

Bringing breakthrough data intelligence to industries



Preface

“Bringing breakthrough data intelligence to industries” is an MIT Technology Review Insights report sponsored by Databricks. It is the second of two reports based on a global survey of senior data and technology executives. (The first report, “**Laying the foundation for data- and AI-led growth**,” was published in October 2023.) This report also draws on in-depth interviews with C-level executives of large enterprises and public-sector organizations, conducted between July and September 2023.

Teresa Elsey was the editor of the report, Denis McCauley contributed to it, and Nicola Crepaldi was the publisher. The research is editorially independent, and the views expressed are those of MIT Technology Review Insights.

We would like to thank the following executives for their additional time and insights:

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Vinod Bidarkoppa, Senior Vice President and Chief Technology Officer (Omni Commerce and Emerging Technology), Walmart U.S.

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Andy Markus, Chief Data Officer, AT&T

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Jeffrey Reid, Chief Data Officer, Regeneron Genetic Center

John Roese, Global Chief Technology Officer, Dell Technologies

Eric Suss, Managing Director, Morgan Stanley

Arsalan Tavakoli, Co-founder and Senior Vice President of Field Engineering, Databricks

About the survey

The survey that forms the basis of this report was conducted by MIT Technology Review Insights between June and August 2023. Responses were collected from 600 senior technology executives.

The survey respondents all work in large enterprises or public-sector organizations, headquartered in 12 countries in North America, Europe, Asia-Pacific, and the Middle East. The majority (75%) are C-level executives, with the balance consisting of senior vice presidents, vice presidents, and heads of IT, AI, data, engineering, and similar roles. They represent eight different industry sectors, and all respondents work at organizations earning \$500 million or more in annual revenue.

Job titles included

- Chief information officer
- Chief technology officer
- Chief data/analytics officer
- Chief data scientist
- Chief enterprise/data architect
- SVP/VP/head of IT, AI, data, engineering, or similar

Eight industries are represented

- Retail & CPG
- Media & entertainment
- Telecommunications
- Health care & life sciences
- Financial services
- Energy
- Manufacturing
- Government & public sector

Respondents come from twelve countries, representing four regions

NORTH AMERICA

- Canada
- United States

EUROPE

- France
- Germany
- Netherlands
- United Kingdom

ASIA-PACIFIC

- Australia
- India
- Japan
- Singapore
- South Korea

MIDDLE EAST

- Israel

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Executive summary

As organizations recognize the transformational opportunity presented by generative AI, they must consider how to deploy that technology across the enterprise in the context of their unique industry challenges, priorities, data types, applications, ecosystem partners, and governance requirements. Financial institutions, for example, need to ensure that data and AI governance has the built-in intelligence to fully align with strict compliance and regulatory requirements. Media and entertainment (M&E) companies seek to build AI models to drive deeper product personalization. And manufacturers want to use AI to make their internet of things (IoT) data insights readily accessible to everyone from the data scientist to the shop floor worker.

In any of these scenarios, the starting point is access to all relevant data – of any type, from any source, in real time – governed comprehensively and shared across an industry ecosystem. When organizations can achieve this with the right data and AI foundation, they have the beginnings of data intelligence: the ability to understand their data and break free from data silos that would block the most valuable AI outcomes.

But true data intelligence is about more than establishing the right data foundation. Organizations are also wrestling with how to overcome dependence on highly technical staff and create frameworks for data privacy and organizational control when using generative AI. Specifically, they are looking to enable all employees to use natural language to glean actionable insight from the company's own data; to leverage that data at scale to

train, build, deploy, and tune their own secure large language models (LLMs); and to infuse intelligence about the company's data into every business process.

In this next frontier of data intelligence, organizations will maximize value by democratizing AI while differentiating through their people, processes, and technology within their industry context. Based on a global, cross-industry survey of 600 technology leaders as well as in-depth interviews with technology leaders, this report explores the foundations being built and leveraged across industries to democratize data and AI. Following are its key findings:

- **Real-time access to data, streaming, and analytics are priorities in every industry.** Because of the power of data-driven decision-making and its potential for game-changing innovation, CIOs require seamless access to all of their data and the ability to glean insights from it in real time. Seventy-two percent of survey respondents say the ability to stream data in real time for analysis and action is “very important” to their overall technology goals, while another 20% believe it is “somewhat important” – whether that means enabling real-time recommendations in retail or identifying a next best action in a critical health-care triage situation.
- **All industries aim to unify their data and AI governance models.** Aspirations for a single approach to governance of data and AI assets are strong: 60% of survey respondents say a single approach to built-in governance for data and AI is “very important,” and an additional 38% say it is “somewhat important,”


suggesting that many organizations struggle with a fragmented or siloed data architecture. Every industry will have to achieve this unified governance in the context of its own unique systems of record, data pipelines, and requirements for security and compliance.

- **Industry data ecosystems and sharing across platforms will provide a new foundation for AI-led growth.** In every industry, technology leaders see promise in technology-agnostic data sharing across an industry ecosystem, in support of AI models and core operations that will drive more accurate, relevant, and profitable outcomes. Technology teams at insurers and retailers, for example, aim to ingest partner data to support real-time pricing and product offer decisions in online marketplaces, while manufacturers see data sharing as an important capability for continuous supply chain optimization. Sixty-four percent of survey respondents say the ability to share live data across platforms is “very important,” while an additional 31% say it is “somewhat important.” Furthermore, 84% believe a managed central marketplace for data sets, machine learning models, and notebooks is very or somewhat important.
- **Preserving data and AI flexibility across clouds resonates with all verticals.** Sixty-three percent of respondents across verticals believe that the ability to leverage multiple cloud providers is at least somewhat important, while 70% feel the same about open-source standards and technology. This is consistent with the finding that 56% of respondents see a single system to manage structured and unstructured data across

business intelligence and AI as “very important,” while an additional 40% see this as “somewhat important.” Executives are prioritizing access to all of the organization’s data, of any type and from any source, securely and without compromise.

- **Industry-specific requirements will drive the prioritization and pace by which generative AI use cases are adopted.** Supply chain optimization is the highest-value generative AI use case for survey respondents in manufacturing, while it is real-time data analysis and insights for the public sector, personalization and customer experience for M&E, and quality control for telecommunications. Generative AI adoption will not be one-size-fits-all; each industry is taking its own strategy and approach. But in every case, value creation will depend on access to data and AI permeating the enterprise’s ecosystem and AI being embedded into its products and services.

Maximizing value and scaling the impact of AI across people, processes, and technology is a common goal across industries. But industry differences merit close attention for their implications on how intelligence is infused into the data and AI platforms. Whether it be for the retail associate driving omnichannel sales, the health-care practitioner pursuing real-world evidence, the actuary analyzing risk and uncertainty, the factory worker diagnosing equipment, or the telecom field agent assessing network health, the language and scenarios AI will support vary significantly when democratized to the front lines of every industry.



In this next frontier of data intelligence, organizations will maximize value by democratizing AI while differentiating through their people, processes, and technology within their industry context.

02

Introduction: Stepping on the generative AI accelerator

In the **“Laying the foundation for data- and AI-led growth”** report, we highlighted how CIOs and other enterprise technology leaders are seeking to use data and AI to transform their organizations. They are investing more in shoring up their data and AI foundations and infrastructure, and they are investigating generative AI capabilities. Knowing they cannot transform using new versions of old technology, they are modernizing their data architectures. This includes consolidating systems and platforms to simplify data management and allow rapid deployment and scaling of new AI use cases.

These trends are visible in every industry and set the tone for how each will take the next step to democratize data and AI at scale. Arsalan Tavakoli, Databricks co-founder and senior vice president of field engineering, says,

“Every C-level executive we talk to in every industry understands that data and AI must underpin everything the organization does, and reach every individual in the organization. That means getting data into the hands of all employees – from the most technical to the least – so all of them can play an active role in driving insights to improve operations, developing new products, and serving audiences better.”

Our survey finds that, as with all emerging technologies, AI adoption rates vary across industries (see Figure 1). It is unsurprising, for example, to see rapid uptake in the retail and M&E sectors, considering the pressure incumbent organizations have faced to respond to large online disruptors and streamers. But AI adoption is also steadily progressing in industries such as manufacturing and the public sector, which have been traditionally less aggressive in deploying new technologies.

