



SURVEY REPORT 2021

AI perspectives

Credit risk & lending

Brighterion
 mastercard

LendIt Fintech

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Executive Summary

2021 was marked by challenges to the global economy, but they were met with resilience. In the U.S., the GDP grew by 10% to nearly \$23 trillion, and unemployment dropped to 3.9%. We showed that even in uncertain times, we can prosper through technological innovation.

LendIt and Brighterion collaborated on our second annual survey sent to financial institutions and lenders to understand how they are investing in technology. Specifically, we wanted to understand how organizations are thinking about applying artificial intelligence (AI) to credit risk considering the changing economic landscape, and their perspectives on the biggest opportunity for better credit risk management.

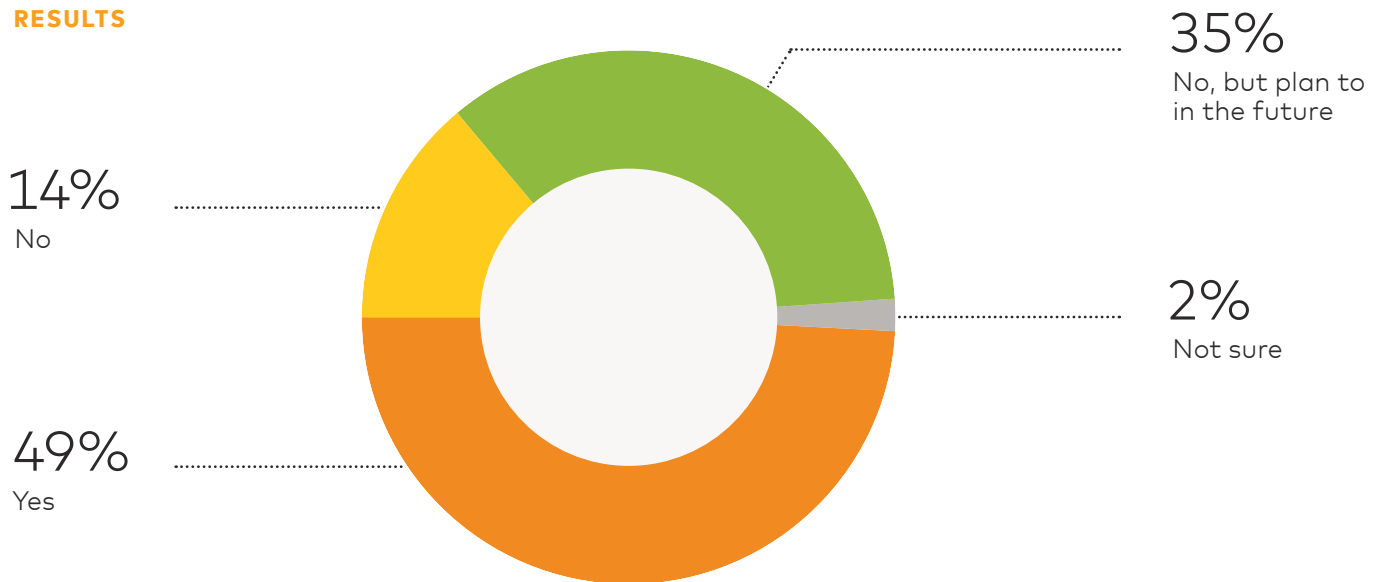
The majority of respondents already were using AI or planning future investment. In this year's survey, we continued to see momentum in the growth of AI; 87% of respondents say they plan to invest even more into AI in the years to come. It is also clear that financial institutions are investing more in new data sets and new ways to evaluate borrowers. Not only does this enhance their decision systems, but it helps people access credit and fosters a more inclusive economy.

COVID-19 played a role in lending and borrowing over the last two years. Specifically, many federal governments provided financial assistance to citizens who often used the funds to pay down outstanding debt. In the U.S., the Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, provided economic relief to individuals and small businesses. It also provided forbearances for homeowners who could not pay their mortgages. At the end of 2021, as forbearance ended, lenders saw spending on credit rise to pre-pandemic levels while homeowners returned to regular mortgage payments.

Brighterion is partnering with some of the largest financial institutions across the globe to apply AI to credit risk management. The technology allows lenders to enhance their credit risk practices across the customer lifecycle. In this report, we will walk you through the key takeaways from the survey and discuss the role of AI.

Does your organization use AI for credit risk today?

