



Close the AI Action Gap in Financial Services

Banks and financial institutions are making strides with artificial intelligence – but they've been slow to scale it. Here are four steps to realize AI's full potential throughout the enterprise.



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Introduction

As AI begins to deliver real business value, financial institutions (FIs) still fall short on moving projects into production and scaling AI technology to address enterprise needs.

In short, banking has an AI action gap. Our 2019 report found¹ that enthusiasm outpaced initiatives. Although 75% of banking and financial services executives said AI is highly important to their organizations' success – a higher percentage than in any other industry – only 61% knew of an AI project at their company.

Fast forward one year, and the global pandemic has changed everything. In research that concluded in September 2020, we found FIs to be making strides in AI, even making up 31% of AI leaders. However, much more progress must be made before AI delivers greater value across the banking space.

Closing the gap between enthusiasm and results requires approaching AI as a business play rather than a technology challenge. To ensure your organization develops successful AI strategies that scale, we recommend the following steps:

- 1. Identify use cases that are universal yet well bounded.**
- 2. Beef up data management.**
- 3. Move beyond experimentation.**
- 4. Mitigate unintended consequences by creating responsible applications.**

The stakes are high. By embracing these imperatives, FIs can position themselves for better business outcomes and ROI. In the following pages, we offer insights and recommendations for maximizing your organization's AI potential, starting with a dive into the data that shows where banks are in the AI implementation curve.

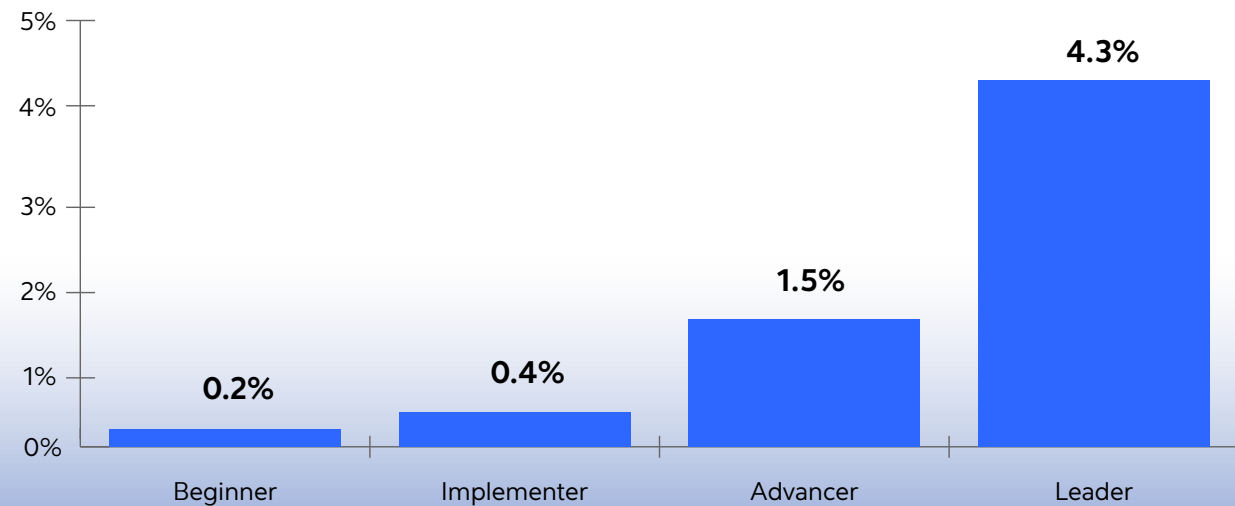
For AI, ROI increases with maturity

With so much hope invested in AI to pull businesses through today's chaotic environment, it's easy for expectations to exceed reality when it comes to ROI.

As our 2020 study (produced in partnership with ESI ThoughtLab) shows, achieving ROI on AI initiatives takes time, smart deployment and the ability to scale. On average, businesses across industries have seen an ROI of just 1.3% from their AI investments.

Returns vary considerably, however, based on AI maturity. Businesses in the first half of their AI journey hardly break even. It's only when companies are advanced in AI and implementing it widely across their organizations that they start to see the fruits of their labor.