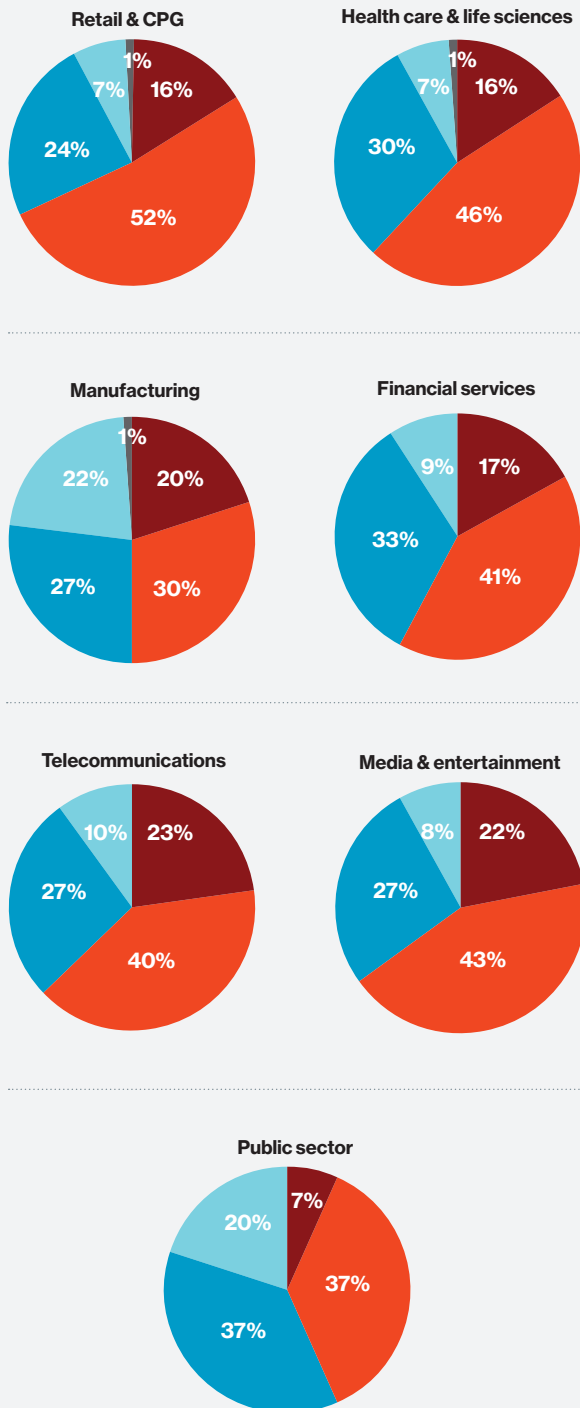
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Arsalan Tavakoli, Co-founder and Senior Vice President of Field Engineering, Databricks

Figure 1: Rate of AI adoption, by industry

How would you rate the current pace of AI adoption in your industry or field?

Very fast Fast Moderate Slow Very slow



Source: MIT Technology Review Insights survey, 2023

Generative AI has proven a potent accelerator for AI adoption and organizational transformation. Nearly nine in 10 surveyed organizations are currently adopting or piloting generative AI systems. Retail and consumer packaged goods (CPG) firms, already AI fast movers, are putting LLMs to work to optimize supply chains and improve their personalization capabilities. “Not a day goes by without our senior managers discussing how to use generative AI,” says Vinod Bidarkoppa, senior vice president and chief technology officer (omni commerce and emerging technology) at Walmart U.S.

But organizations in sectors traditionally slower to adopt new technology are also moving quickly to integrate generative AI into their technology environments. For example, 57% of public-sector respondents say their organizations are experimenting with generative AI, and 17% are investing in it, particularly with an eye to the real-time data analysis and efficiency gains it can enable. In manufacturing, 61% of respondents are experimenting and 28% are investing, with supply chain optimization and quality control the most promising use cases for that industry (see Figure 2).

Common challenges

To reach industry-specific generative AI outcomes and then democratize data and AI for unique industry roles, processes, and technology, four common challenges must first be addressed.

Building industry data ecosystems. Imagine the online order you’ve placed with your favorite retailer. If they rely only on their own data, they may source that order from a predetermined distribution center without realizing the potential impacts of weather or supplier disruption. This could cost the retailer margin – or the sale itself. Consequently, CIOs are looking to build data ecosystems that extend across their industries and ingest external data from myriad sources, allowing their organizations to maximize awareness and optimize for both speed and profitability.

“The growing realization of the power of data and the increasing vertical and horizontal integration of the value chain,” says Tavakoli, “elevate data sharing to a much more strategic level. After all, sharing is the cornerstone of synergy creation.” CIOs, he adds, are asking how they can share data with ecosystem partners more collaboratively without imposing restrictions on what technology they’re going to use.

In the age of AI, the business case for such ecosystems is compelling and the technology leaders we interviewed across industries recognize their immense potential. But this is easier said than done. As source data changes across an ecosystem, resilient connections become critical – making choices around data-sharing technology, clean rooms, and similar considerations paramount.

Open-source technology may be a key to building robust and future-proof ecosystems. Tavakoli advises, “You don’t know what technologies are going to be created. Don’t put your data in walled gardens; use open formats, open standards, and open specifications to preserve strategic flexibility.” The growing availability and popularity of open-source LLMs, for example, are presenting new opportunities in an incredibly fast-moving generative AI market.

Modernizing and simplifying technology foundations.

Infrastructure that enables data streaming for real-time analysis, secure data sharing across platforms, and the

smooth integration of emerging technologies (the latter vital for future-proofing data and AI systems) is deemed “very important” by more than half of executives in every industry in our study. This helps explain why 74% of surveyed organizations have adopted the data lakehouse as part of their architecture.

A modernized data infrastructure is essential to scale AI across the enterprise. “AI is not just a new consumer of our existing data systems,” explains John Roese, global chief technology officer at Dell Technologies. “It will need a set of technologies that are optimized to feed data into its models, exchange that data with other models, and curate what the models produce. All of those are new workloads.” His team is designing its data architecture to enable any AI model to be able to use it. “We’re trying to create a logical understanding of our distributed data in a way that a data scientist or an AI system can easily tap into it,” he says.

Meanwhile, the consolidation of disparate data and AI systems is under way, as CIOs seek to simplify their

Figure 2: Top generative AI use cases, by industry

In the next two years, what are the generative AI use cases that will bring the most value to your organization?
(Respondents selected two.)



Source: MIT Technology Review Insights survey, 2023

technology stacks to help get cloud expenditure under control, reduce duplication, and speed up processing. “CIOs are realizing that there’s a real cost to maintaining the different monolithic stacks they previously acquired in the cloud,” says Tavakoli. “It’s not just the systems but the glue between them and getting them all to work together, which is painful and duplicative. There’s now a strong push to simplify.”

Unifying governance to protect and enable. Each industry has specific circumstances that influence the approaches organizations take to governing data. Take, for example, the strict rules for health-care providers on how sensitive patient data must be secured, or financial institutions’ complex reporting requirements across a global regulatory landscape. Common to all industries, however, is the need for utmost accuracy, integrity, and traceability of the data that populates organizations’ AI models.

Ecosystem-wide data sharing elevates governance concerns. Describing the concerns many technology executives face, Tavakoli says, “How do I share some of my data so you can figure out what you need to do, but you can’t exfiltrate or take any of my data, and I don’t sacrifice security? Getting ecosystem sharing to look like fully integrated sharing across an enterprise has become more critical.”

Technology leaders in many organizations – including 71% of those in M&E and 65% in health care and life sciences – deem it “very important” to move toward a single governance solution for data and AI (see Figure 3). Some of those we interviewed see this as a longer-term aim, and in the meantime, they are employing federative approaches to ensure maximum commonality of language and rules across different models. But the need for consistent, secure, and scalable governance is a unifying strategic thread.

With industry-specific generative AI scenarios identified and the right foundation in place, organizations can focus on the challenge of democratizing data and AI for true transformation.

