

AI In Focus: The Bank Technology Roadmap Playbook examines how FIs are using advanced computational systems, including AI, to improve lending and credit services as well as other aspects of their operations. The Playbook is based on a survey of 100 executives at a broad range of FIs.

JUNE 2021

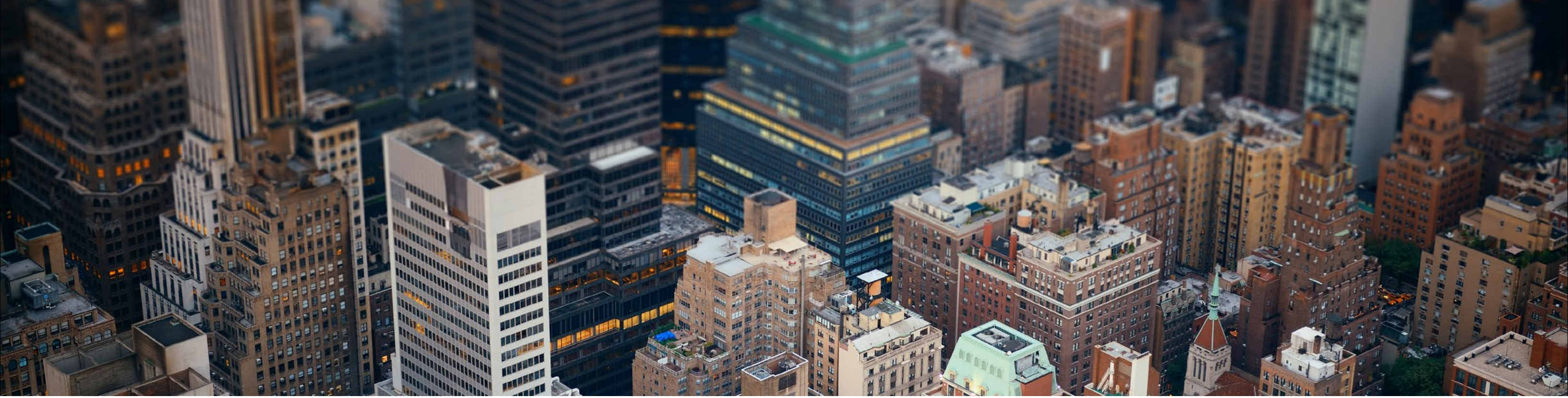
AI

In Focus:

THE BANK TECHNOLOGY ROADMAP
PLAYBOOK

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ACKNOWLEDGMENT

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Introduction

Banks have historically viewed their investments in technology as part of a long-term strategic process. The events of the past year have called into question the merits of steady, gradual approaches to modernization, however. The pandemic has greatly accelerated the pace of digital adoption across all sectors of the economy, and this has made data — and how financial institutions (FIs) manage and leverage it — essential not just to long-term strategy but also to meeting immediate market demands.

More than three-quarters of FIs say responding to existing customers' needs is a reason they are investing in technology today — far surpassing the share that cite ongoing digital transformation. The other main motives FIs have for investing in technology also reflect a sense of urgency: Approximately 90 percent of

them are prioritizing technology to make transactions faster and more accurate.

These trends raise an important question, however: Which technologies can best support the capabilities FIs believe are most essential today? Organizations run the risk of information overload without systems that can intelligently process and leverage insights from large volumes of data in real time. These circumstances help explain why banks are becoming increasingly focused on artificial intelligence (AI), which has proven especially valuable in processing real-time data and acting on it. More than three-quarters of FIs have either already invested in AI-based systems (21 percent) or plan to do so over the next 12 months (57 percent).

These are among the top findings that emerge from PYMNTS' latest research series, AI In Focus, which is based on a survey of 100 FI executives and tracks the adoption of AI and other advanced computing systems in banking. In this edition, The Bank Technology Roadmap, we examine how banks are integrating new technologies, including AI, and how they are putting them to use, placing a special focus on credit risk operations.

In this Playbook, we lay out the key findings from our research, examine some of the perceived barriers around AI adoption and offer firsthand perspectives from banks that have gone through the process of onboarding AI solutions and other insights.

What is real AI?

There is a lot of hype around what AI is and does. Our research uses a specific definition of the technology. AI involves the use of machines to mimic the human brain's cognitive learning functions. This technology continually learns from this process to make decisions and has the ability to personalize, the ability to adapt to new information and the ability to self-learn.

Key Findings



FI's view technology — not increasing the size of their workforce or training — as the primary way to address the pain points they face in credit management.

A majority of FIs — 64 percent — plan to invest in technology to improve their credit risk management over the next six months, which is more than five times the share that plan to do so by focusing on human resources, such as hiring, retraining and reorganization. Just 12 percent of FIs are taking this latter approach. Partnerships — working with third parties — is also an important part of banks' strategies to improve credit management: 45 percent of FIs plan to take this approach over the next six months.

Technology and partnerships are not mutually exclusive strategies, of course, and they often go hand-in-hand when implementing sophisticated technologies like AI. Leading vendors do not just sell off-the-shelf products, after all, but rather serve as partners in ensuring smooth integration of the technology and offering continuous support.

FIGURE 1:
FI's innovation strategies

1A: Share of FIs that plan to take select approaches to improving their credit risk management



Acquiring other firms to bolster credit management appears to be a viable strategy only for the largest of banks: 68 percent of FIs with more than \$100 billion in assets plan to pursue this route while less than 5 percent of banks with less than \$100 billion in assets intend to do the same.

1B: Innovation strategies, by institutional size



Source: PYMNTS.com | Brighterion AI In Focus Report

SURVEY INSIGHTS

“
In the long run, AI improves our decision-making capabilities and enhances the customer experience, ultimately leading to better customer retention.”

