THE NEXT WAVE OF GENERATIVE AI: 5 KEY TRENDS

ALVAREZ & MARSAL

LEADERSHIP. ACTION. RESULTS.℠

CONTENTS

Generative AI (Gen AI) is not the Industrial Revolution, but it may very well be the Model T of artificial intelligence — an accessible, headline-grabbing application that has captured public and corporate attention alike. While AI has been steadily evolving, the emergence of generative AI has catalyzed widespread interest and investment, highlighting its transformative potential. By producing human-like text, images, voice, synthetic data and insights, generative AI has made the broader possibilities of AI tangible to a global audience.

This paper sets out to go beyond the obvious. Our aim is not to discuss the well-trodden applications of generative AI, such as chatbots and content creation, which are already becoming mainstream. Instead, we aim to take a forward-looking approach, making visionary predictions about how generative AI will evolve and impact industries over the next five years. From specialized domain-specific models to advancements in testing tools and the ripple effects on broader AI investments, we explore trends and possibilities that will shape the future landscape of AI-driven innovation.

Key Predictions for Generative AI Evolution

01 Disruption Across Industries: Early Adopters and Slow Starters

Prediction: Industries that have already embraced the digital renaissance over the past 15 years will early adopt and quickly reap the benefits of Gen AI, while analog companies will fail to build infrastructure quickly enough to capitalize on advancements.

Digital Maturity and Data Infrastructure Readiness

The rate of generative AI adoption is largely dependent on digital maturity and data infrastructure readiness. As different industries vary widely across these dimensions, we can expect their levels of generative AI adoption to vary accordingly.

Digital maturity refers to the extent to which organizations have effectively integrated modern digital technologies into their processes and operations. Industries such as social media and e-commerce are native to the digital sphere, making it easier for them to adopt generative AI, as their processes are already suited for digital integration. By contrast, industries that rely heavily on physical operations, like agriculture, may require digitization efforts before they can substantially leverage generative AI.

Data infrastructure readiness is another key driver of generative AI adoption. Many generative AI applications rely on high-quality, trusted data to yield value. Techniques such as Retrieval-Augmented Generation (RAG), which enhances models by leveraging contextually relevant information, highlight the importance of clean data. More importantly, advancing agentic models capable of operating within enterprise systems, rather than merely reading data, will require robust data foundations.

Organizations must invest in data storage, processing capabilities and governance to reap these benefits. While data infrastructure readiness often correlates with digital maturity, it is a distinct competency that requires investment in technology, talent and processes.

Early Adopters

In digitally mature industries, competitive pressures will spark a flywheel effect of generative AI adoption in multiple ways: as a standalone technology, as an integrated layer enhancing enterprise applications, or by optimizing existing traditional AI/machine learning (ML) models and robotic process automation (RPA) processes. For example, companies in the e-commerce industry may rush to emulate Amazon's success using generative AI to improve their ML models for product recommendation.[1] As organizations observe these proof points, they begin to assess these use cases as higher value and lower risk. In high adoption industries, the greater risk becomes falling behind competitors whose investments are bearing fruit. Further, as an industry gains generative AI competence, more projects will be initiated, causing an even greater divide between leading and lagging industries.

1 Leah Retta, "Two decades in the making – the powerful strategies behind the Amazon recommendation engine," Dynamic Yield, https://www.dynamicyield.com/article/amazon-recommendations/

In finance, early adopters such as **NatWest Group** have already deployed AI-powered tools like the **Cora chatbot**, which provides personalized assistance for account management, payments and fraud prevention.[2] Similarly, **Morgan Stanley's internal chatbot**[3] enhances advisor effectiveness by querying proprietary investment strategies and market research. These and other examples[4] [5]highlight how high-adoption industries leverage generative AI to gain operational efficiencies and competitive advantages.

