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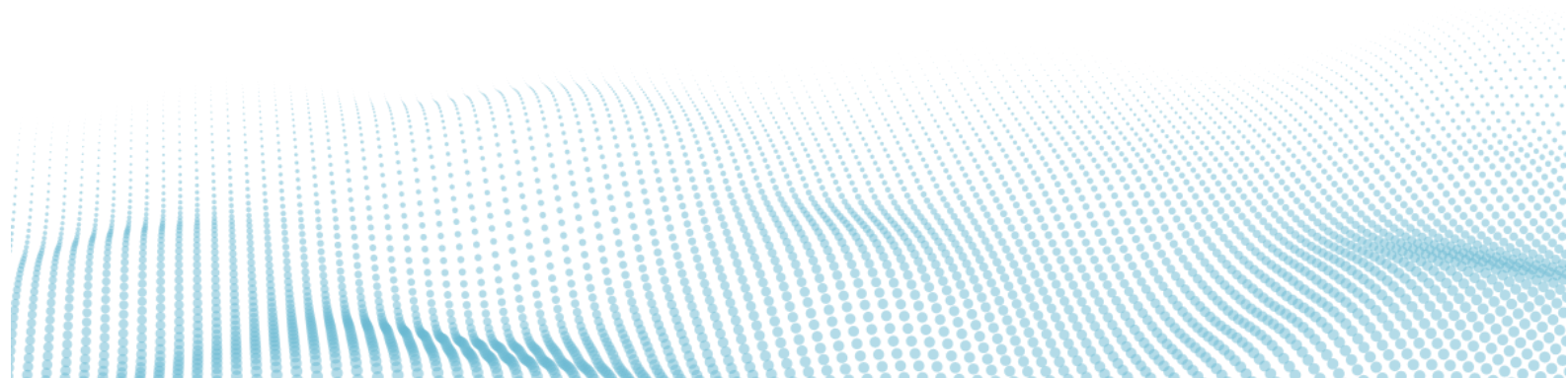
The magic behind turning
data into profit

About the Deloitte AI Institute

The Deloitte AI Institute helps organizations connect all the different dimensions of the robust, highly dynamic and rapidly evolving AI ecosystem. The AI Institute leads conversations on applied AI innovation across industries, with cutting-edge insights, to promote human-machine collaboration in the “Age of With.”

Deloitte AI Institute aims to promote the dialogue and development of artificial intelligence, stimulate innovation, and examine challenges to AI implementation and ways to address them. The AI Institute collaborates with an ecosystem composed of academic research groups, startups, entrepreneurs, innovators, mature AI product leaders, and AI visionaries, to explore key areas of artificial intelligence including risks, policies, ethics, future of work and talent, and applied AI use cases. Combined with Deloitte’s deep knowledge and experience in artificial intelligence applications, the Institute helps make sense of this complex ecosystem, and as a result, delivers impactful perspectives to help organizations succeed by making informed AI decisions.

No matter what stage of the AI journey you’re in; whether you’re a board member or a C-suite leader driving strategy for your organization, or a hands-on data scientist bringing an AI strategy to life, the Deloitte AI institute can help you learn more about how enterprises across the world are leveraging AI for a competitive advantage. Visit us at the Deloitte AI Institute for a full body of our work, subscribe to our podcasts and newsletter, and join us at our meetups and live events. Let’s explore the future of AI together.



