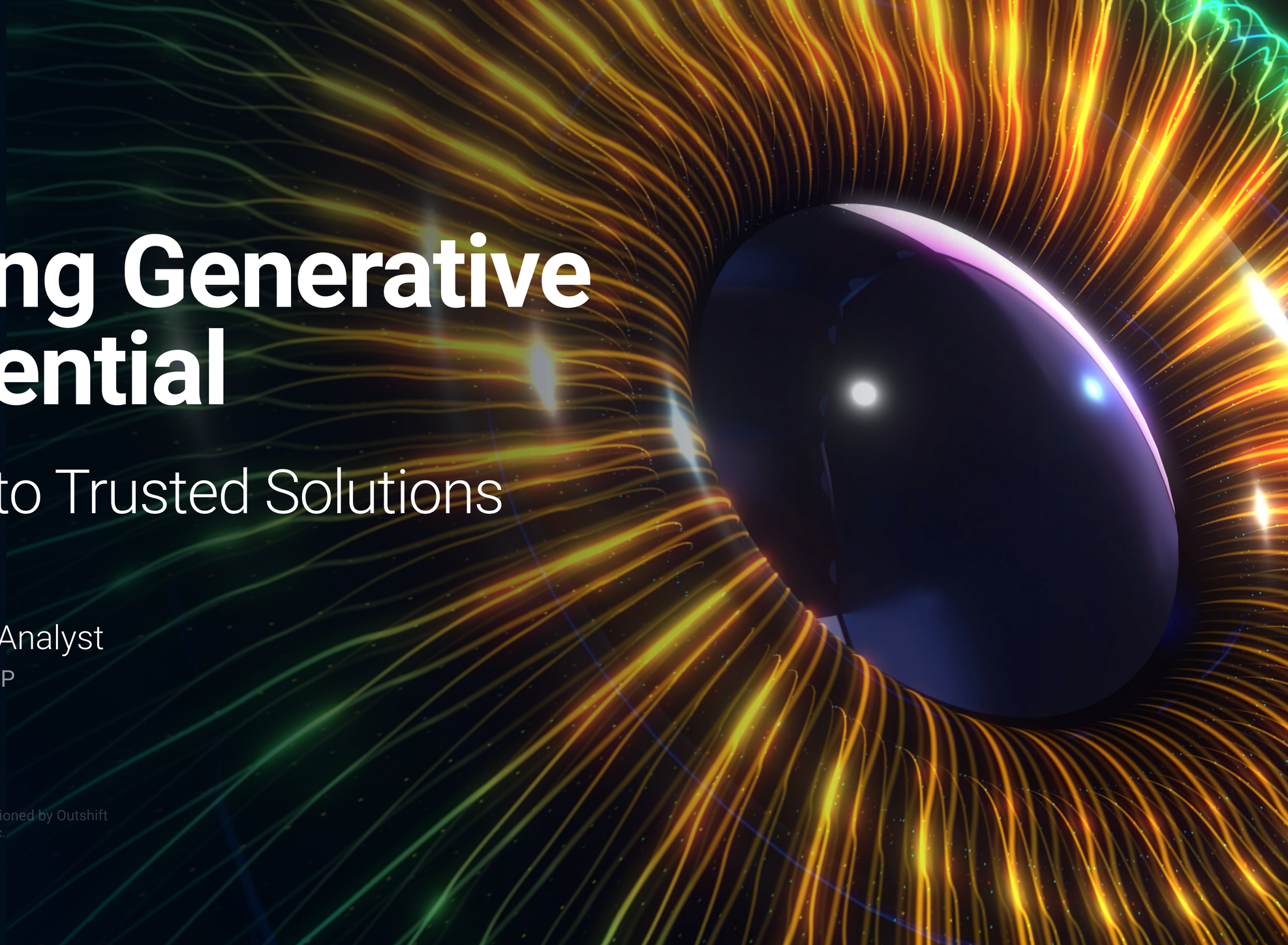
Enterprise Strategy Group™ by TechTarget

Unlocking Generative AI's Potential

A Fast Track to Trusted Solutions



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ENTERPRISE STRATEGY GROUP

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Introduction

It's clear that generative AI (GenAI) is no longer the next new thing. It's not around the corner, up and coming, imminent, or the object of technologists and think tanks.

