as credit. By leveraging machine learning and semantic understanding of unstructured data, cognitive technology can increase data and process efficiencies across an organisation and enhance predictive accuracy. In relation to credit specifically, these solutions could strengthen a bank's overall credit risk management strategy, enabling organisations that deploy cognitive techniques to become more agile competitors in an increasingly demanding credit landscape.

How can cognitive technology help the credit industry?

There is scope to apply cognitive capabilities to an array of situations across the entire credit life cycle – from the loan negotiation stage, through performance monitoring, to default and recovery of principal, when banks must be able to restructure and recover collateral effectively and cost-efficiently. At present, cognitive technology provides a significant opportunity for improving data and processes throughout all these stages of the credit life cycle.

At the loan negotiation stage, for example, cognitive technology could help a bank increase efficiency and better satisfy ongoing compliance needs by supporting the automatic collection and collation of accurate client information. It might also improve and automate the bank's knowledge of its clients' capital structures and needs, as well as that of its wider corporate family and competitors. Cognitive capabilities could be particularly useful in key areas of compliance such as know-your-customer (KYC) procedures, in which the ability to increase the efficiency and accuracy of credit risk research would be a major operational advantage for many banks.

Deploying cognitive technology to monitor company performance on an ongoing basis could also support the collateral management team, enhancing the credit analysis process and providing banks with timely access to more accurate, in-depth client information. In using such tools to develop a better early warning system, banks can create credit risk management strategies that are more proactive, protecting the organisation from potential unsecured exposure to credit risk and resulting losses.

While it is clear that cognitive technology will be able to significantly enhance a bank's operations, research and development is still in the early stages, particularly in the credit risk world. As a result, there is uncertainty among credit professionals regarding its implementation and the exact results to expect in relation to credit systems and processes. This uncertainty is likely to disappear as banks and credit risk professionals gain a better understanding of cognitive technologies and start to see the impact of these technologies on the market.

So how should credit risk professionals in the financial services sector approach the transition to a cognitive-based strategy? The following examples illustrate how developing cognitive technology could bring benefits to credit professionals, particularly in relation to loan negotiation activities and ongoing performance monitoring.

1. Client onboarding

By using cognitive technology at the initial client onboarding stage, credit risk professionals will be able to create an automated system that improves research efficiency and data accuracy.

A bank's client onboarding team is responsible for conducting due diligence for each new client and ensuring records of ongoing client relationships remain up to date. To satisfy current KYC requirements when onboarding a new client, credit professionals must complete records with as many as 400 questions on the company's capital structure and needs. These materials are typically collected from the client directly, as well as from other external and internal sources. Additionally, the process must be conducted quickly to provide the necessary information to approve loans in a timely fashion.

Most banks believe these current KYC processes are too slow, inflexible and costly. According to recent research by Finextra and US software company Pega, it can cost up to $30,000 and take four to five weeks just to onboard a new client, and 88% of banks believe that current KYC requirements are impacting these onboarding times.

Cognitive technology can significantly reduce these cost and time inefficiencies by automating the onboarding process. This improves research efficiency, as well as the quality and consistency of the data captured. There is also scope for machine-learning capabilities to collect additional, previously unused, relevant information on the client. This information can be collected from internal sources such as those already used by the organisation, as well as external data sources. This enables the organisation to gather all information necessary to complete the picture of a client during the onboarding process and throughout the lifetime of the client relationship.

2. Relationship management

As an extension to client onboarding, cognitive technology can support relationship management by maintaining a clear picture of all counterparties and their related credit risk statuses on an ongoing basis. This could help a bank tighten its credit risk management strategy, enabling swift action to reduce exposure to new risks as soon as a client's profile changes.

Since relationship managers typically work across large portfolios of customers, it is important that they have access to tools that track client needs, as well as any changes in corporate structure or performance. Human capital is often the most valuable component of an organisation's balance sheet. A personnel change can result in the need to adjust a client's limits, for example, or might provide an early indication of a change in appetite for certain markets or a need for new products. As such, the ability to gain early insight into new developments in this area can be very beneficial for relationship managers.

Manually building and maintaining a database of key people within the client firm is a labour-intensive process. However, a cognitive-based system could not only automate the collection of this information, making the process more efficient and accurate, but also analyse any changes to identify the potential impact on the organisation. Furthermore, the machine-based learning capabilities of cognitive technology ensures this task is repeated to continuously enhance the bank's understanding of its customers. By proactively tracking and automatically processing, analysing and updating this information, cognitive technology enhances a bank's understanding of its customers, providing an early warning system for credit risk management.