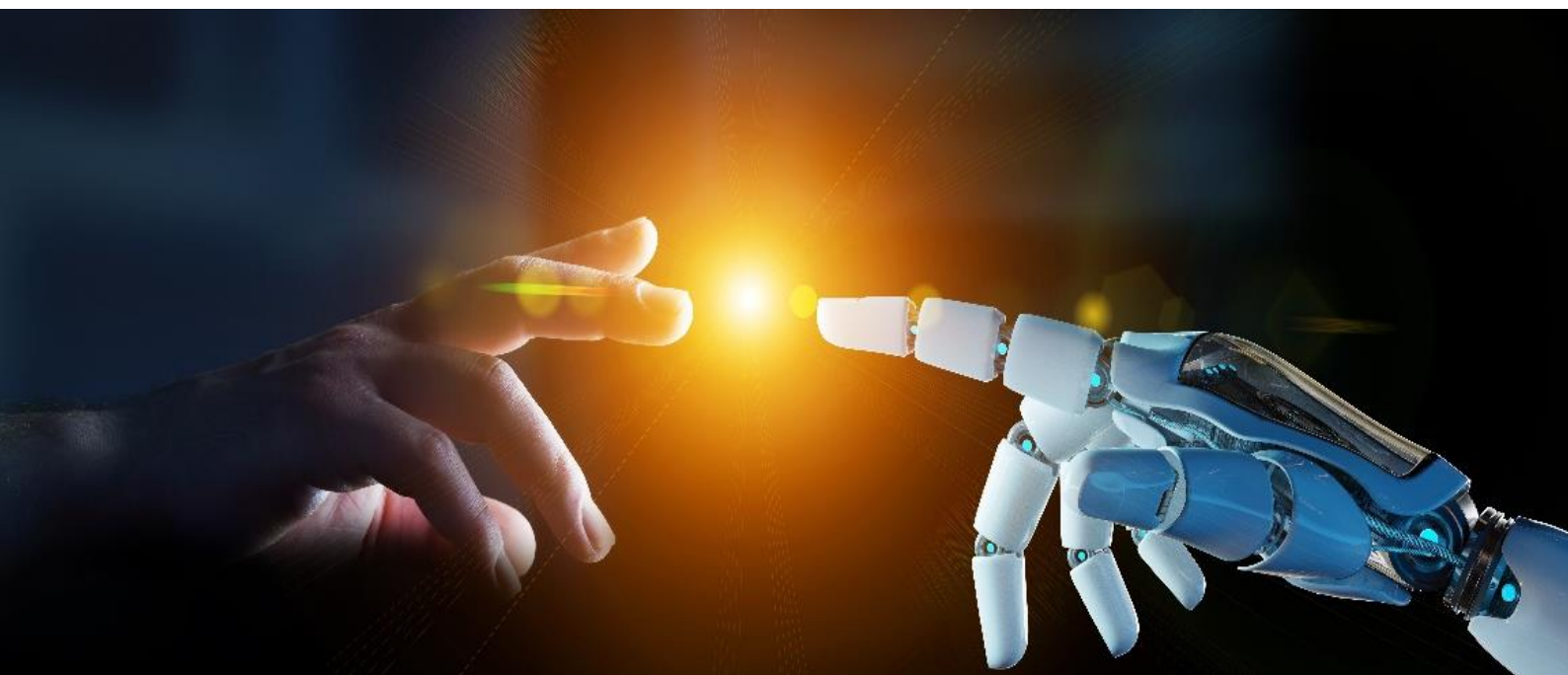
AI-fueled organizations use the power of rapid, data-driven decision-making to enhance workforce and customer experiences and drive success.



Data is constantly in motion—moving quickly from person to person and from person to machines and back. As many AI-fueled organizations can attest, the magic happens when data is transformed into value, even profit, enhancing workforce and customer experiences alike. But many organizations struggle to capture and manage it to their business advantage. In Deloitte’s third annual *State of AI in the Enterprise Survey*,¹ companies that have adopted AI at some level reported challenges in critical aspects of data management. These challenges included integrating data from diverse sources, preparing, and cleaning data, providing self-service access to data, ensuring data governance, and lacking the right talent and expertise to manage the data value chain. In fact, at least 40% of AI adopters reported a low or medium level of sophistication across a range of data practices. And nearly one-third of executives identified data-related challenges among the top three concerns hampering their company’s AI initiatives.²

How does an organization effectively manage data to drive more AI adoption and success?