It is a here-and-now tool that is already transforming how organizations conduct their business activities and accomplish their most critical goals. More than that, it has unlocked a wealth of innovation shaped not only by technical geniuses but also by pragmatic business leaders.

Anyone reading this eBook certainly has heard of GenAI, and chances are very high that most business and IT professionals have been at least tangentially involved in GenAI in their organizations. Whether it's in conceiving, planning, developing, deploying, or managing a GenAI project, this groundswell of "first-generation" GenAI adoption has already far exceeded critical mass. That's why it's not simply the next new thing but rather an effective, highly leverageable tool to create new, almost unimaginable business value.

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An Overview of GenAI and Why It Matters So Much

When TechTarget's Enterprise Strategy Group took a deep look at GenAI and organizations' plans for the technology, it uncovered a few truths.

GenAI is being used in pragmatic, business-critical (or even mission-critical) applications, such as:[1]

Cybersecurity resiliency

Digital transformation

Cutting costs

Automation

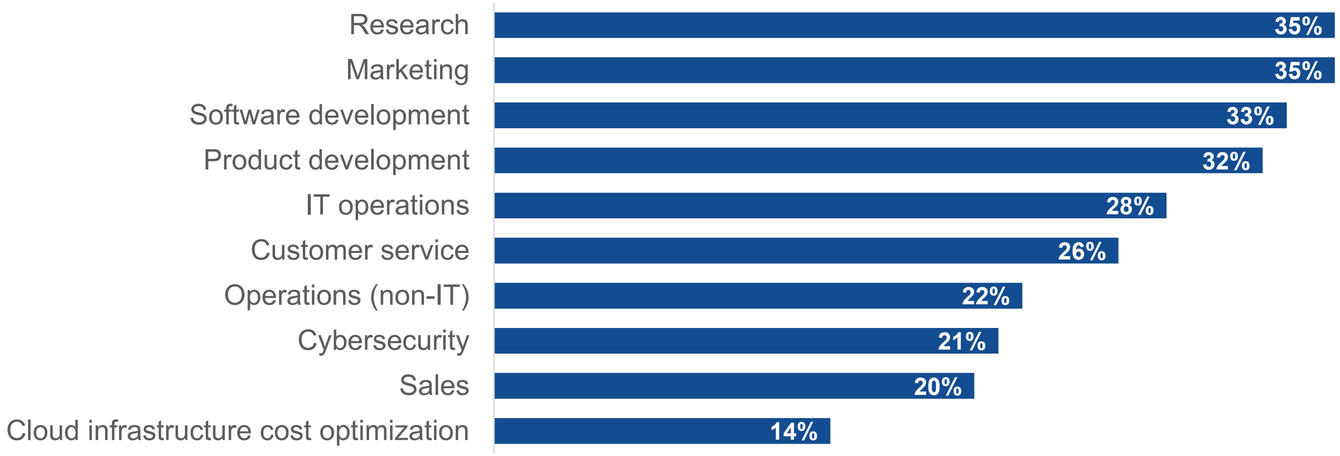
Application modernization

Additionally, a major trend is the adoption of GenAI across a wide range of job functions and departments throughout the enterprise. Heading the list of departments that are planning to embrace GenAI are customer service (48%), marketing (45%), and software development (43%). A variety of other job functions are planning to adopt GenAI in the future, including research (39%), IT operations (38%), product development (37%), and cybersecurity (32%).[2]

There is little debate that GenAI not only has gained traction in the enterprise, but that it has rapidly accelerated as well. GenAI pilots and sandbox projects have been deployed, results have been assessed, and organizations are putting together the financial, technological, and human resources necessary to make GenAI a central part of their long-term business strategy.