RESULTS



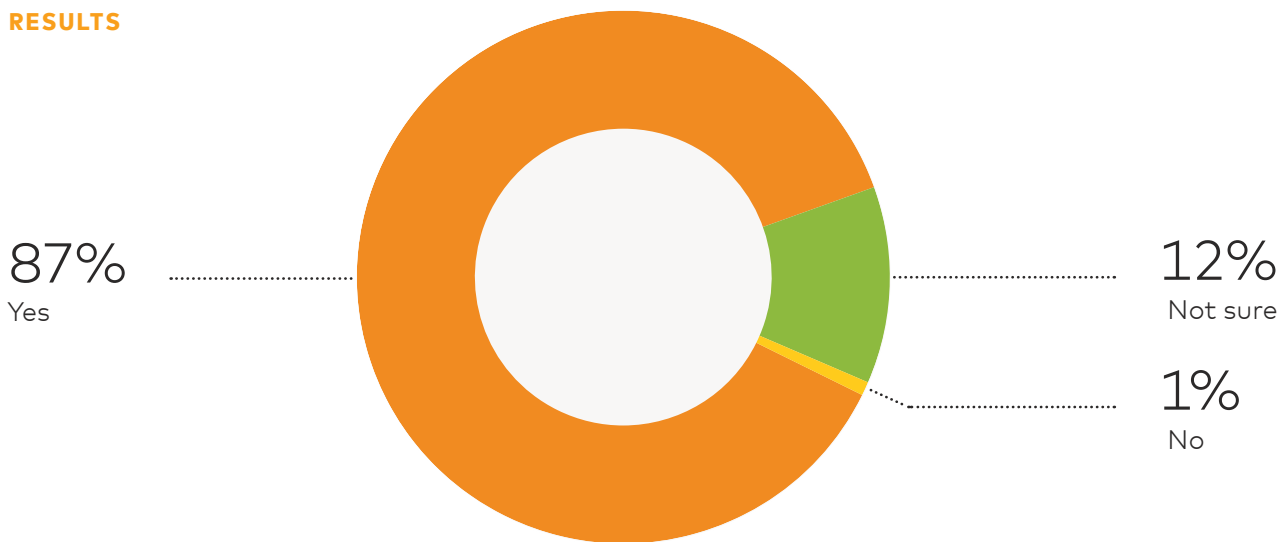
Key takeaways

Half of the financial institutions surveyed were using AI for credit risk, virtually unchanged from the 2020 survey. While AI was top of mind for many banks, the rate of adoption has been slow. However, 35% reported that they plan to use it in the future. This comes as no surprise, given the four key benefits we are seeing with lenders that leverage AI for credit risk:

- Improving the customer experience: By improving accuracy levels in delinquency prediction, lenders can improve their borrower experience by helping customers with payment plans, short-term interest relief or other assistance programs.
- Predicting losses earlier: Models that identify behaviors indicative of future credit risk increase their time to act.
- Managing risk through the customer lifecycle: From a new borrower application and overseeing credit lines to managing collections, AI helps to make decisions across lenders' portfolios.
- Ability to leverage data across the organization: AI creates a 360° view of customers and enables well-informed, personalized decisions.

Does your organization plan to invest more in AI over the next 2-5 years?