Average ROI by maturity level



Response base: 1,200 executives
Source: ESI ThoughtLab/Cognizant
Figure 1

Despite optimism, AI remains a slow burn

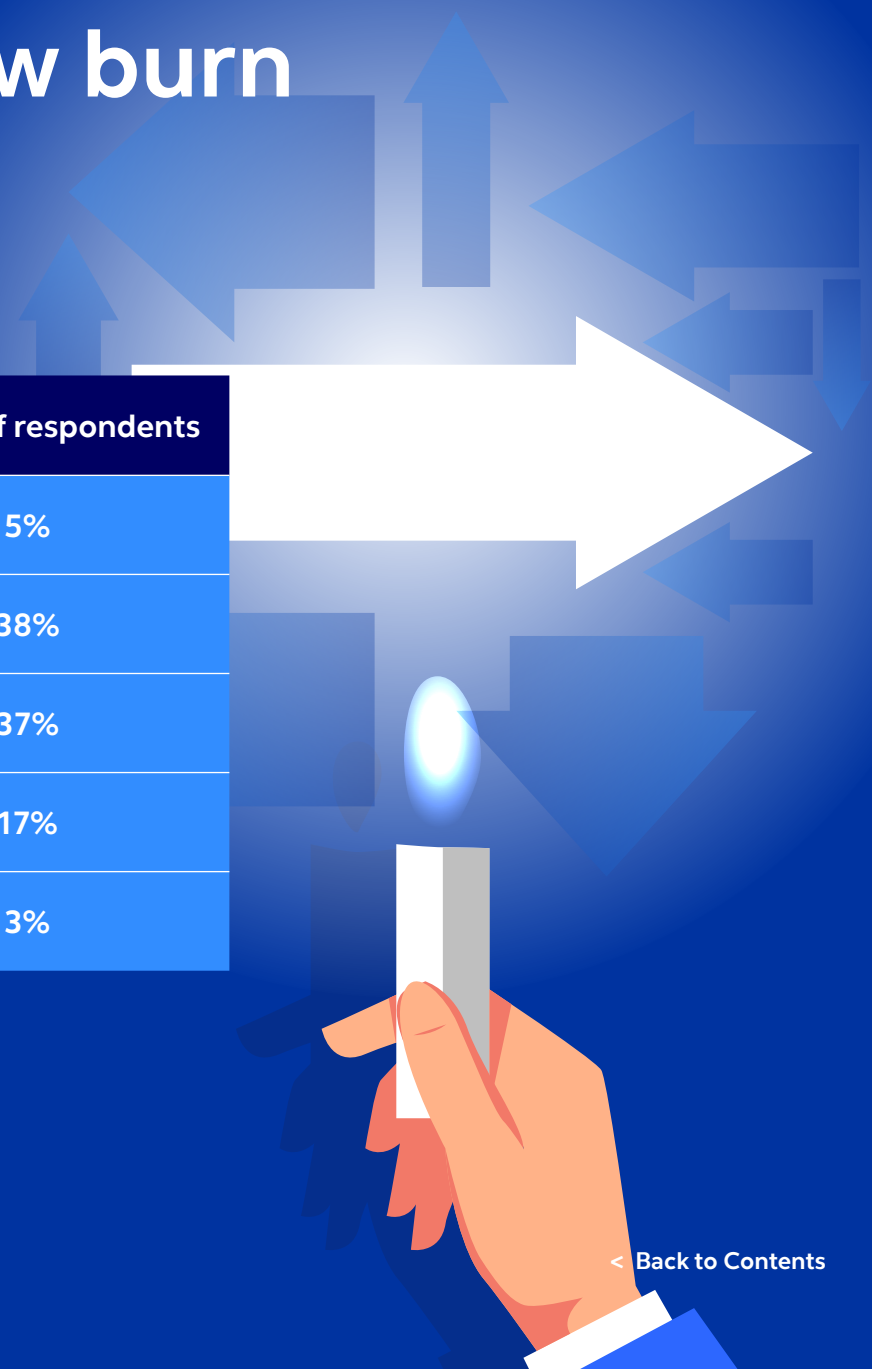
Generating ROI from AI is a slow-burning process. With an average payback period of 17 months across industries, it clearly takes time to identify the appropriate business case, acquire and prepare the right data, and then build, test, refine and deploy working models.

Setting realistic targets is key, taking into account not just short-term financial gains from AI but also long-term strategic benefits.

Being realistic about payback times

Typical payback period	Percent of respondents
Less than six months	5%
Six months to less than one year	38%
One year to less than two years	37%
Two years to less than three years	17%
Three years or more	3%