That is not to say that every GenAI project will be an unfettered success, will run smoothly, will stay within budgetary guidelines, or will deliver the anticipated results. There still are many lessons to learn and obstacles to overcome.

Top 10 Business Areas of Planned GenAI Usage



"Most organizations (58%) have already deployed GenAI in production systems, are experimenting with GenAI, or are planning to adopt GenAI within the next 12-24 months."

[1]Source: Enterprise Strategy Group Research Report, *Beyond the GenAI Hype: Real-World Investments, Use Cases, and Concerns*, August 2023.
[2]Ibid.

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Opportunities for GenAI to Change … Everything

Opportunities for GenAI to Change … Everything

GenAI's ability to transform the way in which organizations use data for economic, operational, and even reputational gains is now widely embraced and established. If there is any lingering debate, it's on how much, how fast, and how efficiently GenAI can be leveraged to support more use cases.

GenAI's coming role in nearly every organization larger than a neighborhood lemonade stand is essential for a number of reasons, not the least of which is how to leverage the massive growth in data coming from more and more data sources. The evolution from the days of PC-based servers and legacy data centers is now complete: New, wider-ranging and more functional architectures, including edge systems, internet of things endpoints, and ubiquitous cloud computing, generate oceans of data—a trend that will only accelerate.

In addition to having more data—and more useful data—at its disposal, GenAI has benefitted from numerous other trends:

AI infrastructure has made incredible gains in its ability to capture, process, store, analyze, and share all this data—and actually make sense of it all in real time. Research indicates that high-performance computing capabilities is the most commonly cited factor organizations consider important when selecting AI infrastructure.[3]

New models are constantly emerging to speed and improve training and inference.

GenAI and machine learning (ML) are major shapers of organizations' overall drive to transform their data science initiatives. In fact, 66% of organizations say improving operational efficiency is a primary business objective of their data science initiatives, followed by improving product development and innovation (60%).[4]

66%

of organizations say improving operational efficiency is a **primary business objective** of their data science initiatives.

[3]Source: Enterprise Strategy Group Research Report, *Navigating the Evolving AI Infrastructure Landscape*, September 2023.
[4]Source: Enterprise Strategy Group Research Report, *Decoding the Data Universe: The State of Data Science and Machine Learning*, January 2024.

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Improvements From GenAI Yield Use Cases Galore

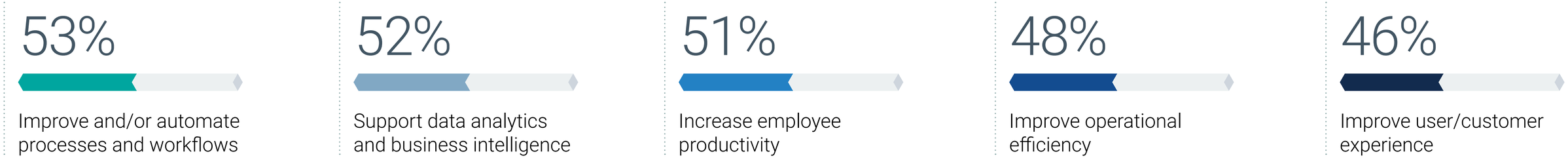
Many organizations already indicate that they are seeing numerous areas of substantial organizational improvements from GenAI, with primary benefits including improving processes and workflows (53%), supporting data analytics (52%), enhancing employee productivity (51%), improving operational efficiency (48%), and improving the user/customer experience (46%).[5]

This has resulted in the emergence of more use cases, particularly ones with wide-ranging potential to improve efficiency and effectiveness in achieving business goals. Certainly, content creation in all its forms—written, oral, artistic, visual, and more—is at the top of every organization's GenAI use case portfolio, likely followed by everything from data analytics and software code creation to cybersecurity and customer experience.

Corner office conversations, boardroom discussions, and everyday lunchroom conversations—every environment and scenario where employees gather to talk about the future of their organization—are all diving into the art of the possible when it comes to GenAI.