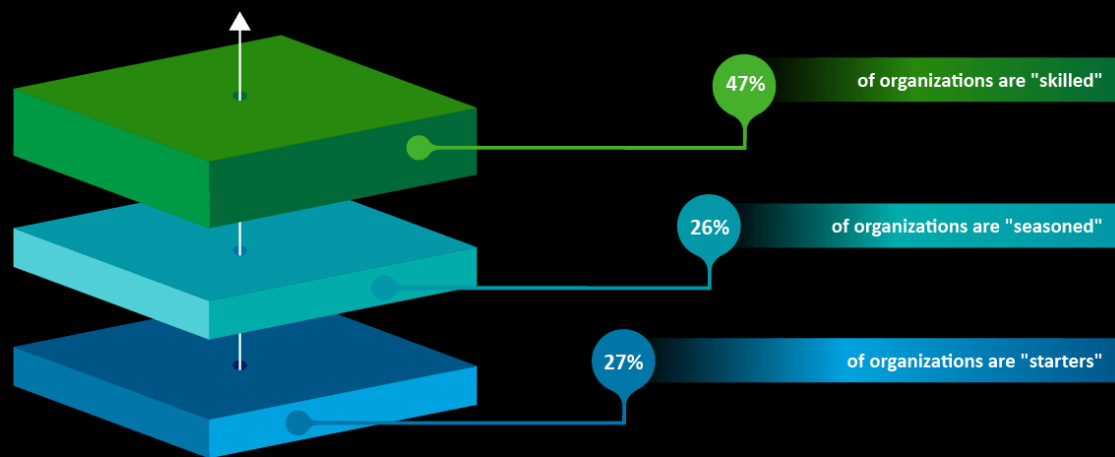
Building an effective data management value chain can lead to powerful and game-changing benefits. Forward-looking data-driven companies are bringing in a product mindset, managing the data like a product across its entire life cycle.



AI is now more pervasive

AI applications are soon to be everywhere, and organizations are already adopting the technology at varying levels. Deloitte's survey found that 26% of organizations are "seasoned", setting the pace in AI adoption maturity; 47% are "skilled", having launched multiple AI systems; and 27% are "starters", just dipping their toes into AI.³

The findings indicate that enterprises are ambitious in using AI to disrupt business models for competitive advantage and value creation for stakeholders. These organizations recognize the business imperative of maturing to become AI-fueled. As more companies experiment with AI, advance their data-related capabilities, acquire new technologies and talent, and integrate AI into their business processes, they are facing inherent challenges in data management.⁴ Data and AI share a powerful connection.



Powerful potential, but significant challenges

While AI has powerful potential to help scale work like never before, organizations face a number of challenges to implementation. The perennial question is: Why is this so hard?

For AI to succeed, organizations should address data challenges and fix bad data, applying principles to better manage, clean, and enrich data, so broader AI ambitions can be met. But most haven't reached a level of maturity in data management capabilities, and about a third of AI programs fail due to bad data and data challenges.⁵