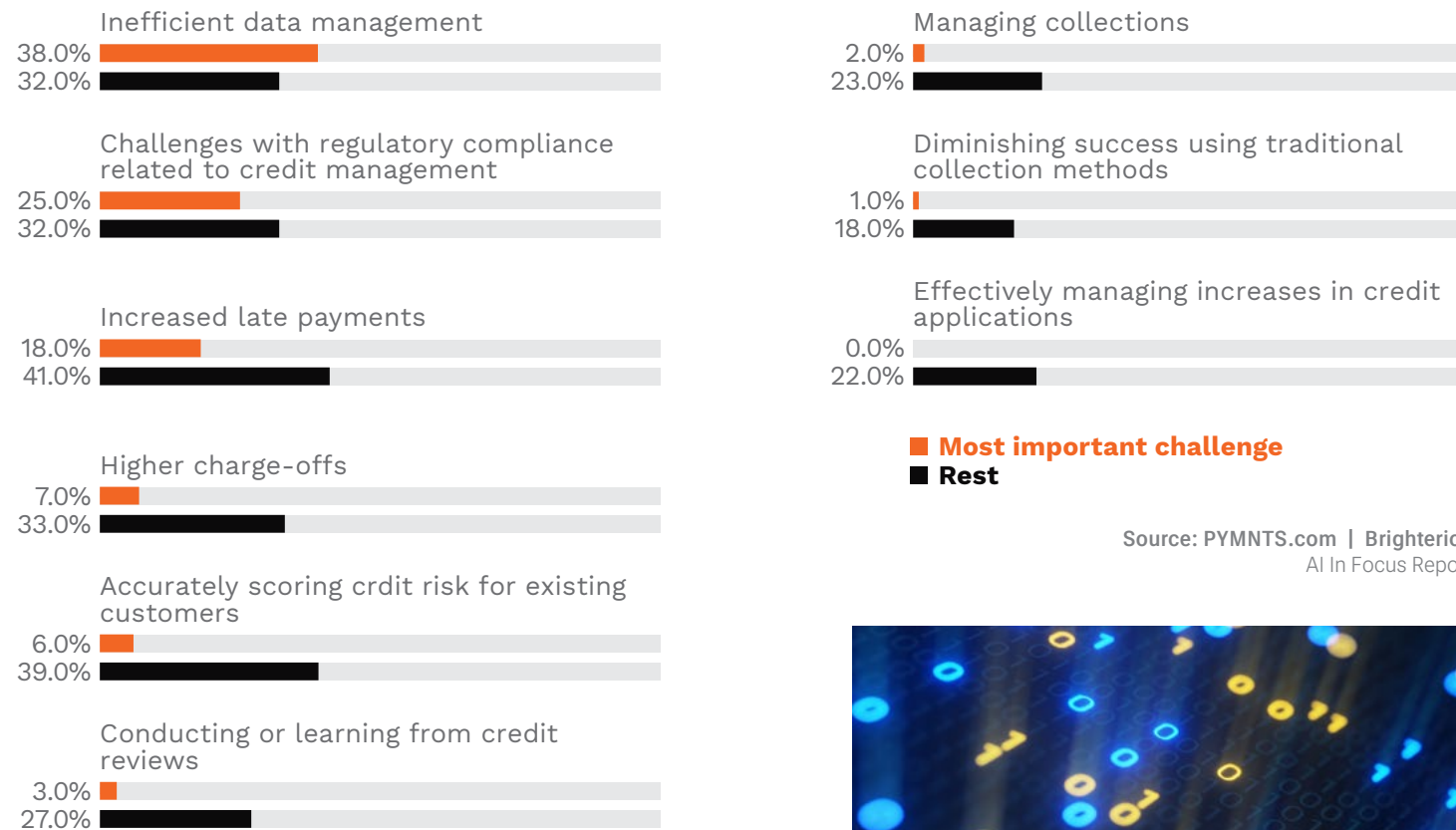
— Bank executive respondent

The reason FIs are so technology-centric in their strategies for improving credit management speaks to the specific pain points they face in this area. Inefficient data management is the most cited challenge by a considerable margin: 70 percent of FIs consider this a challenge and 38 percent consider it to be the most important challenge they face in their credit operations. This suggests that, for all the impacts the pandemic has generated — such as borrowers’ adverse financial circumstances — the greatest difficulty FIs face in this area is ongoing and systemic. Many FIs lack efficient means of capturing, processing and acting on the myriad sources of data that credit departments deal with on a daily basis.

Other credit pain points include regulatory compliance, which 57 percent view as a challenge and 25 percent view as the most important challenge, and increased late payers, which 59 percent cite as a challenge and 18 percent view as most important. All of these pain points help explain why FIs view technology as the primary means to improving credit operations: Solutions lie in gaining more visibility and insights from their existing data, not in adding staff or reorganizing.