And that could be one of the biggest benefits GenAI brings to organizations: the freedom and license to imagine, innovate, and invent like never before. The excitement and incentive for organizations to consider what feels like unlimited possibilities is being shaped by GenAI.

Top 5 Primary Benefits of Using Generative AI



[5]Source: Enterprise Strategy Group Research Report, *Beyond the GenAI Hype: Real-World Investments, Use Cases, and Concerns*, August 2023.

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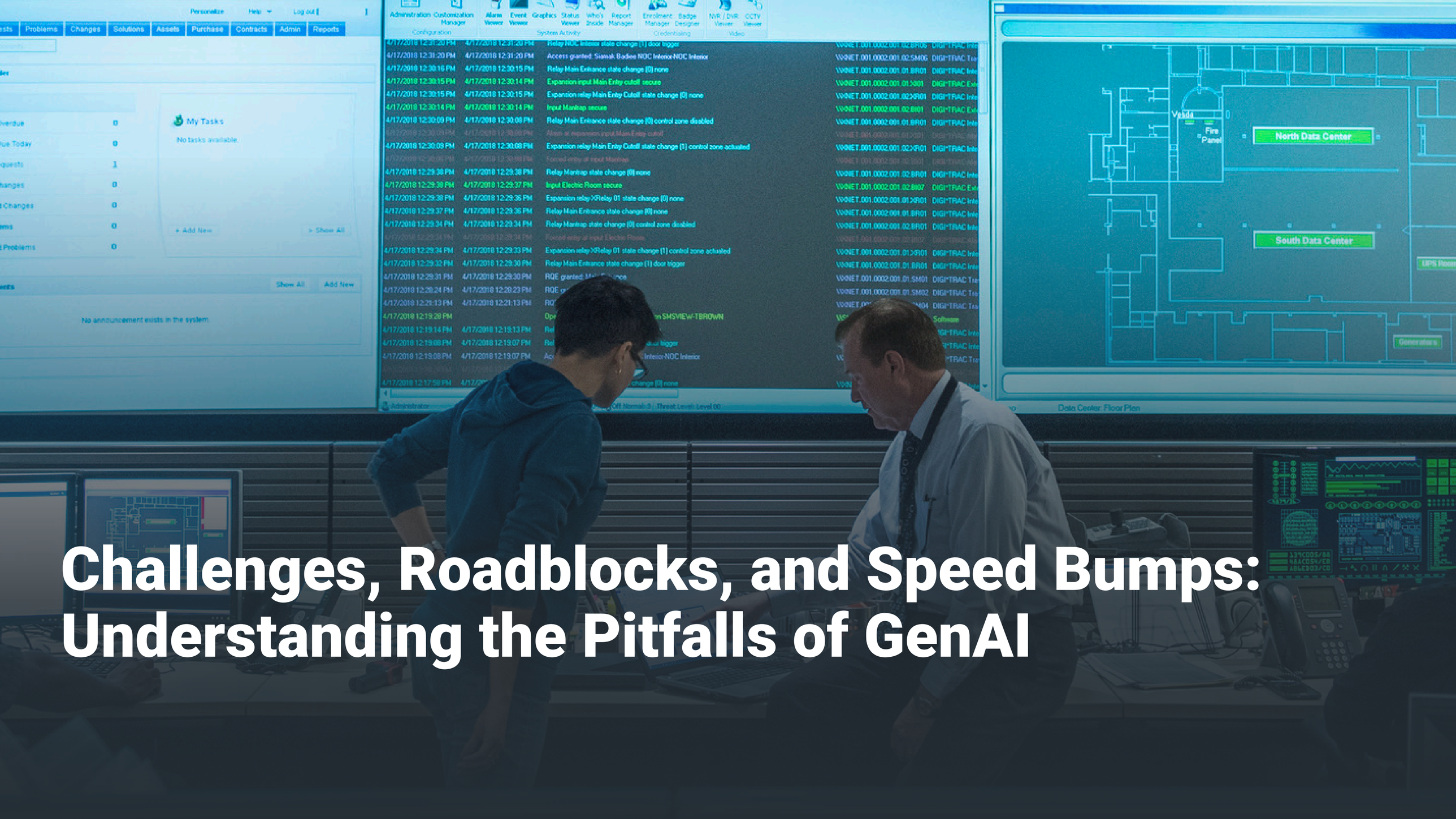