The Divide

Healthcare is a perfect industry to highlight the divide in digital and analog workflows.[6] Organizations that have established digital infrastructure to facilitate patient interactions can benefit from automated clinical notetaking and patient referral generation, capabilities that are estimated to reduce workload by 70 hours per clinician per month[7]. By comparison, organizations that lack the digital infrastructure in place may need months to years of infrastructure development before they can realize any benefits from the Gen AI tools coming to market.

Slow Starters

In industries with lower digital maturity, generative AI adoption may appear riskier due to a lack of proof points and less obvious use cases. However, this lag presents a major opportunity for those willing to innovate. Companies willing to invest in foundational capabilities, such as digitization and data infrastructure, can realize a significant competitive edge. Generative AI's ability to process and understand unstructured data enables the low-risk implementation of high-impact, low-complexity use cases. The promise of AI's potential can justify investments in digital transformation, positioning these companies to leapfrog competitors with comparatively modest investment to what is required to succeed in AI-leading sectors.

In education, traditional digital platforms like **Chegg** faced disruption due to shifting student behaviors and the rise of generative AI tools.[8] By integrating AI to enhance offerings, platforms such as **Khan Academy** are innovating through tools like **Khanmigo**,[9] an AI tutor powered by GPT-4 that delivers interactive, personalized learning experiences. This case illustrates the potential for slow starters to leapfrog competitors by embracing AI-driven transformation.

2 "NatWest launches Cora+, the latest generative AI upgrade to the bank's digital assistant," NatWest Group, June 10, 2024, https://www.natwestgroup.com/news-and-insights/news-room/press-releases/data-and-technology/2024/jun/natwest-launches-cora-plus-the-latest-generative-ai-upgrade-to-t.html

3 Hugh Son, "Finance: AI on the trading floor: Morgan Stanley expands OpenAI-powered chatbot tools to Wall Street division," CNBC, Updated October 23, 2024, https://www.cnbc.com/2024/10/23/morgan-stanley-rolls-out-openai-powered-chatbot-for-wall-street-division.html

4 "Microsoft, BlackRock to launch $30 billion fund for AI infrastructure," Reuters, September 17, 2024, https://www.reuters.com/technology/artificial-intelligence/microsoft-blackrock-plan-30-bln-fund-invest-ai-infrastructure-ft-reports-2024-09-17/

5 "Democratizing Finance: How AI Is Leveling The Investment Playing Field," Forbes, November 15, 2024, https://www.forbes.com/councils/forbesbusinesscouncil/2024/11/15/democratizing-finance-how-ai-is-leveling-the-investment-playing-field/

6 Ben Manning, "Advantages of Workflow Automation in Healthcare: Minimizing Administrative Burden and Enhancing Compliance," MedTech Intelligence, July 9, 2024, https://medtechintelligence.com/feature_article/advantages-of-workflow-automation-in-healthcare-minimizing-administrative-burden-and-enhancing-compliance/

7 Maria Deutscher, "Healthcare AI startup Abridge reportedly raising $250M at $2.5B valuation", Silicon Angle, October 11, 2024, https://siliconangle.com/2024/10/11/healthcare-ai-startup-abridge-reportedly-raising-250m-2-5b-valuation/

8 Sarah Min, "Chegg shares drop more than 40% after company says ChatGPT is killing its business," CNBC, Updated May 2, 2023, https://www.cnbc.com/2023/05/02/chegg-drops-more-than-40percent-after-saying-chatgpt-is-killing-its-business.html