FIGURE 2:
Credit management pain points

2A: Share of FIs citing select challenges as important and most important



Source: PYMNTS.com | Brighterion AI In Focus Report



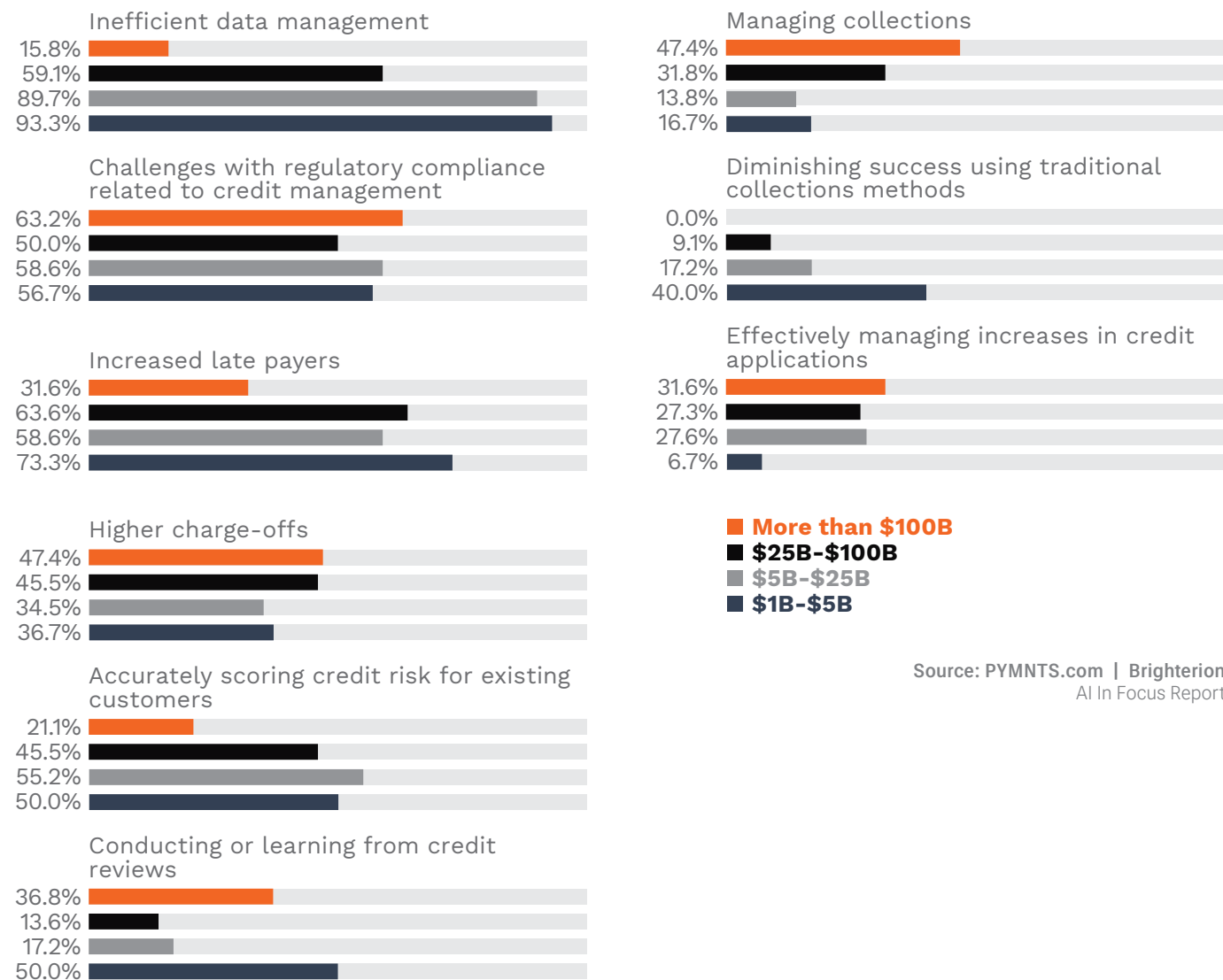
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Solutions lie in **gaining more visibility and insights from their existing data**, not in adding staff or reorganizing.

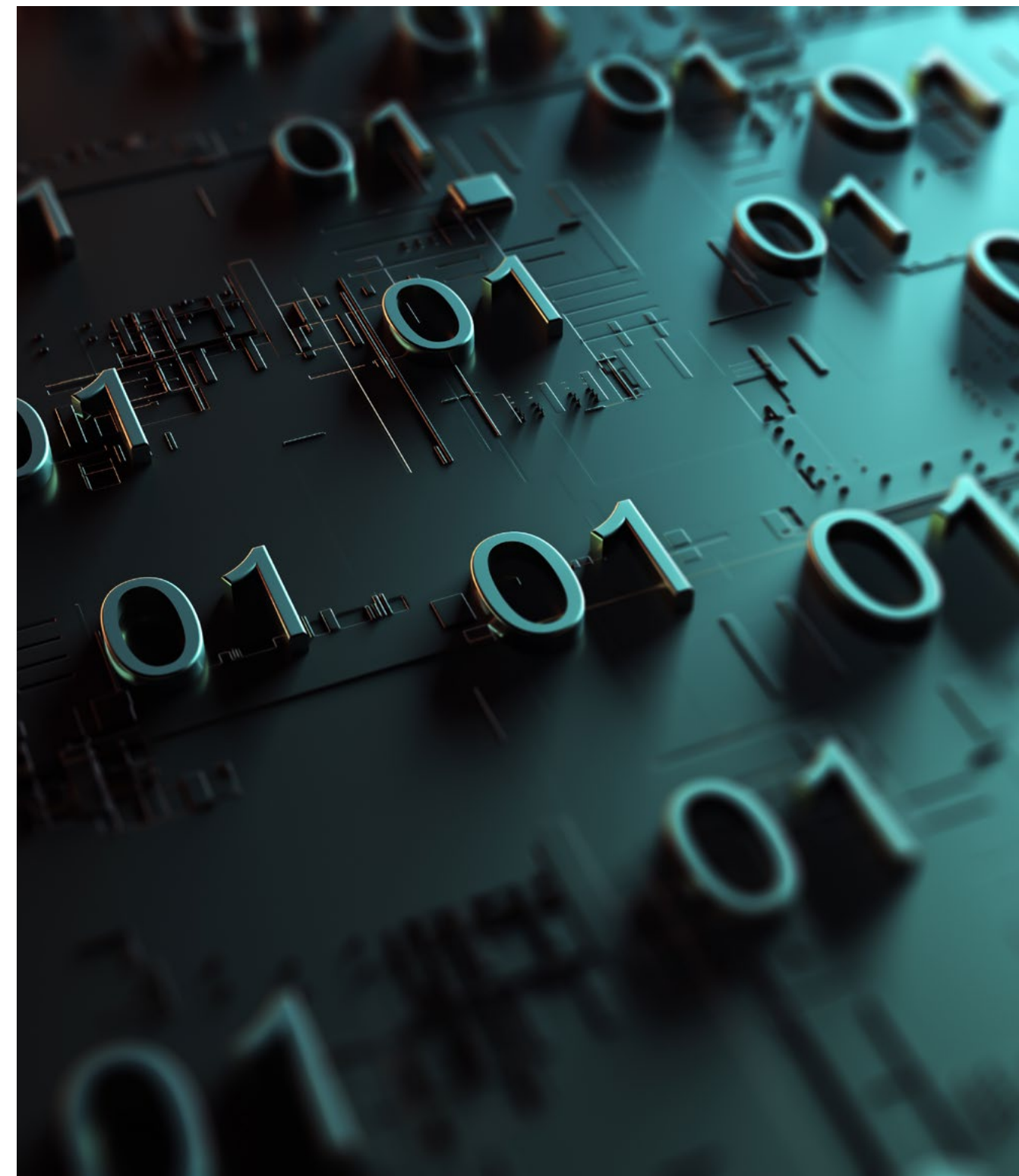
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FIGURE 2 (continued):
Credit management pain points