RESULTS

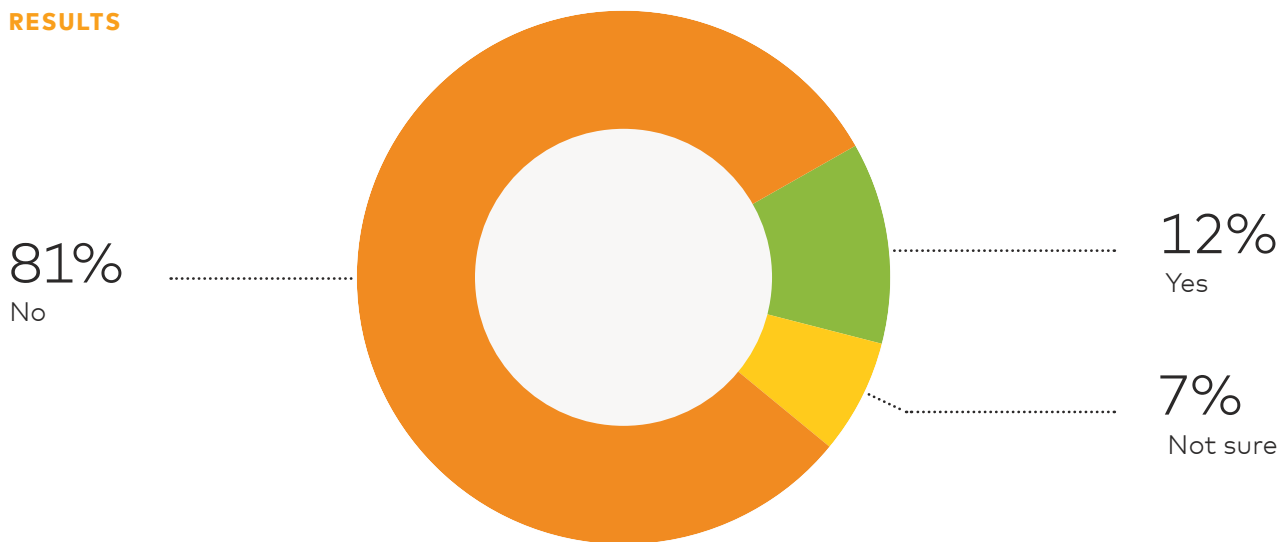


Key takeaways

Investing in AI remains a priority for financial institutions. Nearly 90% reported they will make further investment in AI over the next 2-5 years. The heightened uncertainty induced by the COVID-19 pandemic makes it increasingly important to build solutions that can adapt to market changes. AI and machine learning algorithms are changing the world but will fall short if they are not complemented by a variety of data sources coming in at high velocity. Increasing the variety removes the model's dependence on any one data set. Increasing the velocity means adjusting in real time.

Is your organization investing in AI for credit risk as a result of COVID-19?

RESULTS



Key takeaways

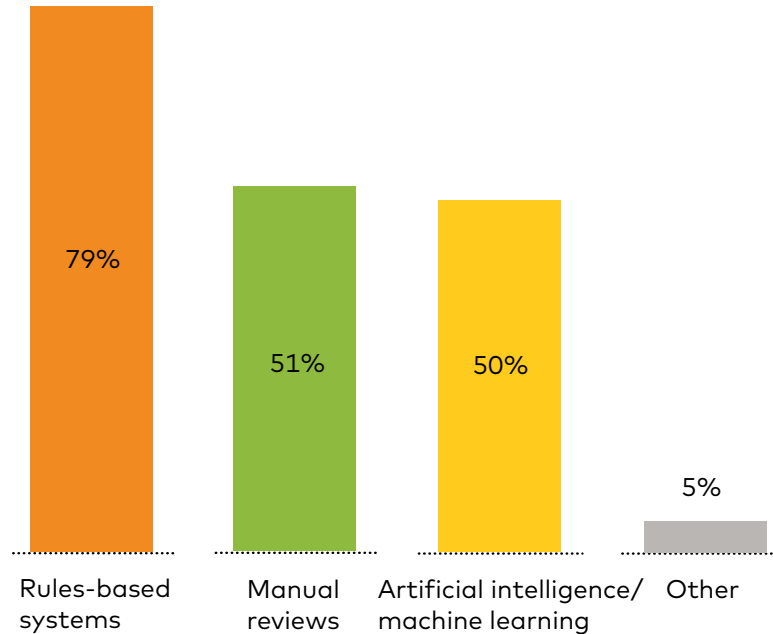
Few lenders are investing in AI because of COVID-19. Only 12 percent see this as a high priority, perhaps recognizing the potential impact of delayed loan payments, job losses and disrupted supply chains.

For example, the CARES Act, passed in March 2020, gave forbearances to millions of homeowners on their mortgages and other loan products. While this provided temporary payment relief for many borrowers, it likely deflated the number of delinquencies and reduced the number of delinquencies reported to the credit bureaus. Credit reports alone will not prepare lenders for upcoming repayment issues.

This phenomenon inadvertently creates bias if an AI system is not set up to handle market changes and to look at a variety of data sources, setting the stage for failure. A successful credit risk model will help lenders intervene before repayment challenges become delinquencies.

Which of the following technologies do you leverage today for monitoring your borrowers' credit risk?