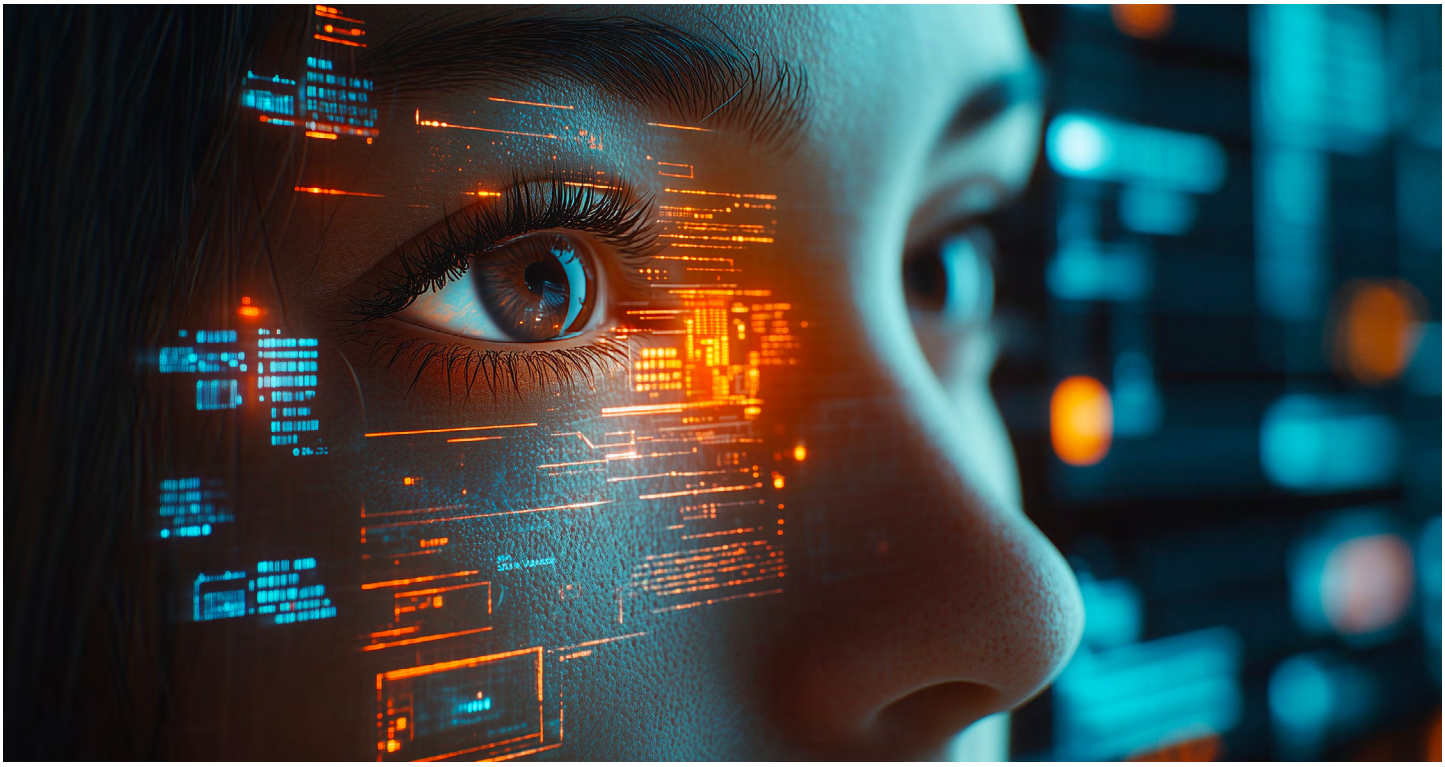
9 Anderson Cooper, "AI-powered tutor, teaching assistant tested as a way to help educators and students," CBS News, 60 Minutes, December 8, 2024, https://www.cbsnews.com/news/khanmigo-ai-powered-tutor-teaching-assistant-tested-at-schools-60-minutes-transcript/

02 AI-Driven Functional Areas Redefining Standards

Prediction: Generative AI will redefine peripheral yet essential business operations, regardless of industry, core focus or technology level.

Generative AI is revolutionizing how businesses approach noncore but essential functions, providing scalable, accessible solutions that enhance efficiency, engagement and decision-making. In customer service, for instance, generative AI-powered tools are transforming interactions by enabling smarter, more dynamic communication. AI chatbots can handle a wide range of inquiries, providing accurate, consistent responses while operating 24/7, reducing wait times and improving customer satisfaction. These tools can also analyze past interactions and customer data to craft personalized responses, creating a sense of individualized attention that strengthens customer relationships. By automating common tasks, such as responding to FAQs or resolving basic issues, businesses can allocate their human customer service teams to more complex and strategic interactions, ultimately lowering operational costs while improving service quality.