2B: Credit management pain points, by institution size



Source: PYMNTS.com | Brighterion
 AI In Focus Report



Banks are investing in technology for three main reasons: speed, accuracy and meeting existing customers' needs.

Banks today seem to be approaching their investments in technology with greater urgency than they have in the not-too-distant past. This almost certainly reflects the scale and scope of the digital shift across nearly all aspects of commerce and the recognition that real-time and automated capabilities require the right technologies to support them. FIs consider technology the most direct route to transactions that are both faster and more accurate: 91 percent of FIs cite the former as a reason for investing in technology and 89 percent cite the latter.

An even stronger indicator that technology is an immediate priority for banks is that 77 percent say they are investing in it to respond to existing customers' needs. Only 34 percent view addressing ongoing digital transformation as the primary motive. Today's FIs are more likely to view technology as necessary to meet current market demands rather than as part of a long-term process of digital transformation.

TABLE 1:
Motivations behind innovation strategies

Share of FIs citing select reasons for pursuing four approaches to improving credit management	Average	Technology	Partnerships	Acquisitions	Employees
Size of sample	136	64	45	15	12
Responding to existing customers' needs	66.9%	76.6%	62.2%	33.3%	75.0%
Increasing financial transactions' speed	50.7%	90.6%	20.0%	6.7%	8.3%
Increasing financial transactions' accuracy	50.7%	89.1%	24.4%	0.0%	8.3%
Responding to potential customers' needs	50.0%	35.9%	62.2%	73.3%	50.0%
Addressing ongoing digital transformation	47.8%	34.4%	84.4%	26.7%	8.3%
Responding to competitive threats	39.7%	34.4%	53.3%	53.3%	0.0%
Addressing changing security and risk management issues	35.3%	32.8%	37.8%	6.7%	75.0%
Being more profitable	35.3%	6.3%	51.1%	93.3%	58.3%
Reducing manual intervention in workflows	33.1%	60.9%	8.9%	0.0%	16.7%
Differentiation from competitors	30.1%	18.8%	37.8%	40.0%	50.0%
Increasing financial transactions' transparency	19.9%	14.1%	26.7%	6.7%	41.7%
Improving reputation	16.2%	18.8%	20.0%	6.7%	0.0%
Being able to enter new markets	12.5%	0.0%	4.4%	100.0%	0.0%

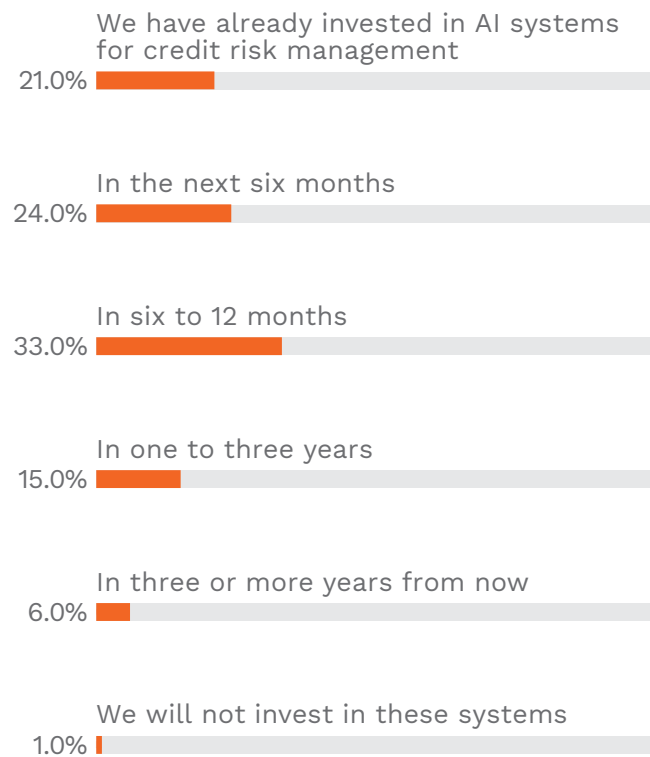
Source: PYMNTS.com | Brighterion
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AI is central to FIs' plans to improve credit risk management, especially for mid-sized banks: Nearly 90 percent of them plan to invest in AI over the next 12 months for this purpose.