Democratizing data and AI. Across every industry in the survey, the toughest challenge that organizations are experiencing with their data and AI platforms (or one of the two toughest, in the case of manufacturing) is training and upskilling employees to use them (see

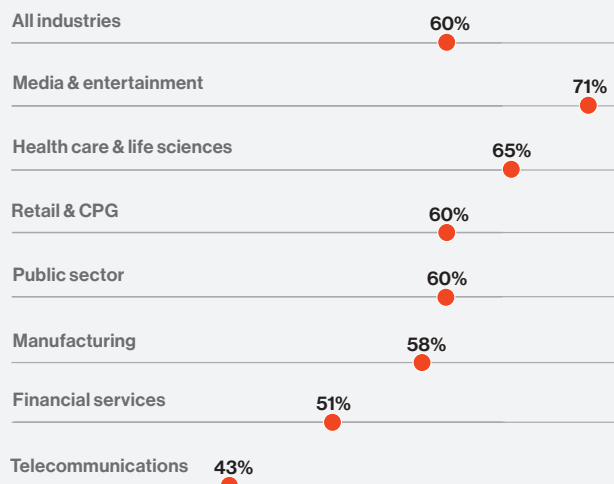
“AI is not just a new consumer of our existing data systems. It will need a set of technologies that are optimized to feed data into its models, exchange that data with other models, and curate what the models produce.”

John Roese, Global Chief Technology Officer, Dell Technologies



Figure 3: Aspirations for unified data and AI governance

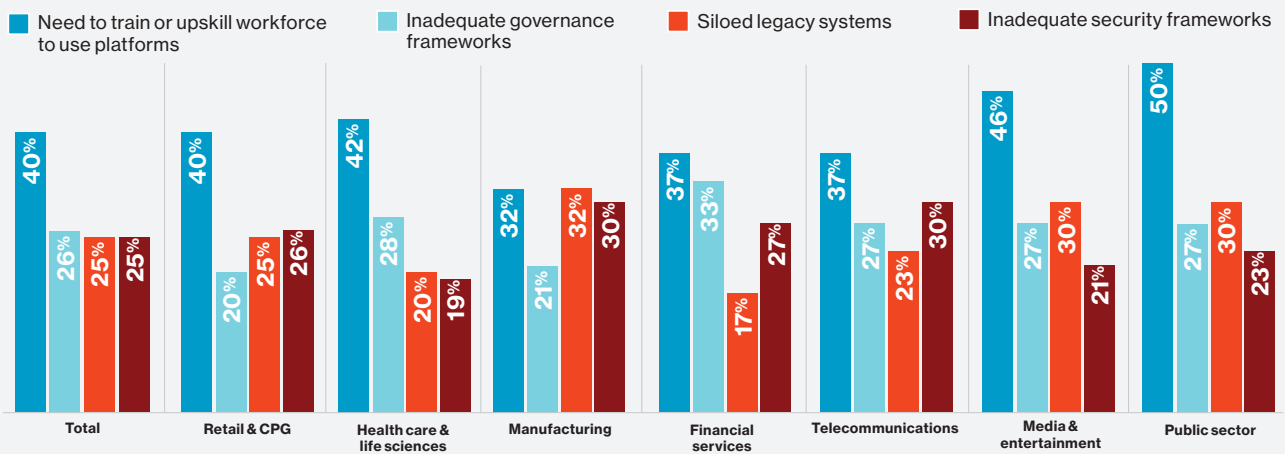
Percentage of respondents saying a single built-in governance solution for data and AI is “very important” to achieving the organization’s overall technology goals in the next two years.



Source: MIT Technology Review Insights survey, 2023

Figure 4: Data and AI platform challenges

What are the top pain points of your organization's current data and AI platforms? (Percentage of respondents ranking in top two.)



Source: MIT Technology Review Insights survey, 2023

Figure 4). Making it easier for non-specialists to access platforms and navigate models is the path to true democratization of data and AI.

Generative AI, with its natural-language interface between users and LLMs, is helping to meet this challenge, supported by modern data architecture. Tavakoli says, “Generative AI has been so transformative because you can leverage it to enable your workforce, enrich your products, and develop new capabilities to delight customers.” Telecommunications provider AT&T provides an example with its “AI-as-a-service” user environment. According to Andy Markus, the company’s chief data officer, “Generative AI and its simplified way of interrogating data has taken our democratization approach to a whole new level. We say that human language is the new SQL or Python.”

The breakthrough for data intelligence

In looking at top pain points across industry and the direction industry leaders are taking, it becomes clear that generative AI is a foundational capability that will be infused into the data platform itself. Just as industry requirements drove the leap from data warehouses and data clouds to the lakehouse architecture, the transformative possibilities of generative AI now mean bringing AI to every aspect of the organization. An open, unified data foundation, combined with the ease of use and scale created by generative AI, will create a breakthrough in data intelligence, democratizing data and AI for everyone.

The remainder of this report delves into seven industries: retail and CPG, health care and life sciences, manufacturing, financial services, telecommunications, media and entertainment, and the public sector. It showcases the priorities and use cases most important to global executives from leading organizations, while uncovering the steps they’ve taken on their data and AI journeys to make them possible.

“Generative AI and its simplified way of interrogating data has taken our democratization approach to a whole new level. We say that human language is the new SQL or Python.”

Andy Markus, Chief Data Officer, AT&T



03

Retail and CPG: Prioritizing efficiency and insight

Retail is an unforgiving business, as is consumer packaged goods. Margins are constantly under pressure, so efficiency means everything. As retailers have learned in recent years – with disruptive competitive pressure growing along with consumer expectations – data, and increasingly AI, allow retailers to be far more efficient, driving more sales and controlling costs. This helps explain why, of all the sectors in our survey, retail and CPG businesses have been investing the most actively in data and AI. More than half of respondents in this sector (56% – highest in the survey) expect their spending in this area to increase more than 25% in the next year. Four-fifths (80%) expect the use of AI to boost efficiency in the industry by more than 25% over the next two years.

Customer experience is as vital to the fortunes of retail and CPG companies as supply chain efficiency. Delivering better customer experiences requires in-depth knowledge of consumers, which is gained through voluminous data gathering and precision

analysis. According to Bidarkoppa, data and analysis are key inputs to the AI models that his team is building. “Millions of customers transact with us every week, giving us rich customer and item data,” he says. “This helps us create powerful AI algorithms that drive convenience for customers and productivity for our associates.”

Modernization

Judging by the survey, retail and CPG companies have been at the forefront of putting modern data and AI infrastructure foundations in place. They’ve had to move fast to respond to the disruptive challenges of competition from Amazon and other digital-native retailers.

The spread of e-commerce, which relies on real-time decision-making across the value chain, compels brick-and-mortar retailers and CPG firms to accelerate to meet consumers where they are. Asked about the modern infrastructure capabilities they require, the ability to stream data for real-time analytics is high on respondents’ lists – deemed “very important” by 74%

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(see Figure 5). Other high-priority capabilities are the ability to integrate emerging technologies (67%) and to share live data securely across platforms (63%).

Democratization

Four-fifths of respondents from retail and CPG (81% – highest in the survey) say their companies have incorporated a lakehouse in their data architecture, which makes sense considering the industry’s competitive dynamics and the increasing pressure to infuse AI from demand to delivery. Technology leaders in retail and CPG also aim to consolidate the number of different data and AI systems their teams currently support. (Thirty-eight percent of respondents say they have 10 or more such systems.)

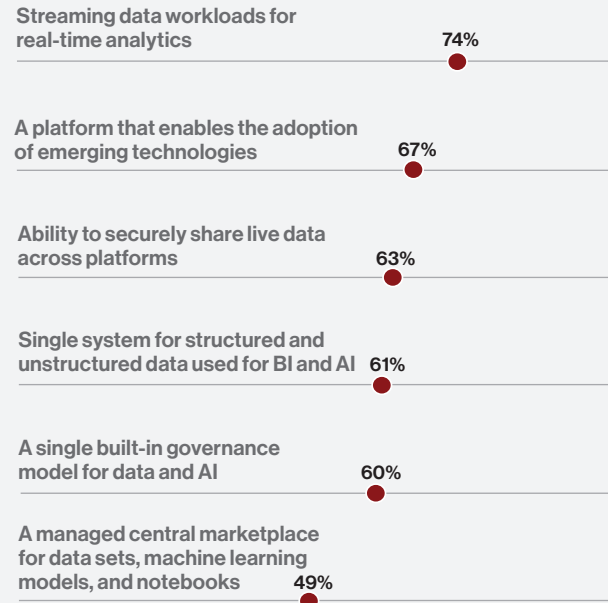
The team at Sam’s Club, a U.S. warehouse club retail chain operated by Walmart, has gotten a start on consolidation by creating a common data platform, based on lakehouse architecture, on which it builds its AI models. They are working toward creating a self-serve model, through a data mesh architecture, and helping each of the company’s domains, whether supply chain, marketing, membership, or stores, to build models without system bottlenecks.