RESULTS



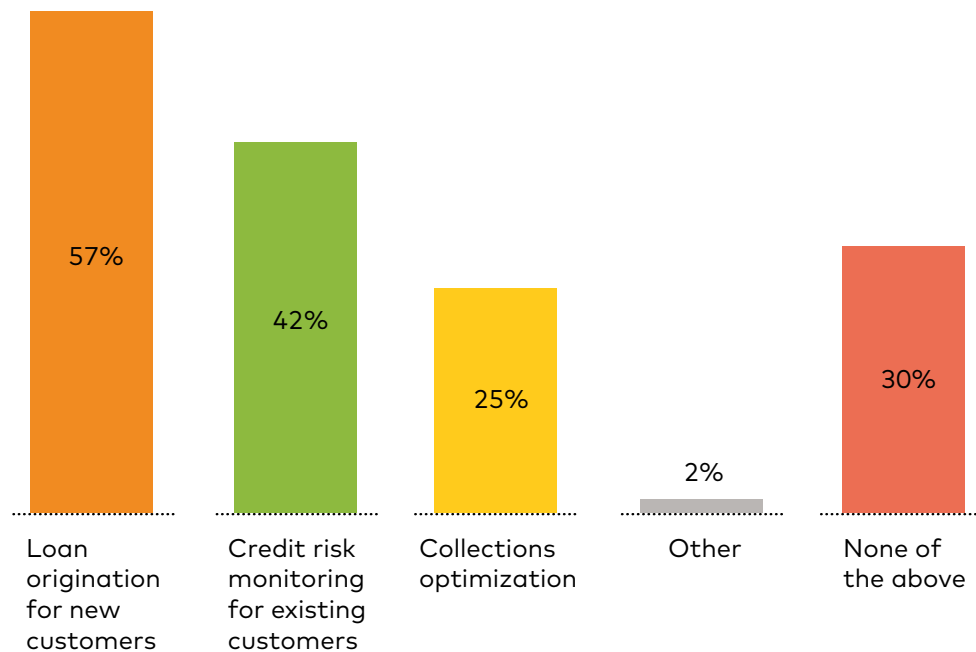
** Responses do not total 100% as more than one answer may apply*

Key takeaways

79% of respondents leveraged rules-based systems for credit risk management, and half were using AI. While rules-based systems might be considered "legacy" technologies, it's likely they will never be fully replaced, and for good reason. Rules-based systems working in conjunction with AI lead to the best results. Using this approach, rules can layer in human expertise that better understands the context of the problem while leveraging the speed and processing of AI to reveal deeper insights.

Which credit risk applications do you use AI for today?

RESULTS



** Responses do not total 100% as more than one answer may apply*

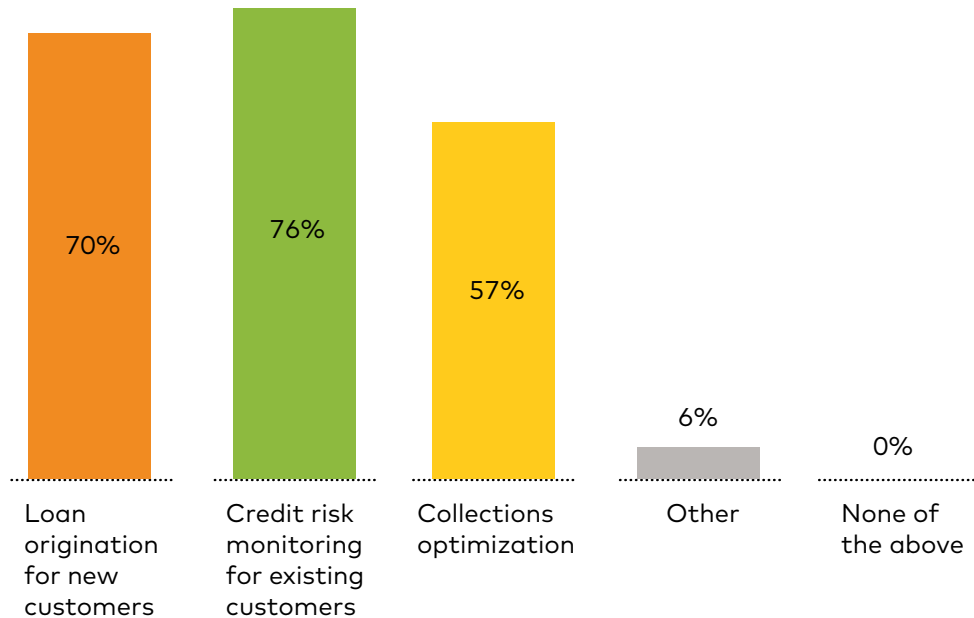
Key takeaways

Lenders are using AI to improve credit decision-making and credit risk monitoring but are not using their solutions to full capacity. AI's prediction capabilities provide opportunities to work with delinquent customers before accounts are uncollectible and help account managers determine the best collection solutions based on individual customer histories.

AI also identifies customers with excellent performance and can recommend product upgrades to increase customer experience and banks' revenues.

Which credit risk applications would you like to use AI for in the future?