Response base: 1,200 executives
Source: ESI ThoughtLab/Cognizant
Figure 2

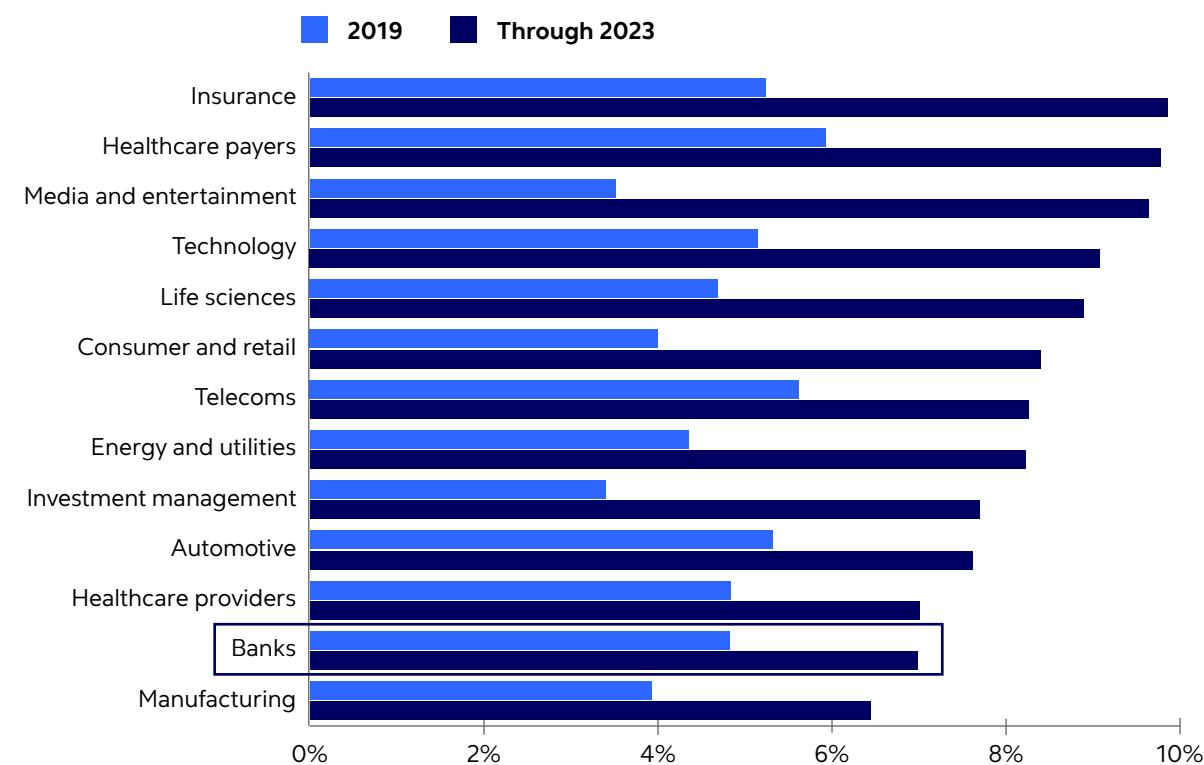


How banks anticipate AI spend to grow

On average, companies surveyed expect to increase their spending on AI by a factor of two. In 2019, companies stepped up their AI investments by 4.6% on average. Over the next three years, however, they expect annual AI spend to trend upward significantly, accelerating to an 8.3% increase.

A closer look reveals that while banking's 2019 AI spending is in line with cross-industry averages, the sector's planned increase over the next three years is considerably lower. The reason for this, as we see it, is that banks have realized that the complexity of their data environments doesn't enable location, extraction and processing of the type and volume of data necessary to generate actionable insights. In other words, beyond a limited range of use cases, their AI efforts to date have yielded more questions than answers. As a result, investment is shifting back toward improving the data ecosystem prior to making another push forward.