Those technology approaches serve another purpose at Sam’s Club – democratizing data and AI. The common data platform has made data and analytics readily available to over 1,600 enterprise users monthly.



Figure 5: Retail and CPG require real-time analysis and insights

In the next two years, how important are the following to achieving your organization’s overall technology goals? (Percentage responding “very important.”)



Source: MIT Technology Review Insights survey, 2023

Sam’s Club: AI for inventory intelligence

At Sam’s Club, cameras mounted on robotic scrubbers roam the aisles of every store, scanning the floor and shelves. AI-powered computer vision models analyze the information to verify the accuracy of product pricing and detect low stock of certain products. The robots communicate anomalies to store associates in real time, enabling them to correct prices or expedite restocking.

Sam’s Club leverages real-time, closed-loop AI intelligence models to cover more than 90% of club real estate with greater than 90% accuracy. The system ensures a seamless shopping experience for customers while also enabling store associates to spend more time helping shoppers and less on mundane tasks.

Generative AI

Many CIOs in this industry are banking on generative AI to help deliver their desired efficiency gains. Nearly nine in 10 say their firms are investing in (32%) or experimenting with (56%) generative AI. Supply chain optimization is the use case they deem the most likely to deliver value to retail and CPG businesses over the next two years.

Many industry respondents also see promise in personalization and customer engagement use cases enabled by generative AI. One such project being piloted by Sam's Club involves team-based search to create categories that call center agents and store associates can use to address customer requests in different situations.

Retail and CPG firms are mostly employing a hybrid approach to developing generative AI capabilities. While 26% of those in the survey are mainly using or plan to use proprietary LLMs developed by vendors and 14% say they will build their own, most – 60% – plan to combine both approaches, choosing the one most suited to each use case.

Industry data ecosystems

Retail and CPG companies cannot make decisions based solely on the data that their own systems generate. They depend on pulling data in from outside: from partners, suppliers, and other third parties, such

as weather data providers and social media, to optimize their operations and personalize the customer experience. This has long been the case, but today's rapidly changing market conditions mean many also need to share data in real time, requiring technology solutions that ease data ingestion into each company's core systems.

"Our biggest data-sharing challenge today is getting more data from our credit card, travel and entertainment, and other ecosystems in real time," says Bidarkoppa. "We have a good data platform built to ingest internal and external data, and we've shifted to shared cloud storage, where APIs help us to ingest external data more easily than before. We continue to look for ways of improving this, because our goal is to bring in as much data as possible to enable real-time decision-making."

The challenges of real-time decision-making are even more complex in CPG, as retailers often own the primary touchpoints with consumers, thus depriving CPG of consumer data. When CPG firms do manage to access retailer data, it is often fragmented and stored in differing formats. Thus, the ability to share clean data across different systems securely, economically, and in real time gives retail and CPG firms a powerful synergy. This strategy has gained traction as more retailers experiment with private-label brands and more CPG firms open their own online stores.

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04

Health care and life sciences: Better patient outcomes and provider experience



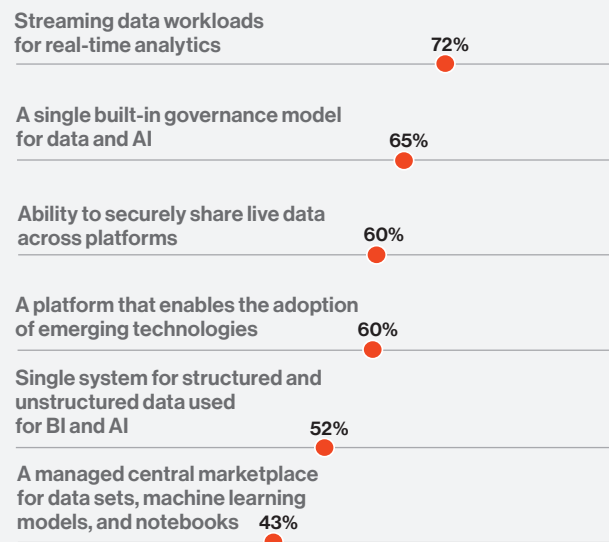
Few industries are under as much pressure as health care and life sciences (HLS) to improve patient outcomes and provider experience while simultaneously reining in costs. Complicating that challenge, particularly for health-care providers, is the burden of legacy data technology and strict regulation around patient data. For life sciences companies, the main technology challenges revolve around enabling faster R&D, more thorough clinical research, and more effective commercialization.

As an industry, HLS organizations are expending great efforts to leverage modern data technologies and AI capabilities with the mission of understanding the patient journey. Those organizations we surveyed are investing to make this a reality: 61% plan to grow their spending on data and AI up to 25% over the next year, and 38% expect an even larger increase.

Data scarcity is generally not an issue for the HLS industry. The bigger challenge is generating insights from enormous volumes of data, for which AI is an extremely promising tool. “We’ve amassed a large database of genetic data, one of the largest in the world,” says Jeffrey Reid, chief data officer at Regeneron Genetics Center. “Improving our ability to predict which genetic variants are important gives us the opportunity to derive insights we’ve not seen before from our data.”

Figure 6: Health care and life sciences need streaming data workloads and unified governance

In the next two years, how important are the following to achieving your organization’s overall technology goals? (Percentage responding “very important.”)



Source: MIT Technology Review Insights survey, 2023





Modernization

Another challenge that HLS organizations struggle with is sharing and integrating data residing in multiple systems. Over half (52%) of this industry's respondents say having a single system for structured and unstructured data used for AI is "very important" to achieving their organization's technology goals. But in practice, silos are acting to prevent that: one-third of the executives say their organizations currently support 10 or more data and AI systems. As such, HLS organizations are looking to consolidate these systems as part of their efforts to modernize their data infrastructure.

Gaining the ability to stream data workloads for analytics is a key objective for 72% of respondents, and unifying data and AI governance is an objective for 65% (see Figure 6). "We would definitely like to have one clear set of rules for all our models," says Reid. "We've not fully solved that problem, but it will be increasingly important as AI becomes more ubiquitous."

A modern data architecture is needed to ensure these objectives are met. Around four-fifths of HLS respondents (78%) say their organizations have adopted a lakehouse as a key component of their data architecture. This is likely because it meets their need for a unified platform for data, analytics, and AI.

Democratization

The top pain point reported in HLS is the need to train or upskill employees in the use of data and AI platforms (selected by 25% of survey respondents). With health team collaboration and front-line caregivers so vital to effective patient care, the ability to seamlessly democratize insights through capabilities like natural language processing has never been more important.



Figure 7: Health care and life sciences to use generative AI for personalization

In the next two years, what are the generative AI use cases that will bring the most value to your organization? (Percentage of respondents ranking in top two.)

Personalization and customer experience	39%
Supply chain optimization	32%
Quality control	31%
Innovating products and services	27%
Automation and efficiency	25%
Real-time data analysis and insights	21%

Source: MIT Technology Review Insights survey, 2023

Generative AI


Nearly one-quarter (23%) of respondents say their organizations are investing in and adopting generative AI. Another 68% are experimenting with it. The primary use cases they see for it center around personalization, supply chain optimization, and quality control (see Figure 7).

For research-intensive organizations such as the Regeneron Genetics Center, the simple natural-language interfaces of LLMs offer the opportunity to accelerate research and discovery. They also further the cause of AI democratization. "A more casual interface will make it easier for everyone, even those with no coding skills, to query data," says Reid.