RESULTS



** Responses do not total 100% as more than one answer may apply*

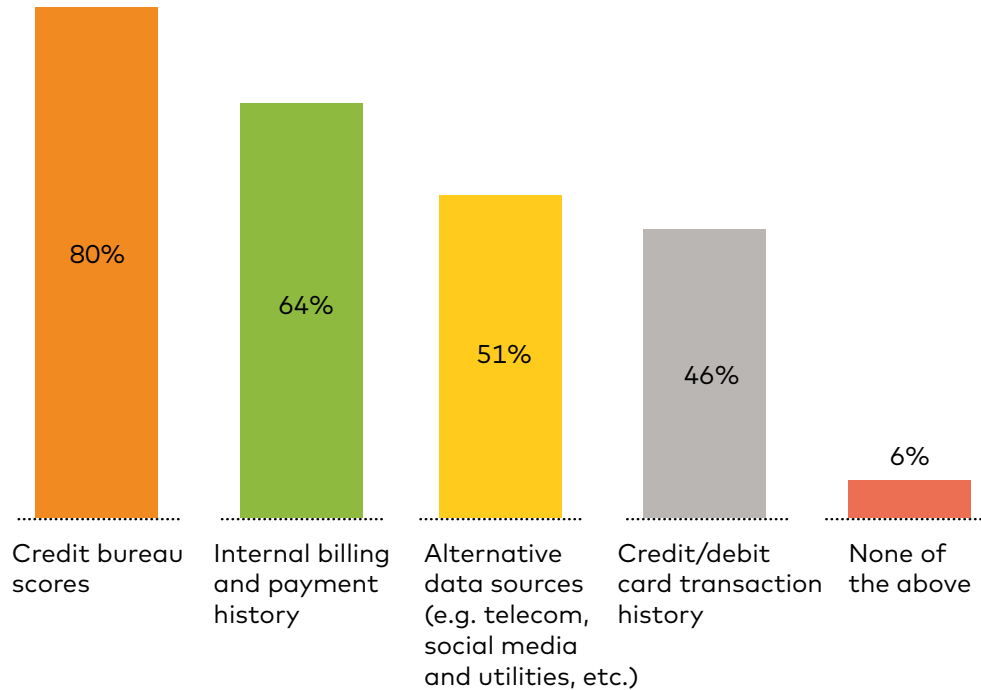
Key takeaways

Over half of lenders reported using AI for loan origination, but when asked about future use cases, 70% said they would like to use it for origination in the future, and 76% would like to use AI for credit risk monitoring for existing portfolios. We see risk monitoring as a strong application of AI, especially given the volume and velocity of data available on existing customers. For example, billions of credit and debit card transactions are processed every year, offering a rich source of data. However, harnessing all this information can be a challenge. AI is a tool that can process that data and offer real-time insights not available through traditional data sources (e.g., tradeline data from credit bureaus).

The most successful deployments of AI leverage high-frequency data sets where fast computation and high precision are required. For smaller data sets with limited variables, we see rules-based approaches and human oversight can provide as much or even greater accuracy than a complex AI model. AI's best use is to focus on use cases with the largest ROI and using a champion/challenger modeling approach. When developing models, computer scientists compare a range of algorithms and technology systems, from simple human review and rules-based approaches to the most state-of-the-art algorithms available today. This type of analysis can reveal if AI is the right solution for the problem it's aiming to solve.

Which of the following data sources does your organization use to monitor credit risk for borrowers?

RESULTS



** Responses do not total 100% as more than one answer may apply*

Key takeaways

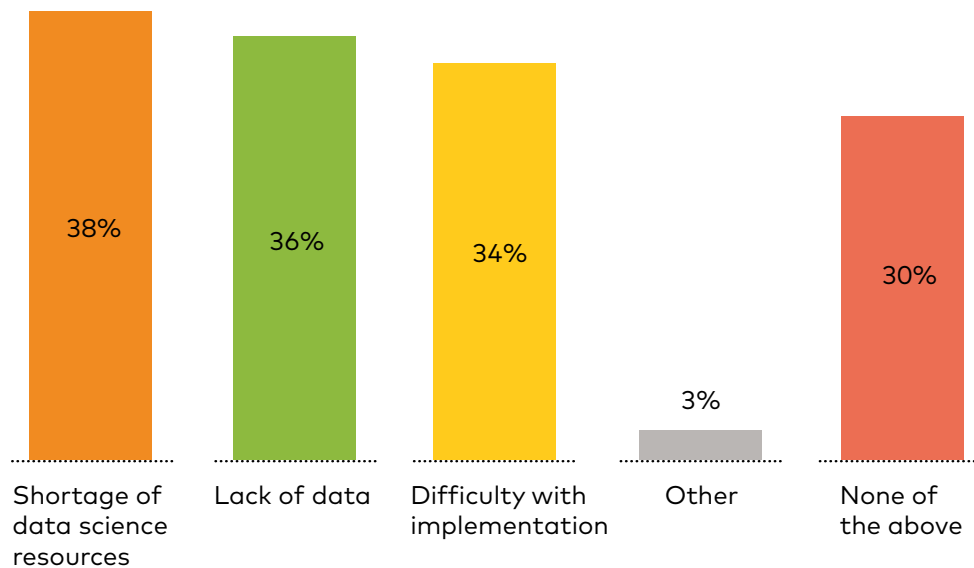
Credit bureau scores continued to top the list of data sources used to measure creditworthiness; however, lenders are facing new challenges with this key data source:

