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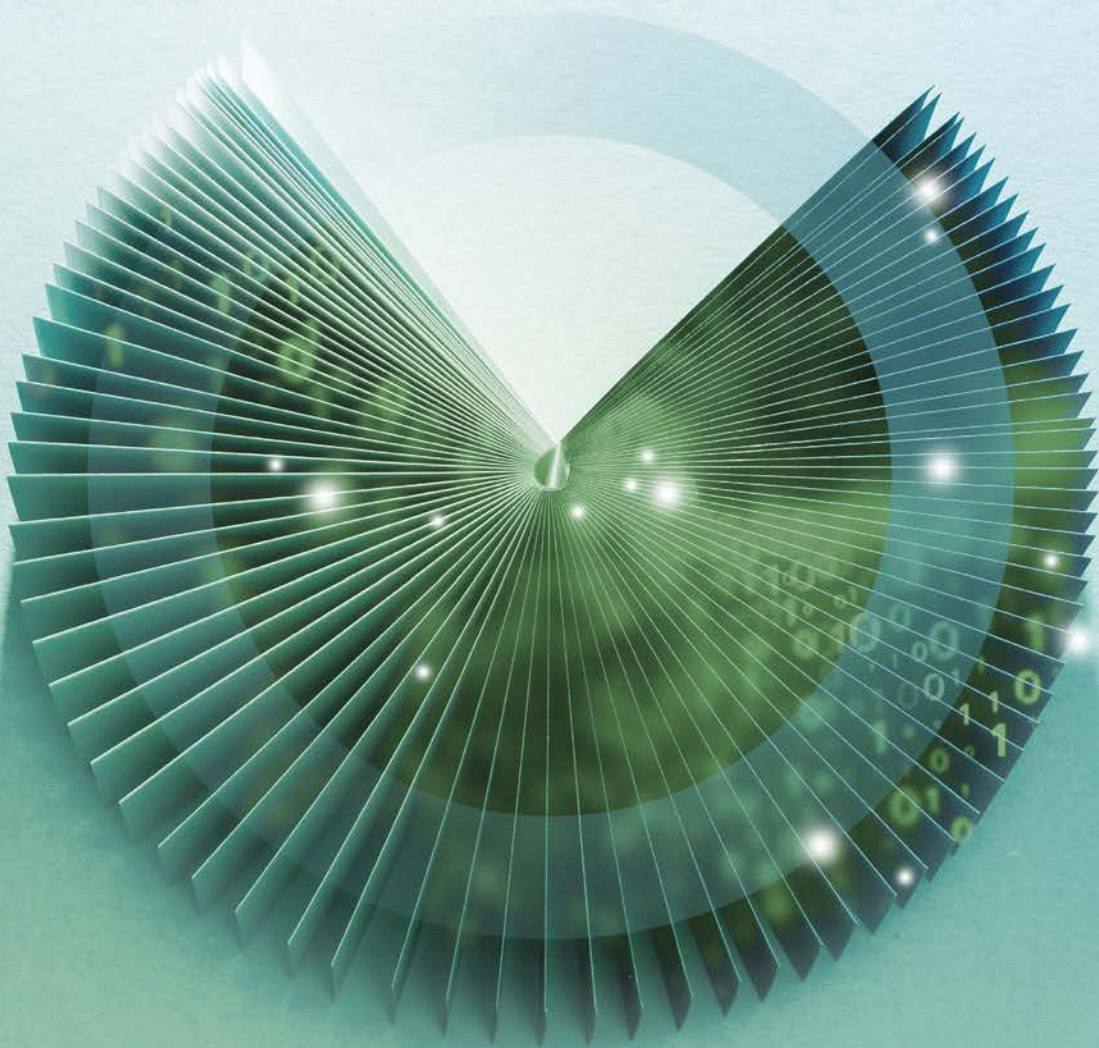
The Technology, Media & Telecommunications AI Dossier

By Deloitte AI Institute

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."

The 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, start-ups, 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, deliver 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 meet ups and live events. Let's explore the future of AI together.