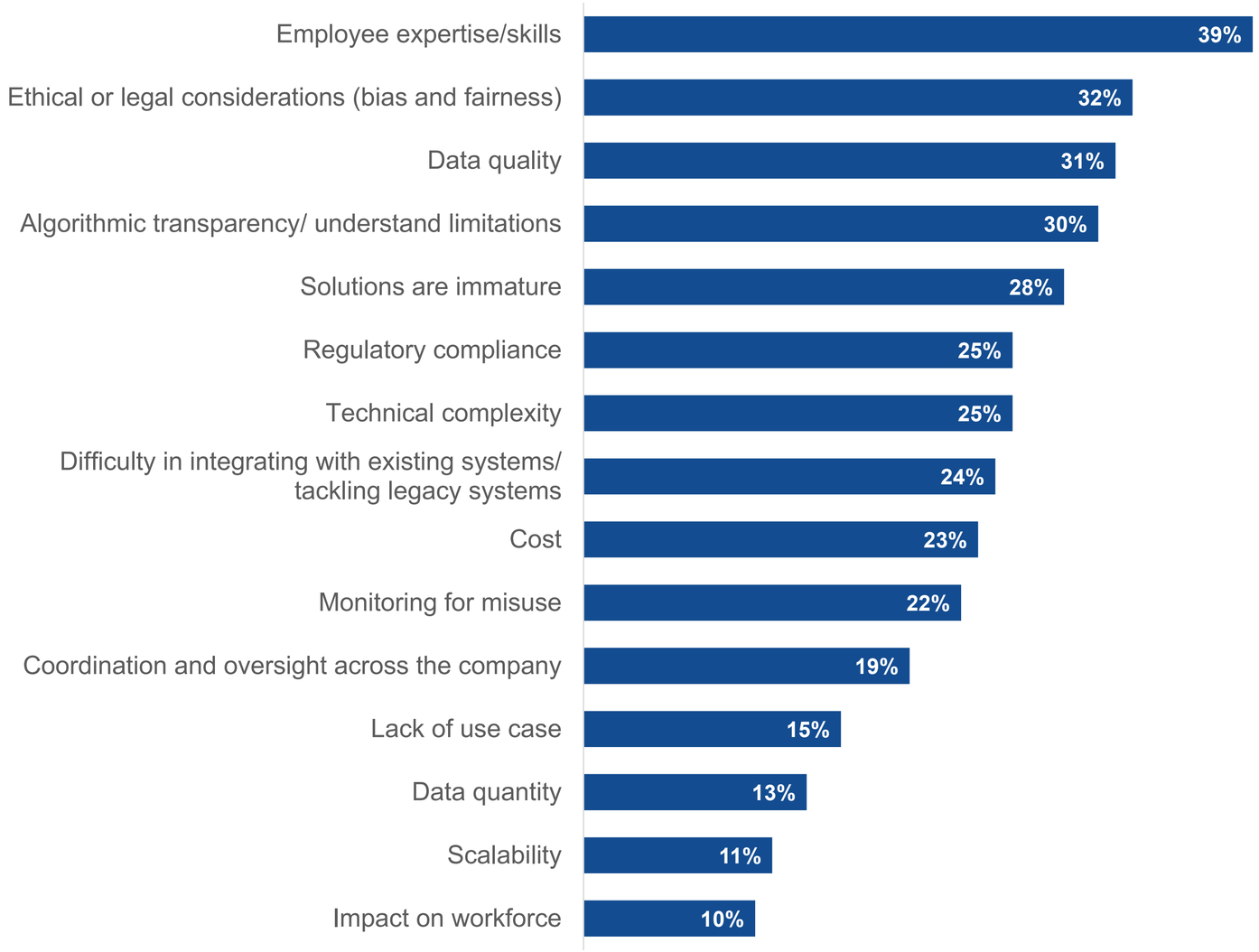
Challenges, Roadblocks, and Speed Bumps: Understanding the Pitfalls of GenAI

Challenges, Roadblocks, and Speed Bumps: Understanding the Pitfalls of GenAI

Now that we've pumped up GenAI's future and the opportunities for organizations to fully leverage it, it's smart to take a step back and acknowledge a few real-world truths.