Industry data ecosystems

While HLS organizations share data today in different ways, technology-enabled ecosystems that facilitate routine, real-time data sharing are yet to gain wide traction. Legacy technologies are a major obstacle to such sharing. “We ingest data from every corner of the world and deal with a variety of legacy systems,” says Reid. “We collaborate with organizations using high-end cloud-based technology and those that export data from age-old databases.”

The technology obstacles to streamlined data sharing are diminishing, however. Deloitte research shows how some health-care organizations are benefitting from accessing data made available by ecosystem partners in marketplaces and other shared health platforms.¹ What such platforms have in common is technology agnosticism, which enables users to store and share data irrespective of the core data systems used by ecosystem members. As such ecosystems gain more participants, systemwide benefits should accrue in the forms of more collaborative research, evidence-based decision-making, and – above all – better patient outcomes and provider experiences.



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Jeffrey Reid, Chief Data Officer, Regeneron Genetic Center

05

Manufacturing: The transformation imperative



The terms “Industry 4.0” and “Fourth Industrial Revolution” came into use a decade ago to describe a future in which manufacturing and its associated industrial services are digitized from top to bottom. Many manufacturers have embraced that vision, deploying AI, IoT, robotics, augmented and virtual reality (AR/VR), and other technologies that, by harnessing insights from the data they generate, were intended to enable their firms’ digital transformation.

Part of that vision has become reality. For example, connected IoT sensors on the factory floor, in warehouses, and across logistics fleets now generate masses of data. Insights from this data help manufacturers increase efficiency, optimize maintenance, and streamline supply and distribution.

The power of data and AI to transform manufacturing has also gone beyond operations to innovation, revolutionizing customer experience and opening new markets. New AI-enabled devices – ranging from voice assistants to robot vacuums – for example, have become trusted assistants in millions of homes.

Judging by the responses to our survey, manufacturers are acting on these opportunities. For example, 41% of industry executives expect their organization’s spending on data and AI to increase by more than 25% over the next year. They anticipate the efficiency gains from this investment to be substantial. Three-quarters (76%) believe the use of AI will boost efficiency in the industry by more than 25% over the next two years.

Modernization

The digital transformation of manufacturing, however, is far from complete. Much of the data currently being generated is stuck in disparate and closed proprietary systems, making insight generation problematic. Those legacy systems also constrain manufacturers from scaling their AI use cases. They make it difficult to adapt to shifts in the external environment – such as supply chain disruptions, escalation of energy and material costs, and workforce constraints that all been features of recent years.

Modernizing data foundations is vital if manufacturers are to capitalize on AI advances that promise to expand the horizons for efficiency and innovation. For the surveyed manufacturing executives, a data lakehouse is becoming part of the architectural foundation. Sixty-three percent have incorporated a lakehouse into their technology architecture. Of the rest, 84% say they will adopt it within the next three years.

As they modernize their infrastructure, manufacturers are also seeking to simplify it. They struggle to integrate data from a large array of disparate data and AI systems: 36% of those surveyed say they currently support ten or more different systems.

At General Motors (GM), part of the solution for simplifying infrastructure is reusable technologies, according to Jon Francis, the company's chief data and analytics officer. "We need to start thinking about more reusable frameworks and technologies when deploying AI, to avoid replicating technology stacks or building



Figure 8: Supply chain optimization is the top AI use case in manufacturing

In the next two years, what are the generative AI use cases that will bring the most value to your organization? (Percentage of respondents ranking in top two.)

Supply chain optimization	52%
Quality control	39%
Automation and efficiency	20%
Real-time data analysis and insights	19%
Predictive maintenance	19%
Personalization and customer experience	16%
Innovating products and services	16%

Source: MIT Technology Review Insights survey, 2023

GM: AI in Super Cruise mode

Autonomous and semi-autonomous vehicles rely on a solid data and AI infrastructure. GM's Super Cruise technology is the industry's first true hands-free advanced driver assistance system for compatible roads in the U.S.

and Canada. "It is the best example we have of what modern, cloud-based data architecture can do," says chief data and analytics officer Jon Francis.

"There is a lot of AI running under the hood to support the system, ingesting an enormous amount of contextual data from cameras embedded in the car," says Francis. This helps the system detect, for example, the driver's actions, such as whether they are paying

attention. The system also receives signals from third-party sources about traffic flows and impediments or about accidents ahead.

"A flexible cloud architecture gives the system the compute flexibility to support those workflows," says Francis. "It's a great example of something that would not have been possible without our investment in architecture modernization."

“Six months ago, I would have said democratization of AI is probably a decade away, but with generative AI, it’s happening in front of us.”

Jon Francis, Chief Data and Analytics Officer, General Motors

bespoke technologies with different licenses,” he says. “My data team is working with IT to build more of those reusable frameworks.”

Generative AI

The advent of generative AI has heightened the urgency of infrastructure modernization. Over one-quarter (28%) of the surveyed manufacturers are investing in the technology, including the LLMs that support it. Another 61% are experimenting with it.

For example, with the help of natural language processing (NLP), shop-floor engineers can have conversational interactions with production equipment. Maintenance engineers can query technical reviews to quickly find ways of troubleshooting issues with underperforming assets. Our survey respondents cite supply chain optimization and quality control most frequently among the types of use cases likely to bring value to their organizations (see Figure 8).

Generative AI also promises to speed the democratization of AI in manufacturing. “Six months ago, I would have said democratization of AI is probably a decade away,” says Francis. “But with generative AI, it’s happening in front of us.” As his team uses it to assist in training non-specialist users to code and program, Francis hopes the technology will help bridge some of the talent shortages that manufacturers like GM are encountering.

Democratization

The emergence of use cases like mixed-reality for quick access to maintenance and repair instructions on the factory floor are transforming asset management in manufacturing. The productivity and cost savings

created by predictive insights for front-line field service alone showcase the importance of democratization in this sector.

Industry data ecosystems

Ecosystems in which multiple partners share data across platforms, often in real time, are near the heart of the Industry 4.0 vision. The World Economic Forum identifies cross-industry data sharing as a “key enabler of multiple advanced data-driven applications in manufacturing,” and is working to bring stakeholders together to address the technical challenges and encourage collaboration.²

Most manufacturers already regularly ingest third-party data for logistics and supply-chain applications. But beyond these operational and efficiency concerns, industry data sharing has great potential to grow the top line, feeding AI-driven innovation, strategic decision-making, sales and marketing planning, and product personalization.

Francis foresees his company’s future involvement in such data sharing but says there is work to do to facilitate an internal data ecosystem. “Much of the work revolves around establishing clear governance around data and setting appropriate access controls,” he says. “We’re working hard in our cloud data lake to build spaces for curated, cleansed artifacts of data for internal applications. Then we’ll start to think about extending that with partners and third parties in a privacy-compliant way.”

06

Financial services: Data-driven innovation and compliance

Driven by fintech innovation and rising customer expectations for personalization at scale, financial services institutions (FSIs) are fully embracing data- and AI-led transformation. Despite heavy regulatory burdens and entrenched legacy technologies, FSIs are committed to enhancing their data and AI capabilities. While 52% of survey respondents from this sector expect their investments in data and AI to grow by up to 25% over the next year, 36% of executives say the increase will be greater than that.

AI applications in FSIs drive hyper-personalization, mitigate risk, and optimize front-to-back operations. Insurance provider AXA UK & Ireland, for example, has leveraged AI in streamlining claims processing – a significant cost for insurers – and is developing a model to assess claims escalation propensity, according to Paul Hollands, the company’s chief data and analytics officer. “The upside for us is very clear: how we best manage claims costs and manage our third parties, our suppliers, and the people we interact with to fulfill those claims, but it also then has a subsequent knock-on benefit to customers,” he says.

Global financial services firms have already put AI to work on functions such as testing trading algorithms, replaying and analyzing previous quarters of market activity. The proliferation of big data and increase in compute power has catalyzed quantitative investing. Advanced software enables the rigorous assessment of investment strategies through backtesting and simulation, facilitating the creation of multifactor models and construction of investable portfolios.

Modernization

FSIs’ investments in technology modernization are driven by three business imperatives: improved revenue generation, improved margins, and accelerated innovation.

The growth of open banking practices has amplified the need for deeper customer understanding. Advanced AI tools, including generative AI, allow FSIs to personalize services, ultimately bolstering revenue streams. Meanwhile, mounting regulatory demands, including Anti-Money Laundering (AML) and Know Your Customer (KYC) requirements, can be costly to meet and often rely on fragile infrastructure, posing compliance risks.