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What's inside

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Introduction

After decades as science fiction fantasy, artificial intelligence (AI) has made the leap to practical reality and is quickly becoming a competitive necessity. Yet, amidst the current frenzy of AI advancement and adoption, many leaders and decisionmakers still have significant questions about what AI can actually do for their businesses.

This dossier highlights several of the most compelling, business-ready use cases for AI in Technology, Media & Telecommunications. Each use case features a summary of the key business issues and opportunities, how AI can help, and the benefits that are likely to be achieved. The dossier also includes several emerging AI use cases that are expected to have a major impact on the industry in the future.

Of course, the best uses for AI vary from one organization to the next, and there many compelling use cases for AI beyond the ones highlighted here. However, reading through this collection should give you a much clearer sense of what AI is capable of achieving in a business context—now, and over the next several years—so you can make smart decisions about when, where, and how to deploy AI within your own organization (and how much time, money, and attention you should be investing in it today).

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Six ways that AI creates business value

Looking across all AI use cases, there are generally six major ways that AI can create value for a business:[1]

Cost reduction
Applying AI and intelligent automation solutions to automate tasks that are relatively low value and often repetitive, can reduce costs through improved efficiency and quality.

Example
Automating data entry and patient appointment scheduling using natural language processing.

Speed to execution
Reducing the time required to achieve operational and business results by minimizing latency.

Example
Accelerating the process of drug approval by using predictive insights to create a synthetic trial.

Reduced complexity
Improving understanding and decision making through analytics that are more proactive, predictive, and able to see patterns in increasingly complex sources.

Example
Reducing factory downtime by predicting machinery maintenance needs.

Transformed engagement
Changing the way people interact with technology, enabling businesses to engage with people on human terms rather than forcing humans to engage on machine terms.

Example
Using conversational bots that can understand and respond to customer sentiment to address customer needs more effectively.

Fueled innovation
Redefining where to play and how to win by using AI to enable innovative new products, markets, and business models.

Example
Recommending new product concepts and features based on customer needs and preferences mined from social media.
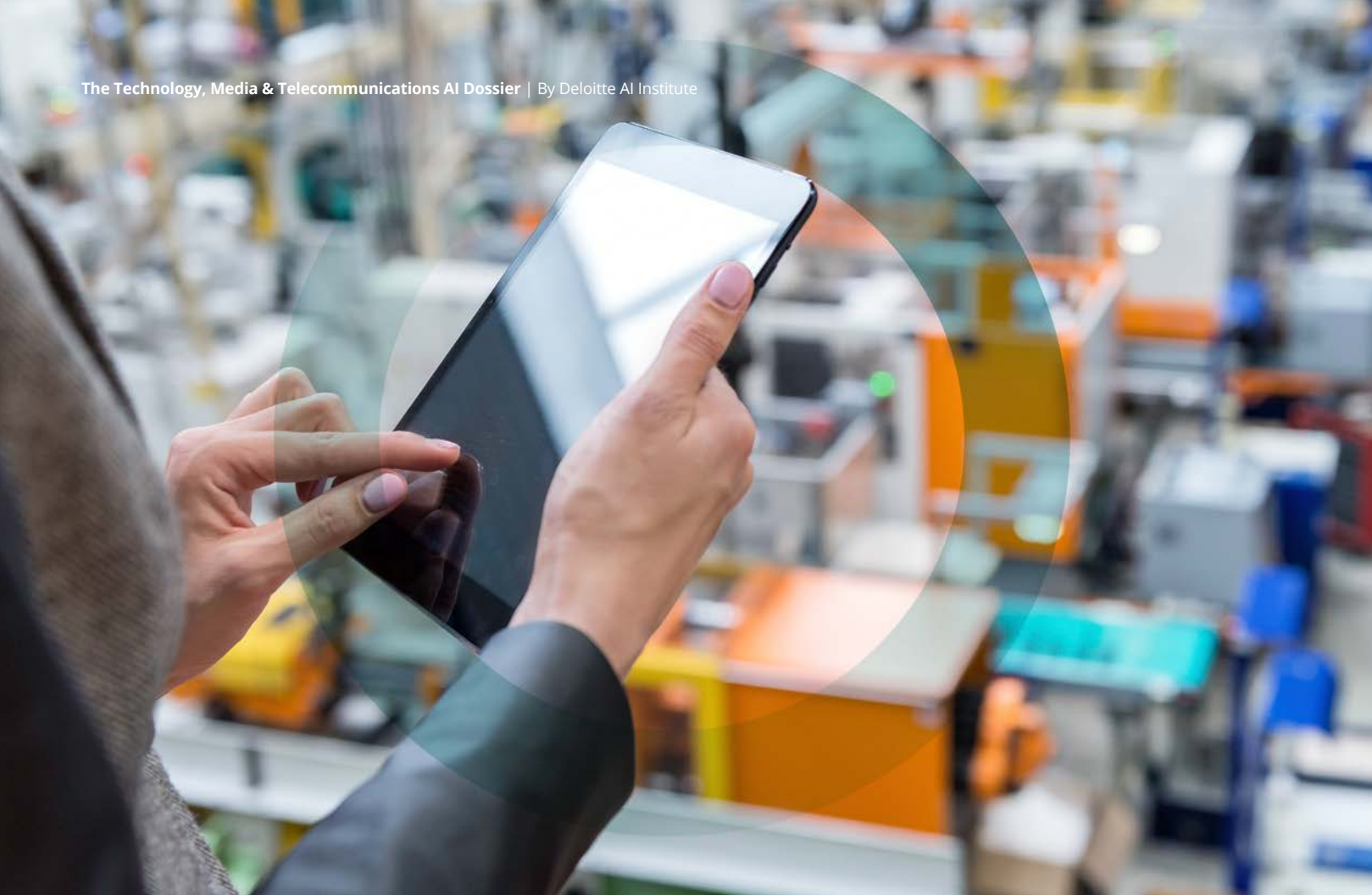
Fortified trust
Securing a business from risks such as fraud and cyber—improving quality and consistency while enabling greater transparency to enhance brand trust.