- Credit bureau tradeline information and other traditional data are often seen as lagging indicators of loan default. They provide a snapshot of the borrower's loan performance in recent years, which in this rapidly changing environment may not capture their behavior today.
- Delinquency reporting is frozen in time, and we aren't seeing borrowers roll into higher risk delinquency stages as in normal times. Forbearance programs are required and being offered in the short term, making it harder to distinguish high/low-risk customers, hence the need for a variety of data sources.

Lenders need to diversify their data sets to increase the breadth and depth of insights on their borrowers. Credit and debit card transactional histories are particularly valuable given their real-time nature, providing the most up-to-date information on each borrower's behavior.

What barriers has your organization experienced with getting a ROI with AI?

RESULTS



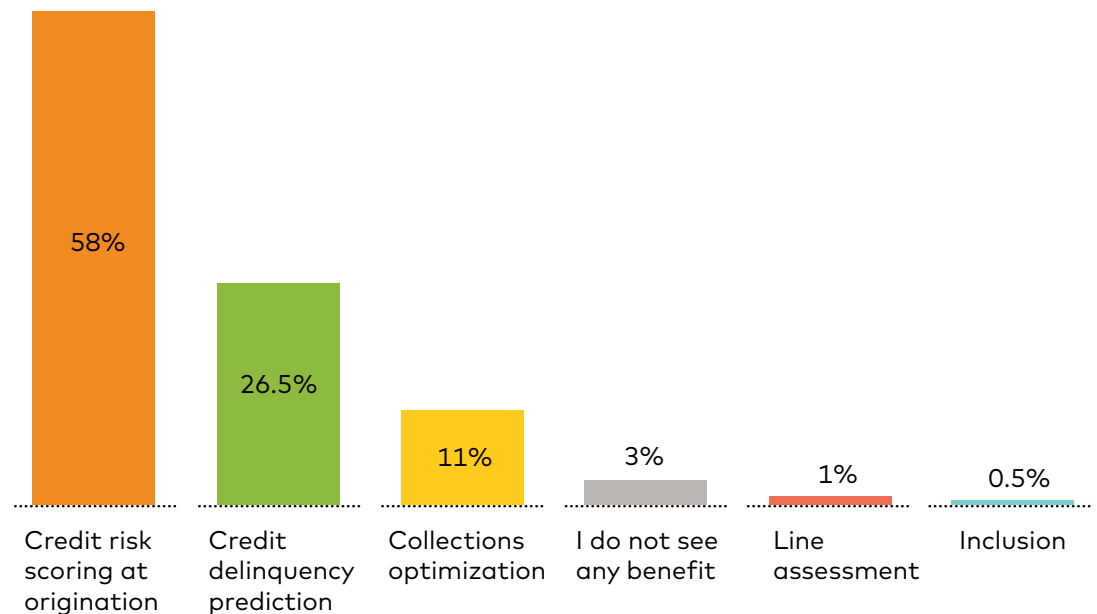
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Key takeaways

A lack of data science resources is the top challenge respondents reported in getting a return on investment from AI. This was followed closely by lack of data and difficulty with implementation. These challenges are compelling reasons to seek the assistance of a third-party vendor with substantial experience in developing customizable AI models for the financial sector. They will also act as model custodians, monitoring for fraud, bias and other undesired outcomes.

Which credit risk models do you see AI providing the biggest ROI?