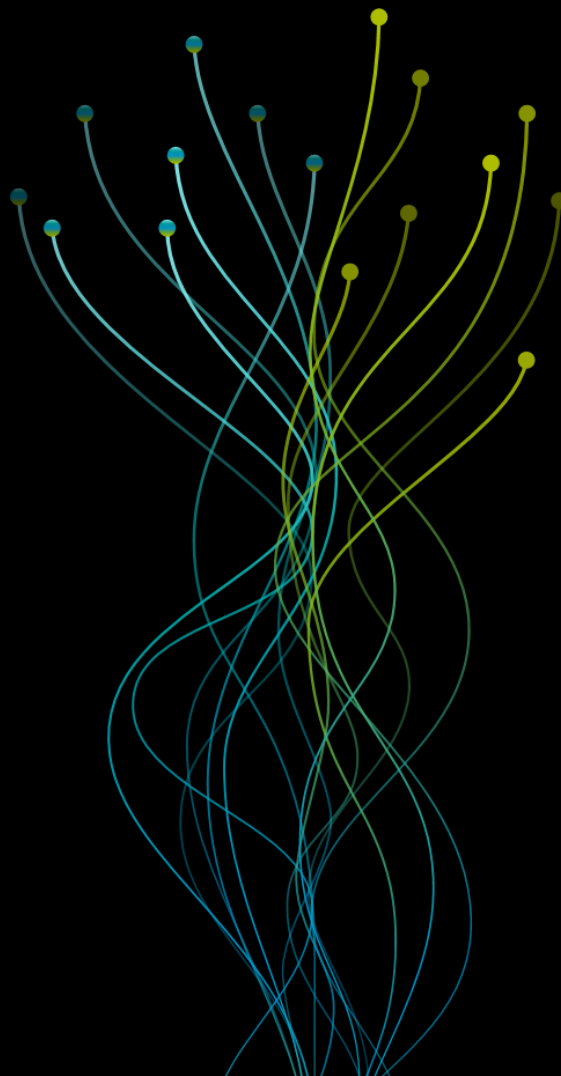
While vast amounts of data are available to organizations, the data is rarely interconnected or integrated to realize its benefits. This hurdle can make it more difficult for organizations to leverage not just their own internal data but data from external sources. In addition, important insights can be missed due to lack of complete or standardized data, and this can produce inaccurate analysis and reports.

From a resource perspective, too much employee time—and associated expenses—are going toward managing and preparing data for one-off analysis. Contributing to that is a lack of data talent trained on new and innovative methods of managing large data sets. While some organizations are focused on improving data governance, applications are discovering data quality issues that are not yet addressed at scale.

The larger picture reveals that a data culture is missing from many organizations' mindset, and responsibility for good data has not been adopted at the enterprise level. In total, such data management challenges can lead to the risk of unintended consequences such as AI failures and unanticipated results. Organizations should know how to select the right data to reduce or eliminate biases in their models. Despite the obstacles, building a trusting, agile, data-fluent culture and investing in change management to create an understanding of modern technologies can have significant payoffs.

The benefits are worth the effort

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Changing the game

AI adopters are reimagining, disrupting, and transforming the data value chain. Such adopters ranked modernizing data infrastructure for AI as the number-one focus for their AI initiatives.⁶ They realize their organizations can't effectively implement AI without a modern, robust infrastructure. Once the data management infrastructure is modernized at an enterprise-wide level, business units aren't having to constantly reinvent the wheel. Data becomes democratized.

How well an organization can integrate and ingest data; standardize, cleanse, and curate the data; and ultimately consume its data can determine its future success. Organizations that can fuel AI with data and computing power can turn their investment into both value and profits. Companies that undergo a robust data modernization effort, often migrating it to the cloud, can serve up insights that delight customers and transform workforces.

Without a robust, repeatable, and scalable data value chain, AI can't scale. It's not the single AI use case but hundreds of use cases that create game-changing value for organizations. That's when the possibilities can really open up. Organizations can ingest data, transform it, drive insights, and execute business processes at a faster pace with more accuracy than they ever have before. For AI-fueled organizations, data becomes a resource, sparking innovation and competitive advantage.



What does the North Star look like?

Humans are essential

While there are data automation tools that can help integrate and digest massive amounts of data, humans are always going to be essential when it comes to an organization's data initiatives. It is a continuous process that requires humans and machines to work together and complement one another.

Machines must continuously learn from humans how to validate data. And humans need to react to the insights that are derived. Many companies are still utilizing processes that are 70% to 80% manual to define rules, develop those rules, and even manage them. It's time to disrupt how companies think about their data. People should strive for data fluency within their organizations, understanding where it comes from and trusting its outcomes. They also should turn to automation for many data management tasks. If the data is clean and standardized, there's no stopping how much value it can create. That's what an AI-first data value chain looks like. That's the North Star. Companies that can't harness their data in a manageable way will likely be laggards.