Example
Identifying and anticipating cyber attacks before they occur.

Top use cases in Technology, Media & Telecommunications

In technology, media, and telecommunications (TMT), AI adoption and maturity vary significantly by sector.

Telecom companies tend to be the furthest along at embracing AI, thanks to the sector's longstanding focus on operational efficiency and customer acquisition/retention. AI technologies are already in widespread use both for customer-facing activities such as contact centers and customer engagement, and for back-office activities such as manufacturing and logistics. Looking ahead, the sector's successful track record with AI in these areas is encouraging telecom companies to expand their AI efforts into new areas. One area that will likely be a particularly strong focus within the next few years is using AI for predictive analytics that can turn telecom companies' wealth of customer data into valuable insights that can further boost acquisition and retention.

Many technology companies have been slower to embrace AI. Digital natives such as Google, Amazon, and Facebook are using AI in very sophisticated ways, particularly in their commercial products and services. However, AI adoption and maturity at other types of technology companies are significantly lower, with many companies insisting on seeing sector-specific use cases and proven results before scaling up their AI programs and investments. Also, many existing AI efforts in the sector are limited to scattered experiments and small-scale pilots, without an overarching strategy for harnessing the full power of AI and digital data. That being said, as in many other industries, the impacts of the COVID-19 lockdown have accelerated interest and investment in AI and digital transformation, particularly for common AI applications such as robotic process automation (RPA), as well as more advanced use cases such as smart factories and digital supply chains.

In the media sector, most of the focus for AI has been on personalizing content and customer engagement—and this trend could increase in the future. During the COVID pandemic, many media companies enjoyed a sharp rise in subscriptions and revenue, and as the crisis subsides and people start returning to their normal lives, there will be a scramble to retain as many customers as possible. Success will likely hinge on providing consumers with the best possible experience and content, which can create an even greater need for AI-driven personalization.

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Factories and supply chains that think and feel
(Smart Factory and Digital Supply Network)

Use AI to optimize the contract manufacturing process through micro services, and to accelerate demand planning, improve demand signals, and tightly integrate cross-functional supply chain processes.