In the realm of human resources, generative AI is streamlining processes that are traditionally time-intensive and resource-heavy. Recruitment workflows benefit significantly, as AI systems can draft personalized job descriptions, screen resumes and even conduct preliminary assessments through conversational interfaces. This automation accelerates hiring while ensuring consistency and fairness. Once employees are onboarded, generative AI tools can create customized training modules tailored to individual roles and skill levels, resulting in more effective and engaging development programs and accelerating the new hire processes. Moreover, by analyzing data from employee surveys, feedback and performance metrics, generative AI provides HR leaders with actionable insights to address retention challenges and improve organizational culture.



Administrative processes across industries are also being transformed by generative AI's ability to handle repetitive, mundane tasks with speed and accuracy. Document processing, such as drafting expense reports or summarizing meeting notes, becomes effortless with AI tools that can manage these workflows autonomously. Busy teams can benefit from AI-powered scheduling assistants that coordinate calendars, suggest optimal meeting times and even draft professional communications, saving valuable time and reducing errors. In finance or legal contexts, AI systems can automate the creation of financial summaries or standard contracts, freeing up professionals to focus on higher-value activities.

The versatility of generative AI ensures its applicability across a spectrum of industries and business sizes, from highly technical enterprises[10] to relatively low-tech operations. A small logistics company, for example, could use AI to optimize delivery schedules and streamline customer inquiries, while a regional healthcare provider might deploy it for appointment scheduling and patient communication. Even family-owned businesses can benefit by automating email marketing campaigns or analyzing sales data to enhance customer outreach. These examples demonstrate how AI is not only a tool for cutting-edge innovation but also a low-risk, high-reward investment for businesses of any technical sophistication.

Generative AI's ability to address noncore but critical functions make it an indispensable tool for modern organizations. By automating customer service, streamlining HR processes and reducing administrative burdens, it allows businesses to focus on their core competencies while ensuring operational excellence. Whether it is enhancing internal workflows, improving customer and employee experiences, or driving cost efficiency, generative AI is reshaping the way businesses operate, proving that innovation does not have to disrupt the core to deliver profound value.

10

03 Rise of Specialized AI Models

Prediction: The era of one-size-fits-all AI models will diminish, supplanted by specialized, domain-specific AI solutions that deliver superior performance, relevance and economic value.

By focusing on specific industries or tasks, these models not only provide greater accuracy and context-aware outputs but also reduce operational costs. Businesses can save resources by deploying smaller, more efficient domain-specific models that require less computational power for fine-tuning and inference compared to adapting and running larger, generalized models for niche applications. This combination of precision and cost-effectiveness makes domain-specific models a compelling choice for organizations looking to maximize ROI on AI investments. Examples of areas where domain-specific generative AI could make a significant impact include:

CONTRACT REVIEW AND LEGAL ANALYSIS

AI models tailored for legal applications could analyze complex contract language, identify risks, ensure compliance and even suggest revisions, all while adhering to jurisdiction-specific legal standards.

HEALTHCARE DIAGNOSTICS

Models designed specifically for healthcare could assist in interpreting medical imaging, generating diagnostic insights or personalizing treatment plans based on patient data, with a deep understanding of clinical terminology and regulatory requirements like HIPAA.[11]

FINANCIAL ANALYSIS AND RISK ASSESSMENT

Domain-specific models like BloombergGPT[12] can excel in tasks such as financial reporting, fraud detection or market analysis by leveraging industry jargon and data, delivering insights faster and more accurately than generalized AI.