RESULTS



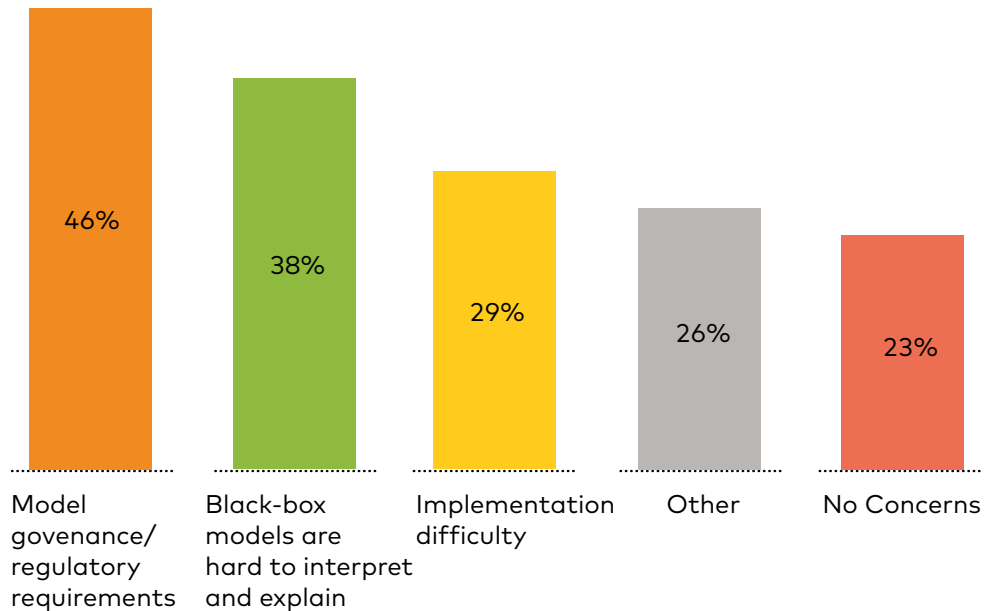
Key takeaways

Credit scoring at origination was reported as driving the biggest ROI. This is also one of the most challenging aspects of credit risk, particularly when analyzing customers with thin or no credit files. Lenders want to increase application approval rates while taking on no additional risk, requiring them to analyze the tails of their risk curve to find additional creditworthy borrowers. However, finding these creditworthy customers can be hindered by limited data availability. Not even human intelligence can be used to make predictions without good data.

By analyzing income and expenses for prospective borrowers, lenders can more confidently approve them, even if they have limited credit histories. By incorporating these data sources, the aim is to give people more access to credit and build an inclusive global economy.

Which of the following concerns does your organization have about adopting AI for credit risk?

RESULTS



* Responses do not total 100% as more than one answer may apply

Key takeaways

Model governance, regulatory requirements and “black-box” models were still the top concerns for adopting AI for credit risk. As AI adoption grows, model explainability will become increasingly important and will result in new laws and regulations. Lenders will need to ensure two major forms of explainability:

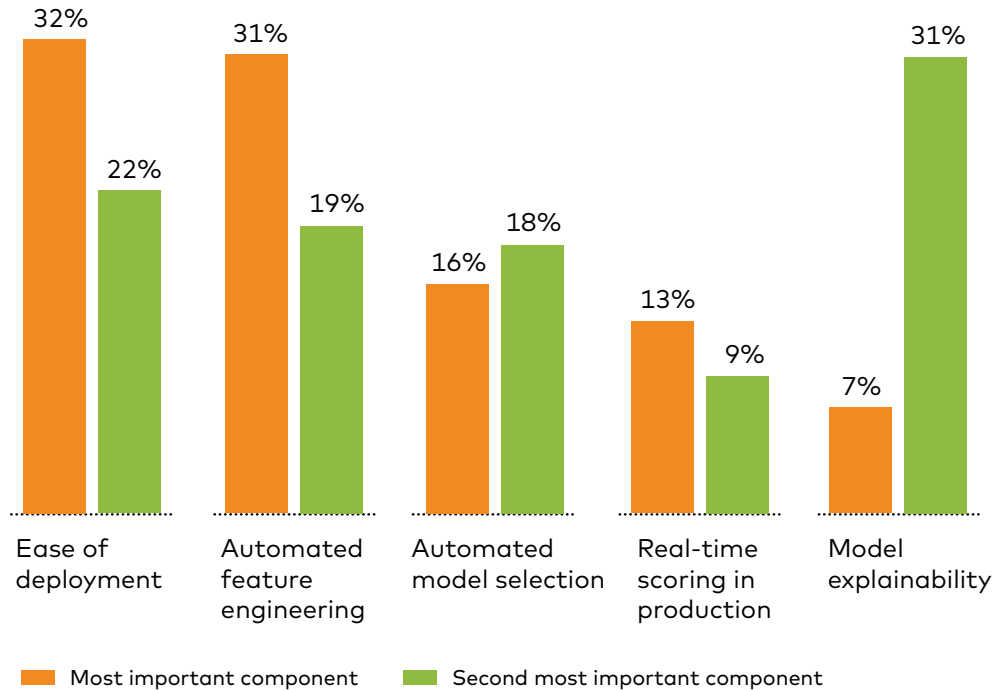
- Global explainability, which identifies the variables with the most contributing factors across all predictions made by the model. Having global explainability makes it easier to conclude the model is sound and identifies bias on a broader scale.
- Local explainability, which identifies the variables that contribute the most to an individual prediction. For example, if someone applies for a loan and gets rejected, what were the most important factors for rejecting the applicant? This also helps to identify opportunities for alternative data sets to increase approvals while minimizing risk.