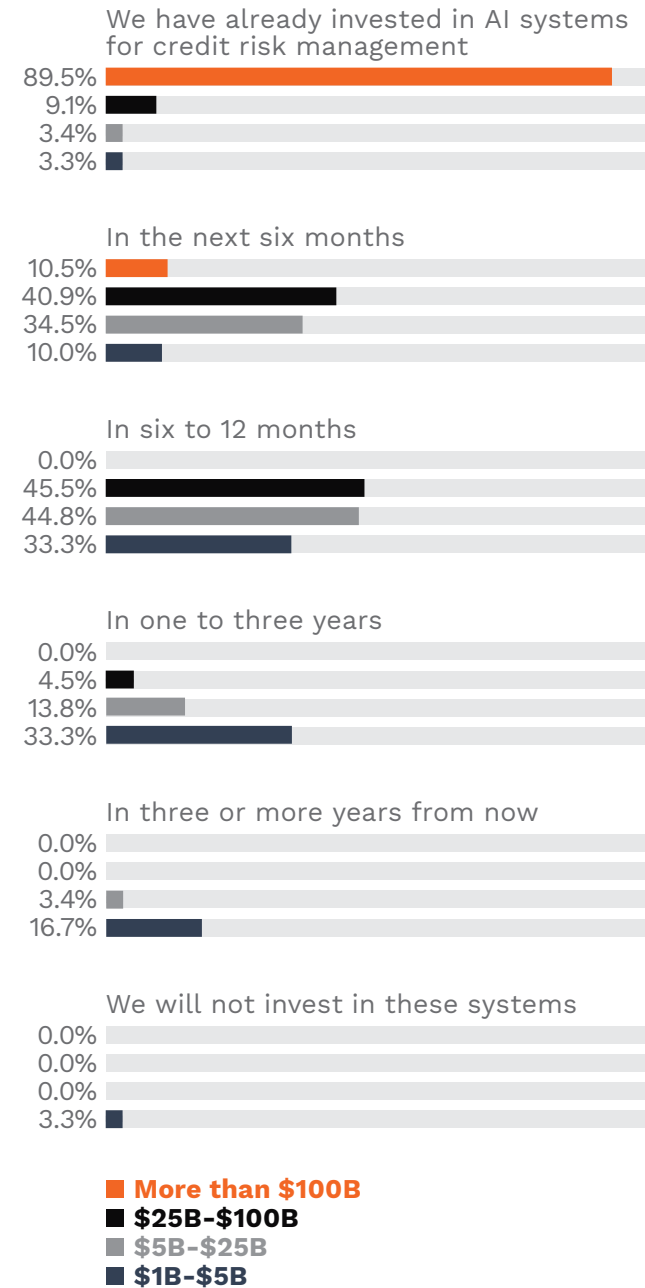
Our research has shown that institution size is a key factor when it comes to AI implementation. Large FIs (those with \$100 billion in assets or more) have, without question, been the early adopters of AI — and for understandable reasons. They have larger IT budgets, staff sizes and more customers, intensifying the need for the automated and real-time capabilities that AI can support. Our latest research indicates that AI interest and adoption is spreading beyond large banks, however. A large majority of mid-sized banks plan to invest in AI to improve credit management operations over the next 12 months: 86 percent of banks with assets between \$25 billion and \$100 billion plan to invest in the systems, including 41 percent that intend to do so within the next six months.

FIGURE 3:
Plans to invest in AI

3A: Share of FIs that have invested in or plan to invest in AI



3B: Plans to invest in AI, by institutional size



Source: PYMNTS.com | Brighterion
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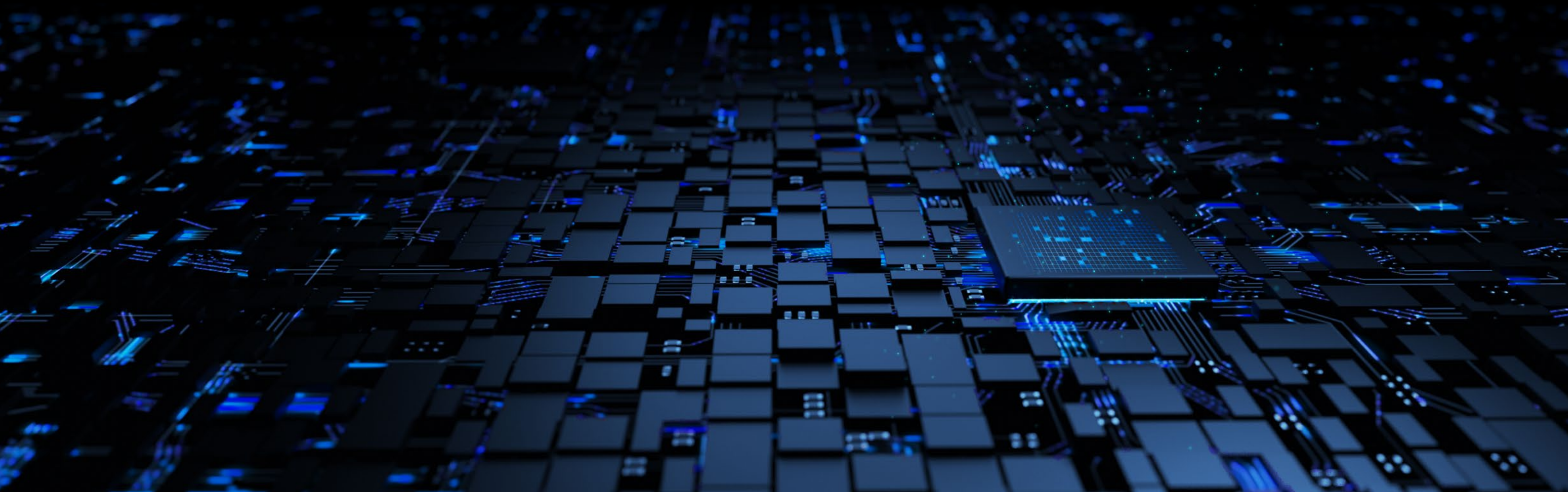
SURVEY INSIGHTS

“ AI also **reduces the need for manual efforts** and improves accuracy, thus saving time and money. ”

— Bank executive respondent

Deep Dive:

APPROACHING AI OBSTACLES
HEAD-ON



AI could be seen as reaching a tipping point in terms of recognition among FIs. Research shows a dramatic increase in both use and interest in the technology. Seventy-eight percent of FIs plan to invest in AI systems over the next 12 months or have already implemented them.