Leveraging AI to streamline these processes is crucial for cost-effective scalability. And establishing data and AI centers of excellence can expedite innovation in data management and AI/ML delivery.

In terms of specific capabilities to deliver on those objectives, 75% of the survey respondents prioritize data streaming for real-time analytics (see Figure 9). Two-thirds say the same about their platforms' ability to integrate emerging technologies and to securely share live data across platforms (cited by 68% and 66%).

Part of FSIs' increased spending on data and AI is likely to go toward modernization of their data architecture. Of those in the survey, 69% have adopted a data lakehouse as part of their technology architecture. And 88% of those who have not are likely to do so within three years.

A feature of lakehouse architecture is the ability to integrate the separate data repositories that have for years hindered innovation and business acceleration. Within reason and regulation, there is clearly room for consolidation of the data systems and platforms that support AI: around one-third (34%) of the surveyed FSIs currently run 10 or more of these systems.

Generative AI

Generative AI is gaining traction in financial institutions, with 25% actively adopting it and another 65% experimenting with it. But for a variety of reasons, FSIs need to be careful how they approach the technology. In such a heavily regulated industry, organizations, for example, need to be confident in producing deterministic, explainable results.

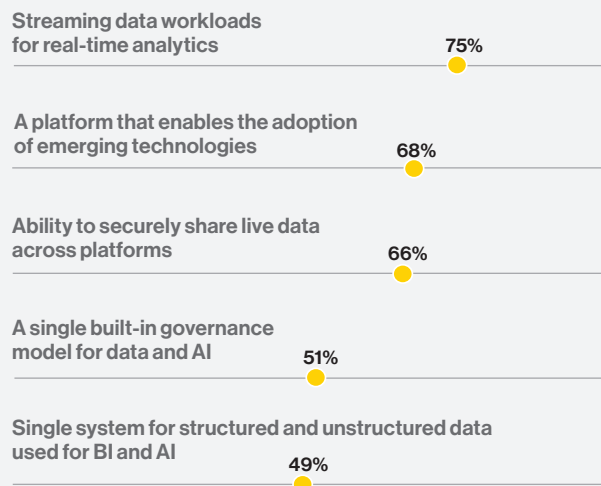
The FSI respondents point to personalization, risk management, and real-time data analysis and insight generation as leading generative AI use cases. At AXA UK & Ireland, for example, Hollands explains a use case in which AI augments call center agents by quickly summarizing information from documents for faster responses to customer queries.

The simple natural-language interfaces that are a trademark feature of LLMs will help FSIs address a major data and AI pain point: the talent and skills



Figure 9: Financial services prioritizes streaming data and emerging tech

In the next two years, how important are the following to achieving your organization's overall technology goals? (Percentage responding "very important.")



Source: MIT Technology Review Insights survey, 2023

shortage. When asked how their data strategy needs to improve to achieve their AI goals, the most frequent response of FSI respondents is investing in talent and the workforce (35%).

Hollands says his team is in the process of setting its data strategy for the next five years, and one of its strands is establishing a data academy "to really build muscle around data" throughout the organization. "The data academy will be a powerful democratization tool for us, both in terms of upskilling and talent retention," he says.

How are financial institutions developing generative AI capabilities and tackling the build vs buy dilemma? Around one-third of those in the survey are using proprietary LLMs developed by vendors, while 18% favor building their own based on open-source models. Half, however, are doing both, employing a hybrid approach of buying and building.

Democratization

In an industry anchored in regulation, with trust at its center, the value of using generative AI to speed the loan approval process or ensure actuarial accuracy, for example, can't be overstated. Democratized insights in this vertical can improve customer service, speed, and security simultaneously.

Morgan Stanley ingests data from nearly 200 sources, and Eric Suss, a managing director, notes the importance of ensuring access to that data across the firm. "We have a lot of data licensed to us," he says. "Democratization is obviously a key pillar of what we're doing. If you're a data scientist at our firm, the first thing you ask is 'What data do I have available to me?' So we have an internal firm-wide data catalog, which not only has our internal data sets that we generate, but also our external data." In a regulated industry, however, that democratization has to be coupled with thorough governance. "As part of democratizing data," Suss says, "we also have to understand who is using the data and who is accessing the data, and be able revoke access when required."

Industry data ecosystems

Industrywide data ecosystems show great potential in the financial services industry. All financial institutions require robust KYC systems to address fraud and money

laundering, as a Capgemini case study outlines.³ If each company independently develops its own KYC platform, it incurs substantial costs and suffers from constrained data access. An industrywide data-sharing platform, on the other hand, can enhance the agility and speed of all its partner organizations, while improving security and compliance for all.

Hollands cites the intensely competitive environment of price comparison websites for insurance as an example of both the infrastructure required for and the value gained from participation in industry ecosystems. "As soon as a customer presses enter on their quote, within seconds we've got to retrieve the relevant data, assess the price, and provide a response," he says. "We have been working on AI models and trained them using historic policy documents that allow us to rapidly understand the customer's needs and answer any questions they may have about our offers in an accelerated manner. Sometimes, the whole quotation process might involve 10 or more API calls, not to mention the decision models and anti-fraud processes that must be run through. Using AI, we increase our agility and speed of response, and minimize friction in those initial processes. Marketplace environments that can facilitate that while ensuring we are protecting our data are something to get excited about."

"Sometimes, the whole quotation process might involve 10 or more API calls, not to mention the decision models and anti-fraud processes that must be run through. Using AI, we increase our agility and speed of response, and minimize friction in those initial processes."

Paul Hollands, Chief Data and Analytics Officer, AXA UK & Ireland

07

Telecommunications: Putting data and AI at the core

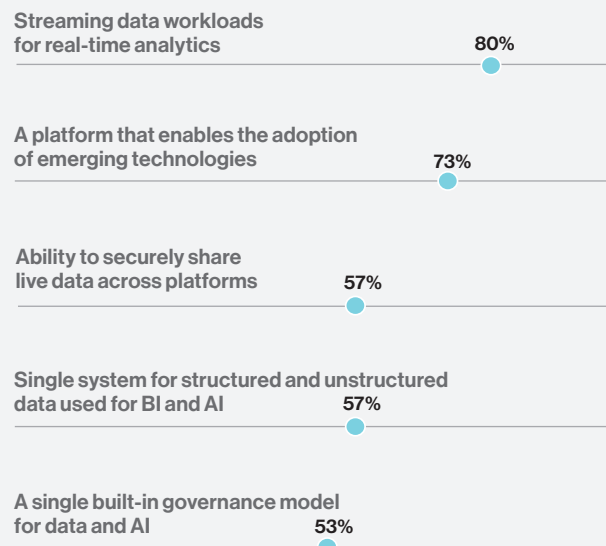
Communications providers are in the business of connecting people. Today's dramatic increases in global data traffic and complexity require them to invest in building costly infrastructure and pose network management challenges. As that infrastructure becomes commoditized, however, and amid intense competition from widely popular apps such as WhatsApp and Zoom, consumers and businesses demand higher-quality services and better value, with churn increasingly the outcome when their needs are not met.

To address these challenges, telecoms are looking to leverage data and AI to help reduce operational costs, improve customer experience, identify monetization opportunities, and achieve scale with secure and reliable services. Our survey shows that they are doubling down on their data and AI investments. While 47% of industry respondents say their company's spending on data and AI will rise by up to 25% over the next year, 53% expect the increase to exceed that. Over three-quarters (77%) expect the use of AI to boost efficiency in their industry by more than 25% over the next two years.



Figure 10: Streaming workloads are an infrastructure priority for telecommunications

In the next two years, how important are the following to achieving your organization's overall technology goals? (Percentage responding "very important.")



Source: MIT Technology Review Insights survey, 2023

Modernization

Communications providers' investments in data and AI capabilities are going hand in hand with capital investments in upgrading their core networks. In particular, the rollout of 5G technology has necessitated upgrades to handle faster speeds and increased capacity to support newly acquired spectrum licenses. These investments are crucial to address evolving market demands, ensure network reliability, and capitalize on emerging technologies. However, these investments also bring challenges, as they can lead to significant increases in financial and operating risks.