11 Karan Singhal et al., "Towards Expert-Level Medical Question Answering with Large Language Models," arXiv:2305.09617 [cs.CL], May 16, 2023,https://arxiv.org/abs/2305.09617

12 Wu et al., "BloombergGPT: A Large Language Model for Finance," arXiv:2303.17564 [cs.LG], December 21, 2023, https://arxiv.org/abs/2303.17564

Advances Driving Feasibility

Recent advancements in generative AI, such as parameter-efficient tuning, modular architectures and reinforcement fine-tuning, have made it more practical and cost-effective to develop domain-specific models. These techniques significantly reduce the need for large-scale computational resources while achieving high levels of accuracy and specialization.

For instance, training BloombergGPT, a domain-specific model for financial applications, was extremely expensive when it was first developed, requiring substantial computational resources and funding. However, with modern approaches like LoRA (Low-Rank Adaptation) or adapter modules, a similar model could now be trained for a fraction of the original cost — potentially orders of magnitude less. These advances democratize access to domain-specific AI,[13] enabling smaller organizations and startups to develop tailored models without incurring prohibitive costs.

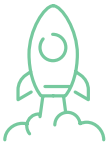
Advantages of Specialization

HIGHER ACCURACY

Specialized models reduce errors by focusing on relevant data.

REGULATORY COMPLIANCE

Tailored AI adheres to industry-specific regulations.



COMPETITIVE EDGE

Incorporating proprietary data enhances uniqueness and value.

This approach will unlock new monetization opportunities for companies, while also emphasizing the critical importance of historical data governance, as such data will enable training new specialized models. Looking ahead, this data will increasingly be combined with synthetic data generated by advanced specialized models, further enhancing their capabilities.

13 Hu et al., "LoRA: Low-Rank Adaptation of Large Language Models", arXiv:2106.09685 [cs.CL], October 16, 2021, https://arxiv.org/abs/2106.09685

04 Polarization of the AI Vendor Landscape

Prediction: A select group of tech giants will control the market for foundation models, while a parallel group of niche vendors will thrive by focusing on industry specialization.

Market Consolidation

Companies like Google, Microsoft, OpenAI and Anthropic will continue to invest heavily in AI and dominate, becoming default platforms with powerful computing resources and the ability to invest heavily. These players will focus on foundational, multi-purpose models with broad applicability across industries. They have the resources and means to acquire smaller innovative startups to further accelerate innovation and serve as operating system-like platforms.

We will see other vendors in specific sectors, such as Tempus Labs in precision medicine,[14] focus on fine-tuning the foundational models released by the tech giants. Smaller or niche companies will thrive by focusing on specific domains (e.g., healthcare, legal, creative industries) or bespoke enterprise solutions, leveraging fine-tuning and domain expertise. In Europe and Asia, we see smaller players in developing AI solutions tailored to regional languages, cultural nuances or local business needs. For example, IndoSat and GoTo have developed Sahabat-AI,[15] [16] a large language model ecosystem which supports a variety of Indonesian languages. By building on top of foundation models from Google and Meta, this project has unlocked unique value for a massive emerging market.

This fragmented vendor marketplace will further amplify the importance of the buy-vs.-build decision, where factors such as cost, benefits, liabilities and the operational requirements for maintenance (including the necessary workforce) will play a critical role in the decision-making process.

Additionally, the fragmented market introduces risks, as some players may eventually disappear or merge. This consolidation could pose significant challenges to clients, potentially threatening their business continuity.

14 "AI-enabled precision medicine," Tempus Labs, https://www.tempus.com/

15 "Indonesia's Indosat, GoTo launch local-language AI model," Reuters, November 13, 2024, https://www.reuters.com/technology/artificial-intelligence/indonesias-indosat-goto-launch-local-language-ai-model-2024-11-14/

16 Kitty Wheeler, "Indosat & GoTo: How AI is Bridging Global Linguistic Gaps," Technology Magazine, November 15, 2024, https://technologymagazine.com/articles/indosat-goto-how-ai-is-bridging-global-linguistic-gaps

Differentiation by Ethics and Compliance

One consideration that will impact both the giants and the niche players is the ability to differentiate by ethics and compliance, leading to further polarization. AI will continue to be scrutinized heavily as far as trust, transparency and compliance with regulations. Vendors will need to demonstrate explainability, data security and adherence to local laws. Regulations like the EU AI Act and U.S. frameworks will force vendors to differentiate based on trust, transparency and compliance. The larger vendors like Google and Microsoft have the means to invest heavily in these areas where this may be more challenging for the smaller niche players whose ability to focus on speed, agility and cost help them compete.