Average spending change

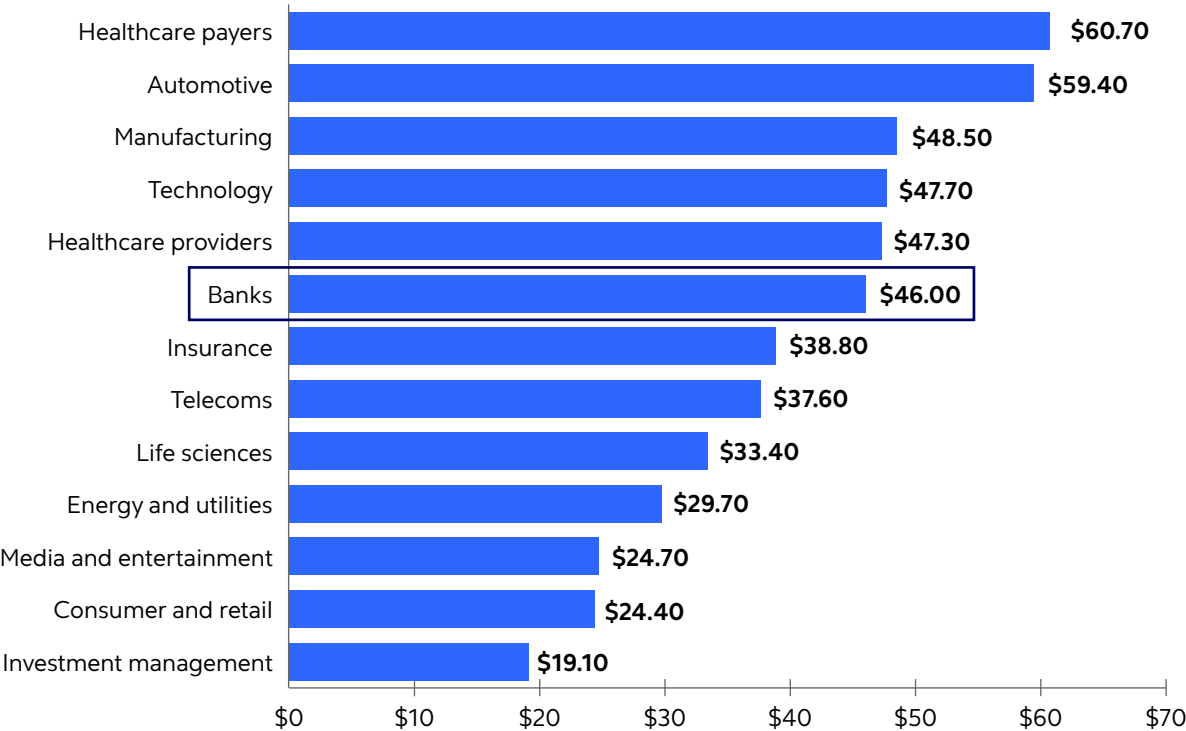


Response base: 1,200 executives
Source: ESI ThoughtLab/Cognizant
Figure 3

AI spend by industry

Banks are middle-of-the-pack spenders when it comes to AI (in millions). Many organizations we work with report they're hesitant to increase the investment given the uncertainty of a profitable return. As a result, the industry falls well behind the aggressive AI spend of healthcare payers and automotive, yet far ahead of more conservative sectors like energy.

Past financial year average \$ millions



Response base: 1,200 executives
Source: ESI ThoughtLab/Cognizant
Figure 4

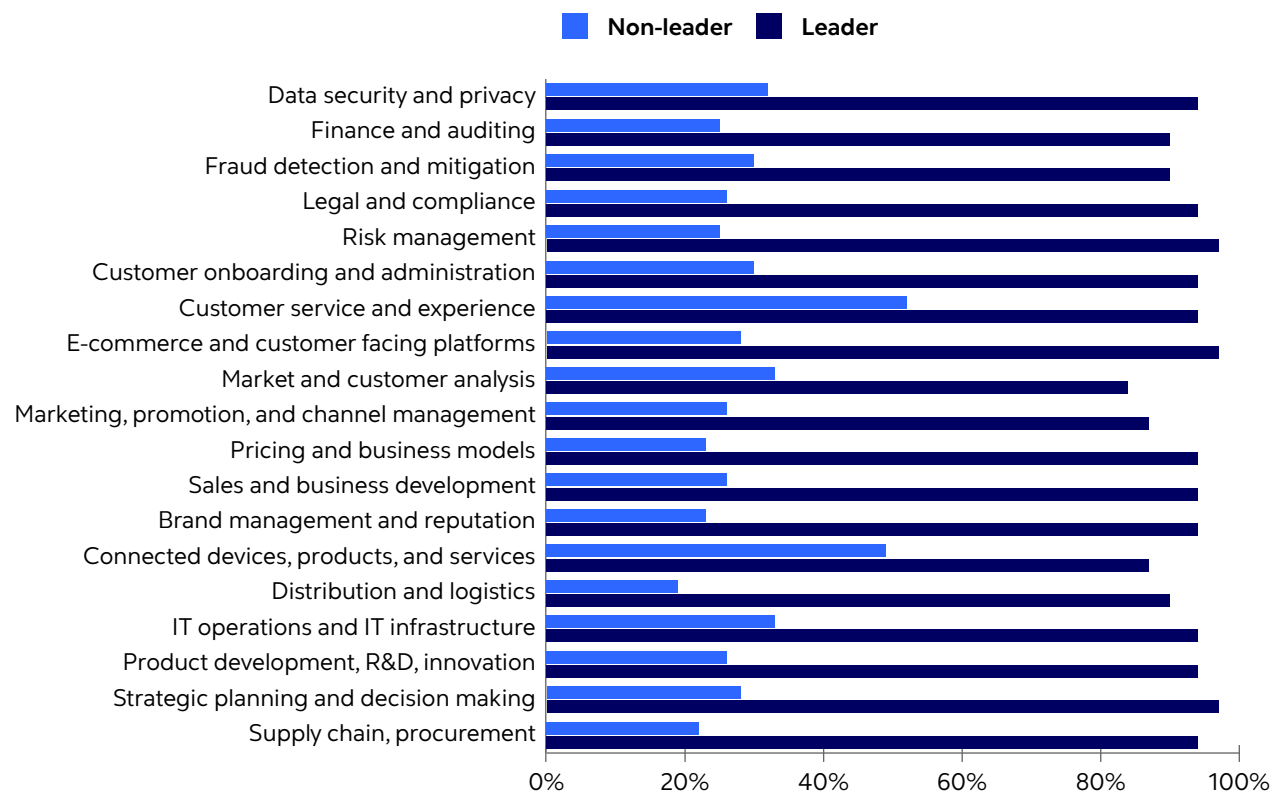
Across the great divide: Leaders are far ahead