Some of this investment will be put toward modernized data architecture. Over three-quarters (77%) of the surveyed industry firms have incorporated a lakehouse into their data architecture. Among those that haven't, 86% expect to adopt one within the next three years.

At AT&T, the largest wireless carrier in the U.S., says Andy Markus, the company's chief data officer, the modernization strategy has involved setting a "target architecture" for data and AI. "Very few companies sit on as much data as we do or have as much system complexity," he says. "Our future state had to be interoperable. We needed to own our data and use best-in-class tools to bring the best compute to it."

This industry must manage significant operational complexity in its data and tech stack, including a proliferation of data and AI systems: 40% of industry respondents (highest in the survey) say they currently support 10 or more different systems. Markus aims to

reduce that level of complexity at AT&T: "We had at least 10 legacy platforms in the past. We'll end up with two core ones that are complementary, leveraging the same data for their respective uses. This is the end state, and we'll be able to get there in two years or less."

Unifying the governance of data and AI is deemed by 53% of telecom industry respondents as "very important" to achieving their overall technology goals (see Figure 10). It is also part of AT&T's technology strategy. The company's data and AI governance council, says Markus, consists of senior executives who set data use and protection standards and review practices across the business: "Its main role is to move us toward having a single version of truth." That single version of truth, he adds, is central to his team's efforts to democratize the use of data and AI models widely across the organization.

Democratization

Innovating with AI requires widespread access to data and models across business units. But training staff to use those platforms – especially in a sector like telecommunications that is built on a complex data and tech stack – has been a considerable challenge. The need to do so is cited by industry survey respondents as the top pain point they experience with their data and AI platforms.

Ensuring that employees are well-equipped has been a focus for Markus: "It doesn't matter if the person is on the marketing, network, or finance side of the business; we are bringing everybody along and we're trying to democratize these tools and techniques so that everybody can have access to them."

AT&T: AI-as-a-service

AT&T has created an enterprise-wide environment in which around 3,000 employees interact with different AI tools and processes using a graphical user interface. "Working with our AI models is code driven to some extent," says Markus, "but with AI-as-a-service we're bolting things together and making it much easier for a subject matter expert that has a technical bent to create both robust and responsible AI. You no longer have to be a code warrior to make magic happen with it."

AT&T launched the environment in 2021, but generative AI and its simplified ways of querying data have greatly enhanced its utility, says Markus. "Now employees can interrogate their data, and in the back end, generative AI will connect and join tables, run queries, and do base analytics. This has really taken AI-as-a-service to another level."

08

Media and entertainment: Navigating more disruption

The media and entertainment (M&E) industry showcases the disruptive power that data and AI can unleash. Content is now broadly available across any device, anytime, anywhere. As competition for the consumer's time and wallet intensifies, analytics and AI algorithms are powering ever greater sophistication in segmentation and content customization, creating new media business models and upending others. More disruption lies ahead, as the amount of data collected increases and as generative AI makes headway in the industry.

M&E businesses with legacy data infrastructure will struggle to keep pace with these developments. This helps explain why organizations are doubling down on their investments in data and AI. Of the M&E respondents to our survey, 45% expect their companies to boost their spending in these areas by more than 25% over the next year. Four out of five organizations (81%) expect the use of AI to drive efficiency gains of more than 25% over the next two years (see Figure 11).

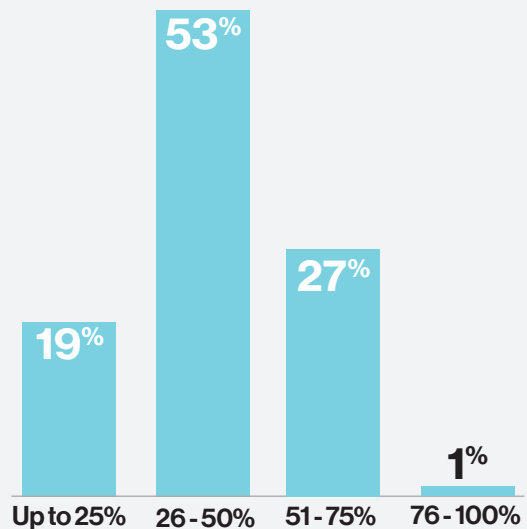
Modernization

A number of large M&E businesses have set a high standard for building agile infrastructure that delivers data and insights to applications with speed and flexibility. The result, demonstrated by companies such as Netflix, Riot Games, and Spotify, is hyper-personalization at scale. As a result, most M&E organizations in the survey are in the process of modernizing their data architecture to enable this level of personalization in their customer experience: 80% have incorporated a data lakehouse into their architecture, and 100% of those that haven't expect to do so within the next three years.

Magazine publisher Condé Nast has undertaken a major upgrade of its data infrastructure in the past two years. According to Sanjay Bhakta, the company's chief product and technology officer, that has included the adoption of a data lakehouse. "It has enabled us to bring all our data together in one place, ensure that it's clean and that we can stand behind it," he says.

Figure 11: Expected efficiency gains from AI in media and entertainment

How much efficiency gain will AI bring to your industry in the next two years?



Source: MIT Technology Review Insights survey, 2023



Condé Nast's infrastructure modernization has also involved efforts to consolidate its disparate data and AI platforms and to unify their governance. "We previously had very many data sources, and no one knew where data was," says Bhakta. "We're now moving toward having a single source of truth. We still have work to do on governance, especially as more regulatory restrictions come in. For example, we want to be in a position to get quick answers when needed about who's accessed what data and when."

M&E technology leaders in the survey share the same objective. Seventy-one percent (more than in any other industry) say having a single governance model for data and AI is "very important" to the achievement of their organization's technology goals (see Figure 12).

Generative AI

Generative AI is viewed with cautious optimism in M&E. Around one-quarter (24%) of industry respondents say their firms are adopting the technology. Another 60% of firms are experimenting with it. Survey respondents see its greatest potential in use cases for improving personalization and customer experience (cited by 44%).

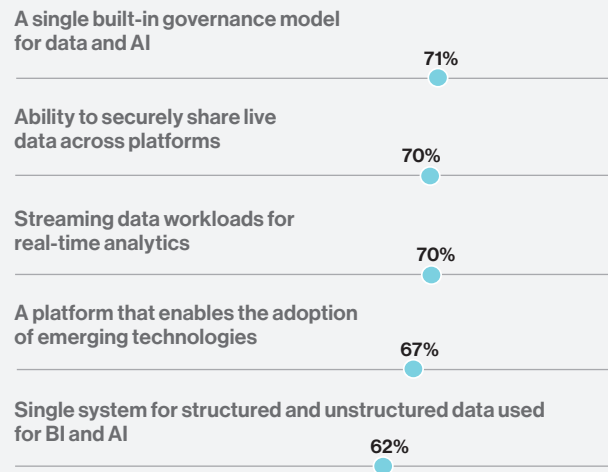
Generative AI's utility as a content-generation tool, however, also gives rise to unease in many parts of the industry. Condé Nast, says Bhakta, will refrain from using LLMs to write magazine content. "People read our publications because of the quality of our content and of the editors and creative people who produce it," he says. Many news organizations have followed similar strategies.

The other major concern for media companies is protecting their intellectual property, as evidence of LLM models being trained on proprietary content such as journal articles, images, and audio files continues to emerge. But such companies will nevertheless find ways to put generative AI to work: its potential impacts on monetization, distribution, and advertiser and audience experience, as well as its use cases for back-office functions, will offer broad advantages to effective users of data and AI.



Figure 12: Media and entertainment prioritizes governance, sharing, and streaming workloads

In the next two years, how important are the following to achieving your organization's overall technology goals? (Percentage responding "very important.")



Source: MIT Technology Review Insights survey, 2023

Democratization

Innovating with data and AI requires access to data and AI platforms across business units, including – but by no means limited to – data scientists and engineers. For many M&E businesses, training staff to use those platforms has been a considerable challenge. Asked the toughest challenges they've experienced with their data and AI platforms, 46% of surveyed M&E executives cite difficulties in training and upskilling staff to use them.