Whether FIs make good on these plans is another question. Certain hindrances have continued to stall AI adoption, and one is familiar: an inherent complexity that can lead to not understanding such tools' benefits. Another perceived barrier has emerged in our latest research into AI and credit risk: regulatory problems associated with automated systems. These concerns are not trifling, of course, but they also may not pose the barriers that some FIs perceive.

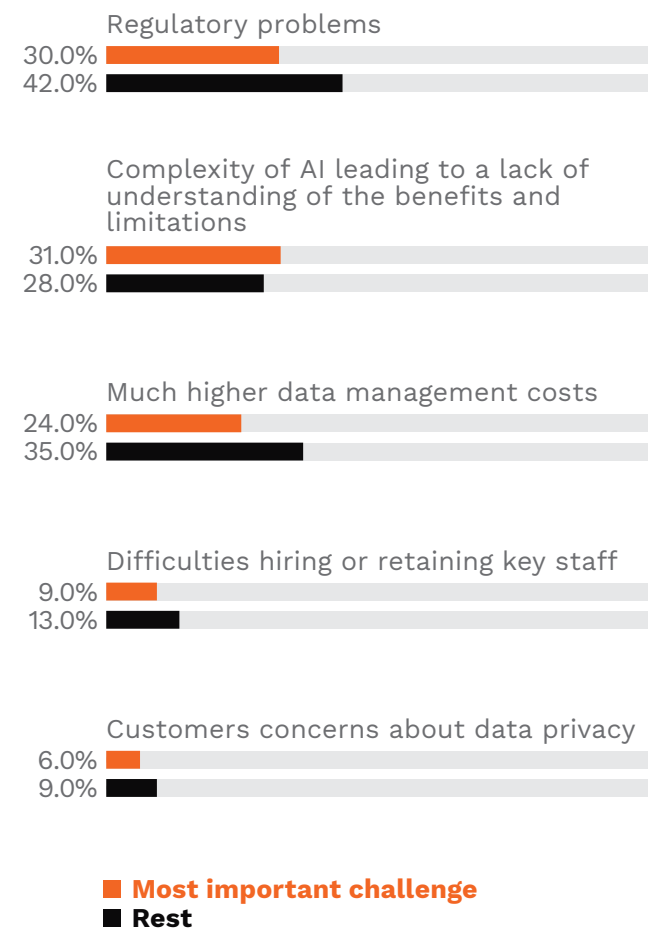
Our research shows that 72 percent of FIs consider regulatory issues a challenge in implementing AI solutions and 30 percent consider them the greatest challenge. This is followed by complexity obscuring benefits, which is cited by 59 percent as a challenge and 31 percent as the greatest one.

Institutional size is a salient factor when it comes to AI's perceived regulatory hurdles. Large banks — those with assets over \$100 billion — are more than twice as likely to cite regulations as a prioritized difficulty as smaller ones: 47 percent of these banks consider regulatory issues the greatest challenge while just 19 percent of those with less than \$25 billion in assets think the same.

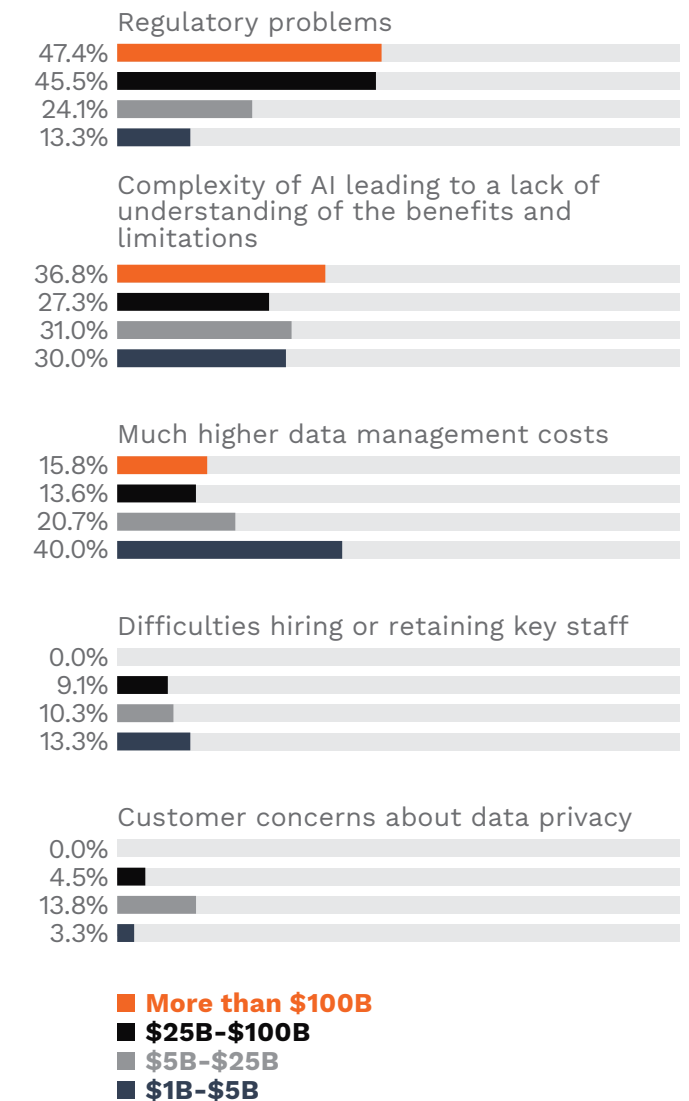
Concerns around the regulatory implications of AI technology are understandable for banks, which have important legal and fiduciary requirements to uphold. Lending and credit are heavily regulated and subject to rules concerning fairness and nondiscrimination, among other matters.