Fulfilling all this potential won't be easy; even when successful GenAI deployments have been made, there have been clear challenges. There are numerous issues that organizations have had to confront, and they will undoubtedly continue to do so even as GenAI's success stories build. These challenges (as shown in the research chart) are broad in nature and highlight everything from people and ethics to data and compliance to technical complexity and cost.[6]

Top Challenges Faced When Implementing Generative AI



[6]Source: Enterprise Strategy Group Research Report, *Beyond the GenAI Hype: Real-World Investments, Use Cases, and Concerns*, August 2023

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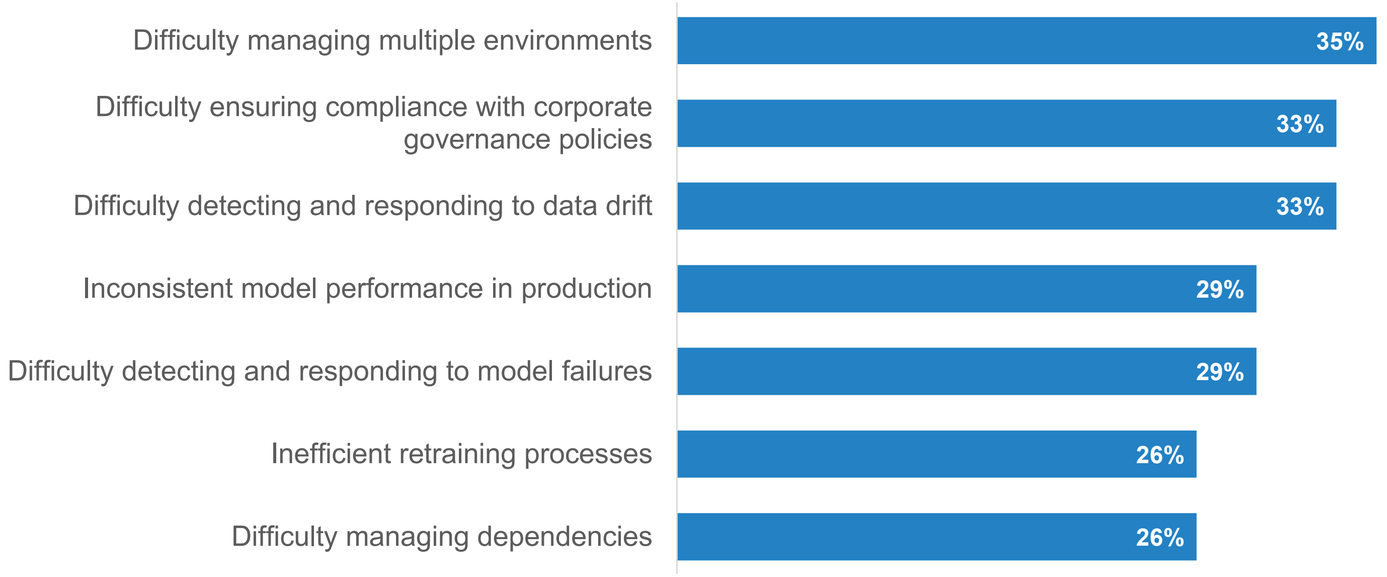
Moving From Development to Production With MLOps