Building a transformative data organization

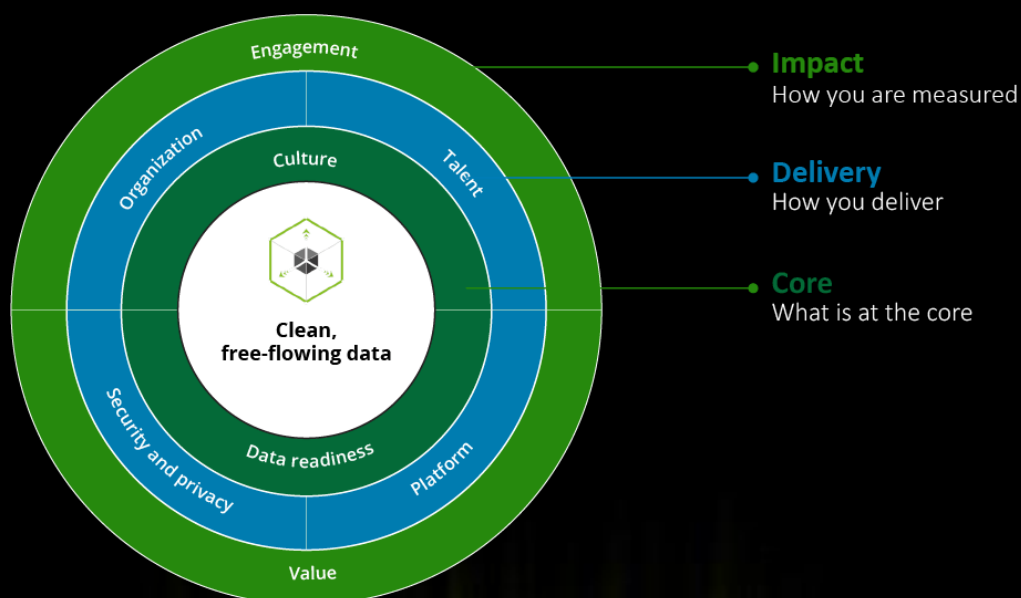
To help be truly transformative, organizations should have a bold, enterprisewide strategy that is established and championed by the highest leadership. Three strategic levels to an innovative program include:

01. What's at the core of a data-fluent program?

02. How is data delivered in a connected world?

03. How is the program impacting the business? Each level carries its own components or capabilities.

Organizations spend a lot of time on data readiness and platform-related capabilities. However, without a strong data-first culture at the core, it can be impossible to drive innovation and value. Data and AI are connected. AI delivers the insights that help create value, but it can't do it if the data architecture isn't aligned to the business from the onset. Also, irrespective of the cutting-edge data capabilities put to use, business stakeholders typically measure the performance of the data organization based on how well they engage with the business and what value they ultimately realize. Essentially, it doesn't matter how good the data technology is, if the business doesn't recognize how to use the asset. Data turns to value when the business can draw upon AI-fueled insights and take action in the moment.