FIGURE 4:
Perceived impediments to AI adoption

4A: Share citing select challenges as important and most important to adopting AI systems in the next three years



4B: Perceived impediments to AI adoption in the next three years, by institution size



Source: PYMNTS.com | Brighterion
AI In Focus Report

Regulators’ actions regarding AI in banking suggest that they are more inclined toward cooperation than confrontation, however. One possibility is that regulators would prefer to see AI-enhanced financial services in the hands of trusted institutions like banks rather than in those of third parties less subject to oversight.¹ United States regulators recently solicited comments on AI in banking, noting that, with appropriate guidelines, AI “has the potential to augment business decision-making and enhance services available to consumers and businesses.”²

A more accurate reading of the regulatory climate around AI and banking is one of opportunity rather than risk. Some of the regulatory concerns expressed around AI, that it is in effect like a “black box,” appear to be overblown and point not to inherent problems with the technology but rather in the guidance — or lack thereof — technology vendors provide.

1. Schoeps, J. Regulating AI in the banking space: A call to action. 2019 <https://www2.deloitte.com/us/en/pages/financial-services/articles/regulating-ai-in-the-banking-space.html>. Accessed April 2021.

2. Schroeder, P. U.S. banking regulators seek input on how firms rely on artificial intelligence. 2021. <https://www.reuters.com/article/us-us-a-fed-artificial-intelligence/u-s-banking-regulators-seek-input-on-how-firms-rely-on-artificial-intelligence-idUSKBN2BL2J4>. Accessed April 2021.

TABLE 2:
Perceived limitations of computational systems

Share of FIs citing select limitations of select computational systems	Average	Data mining	Business rules management systems	Case-based reasoning	Deep learning and neural networks	AI systems	Fuzzy logic
Too long to implement	55.5%	55.1%	53.4%	57.6%	57.1%	56.3%	60.0%
Too complicated to change when new threats are identified	44.9%	30.3%	50.7%	45.5%	76.2%	68.8%	33.3%
Must integrate with multiple providers to achieve a complete solution	42.1%	42.7%	42.5%	51.5%	38.1%	37.5%	26.7%
Limited to data sets solution providers offer	32.8%	59.6%	15.1%	27.3%	19.0%	0.0%	26.7%
Does not work in real time	17.8%	24.7%	24.7%	9.1%	0.0%	0.0%	6.7%
Not transparent enough to satisfy regulators	17.8%	12.4%	23.3%	24.2%	14.3%	25.0%	6.7%
Historic data is biased, resulting in inaccurate projections	17.4%	24.7%	12.3%	33.3%	4.8%	0.0%	0.0%
Have been unable to quantify the return on investment of the current system	13.8%	7.9%	5.5%	30.3%	33.3%	12.5%	26.7%
Unable to monitor behaviors of individual card/account holders	9.7%	5.6%	21.9%	6.1%	0.0%	0.0%	6.7%
Existing systems and processes work just as well	9.7%	4.5%	12.3%	6.1%	14.3%	6.3%	33.3%
Unable to adapt to fraudsters’ changing behaviors/tactics	8.9%	4.5%	16.4%	9.1%	0.0%	0.0%	20.0%
Requires manual intervention to “train” system on new data	7.3%	3.4%	11.0%	6.1%	4.8%	12.5%	13.3%
Could not decide internally where to focus AI pilot	7.3%	1.1%	4.1%	15.2%	23.8%	6.3%	20.0%
Did not find limitations	8.1%	9.0%	9.6%	6.1%	4.8%	12.5%	0.0%

Source: PYMNTS.com | Brighterion AI In Focus Report

A similar pattern prevails when it comes to some of the shortcomings that FIs that currently use AI cited. The most cited pain points are that the systems are too complicated to adjust when new threats are identified and that the systems take too long to implement, cited by 69 percent and 56 percent of AI users, respectively. This latter concern is understandable for banks, considering that they can ill afford system downtime.

These challenges would appear to speak far more to particular solutions on the market rather than to the technology itself, however. After all, responsiveness to threats is one of the hallmarks of AI when it is employed correctly.

This underscores the importance of working with the right providers — and asking the right questions. Bank professionals should not need advanced degrees in computer science to understand the basic principles of how AI works, and technology partners should be able to demystify them. Providers should also be able to provide concrete timelines for implementing solutions in ways that require minimal or no downtime. Cloud technologies and distributed hosting have the potential to greatly

reduce — if not avoid entirely — any disruption to on-premise systems.

Some of the reservations bank executives express when it comes to AI, such as complexity and implementation speed, often surface when FIs are asked about investing in innovative technologies, and they may speak more to the culture of an organization than the technology itself.³

Digging deeper into our data reveals an interesting pattern. Those FIs that have already implemented AI are less likely to cite limitations with the technology overall than are users of other systems. AI users cite just over two limitations on average while other system users cite three or more.