Geopolitical and Regional Polarization

The evolving landscape of artificial intelligence is deeply intertwined with global power dynamics, reflecting both competition and collaboration. From the dominance of U.S. and Chinese firms to the strategic rise of regional frameworks like the EU's AI Act, these developments highlight the geopolitical and governance challenges shaping the future of AI.

DOMINANCE OF U.S. AND CHINESE FIRMS

Companies like OpenAI, Google and Microsoft in the U.S., and Baidu, Alibaba and Tencent in China, lead in developing foundation models. This concentration underscores the competitive edge these nations hold in AI innovation.[17] [18]

RISE OF REGIONAL COLLABORATIONS

Initiatives like the European Union's AI Act promote cross-border cooperation among EU nations to counterbalance U.S. and Chinese dominance, fostering a more balanced and competitive AI ecosystem.[19]

17 Ryan Hass and Zach Balin, "US-China relations in the age of artificial intelligence," Brookings Institution, Research: January 10, 2019, https://www.brookings.edu/articles/us-china-relations-in-the-age-of-artificial-intelligence/?utm_source=chatgpt.com

18 Hemant Taneja and Fareed Zakaria, "Public-private partnerships: AI and the New Digital Cold War," Harvard Business Review, September 26, 2023, https://hbr.org/2023/09/ai-and-the-new-digital-cold-war

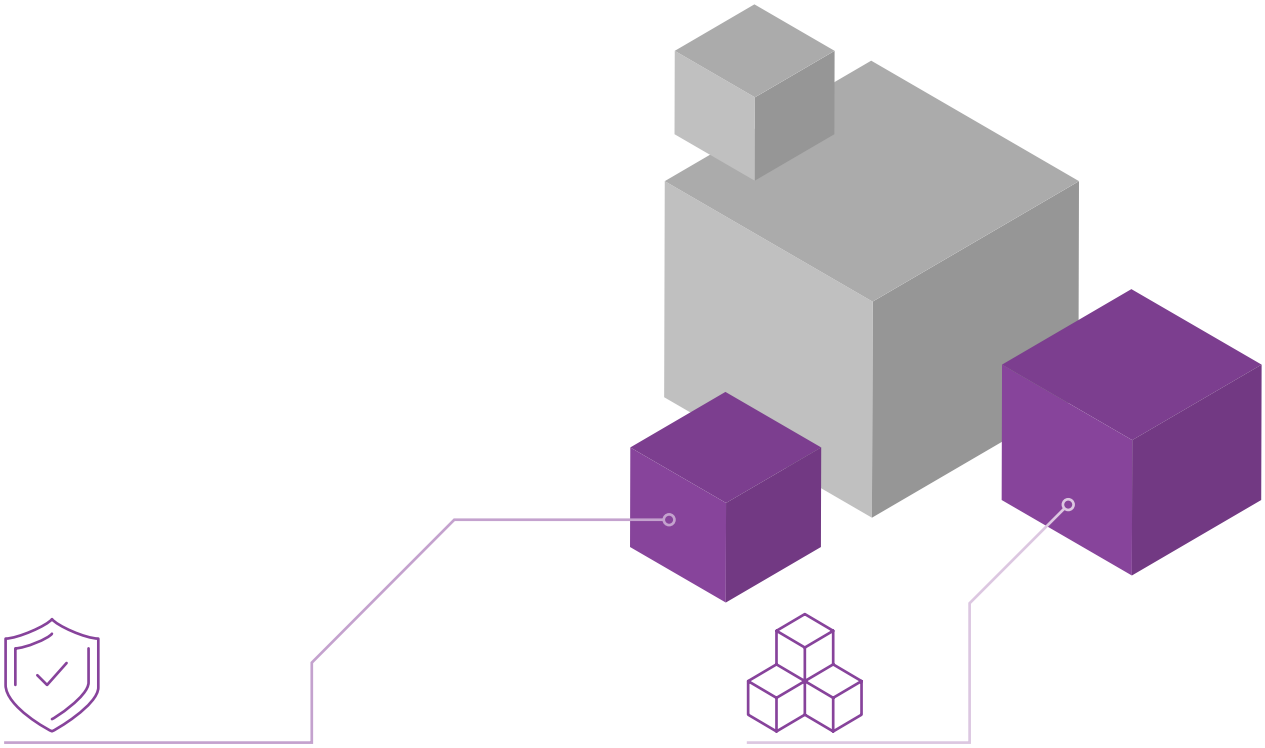
19 Raluca Csernatoni, "Charting the Geopolitics and European Governance of Artificial Intelligence," Carnegie Europe, March 6, 2024, https://carnegieendowment.org/research/2024/03/charting-the-geopolitics-and-european-governance-of-artificial-intelligence?lang=en&center=europe