Only 40% of organizations have a well-defined, formal process for moving ML models into production environments, highlighting the fact that organizations are not yet where they need to be when it comes to MLOps. And while another 48% have some formalized processes, they admit improvements are needed. Either way, many organizations acknowledge that they face several significant challenges in managing deployment and monitoring of models. At least one-third of organizations say they are confronted with issues relating to managing multiple environments (35%), ensuring compliance with governance policies (33%), and detecting and responding to data drift (33%).[7]

Even more important is the need for organizations to step up their progress toward improving the time to value of AI. For instance, over a three-year period, organizations said their ability to start seeing value from their AI initiatives immediately increased only slightly, from 7% to 11%. On a more positive note, the percentage of organizations saying they started seeing value within one to three months jumped from 32% to 61% over that same three-year period.[8]

"**Only 40%** of organizations have a well-defined, formal process for moving ML models into production environments."

Top Challenges When Managing the Deployment and Monitoring of Models



As important as these data points are in highlighting the challenges organizations must overcome in their GenAI journeys, many of the key challenges are quite visceral, prompting an emotional response about issues that tend to keep executives, board members, and stakeholders up at night. These include:

Using GenAI in a way to create a sense of responsibility, confidence, and trust. **Doing the right thing matters.**

Achieving the desired outcomes as rapidly and efficiently as possible. **Speed matters.**

Ensuring the highest level of data security and protection of sensitive, proprietary information. **Privacy matters.**

Achieving the anticipated level of financial return and business insights. **Results matter.**

[7]Ibid.

[8]Source: Enterprise Strategy Group Research Report, *Navigating the Evolving AI Infrastructure Landscape*, September 2023.

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Balancing In-house Models With Third-party Models

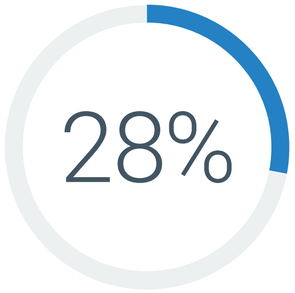
Balancing In-house Models With Third-party Models

Organizations can approach supporting generative AI initiatives using large language models (LLMs) from different angles, whether that be leveraging third-party proprietary models, utilizing open source models as a starting point, or developing a net-new in-house proprietary model. And Enterprise Strategy Group research highlights that there is still a fair bit of uncertainty with which approach is best.

While there is plenty of opportunity for third-party vendors and service providers in the GenAI market to provide proprietary pretrained models, it is clear that many organizations will rely on open source models to some extent. In fact, nearly one-third of organizations (30%) have plans to utilize an open source LLM as a starting point to develop their own GenAI solution in-house.[9] This represents a set of organizations that might want more control, have their own data, and/or have in-house expertise. In addition, nearly 1 in 4 organizations (23%) plan to go the open source route but anticipate working with a third-party provider to help move development forward, while more than 1 in 4 (28%) will look to a third-party provider that offers access to a proprietary model via prompt or API.[10]

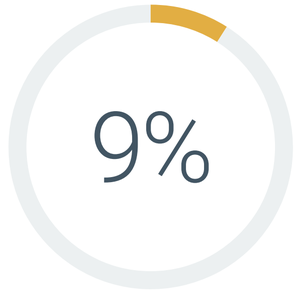
Approaches Organizations Are Actively Taking in Their Pursuit of GenAI

We will utilize an open source LLM and develop a generative AI solution in house.



We will work with a third-party provider that offers access to a proprietary model via prompt and/or API.

We will work with a third-party provider that offers access to an open source LLM and allows us flexibility to customize.



We will develop a net-new LLM entirely in house.

[9]Source: Enterprise Strategy Group Research Report, *Beyond the GenAI Hype: Real-World Investments, Use Cases, and Concerns*, August 2023.
[10]Ibid.