These findings square with the larger themes in our research. The value of AI seems to speak for itself among those organizations that have adopted the system and are putting it to use in a growing array of applications. Barriers and limitations to adopting AI seem to loom larger in the imagination than in reality.

3. Innovation Readiness Index. PYMNTS.com. 2019. <https://www.pymnts.com/wp-content/uploads/2019/03/Innovation-Readiness-March-2019.pdf>. Accessed February 2021.

TABLE 3:
Average number of system limitations

Data mining (N = 89)	Business rules management systems (N = 73)	Case-based reasoning (N = 33)	Deep learning and neural networks (N = 21)	AI systems (N = 16)	Fuzzy logic (N = 15)
2.9	3.0	3.3	2.9	2.4	2.8

Source: PYMNTS.com | Brighterion AI In Focus Report



Case Study:

TRUIST ON HOW AI HELPS BANKS BETTER KNOW
AND SERVE THEIR CUSTOMERS



One of the more salient findings to emerge from our research on AI is the degree to which the banking sector is utilizing it for wide-ranging purposes. These various applications tend to share a starting point, however: leveraging AI to get to know and understand customers in more accurate and meaningful ways.

Truist, a U.S. regional bank formed from the merger of BB&T and SunTrust, has a firsthand perspective on this. The bank is currently using AI to enhance the customer experience and gain greater insights into account holders' financial circumstances and needs. It believes these capabilities will have wider applications in the future, including ones involving credit and lending.

"We use AI to drive chat bot interactions, to provide personalized real-time client insights based on savings and spending habits and to determine client sentiment," Diana Caplinger, Truist's executive vice president for customer relationship management, intelligent automation and personalization, told PYMNTS.

Truist's use of AI demonstrates how the technology distinguishes itself from earlier generations of computational systems. AI can be closely integrated with real-time human functions like customer service, and because of its self-learning nature, its interactions become more robust and insightful the longer it is in service.

"Future use cases include next-best action and conversation along with preemptive client awareness to inform digital and human engagement," Caplinger said. "Leveraging AI allows for greater client self-service, increased satisfaction and more client needs met regardless of where they are on their financial journey."

Integrating AI is not as simple as throwing a switch, of course. Organizations have to carefully consider where and how they want to deploy the technology without disrupting day-to-day operations. AI is not a one-size-fits-all solution. Truist has pursued a multiprogned AI strategy that relies on both in-house expertise and outside partners.



“Truist has taken a case-by-case approach to determine how best to implement the technology,” Caplinger said. “Some of our AI implementations are using vendor solutions while others are built by our various data and analytics teams. This approach allows teams to test and learn along the way while they have the flexibility they need to respond to internal and external factors.”

Truist’s experience speaks to one of the unique challenges banks may face in implementing AI into their operations given the mix of legacy and modern systems with which many FIs work as well as the complex regulatory and security environments in which they operate.

“Banks need to account for the potential risk, [the] impact to the upstream and downstream applications and examine existing processes to ensure the AI implementation will deliver against expectations,” Caplinger said. “In addition, clearly defining the problem statement and the expected value upfront will help banks avoid costly deployments with minimal benefit.”

One of the potential pitfalls in employing AI is that, in learning from past and current data sets, it will perpetuate

undesirable aspects of human behavior. AI represents the opportunity for a paradigm shift — if applications are designed and implemented wisely.

“Other banks have mistakenly used AI to replicate bad behavior because they did not evaluate how to use this technology to function differently,” Caplinger said.

Truist believes AI’s ability to personalize interactions could have utility in other areas, including credit and lending.

“This technology will be very useful to drive accuracy and efficiency while simplifying the client experience. The client journey can be tailored, particularly if the client is an existing client, so the online or offline interaction is based upon the client’s preference and requirements,” Caplinger said. “Marrying operational subject matter expertise with the power of AI will ensure the bank is set up for future success.”

Truist’s experience seems to demonstrate that, for all of the high-tech sophistication that goes into AI, its growth in banking rests in a business fundamental: companies getting to know their customers better.

Banks need to account for the potential risk, [the] impact to the upstream and downstream applications and examine existing processes to ensure the AI implementation will deliver against expectations.

Diana Caplinger

— executive vice president for customer relationship management at Truist

Conclusion

Many banks have come to realize that their existing computing systems are out of step in a digital-first world that requires real-time data management and transaction capabilities. The need to invest in technology has come to the fore for FIs, outweighing strategies that may have served them well in earlier eras, such as hiring and reorganization.

These shifts in strategy are being driven from one side by the wealth of data FIs now have at their disposal and, on the other, by the power and capabilities technological solutions now offer, particularly AI. FIs need technologies capable of unlocking and leveraging large volumes

of data while meeting compliance and security requirements.

AI is a genuinely complex technology, and this underscores the importance of working with trusted partners that can offer sound guidance — especially given the hype around the technology. Some technology vendors may be more interested in gaining market share than actually ensuring that AI solutions do what they claim and are implemented effectively. Following are some of the key considerations that banks should use while assessing technology providers.

Minimal time and disruption

Is the provider able to offer firm timelines for integrating its solutions?

Accuracy

Does the provider's product offer accurate insights at scale?

Multifunctionality

Can AI tools be applied in multiple areas of operations, including for credit risk management?

Transparency

Is the provider able to show what AI tools are doing and explain their basic operation?

Cooperation

Does the vendor see itself as a partner in implementing its solutions, and can it provide ongoing support?

Methodology

AI In Focus: The Bank Technology Roadmap Playbook is based on a survey of 100 financial executives who work at banks with at least \$1 billion in total assets and who hold leadership responsibilities in at least one of the following areas: credit risk management, financial planning and analysis, risk management and fraud detection/analysis. The survey was conducted from Jan. 28 to Feb. 17.

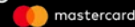


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