05 Generative AI as a Catalyst for Broader AI Investments

Prediction: Generative AI will drive increased investment in AI and data infrastructure across industries, benefiting not only generative AI but artificial intelligence broadly.

Generative AI represents an evolution in AI adoption. Unlike earlier technologies, it is widely accessible and digestible to the public, fueling hype that, while sometimes speculative, has precipitated unprecedented attention. This spotlight has become a gateway for investments that extend beyond foundational AI systems and data ecosystems — a rising tide that will lift all boats.

This pattern of spillover investment is not new. Historically, high-profile technologies have catalyzed investments broader than their original scope. For instance:



DEFENSE-DRIVEN AI INVESTMENT

Military interest in AI applications, such as autonomous systems and decision support, led to significant investment in data infrastructure — an essential foundation for enabling these technologies.

THE CRYPTO BOOM AND CYBERSECURITY

While mainstream crypto adoption was limited, it spurred substantial investments in cybersecurity and blockchain technologies.

Generative AI is now playing a similar role, attracting funding that bolsters underlying and adjacent capabilities. Established use cases, such as customer service, healthcare and supply chain optimization, will advance as organizations build the data infrastructure and systems needed to support generative AI and traditional AI alike.

For example:

CUSTOMER SERVICE

Generative AI draws attention to chatbots and virtual assistants, which have long been customer service staples, but most resulting investments will focus on improving domain-specific natural language processing (NLP) and sentiment analysis.

HEALTHCARE

AI-powered tools already analyze medical imaging, predict outcomes and support clinical decisions; future funding will target better accuracy, broader use cases and seamless integration with workflows. Generative AI has brought new excitement in AI use cases, but investments will likely focus on refining diagnostic models, improving regulatory compliance and enhancing healthcare-specific data systems.

SUPPLY CHAIN OPTIMIZATION

Predictive and prescriptive AI models already drive supply chain efficiencies, such as demand forecasting and inventory optimization. Generative AI adds value in scenario planning and reporting, but investments will largely enhance predictive algorithms, real-time data integration and supply chain resilience.

As organizations look to adopt generative AI, they often find gaps in their readiness to support such applications, prompting investments in:

DATA MODERNIZATION

Improving data quality, accessibility and system integration to support advanced AI.

CLOUD AND COMPUTE RESOURCES

Scaling storage and processing capabilities.

AI TARGET OPERATING MODEL

Evolving current operating model to enable an adequate adoption of AI and unlock its benefits.

AI GOVERNANCE

Establishing frameworks for ethical and efficient AI usage.