Bhakta believes democratizing AI is a tougher challenge in creative industries such as publishing. "Creative workers in our industry have been wary about experimenting with AI models, even in areas that would make their lives easier, such as selecting images," he says. However, he adds, people are becoming more open to using such tools for efficiency purposes, and he expects them to become part of the company's content management system.



09

Public sector: Delivering on core missions

Digital transformation in the public sector has long been held back by legacy technologies, budget constraints, the need for high levels of security and governance, and shortages of skilled technology specialists. It is apparent from our survey, however, that technology teams at every level of government are looking to make up for lost time. Organizations are prioritizing modernization not only for increased efficiency and cost savings but to provide constituent experiences that mirror the quality and convenience of those offered by private-sector companies.

Public-sector technology leaders recognize that their agencies' use of data and AI can further their mission, whether that's in support of citizen health, law enforcement, education, defense, or intelligence gathering. More than half (60%) of government respondents to our survey expect their agency or organization's spending on data and AI to rise by up to 25% over the next year, and 40% expect the increase to be even greater. Nearly two-thirds (64%) expect the use of AI to boost efficiency across the public sector by more than 25% over the next two years (see Figure 13).

Modernization

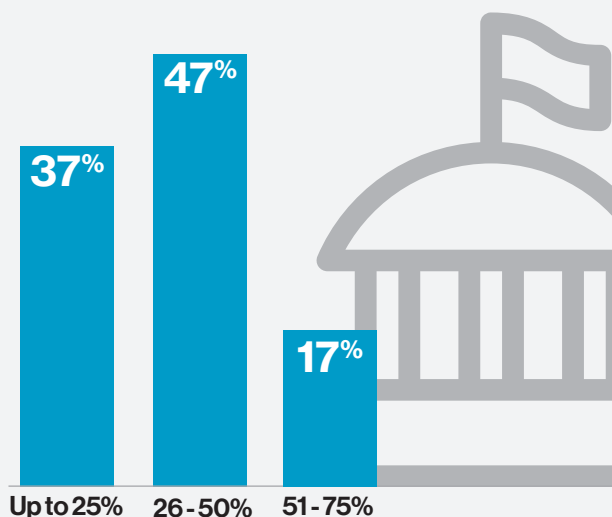
One likely reason for the respondents' optimism is the infrastructure modernization efforts that many of their agencies or organizations have undertaken in recent years. For example, two-thirds (67%) of agencies in the survey have adopted a lakehouse data architecture. Of those who currently have not, 80% say they are likely to do so in the next three years.

Asked the capabilities they want their modernized infrastructure to deliver, 60% of public-sector respondents deem a single governance model for data and AI to be "very important" (see Figure 14). Nearly as many (57%) say the same about the ability to share live data securely across platforms and the ability to integrate emerging technologies.

The technology team at the U.S. Postal Service (USPS) has been driving a thorough modernization. According to Pritha Mehra, the agency's chief information officer, that has involved building a fabric of network connections at the infrastructure layer to provide consistent access to applications and data across all regions. It also includes cloud-agnostic platforms to support event streaming and analytics to enable real-time processing and data

Figure 13: Public-sector efficiency gains expected from AI

How much efficiency gain will AI bring to your industry in the next two years? (Respondents come from the U.S. public sector.)



Source: MIT Technology Review Insights survey, 2023

placement. “We’re basically setting the infrastructure up so that our modelers can get to data easily and make quick decisions,” she says.

That infrastructure, says Mehra, has helped USPS to leverage AI for improving constituent experience, increasing operational efficiency, and strengthening security. A use case in the latter area that has proven especially beneficial, she says, involves fraud analytics – using machine-learning models to detect and intercept packages that have not been paid for. “That’s really helped us to reduce fraud levels,” says Mehra.

Generative AI

Government organizations in the U.S. are not sitting out the early phases of generative AI adoption. Although just 17% of the surveyed agencies are investing in the technology, over half (57%) are experimenting with it.

Uncertainty about the security implications of generative AI is a major concern in the public sector. For 60% of public-sector respondents, this is their chief worry about the technology’s adoption. For the time being, agencies are likely to limit their use of LLMs to areas with moderate security requirements, such as call center chatbots, regulatory compliance, and legacy code base modernization. Unlike their commercial counterparts, most public-sector organizations will find it essential to opt for tools that allow them to use their own data in a secure environment.

Real-time data analysis and insight generation (cited by 57%) and automation and efficiency (37%) are the use cases of greatest potential for public-sector respondents. USPS, for example, is using generative AI to make sense of the agency’s large historical corpus of information and make it accessible to employees and customers. “We have lots of policies and procedures, leading to lots of duplicative activities,” says Mehra. “By coupling intelligent indexing capabilities with chat tools, we’re trying to enable our staff and customers to query that information easily.”

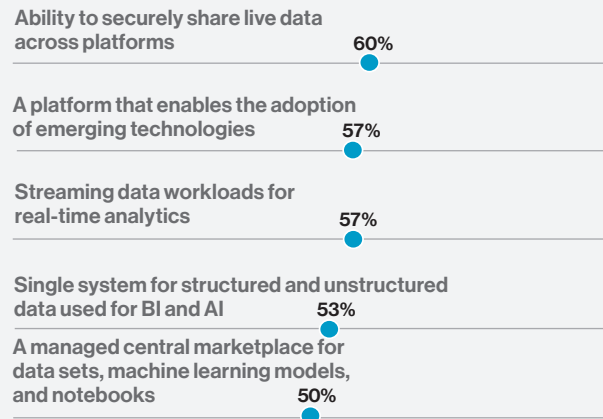
Democratization

With complex organizational structures and pressing demands to increase both productivity and efficiency, the public sector may represent a particularly fertile ground for the democratization of AI. The survey results indicate the potential in this domain, with 50% of respondents in the public sector (the most of any industry) identifying the



Figure 14: Governance a top focus in the public sector

In the next two years, how important are the following to achieving your organization’s overall technology goals? (Percentage responding “very important”; respondents come from the U.S. public sector.)



Source: MIT Technology Review Insights survey, 2023

need to train or upskill workers on data and AI platforms as a top priority.

Industry data ecosystems

Government is a prime candidate for building data ecosystems that connect agency to agency within and across jurisdictions. Such ecosystems can also take in private-sector organizations and other third parties with whom agencies already share data.

The USPS provides a good example. In modernizing its internal logistics ecosystem, Mehra’s team has built an integration layer that anesthetizes the different software-as-a-service (SaaS) products it uses from one another to protect the data within them. It defined its core data sets, such as vehicle movement and vehicle location, and laid them out in an infrastructure that can be leveraged across those applications.

“We’ve opened that ecosystem up externally,” says Mehra. “Many of our partners are now talking to us electronically, and the advanced ones are making API calls on many facets of it. It makes life easy for everyone when they have direct access into our intelligence as quickly as we do and vice versa.”

10

Conclusion

The lessons that CIOs can learn from other industries' experiences with data and AI are numerous. Comparing industry experiences with data and AI can illuminate the inroads that other industries are making and the lessons they offer in dealing with data and AI challenges.

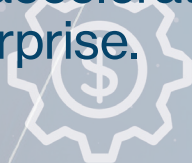
Studying technology best practices across industries has always been advisable, given the common need to manage and maximize the potential of ever-increasing volumes of data. It is now imperative, particularly in light of the STEM talent shortage and the emergence of generative AI. Both challenges highlight the urgency of infusing intelligence across every aspect of the enterprise and into every use case to maximize impact and value.

What is clear from the study is that democratizing data and AI is a top priority but still in its infancy. To do so across the organization requires a breakthrough in data intelligence, going beyond point solutions to an approach that builds generative AI into the data platform itself. Incorporating generative AI into an open, unified data foundation, such as the widely adopted lakehouse, could dramatically accelerate the democratization of data and AI in the enterprise.

The outcomes of these and other developments will do much to determine the pace at which industry data ecosystems scale and the extent to which AI becomes accessible to everyone. This in turn will influence the scale of the benefits that AI delivers to economies over the next decade. The power of AI use cases scaled across entire industries will dwarf the benefits they have thus far generated. Data and AI have only begun to exert their influence.



Incorporating generative AI into an open, unified data foundation, such as the widely adopted lakehouse, could dramatically accelerate the democratization of data and AI in the enterprise.





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