Leaders spend 40% of their AI budget on advanced AI technologies such as machine learning, deep learning, computer vision and natural language processing (NLP). Non-leaders continue to focus on basic AI, including data management, digital assistants and robotic process automation.

The ability of deep learning to find meaning in diverse sets of unstructured data will make it particularly valuable as AI adoption expands. And NLP will be a game-changer: Over the last few years, there have been huge advances in voice recognition in capturing different accents as well as building capabilities into more devices.

In banking and financial services, there's a huge divide between leaders and non-leaders when it comes to spending on specific use cases. In our work with organizations, we typically find that leaders have not only deeper pockets but also a willingness to invest in AI solutions even if they only create marginal improvements.

Percent of FIs that have fully or largely implemented AI in these areas



Response base: 192 financial industry executives
Source: ESI ThoughtLab/Cognizant
Figure 5

Getting real about AI adoption

The preceding data says it all: The challenge for FIs is making AI real.

Your organization has likely run headlong into the challenge of identifying AI initiatives that can be implemented affordably. Many FIs we work with have a hard time prioritizing because of the constraints of cost, knowledge and talent. That is, although they're receptive to doing more AI, they lack the money, time and people.

Early AI wins included financial advice and routine service requests, where AI helps banks reduce costs and handle large amounts of data. Leading the robo-advisor race are Schwab and Fidelity along with fintechs such as Betterment and Wealthfront.² Yet adoption of the low-cost advisory services benefits FIs of all sizes, enabling expansion into new geographic markets and segments such as affluent customers who were previously too expensive to serve. Wealth management advisors are **bullish on automated advice**: 76% expect it to grow in capabilities and to find increasing adoption beyond the mass affluent channel.

For routine service requests, conversational interfaces such as chatbots have gone mainstream. By 2023, chatbots are expected to generate \$7.3 billion in operational cost savings for banks.³ Behind bots' rapid growth is customers' increasing embrace of them. At Bank of America, sessions with Erica, the bank's AI digital assistant, spiked 95% in the third quarter of 2020.⁴

After those early wins, more sophisticated organizations are going a step further with AI. They're using technologies like machine learning (ML) and NLP to improve execution and decision-making in several areas:

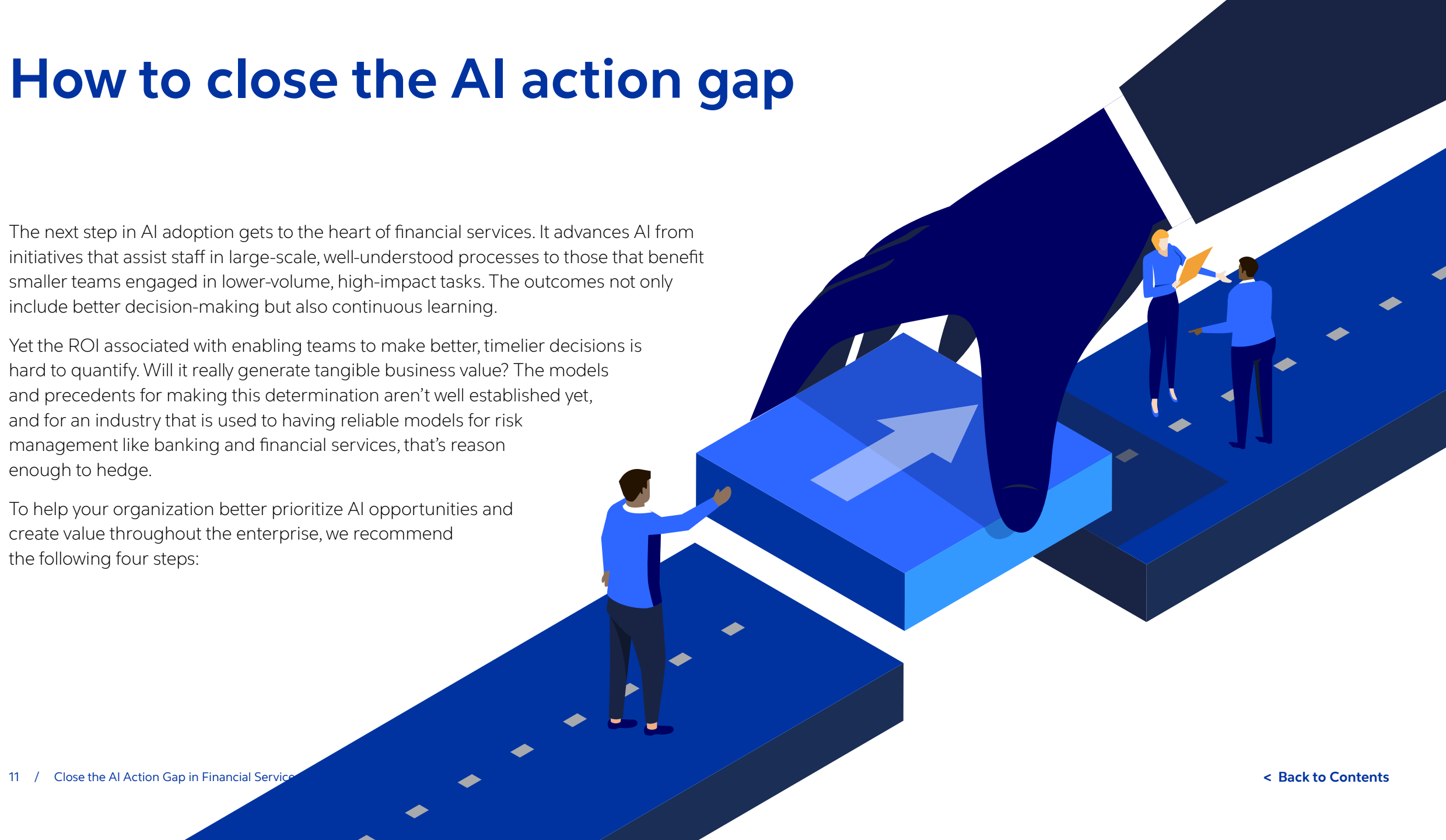
- **Trade analytics and recommendations:** AI is taking center stage in quantamental funds, which combine quantitative and fundamental investing strategies. For example, BlackRock's quantamental fund chooses investments by applying ML, NLP and sentiment analysis to sources such as satellite imagery and social media posts.⁵
- **Risk and compliance monitoring:** Flagging inappropriate behavior is a natural role for AI. Our team partnered with a global bank to develop an AI solution that **reduced check fraud** by 50% and scanned 1,200 checks per second.
- **Collections optimization:** Traditional methods of debt collection are labor-intensive, and success rates hover at a dismal 20%.⁶ ML applications can generate significant cost savings in this function. For example, by using AI to identify the best predictors of successful collections, our team projected \$10 million in annual savings for a US-based credit card issuer.
- **Contact center optimization:** The contact center remains fundamental to FIs' customer experience. Yet one analysis found that in a typical six-minute call, customer service representatives (CSRs) spent the bulk of their time doing manual research, and just 25% of the time interacting with customers.⁷ AI flips that equation: By delivering quick, accurate information, it frees CSRs to spend more time developing positive customer relationships. AI also analyzes monthly calls. The AI solution we designed for a global property and casualty insurer allowed the carrier to monitor all 8,000 calls each month – up from just a handful – and slashed review time by as much as 40%.

How to close the AI action gap

The next step in AI adoption gets to the heart of financial services. It advances AI from initiatives that assist staff in large-scale, well-understood processes to those that benefit smaller teams engaged in lower-volume, high-impact tasks. The outcomes not only include better decision-making but also continuous learning.

Yet the ROI associated with enabling teams to make better, timelier decisions is hard to quantify. Will it really generate tangible business value? The models and precedents for making this determination aren't well established yet, and for an industry that is used to having reliable models for risk management like banking and financial services, that's reason enough to hedge.

To help your organization better prioritize AI opportunities and create value throughout the enterprise, we recommend the following four steps:





Identify use cases that are universal yet well bounded

Implementing AI is a learning curve. For FIs, developing AI expertise starts with deploying the technology on common business problems that provide broad benefits across the organization. For example, one financial institution we worked with applied AI to reframe the challenge of legal entity identifiers (LEIs) – and discovered it had addressed a challenge that rippled throughout its organization.