Explainable AI assigns reason codes to decisions and makes them visible to users. Users can review these codes to both explain decisions and verify outcomes. For example, if an account manager discovers several decisions exhibiting similar bias, developers can alter the model to remove that inequity.

To ensure the integrity of the process, an essential component of building the model is privacy by design. While reason outcomes may be highly personalized, customers’ privacy must be proactively protected and embedded, and set as the system default.

Please rank the following components based on their importance for the success of your current/future AI infrastructure.

RESULTS



* RANKING 1-5, 1 being highly critical, 5 being not critical

Key takeaways

Respondents ranked ease of deployment as the most important component of an AI system. New algorithms and modeling technologies will evolve and get better over time, which makes the ability to deploy new technologies increasingly important. Machine learning operations will be a core component of any AI system.

When ranking the second most important component, most respondents selected model explainability. This will become a required feature for deploying effective AI systems for credit risk. Global and local explainability tools will help monitor system performance over time and ensure compliance with any laws and regulations (e.g., Credit Card Accountability Responsibility and Disclosure (CARD) Act, Fair Lending).

Summary

The COVID-19 pandemic made 2021 a challenging year for businesses, including lenders who saw many of their customers enter forbearance programs. Half of the surveyed financial institutions were using AI for credit risk while another 35% reported that they plan to use it in the future. These numbers are largely unchanged from the 2020 survey. One marked change was that 12% of respondents planned to invest in AI as a result of COVID-19.

Rules-based systems were still used by 79% of survey respondents, including many that also use AI. Using a combined approach, rules can layer in human expertise that better understands the context of the problem while leveraging the speed and processing of AI to reveal deeper insights.

Lenders are using AI to improve credit decision-making (57%) and credit risk monitoring (42%) but are not using their solutions to full capacity: only one in four are using AI to optimize collections. These reflect a change from the 2020 survey in which almost one-third of respondents used AI for one or more of the three main functions: origination (30%), credit risk monitoring (30%) and collections (27%).

With respect to return on investment, almost 60% of respondents expected the biggest ROI to come from credit scoring at origination while only 11% expected maximum return from optimizing collections.

Respondents ranked ease of deployment as the most important component of an AI system (ranked second most important in 2020). New algorithms and modeling technologies will evolve and get better over time, making the ability to deploy new technologies increasingly important. Machine learning operations will be a core component of any AI system.

Model explainability moved from first place in 2020 to the second most important component in 2021. As AI adoption grows, model explainability will become increasingly important and result in new laws and regulations.

AI offers a broad range of capabilities for credit risk management, from underwriting to collections. Not only does this enhance bankers' decision systems; it helps people access credit and fosters a more inclusive economy.

Methodology

LendIt and Brighterion collaborated on a survey sent to 1,000+ LendIt subscribers, including national and regional U.S. banks, credit unions, community institutions and financial technology providers. Number of respondents was n = 216. Participants were asked to complete 15 questions on topics on AI and credit risk management. Not all responses total 100% as more than one answer may apply.

LendIt Fintech

About LendIt

LendIt Fintech is the world's largest fintech media company. Every day we celebrate, educate and connect the people who power the fintech industry.

Our products include large scale industry events, executive roundtables, daily news emails, podcasts, whitepapers and webinars. Like much of the economy today, financial services is experiencing a rapid upheaval. We are seeing a multi-decade transformation where fintech will take center stage as everything becomes digital. LendIt Fintech is there for you, reporting the news on a daily basis, enabling real-time discussion and insights with LendIt Fintech Digital and empowering our community with connections and in-depth learning at our physical events.



About Brighterion

Brighterion, a Mastercard company, was founded in 2000 and acquired by Mastercard in 2017. Brighterion provides real-time artificial intelligence technology to 74/100 of the largest U.S. banks and more than 2,000 companies worldwide. Our distributed architecture and patented, self-learning technology enables us to implement AI internationally on an unprecedented scale.

Our AI and machine learning secure more than 100 billion transactions annually to help leading organizations [manage the credit risk lifecycle](#) and predict delinquency, [prevent payments and acquirer fraud](#), [detect healthcare fraud, waste and abuse](#), and more. Our AI solutions are built on a strategic, five pillar foundation that prioritizes ethics and inclusivity as much as growth and efficiency.