Issue/Opportunity
Rapid technology advances have increased the complexity of the global supply chain, which in turn has led to global fragmentation of demand and production. However, with the advent of industrial IoT—and sensors being installed everywhere in factories—companies have a wealth of new opportunities to accelerate planning, improve forecasting, and optimize production schedules by using AI to deeply analyze demand and production data.

How AI can help

- *Enable smart production.* Smart factories can apply AI to data from "connected" machinery and devices. By using AI to analyze the constant stream of data from connected operations and production systems, smart factories can fine tune their operational procedures—and can learn and adapt to new and changing demands.

- *Enable the digital supply chain.* AI algorithms embedded within a supply chain can use historical data to analyze trends and streamline operations. This digital supply chain capability allows every component in the network to perceive and react to supply chain events at a granular level, optimizing results for the factory and customer alike.

Possible benefits

Improved asset efficiency and production capacity.
AI can increase asset efficiency, optimizing production capacity and reducing asset downtime and changeover time.

Lower costs.
AI enables more cost-efficient processes and higher product quality, which can reduce the costs associated with warranty claims, maintenance, product recalls, and returns.

Improved environmental sustainability.
AI can help optimize resource usage, leading to a smaller environmental footprint.

Engagement elevated
(Direct Consumer Engagement)

Use AI to automate engagement and communication with customers, predict customer behaviors and next best actions, and increase personalization.

Issue/Opportunity
The way that consumers engage with brands has fundamentally changed and will likely continue to do so as technology advances. Yet, many businesses have still not adapted their customer service strategies to new digital trends and end-user preferences. Instead, they continue leading customers down the traditional, outdated engagement path. Excessive choice, reduced attention spans, and digital overload exacerbate the problem, creating an even greater need for authentic, two-way communication.

How AI can help

- *Enable automatic two-way communication through SMS.* By combining lead management with natural language processing, customer intent and sentiment can be analyzed to determine the appropriate response. This automation technology significantly reduces the need for manual intervention and can also be used to prioritize leads.

- *Improve personalization using data management platforms.*[2] Delivering personalized products and services requires significant computing power. AI-powered data management platforms (DMPs) –aided by advanced analytics—can leverage data from a variety of sources such as ERP, mobile, and CRM systems to create increasingly personalized offerings.

Possible benefits

Higher customer satisfaction and retention.
Enhanced service quality and personalization can increase customer satisfaction. AI-powered tools can provide a centralized platform for managing customer interactions and prioritizing activities so that customers don't feel ignored, significantly improving the customer experience.

Making contact
(Digital Contact Center)

Use AI technologies such as natural language processing and machine learning to build Voice Virtual Assistants that are more efficient, engaging, and human-like.

Issue/Opportunity
As companies grow, they have traditionally needed a larger human labor force to support their higher volume call center operations. And while automated call monitoring technology has improved over time, most of today's IVR systems and chatbots are still based on basic word recognition and simple file retrieval, and are not sensitive to the context of a discussion. A digital contact center that uses AI technologies such as natural language processing and machine learning can be more predictive and sophisticated, significantly improving the customer experience while reducing the need for human involvement.

How AI can help

- *Voice Virtual Assistants.* AI-based natural language tools and machine learning models can be used to build Voice Virtual Assistants that deliver a more efficient, engaging, and human-like customer experience. These tools can train chatbots to answer questions, schedule appointments and calls, and refer customers to the department most appropriate to handle their requests.

- *Omnichannel quality management.* Using predictive analytics and sentiment analysis, all interactions on all digital channels can be monitored, providing valuable insights about both customers and call center staff. This gives managers real-time information for retraining workers or deciding on the next best action.

Possible benefits

Improved customer satisfaction with less manual involvement.
AI can help boost overall call center performance metrics—including customer satisfaction—while reducing the amount of manual intervention required to address customer queries.

Lower costs.
Less manual intervention means lower operating costs, since the labor force required to support AI-enhanced call centers can be significantly smaller.