Assigning LEIs – the alphanumeric codes that identify parties associated with a financial transaction – is a largely manual process. It often takes operations personnel weeks of emails and phone calls to track down the right contacts. Instead of applying AI to build relationships across disparate data sets, which is the typical application for many banks, the financial institution used it to generate recommendations for the best person to contact.

The results were two-fold: The time needed to assign LEIs dropped significantly, and the organization now had a tool other functions could use similarly for tasks that require identifying information owners. For reconciliation, for example, tracing variances in know your customer (KYC) reports is a convoluted, complex process that often takes weeks. The quick identification of contacts could dramatically cut down reconciliation time.

Spotting AI's potential for universal uses requires the formation of an enterprise-wide group tasked with identifying use cases. So far, few FIs have established such a group. Yet doing so offers an important payoff by creating a group whose mission is essentially to move AI from the pilot stage and into wider production. AI requires the right blend of business case and corporate culture to succeed.



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Beef up data management

Applying AI tools and techniques is highly dependent on the volume and quality of the data available. With their fragmented data architectures and myriad legacy systems, FIs' IT systems typically aren't equipped to quickly deploy and provision the data and platforms that AI applications depend on. As a result, improving data management is a key step in closing the AI action gap.

The global pandemic has created a dual data challenge facing FIs: They need tools to service customers better using digital channels, and to assess the performance and productivity of their remote workforces. Yet in both cases, applying analytics to identify behavioral patterns is often difficult if not impossible at this point, due to weaknesses created by structural issues as well as the pandemic's inherent challenges.

Tools such as Microsoft Workplace Analytics (MWA) can help banks understand the impact of behavior on performance. So far, however, we see FIs often [shut out from the tools' benefits](#). Typically, FIs lack the data management capabilities to gather and analyze the data in conjunction with performance metrics from other systems.

Without the ability to make these correlations, banks are left to use proxy measures such as login/logout times and numbers of meetings attended. The obvious flaw in this type of analysis is that it's subjective, with assumptions about the relationship between these measures and performance based on anecdotal evidence and analyst bias. By comparison, tools like MWA can provide data-driven insights into workload distribution and collaboration patterns which, when coupled with financial and operational performance data, can pinpoint where and how changes could enhance business outcomes.

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For FIs, solving the data management challenge requires a two-pronged approach:

I Develop an intelligent tagging strategy. One banker told us that looking for data to address business issues is like going to a supermarket where there are no labels on the packages. Developing an intelligent tagging strategy provides the context banks need for their data. It not only enables them to more smartly contextualize the meaning and relevance of data, but they can also connect the dots of their data to find new relevance. They emerge from being data rich and information poor into an information rich environment. By managing metadata through a combination of NLP, text analytics and data mining technologies, banks help users understand data's meaning and relevance. Examples include attachment of descriptive information such as source, author and consumers, and links to related content. In effect, intelligent tagging uses AI to enable AI.

I Accelerate implementation of a multi-cloud platform strategy. A multi-cloud strategy positions banks to reduce costs, mitigate risks and increase AI adoption as they speed up data modernization and decision-making. During 2020, many institutions sped up efforts already underway to migrate data, analytics and AI to the cloud. The next step is a coordinated approach to platform synchronization and tagging. For that to happen, however, FIs will need to adopt a holistic, cross-departmental architecture that enables rapid, on-demand provisioning and access. A defining feature of the multi-platform cloud architecture is intelligent monitoring and automation of the infrastructure and environments to reduce the need for online engineers and achieve a faster response. Additionally, when processing data and deploying AI, scaling up and down intelligently is critically important, as demands can rapidly fluctuate. Without this feature incorporated into the architectural design, costs can multiply. Lastly, this feature eliminates unnecessary challenges associated with the adoption of AI by standardizing and streamlining the monitoring and automating the process and associated workflows, without compromising cost and risk controls.

By managing metadata through a combination of NLP, text analytics and data mining technologies, banks help users understand data's meaning and relevance.





Move beyond experimentation

It's natural to think that banks have moved past experimenting with AI by now. After all, pilots and production projects have been completed, and tools and platforms have matured. On the digital adoption curve, wide-scale production deployments of AI-based decisioning solutions should be rolling out across the banking enterprise.

But AI's adoption path is different from other digital technologies. Its success hinges on a steady stream of data. Electric vehicles provide an analogy: Production is technically and commercially viable, but adoption is limited by lack of a charging infrastructure.⁸ Similarly, AI solutions still can't get enough data – in volume and diversity – despite the availability of software and processing capacity.

As a result, banks face the question of how to redefine their AI experimentation efforts to overcome the fragmented ownership and control of data sources. The answer must include expanding the data supply chain and inviting the organization at large to ideate for AI. The broader the participation, the greater the likelihood of finding innovative solutions that involve not just technological but also process and organizational changes.