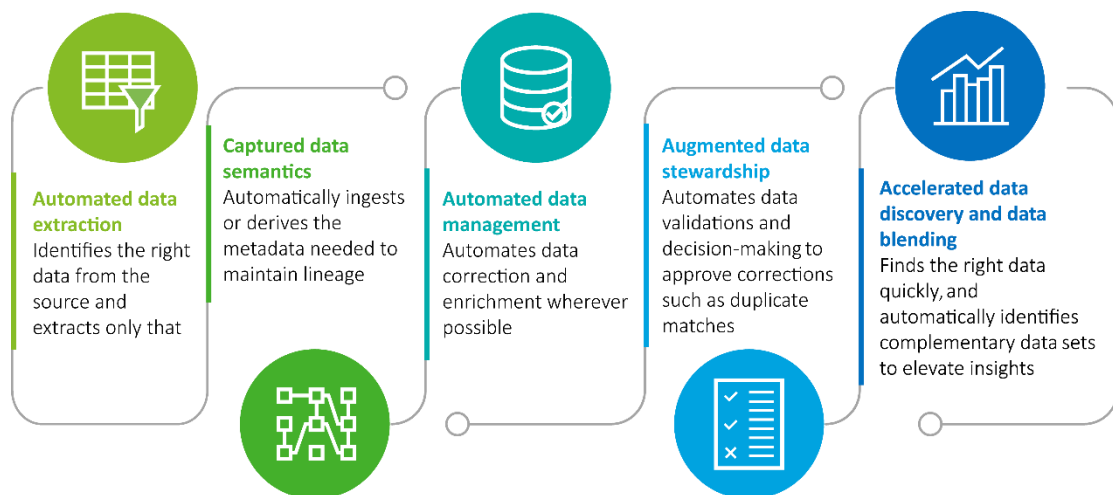
Level 1

Strengthen the core

An enterprisewide, data-first **culture** should be in place for an effective use of data to occur. Part of this involves building advanced data capabilities, but it's also raising a base level of data literacy across different levels of the organization. The magic of innovation can happen when people start reimagining their own day-to-day work and realizing the benefits that quality data can bring.

For that to happen, **data readiness** is key. Quality, free-flowing data takes effort. The companies that use advanced technologies and even AI to compress time frames and address volume challenges can make the job a lot easier. To help hit that North Star, companies should spend 20% to 30% of their time managing data, and they can only hit that target by automating processes.

Types of data automation tools



Intelligent data prediction can deliver better insights in less time

Data quality issues with product attribution and taxonomy information were plaguing a leading multinational apparel and footwear company's ability to analyze the data and make the right decisions. A solution leveraging Deloitte's CogniSteward's taxonomy module was developed to automate the assignment of product hierarchy, freeing up time.

CogniSteward's machine learning (ML) and natural language processing algorithms were customized and integrated with business rules to predict multi-level hierarchy. Human-in-the-loop functionality was developed that enabled the company's business users to review the predicted hierarchy, resulting in real-time updates to the predictions. A collaborative workspace feature was built that allowed the company's users to collaboratively review the assigned hierarchies while maintaining the history and lineage of user actions. The solution assigned product hierarchy to 1,000 products per minute, accelerating the product data creation and updating. It also improved the overall quality of the data itself, leading to better insights. As a result, the company saved 70% of time spent on data preparation with more than 90% accuracy in the hierarchy assignment.

Level 2

Enhance delivery

To help connect data, a modern data **platform** on the cloud can be used to ingest and curate real-time information. It should scale, flex, and support a range of systems, applications, and users. A successful modern data platform minimizes effort, improves accuracy, and speeds up time to delivery. **Security and privacy** initiatives are a key part of the effort as is a clear data governance process that ensures data is trusted and risks such as biases are minimized. The addition of a digital workforce provides an opportunity to retool positions, upskill people, hire the right AI **talent** in terms of roles and skills, and rely on outsourcing when needed. New capabilities require new processes not just across the **organization** but also within IT and data science teams. It also necessitates a robust ML Ops strategy to realize implementation goals, ongoing quality, and ethical delivery.

From there, it's the cloud data analytics that power new innovative thinking as employees have more relevant insights faster than they ever did before.



Digital analyst drives data curation

The data management, sales, marketing, and product management teams at one of the world's largest food service companies were spending a significant amount of time analyzing and curating data for analytics and decision-making. A digital analyst was created and automated using robotic process automation. Combining AI and ML capabilities such as computer vision, natural language processing, and deep learning, the digital analyst was developed to automatically:

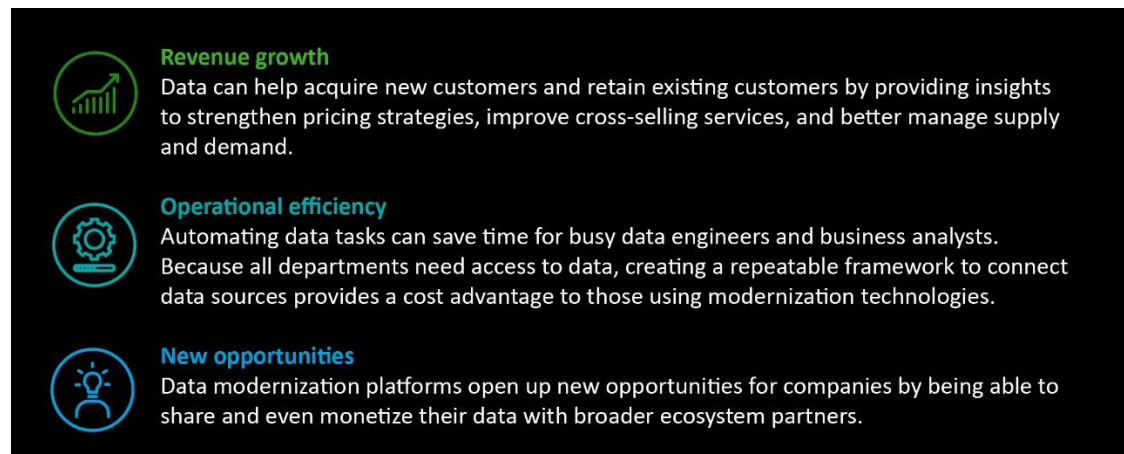
- **Identify potential duplicate customers across data sources**
- **Download product specifications and populate characteristics**
- **Compare and consolidate product characteristics from multiple sources (GDSN, suppliers, etc.)**
- **Assign products and attributes to the right taxonomy**
- **Train models to identify the right images for product categories**




The capabilities were also used to create a single view of customers across multiple data sources. This digital analyst fueled a 60% increase in share of wallet calculation that triggered new prospects. It also reduced the manual efforts of data stewards and business analysts by 60%, accelerated taxonomy assignment by 30%, and contributed to a 7% increase in overall sales.

Level 3

Impact the business

The **engagement** level should inspire business functions to continuously access data so it can be useful in developing new solutions to problems and accelerating value. Insights from free-flowing data and AI result in **value** for the company as it achieves business outcomes at new levels. At the end of the day, data modernization can help spark the magic of turning data into profit:



- **Revenue growth**
Data can help acquire new customers and retain existing customers by providing insights to strengthen pricing strategies, improve cross-selling services, and better manage supply and demand.
- **Operational efficiency**
Automating data tasks can save time for busy data engineers and business analysts. Because all departments need access to data, creating a repeatable framework to connect data sources provides a cost advantage to those using modernization technologies.
- **New opportunities**
Data modernization platforms open up new opportunities for companies by being able to share and even monetize their data with broader ecosystem partners.

Delivery transformed

An AI-first data value chain can allow the organization to better ingest data, transform it, drive insights, and execute business processes at a faster pace and with more accuracy. Some companies may be eligible for certain R&D tax credits that can help offset some costs as well.

Going forward, AI-fueled organizations can move faster because adding new, higher-quality data sources can yield game-changing benefits across the enterprise as essential insights reach people in time to really make a difference for their customers and key stakeholders.

Authors



Juan Tello

Principal

Deloitte Consulting LLP

jtello@deloitte.com | www.deloitte.com



Lakshmi Subramanian

Senior Manager

Deloitte Consulting LLP

lsubramanian@deloitte.com | www.deloitte.com

Endnotes

¹ [Beena Ammanath et al., Thriving in the era of pervasive AI: Deloitte's state of AI in the enterprise, 4th edition, Deloitte, 2021.](#)

² [Karthik Ramachandran, Data management barriers to AI success, Deloitte Insights, August 7, 2020.](#)

³ [Ammanath et al., Thriving in the era of pervasive AI.](#)

⁴ [Data management barriers to AI success.](#)

⁵ [Ammanath et al., Thriving in the era of pervasive AI.](#)

⁶ Ibid.

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