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Balancing In-house Models With Third-party Models *(continued)*

	Leveraging Third-party Proprietary Models	Using an Open Source Model	Developing a Net-new In-house Proprietary Model
Pros:	**Speed to market.** Access to sophisticated AI capabilities without the development time. **Less initial investment.** No need for extensive research and development resources upfront. **Proven solutions.** Often backed by established companies with support and updates.	**Cost-effectiveness.** Generally free to use, modify, and distribute, reducing financial barriers to entry. **Flexibility and customization.** Can be tailored to meet the specific needs of an organization. **Community support.** Able to benefit from the knowledge and contributions of a global community of developers.	**Complete customization.** Built to spec, fulfilling the unique requirements of the business. **Competitive advantage.** Offers the potential for unique capabilities not available to competitors. **Control over data.** Data remains within the organization, mitigating privacy and security concerns.
Cons:	**Cost over time.** Licensing fees or per-use costs can add up, making it expensive in the long run. **Limited customization.** Dependence on the provider's roadmap and priorities, which might not fully align with specific business needs. **Data privacy concerns.** Sharing sensitive or proprietary data with a third party can pose security risks.	**Resource intensity.** Requires skilled personnel to customize, maintain, and update. **Potential security risks.** Open source projects might not always prioritize security updates, leading to vulnerabilities. **Lack of formal support.** Relying exclusively on community support can be unpredictable and inconsistent.	**High costs.** Significant investment in terms of time, expertise, and financial resources for development and maintenance. **Long development time.** Can lead to slower market response compared to adopting existing solutions. **Risk of failure.** High investment with no guarantee of success; development might not result in a viable product.

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Proactively Prepping for GenAI Integration

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Integrating GenAI with existing systems can be complex and challenging. Whether a retailer is concerned with using GenAI in concert with inventory management to reduce merchandise shrinkage or a media company is looking to optimize revenue opportunities in its subscriber management application, aligning GenAI tools with business-critical systems can be harder than it looks.

Unquestionably, taking the right steps in GenAI integration with core systems requires the right talent, modern technology, and the proper use cases, as well as the appropriate level of financial investment. It also must be done as part of a thorough, open-minded analysis that starts with use cases and workloads.

To make this integration process as efficient and successful as possible, consider it as part of a three-phase development and deployment process.

In Phase 1, organizations start with:	• Data preparation. • GenAI model selection. • Commitment to the right partner.
During Phase 2, organizations settle on:	• Integration approach and priorities, such as integrating to which systems, for which reasons, and in which order. • Model training. • Methods for testing, analysis, and rearchitecting the solution. Organizations should be ready to repeat these to ensure there is no unexpected variation in the results. • Decisions regarding APIs, such as if they are needed at all or which ones are necessary, and ensuring the proper documentation of those integrations. • Selection, installation, and testing of the AI infrastructure.

Finally, Phase 3 is where much of the high-visibility activities take place, including:	• Installation and all relevant integrations.
	• Testing and analysis in real-world production environment.
	• Implementing adjustments, as necessary.
	• Monitoring and maintenance.
	• Conducting governance, risk, and compliance due diligence, such as audit trails, reports, and documentation for:
	  o Security.
	  o Data protection.
	  o Privacy.
	  o Data governance.

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Conclusion

Chances are good that, even before you read this eBook, you knew that GenAI is a big development in organizations’ efforts to use more and more data in new and astonishing ways. Yes, seeing instantaneous answers to our questions about how to cook a blueberry pie or to learn the lyrics to a foreign country’s national anthem can be pretty neat, but the real value in GenAI is turning data into insights we never even knew could be unearthed in order to achieve previously unreachable goals.

Still, for all the exciting opportunities presented by GenAI, organizations also realize that there are significant challenges and obstacles that must be overcome in order to fulfill the technology’s full potential. Specifically, organizations need to address issues such as managing substantial Capex spending on AI infrastructure, securing massive amounts of data to protect privacy and other proprietary information, and using GenAI-created data in responsible, appropriate ways.

The great news is that new solutions are coming to the forefront all the time—solutions that help organizations achieve trustful, rapid delivery of GenAI apps and, with them, stunning insights to help organizations make smarter, faster, more impactful decisions. Normally, doing that requires big commitments to on-staff expertise, big technology investments, and extensive knowledge in AI responsibility, safety, and security.

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