No faking
(Detect Fake Media Content)

Use advanced AI technologies to detect 'deepfakes' and fake media content by identifying subtle content anomalies.

Issue/Opportunity
Deepfakes are fake audio and video content created using advanced AI technologies. As AI algorithms and machine learning grow more sophisticated, it becomes easier to create and spread this malicious content—potentially doing significant damage to the reputations of entities and people.

Detecting and limiting the spread of deepfakes and other fake content is increasingly essential to keeping misinformation at bay and preventing public harm. Although humans can sometimes detect deepfakes, the task is getting harder as the technologies used to generate fake content become more capable.

Ironically, while AI is a key enabler for creating deepfakes, it is also one of the best way to combat the problem. Advanced AI and machine learning algorithms—particularly neural networks—can be trained to detect deepfakes and other fake content in real time, thereby limiting their spread.

How AI can help

- *Detect deepfakes.* Neural networks that have been trained to detect deepfakes can recognize telltale patterns and subtle inconsistencies within doctored media files. For example, AI-based detection algorithms can pick up subtle fading or greyscale pixels around a person's face in altered photographs.

- *Detect fake media content.* AI combined with optical character recognition (OCR) can quickly scan and analyze digitized text to determine whether an article headline matches the article body, or whether an author's writing style in the current article matches his/her style in prior articles. Any anomalies can then be flagged for human verification.

Possible benefits

Limiting the spread of fake content and misinformation.
AI enables real-time detection of deepfakes and other fake content. Given the sheer volume of online content being generated, this problem can be nearly impossible to manage without the help of AI technologies.

Turning customer data into cash
(Customer Data Monetization)

Use AI to extract and monetize insights from the vast amounts of customer data now being generated by digital systems.

Issue/Opportunity
High-quality customer experiences are a prerequisite for success in the digital era; however, they are extremely data intensive. Traditional analytics platforms are often not sophisticated enough to handle the massive volume and complexity of data from today's connected systems. Without enhanced large-scale data analytics and monetization capabilities, companies can find themselves marginalized or shut out of the best opportunities.

How AI can help

- *Monetize customer data.* Data monetization opportunities using AI vary by product and industry. In the tech industry, for example, Facebook developed an AI-based tool called DeepText that extracts meaning from users' posts by learning to analyze them contextually.[3] The company uses the tool to direct people toward products they seem likely to buy based on the conversations they are having. The company also uses deep neural networks to decide which advertisements to show to which users. The AI-based systems cluster users together in meaningful ways, and then use keywords to match the most relevant ads to the associated group of users.

- *Create value by combining customer data from multiple sources.* Search is Google's primary service offering. However, feeding the company's AI systems with combined data from search and other Google services (such as Gmail, YouTube, and Google maps) can create valuable opportunities for monetization. For example, by linking a search request to other data that hints at the user's intent, Google can provide targeted product offerings that meet the user's needs more effectively in less time.

Possible benefits

Greater business value from customer data.
AI-driven data monetization tools can help companies get the maximum value from their customer data.

Improved decision-making, planning, and collaboration.
Those same tools can significantly improve the quality and quantity of insights derived from customer data, streamlining decision-making and planning, and improving data sharing and collaboration between internal and external stakeholders.

Networks that fix themselves
(Self-healing Networks)

Using AI-based predictive and preemptive maintenance to make networks less failure-prone and more self-healing.

As networks and IT infrastructures grow more complex and unpredictable, they are becoming increasingly failure-prone and costly to maintain. By monitoring and analyzing a wide range of network data (such as connection speed, signal quality, and power consumption), machine learning algorithms can predict when and where network maintenance will be needed—before a failure occurs. They can even predict the exact cell towers or sections of cable that are most likely to fail. These capabilities are already in place for fixed networks, but over the next 3–5 years are expected to reach maturity in radio networks (3G, 4G, 5G) as well. Currently, radio network attributes such as power level and electromagnetic field are manually adjusted several times per year. However, in the future they could be continuously and automatically managed using AI. All these AI-enabled capabilities can help reduce the costs and downtime associated with scheduled maintenance—and the even greater consequences of unexpected failures.