One innovative approach is to incorporate users' feedback on AI-generated recommendations and actions in real time. Tapping into institutional knowledge results in solutions that more closely match users' knowledge and experiences and thus can save many cycles of retraining models. Participation isn't practical for all applications – think algorithmic trading, fraud detection and credit authorization. But for scenarios such as sales and resource forecasting, in which recommendations don't demand immediate action, adding people to the feedback loop captures decision-making nuances. It establishes a continuous learning cycle that benefits all participants.

Like unanticipated discrepancies in a ledger, the idea of democratizing experimentation is unnerving for financial institutions that prize accuracy, predictability and control. It's a drastic change from business as usual. With the right controls and support mechanisms, however, it enables the expanded participation that's essential for accelerating AI adoption.



Mitigate unintended consequences by creating responsible applications

The role of ethics in AI revealed another surprising divide in financial institutions in our [2019 report](#): Three-quarters of leaders said their organizations are highly effective in addressing unethical behavior in AI application design, but just 45% said ethical considerations play an important role. Worse, only 53% have policies and tools to spot unethical behavior in application design.

AI oversight remains a hot topic for FIs. For one thing, applications that exhibit bias risk undermining customer relationships and incurring reputational damage and regulatory penalties. For another, the shift to remote work has expanded the ethics conversation to include employee productivity and behavior. The risk of unintended consequences is higher than ever.

What can FIs do to mitigate unintended consequences? An important step is to [build a solid ethical foundation](#) up front instead of as an afterthought. This includes establishing processes throughout application design and management to

identify, expose and overcome bias in analytics. Also important is overlaying a code of ethics on ML systems and where possible ensuring the systems augment, not replace, human decision-making.

Another critical step is monitoring AI applications over time for hidden biases. The downside of failing to do is significant. In healthcare, for example, algorithms were discovered to be prioritizing care for white patients over black patients.⁹ An audit of algorithms deployed by a video-interview vendor flagged potential bias in the software's assessment of candidates with accents.¹⁰ Banks need to be vigilant to ensure AI applications don't pick up racial or gender biases buried in credit and other financial data.

Finally, mitigating unintended consequences means getting up to speed on new workplace positions [like algorithm bias auditor](#) that are the cornerstones of the future of work.

Looking Ahead

There's no question that AI is a different experience from other digital initiatives. While your organization can quickly scale cloud and analytics, AI requires a fresh look at existing approaches to take advantage of new techniques and accelerating advances in core technologies.

By approaching AI as a business play, banks can create successful AI strategies that lead to production and scale.



Endnotes

¹ Based on data collected and analyzed in 2018.

² “Best Robo-Advisors for February 2021,” The Ascent, Motley Fool, Feb. 5, 2021, www.fool.com/the-ascent/buying-stocks/best-robo-advisors/.

³ “Bank Cost Savings Via Chatbots To Reach \$7.3 Billion By 2023, As Automated Customer Experience Evolves,” Juniper Research, Feb. 20, 2019, www.juniperresearch.com/press/press-releases/bank-cost-savings-via-chatbots-to-reach.

⁴ “What Does Erica Mean to Bank of America’s Stock?” The Motley Fool, Nov. 5, 2020, www.fool.com/investing/2020/11/05/what-does-erica-mean-to-bank-of-americas-stock/.

⁵ “What is Quantamental Investing,” International Banker, Oct. 27, 2020, <https://internationalbanker.com/brokerage/what-is-quantamental-investing/>.

⁶ “Is AI The New Debt Collector?,” PYMNTS, Nov. 29, 2018, www.pymnts.com/news/artificial-intelligence/2018/ai-debt-collection-consumer-behavior-brighterion/.

⁷ Christie Schneider, “10 reasons why AI-powered, automated customer service is the future,” IBM, Oct. 16, 2017, www.ibm.com/blogs/watson/2017/10/10-reasons-ai-powered-automated-customer-service-future/.

⁸ “What’s Missing in the Electric-Vehicle Revolution: Enough Places to Plug In,” *Wall Street Journal*, February 27, 2021, www.wsj.com/articles/whats-missing-in-the-electric-vehicle-revolution-enough-places-to-plug-in-except-tesla-11614380406.

⁹ “Artificial Intelligence in Healthcare is Racist,” ZDNet, Nov. 2, 2020, www.zdnet.com/article/artificial-intelligence-in-healthcare-is-racist/.

¹⁰ “HireVue Drops Facial Monitoring Amid A.I. Algorithm Audit,” *Fortune*, Jan. 19, 2021, <https://fortune.com/2021/01/19/hirevue-drops-facial-monitoring-amid-a-i-algorithm-audit/>.

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