3. Credit analysis

The development of an early warning system for credit risk management would also benefit areas of the credit risk life cycle that rely on the collation of data. For example, credit analysts

IBM Algo Credit Manager

To build a strong credit risk management strategy, banks need access to a single view of counterparty credit risk based on quality data. Typically, this information needs to be drawn from a significant number of sources at speed, to ensure the bank can make timely decisions and remain agile in the face of constant competition.

IBM Algo Credit Manager was developed in response to such needs, providing banks with a single, accurate view of counterparty credit risk. By shortening the risk assessment process from days to minutes, it allows users to quickly view all risks relating to a specific client across geographies, entities and products, for example, providing a full portfolio risk assessment. In addition to this, IBM Algo Credit Manager delivers the full spectrum of capabilities required to support the loan approval process, be it origination, modifications or renewals. This extends to the related documentation management and workflow tools needed. As such, a bank can not only better understand a client's current position, but also identify the potential to support growth opportunities by anticipating and addressing new needs with tailored products and solutions.

The use of a platform such as Algo Credit Manager is the key to fully capitalising on the opportunities that cognitive capabilities can bring to the credit risk management process. Banks need access to quality data to establish a true picture of clients' credit positions and Algo Credit Manager can provide the necessary insight. This picture must form the foundation of any efforts to attain the significant levels of operational efficiency and predictive accuracy that cognitive technology can offer.

require access to evidence and information relating to a client's risk status, such as accurate financials and external ratings, in order to produce complete proposals for credit approval. To further complement a robust, clear view of a client's risk status, access to external, less obvious, sources of information – outstanding county court judgements, for example – can provide a more granular view of the overall picture of a customer. The same can be said of the KYC data collected internally during the client onboarding process. Additionally, there is often a need for less-accessible information that might indirectly indicate financial stress, such as a change in employment patterns or any payment disputes, which would provide important insights into the liquidity of a customer as part of the approval process.

Cognitive technology can support the gathering of evidence from a range of sources – gauging market opinion in relation to current ratings by monitoring sentiment, for example. This provides a faster and more efficient way to rate and re-rate customers based on quality data from a range of internal and external sources. Through better visibility of early warning monitoring tools, cognitive technology can support credit analysts in developing a more transparent portfolio exposure management strategy.

4. Collateral management
A bank's collateral management team must have access to information on all kinds of collateral to be able to assess value, ownership and availability. The team needs the right tools to conduct initial assessments on collateral to ensure it is not impaired, as well as monitoring it on an ongoing basis to make sure the value is maintained.

As a result, the collateral management team must have access to systems that can help it to develop an understanding of the dynamic value of all types of collateral, as well as the transactions to which they are attached. They also need to be able to establish processes that support the valuation and sale of collateral in case of a default by the client.

The deployment of cognitive capabilities could boost the collateral management team's ability to monitor market conditions and manage collateral changes both by enhancing the bank's capital efficiency estimates and creating an early warning system for calls on a client's collateral. Accuracy is a key benefit of using cognitive technology for collateral management purposes. By enhancing the accuracy of the data used to calculate loss-given default, it creates more precise capital efficiency estimates.

Looking to the future
Cognitive technology has relevance throughout the credit life cycle to improve the ability of financial firms to collect, manage, maintain and analyse data that is useful, accurate and complete. Automation can deliver benefits in situations such as client onboarding, compliance and ongoing record maintenance. Cognitive computing can add another layer of innovation by leveraging machine-learning capabilities and semantic understanding of unstructured data to deliver early warning indicators, for example. The opportunities that arise from the resulting improvements in efficiency and predictive accuracy will be significant for banks that are open to the possibilities of this type of technology.

As a front-runner in its development, IBM has been working to fully explore the many possibilities for deployment to enhance banks' credit risk management strategies. Many banks are also starting to investigate the potential impact cognitive technology could have on credit risk management activities. Organisations that take steps to explore such capabilities at this early stage will see the possibilities multiply as research in this area continues to uncover new applications and opportunities.

About IBM Analytics

IBM Analytics software delivers data-driven insights that help organisations work smarter and outperform their peers. This comprehensive portfolio includes solutions for business intelligence, predictive analytics and decision management, performance management and risk management.

Analytics solutions enable companies to identify and visualise trends and patterns in areas such as customer analytics, which can have a profound effect on business performance. They can compare scenarios, anticipate potential threats and opportunities, better plan, budget and forecast resources, balance risks against expected returns and work to meet regulatory requirements. By making analytics widely available, organisations can align tactical and strategic decision-making to achieve business goals. For further information, visit *ibm.com/analytics*