Emerging AI use cases in the Technology, Media & Telecommunications

Lingua AI
(Language Translation Services)

Using AI technologies to improve the speed and accuracy of language translation services, essentially making every language the lingua franca.

As the modern world becomes increasingly global and interconnected, overcoming the language barrier becomes more and more essential. Unfortunately, traditional machine-based language translation services cannot deliver the necessary accuracy, relying on simple rules-based approaches and statistical models that are relatively primitive. Enter AI. Natural language processing technologies—in combination with machine learning and deep learning—are already enabling impressive language translation services on our phones and other handheld devices. And as the technologies continue to advance, it may soon be possible for highly accurate language translation to occur on-the-fly in real time—eliminating the need for costly manual translation, and giving humans the ability to freely communicate with each other regardless of what they language they speak.

Emerging AI use cases in the Technology, Media & Telecommunications

Monetizing video data
(Video Content Analysis)

Using computer vision, machine learning, and deep learning to analyze video content.

AI can help monetize video data by automating the analysis of video content—enabling real-time action, monitoring, and trend reporting. For example, with AI, companies can analyze video data on social media to understand what people are talking about, how they are feeling, and what their preferences are. These insights can then be used to deliver timely, personalized offers and pro-actively address customer issues before they become problems.

Emerging AI use cases in the Technology, Media & Telecommunications

Beyond the page
(Audio & Video Mining)

Using AI to mine and monitor audio and video data.

In today's world of smartphones, videos, and social media, a lot of valuable data is being generated in the form of audio and video—not just words and numbers on a page or in a file. AI technologies such as computer vision, voice recognition, and deep learning can be used to convert audio and video content into structured data, and can then help mine that data for key events, such as a consumer posting a product review on social media. In call centers, for example, AI-enabled solutions can transcribe and document video and phone conversations, then mine the resulting data for hidden problems and other clues to help drive improvements in everything from call center operations and employee training to product design and customer loyalty.

Emerging AI use cases in the Technology, Media & Telecommunications

Watching the watchers
(Ad Analytics Using Emotion Detection)

Using AI and in-room sensors to monitor and analyze exactly how viewers respond to TV ads.

Marketers have a wide range of tools to predict how TV audiences will respond to advertisements. However, AI is taking those capabilities to a whole new level. By installing sensors in a viewer's living room—and then using computer vision and other AI technologies to monitor and analyze the sensor data on a second-by-second basis—marketers can see exactly how an ad is affecting the viewer emotionally. They can also glean other valuable details about viewers, such as their precise demographics, actual viewing habits, and level of engagement with various content. So while it might be true that people can't learn anything from watching TV, apparently AI can learn a lot from watching people watch TV.

The key to success is to start small but think big.

Conclusion

Although AI adoption rates and maturity levels vary widely across industries—and even within them—there seems to be no question that AI is here to stay. In fact, AI is quickly becoming a competitive necessity for nearly all types of businesses—driving unprecedented levels of efficiency and performance and making it possible for businesses of every shape and size to do things that simply weren't possible before.

The key to success is to start small but think big. According to a recent Deloitte survey—*State of AI in the Enterprise,* 3rd Edition—74 percent of businesses surveyed are still in the AI experimentation stage with a focus on modernizing their data for AI and building AI expertise through an assortment of siloed pilot programs and proofs-of-concept, but without a clear vision of how all the pieces fit together. By contrast, only 26 percent of businesses surveyed are focused on deploying high impact AI use cases at scale, which is when the real value kicks in.

In this compendium, we've highlighted many of the most compelling and business-ready use cases in every major industry. However, a use case is only as good as the extent to which it is actually used. No matter how compelling an AI use case might seem on paper, its full value can only be unlocked if you embrace and deploy it at scale across your broader enterprise and ecosystem.

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Contact us

Acknowledgements

Endnotes

1. Source: Deloitte analysis

2. "Personalization & analytics in TMT," *Deloitte Insights*.

3. "Facebook Use of Artificial Intelligence," *Forbes*.

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