These investments create a ripple effect, driving progress across traditional AI fields and emerging disciplines. Generative AI, while transformative, is also a catalyst for long-term innovation across industries.

Strategic Recommendations

INVEST IN DIGITAL INFRASTRUCTURE NOW

Generative AI tools will deliver meaningful benefits only to organizations that have the foundational digital infrastructure in place. Companies with robust systems for data collection, storage and integration will be best positioned to capitalize on AI-driven advancements, from automation to data insights. Organizations without these capabilities face a longer and more costly implementation timeline, delaying their ability to extract value from AI solutions. Businesses should start road-mapping their digital infrastructure and prioritize building or upgrading their cloud systems, data pipeline and integrated platforms, to ensure they are ready for the next wave of generative AI applications.

IDENTIFY COSTLY AND AUTOMATABLE AREAS OF YOUR BUSINESS

Generative AI thrives in tasks that are repetitive, data-heavy and time-consuming, making it an ideal solution for high-cost, high-labor areas of operations. Organizations should conduct a thorough analysis to identify processes — such as customer service interactions, data entry, compliance reporting or research synthesis — that can be streamlined or automated using AI tools. By targeting these areas, businesses can reduce operational costs, improve efficiency and free up valuable human capital for higher-value tasks, ensuring maximum ROI on AI investments.

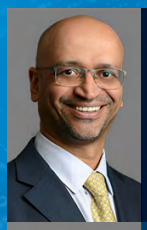
PRIORITIZE AI GOVERNANCE AND ETHICAL FRAMEWORKS

As generative AI becomes increasingly embedded in business processes, organizations must proactively address the risks associated with its implementation. These include bias in AI outputs, misuse of generative models and unclear accountability for AI-driven decisions. Companies should establish clear governance frameworks that ensure transparency, fairness and compliance when deploying AI solutions. This includes creating oversight committees, developing internal policies for AI use and establishing audit processes to validate AI outputs. A strong governance approach will not only mitigate risks but also build trust with stakeholders and customers, positioning organizations as responsible leaders in AI adoption.

Conclusion

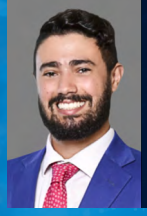
Generative AI represents a transformative force across industries, driving new levels of innovation, efficiency and customer engagement. However, realizing its full potential requires strategic preparation and thoughtful investment. By focusing on building digital infrastructure, identifying opportunities for automation and establishing robust governance frameworks, organizations can ensure they are prepared to harness the opportunities of generative AI. Businesses that act now will gain a competitive edge, while those that delay may face significant barriers to adoption as the AI landscape continues to evolve.

KEY CONTACTS

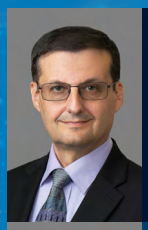


ANIL KUMAR
Managing Director
anil.kumar@alvarezandmarsal.com

MIGUEL ROMANILLOS
Director
mromanillos@alvarezandmarsal.com



JAY DAWAHARE
Manager
jdawahare@alvarezandmarsal.com



DAN SIMION
Managing Director
dsimion@alvarezandmarsal.com

GRAY CANNON
Manager
gcannon@alvarezandmarsal.com

Follow A&M on:

ABOUT ALVAREZ & MARSAL

Founded in 1983, Alvarez & Marsal is a leading global professional services firm. Renowned for its leadership, action and results, Alvarez & Marsal provides advisory, business performance improvement and turnaround management services, delivering practical solutions to address clients' unique challenges. With a world-wide network of experienced operators, world-class consultants, former regulators and industry authorities, Alvarez & Marsal helps corporates, boards, private equity firms, law firms and government agencies drive transformation, mitigate risk and unlock value at every stage of growth.

To learn more, visit: **AlvarezandMarsal.com**

ALVAREZ & MARSAL
LEADERSHIP. **ACTION. RESULTS.**℠

458203-45529/February 25 9525_FINAL