

# Generative Al: From buzz to business value

An exclusive KPMG survey shows how top leaders are approaching this transformative technology

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# on Introduction

Overnight, generative artificial intelligence (AI) has become a global sensation. Predictions of its potential impact on society, employment, politics, culture, and business fill the media and the internet. Business leaders are intrigued by the possibilities and are convinced that generative AI is truly a game-changer.

KPMG launched its 2023 KPMG Generative Al Survey in March to look beyond the hype and understand how enterprises can make progress toward real, meaningful generative Al results. The chief finding: Across industries and functions, more than three-quarters of executives (77 percent) see generative Al as by far the most impactful emerging technology they will use, and 71 percent plan to implement their first generative Al solution within two years.

The possibilities for using generative AI to transform how enterprises create content, engage users, develop software, and analyze data appear limitless. But, as with many emerging technologies, the path from buzz to business value is not simple or straightforward. Generative AI is still in its infancy and evolving rapidly. Before executives invest in broad adoption, they have many unanswered questions Harnessing the transformative power of generative AI will require a balance of speed with thoughtful planning and careful risk mitigation.

about security, reliability, impact on jobs, and potential value. Executives in our survey cite lack of talent, cost issues, and unclear applications as top barriers to implementation.

This report is based on survey data from 300 executives from across industries and geographies, as well as the insights of KPMG advisers in artificial intelligence, technology enablement, strategy, and risk management. The bottom-line assessment: Harnessing the transformative power of generative AI will require a balance of speed—first-mover advantage could be powerful—with thoughtful planning and careful risk mitigation. We discuss the why, where, when, and how of generative Al adoption, and offer practical insights for responsibly integrating generative Al solutions into individual organizations. Our goal is to help guide the critical dialogue taking place in C-suites about how to use generative Al to empower employees, work smarter, and compete better. **N2** 

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# Survey highlights

#### **Opportunities:**







believe generative AI will increase workforce productivity.



will implement their first generative AI solution within the next two years.



believe generative AI will help their business gain a competitive advantage over competitors.



Top functional areas being explored: IT/tech and operations

#### **Challenges:**



think generative AI implementation introduces moderate to high-risk concerns.



are still at the initial stages of evaluating risk and risk-mitigation strategies for generative AI.

Top barriers to implementation:



Lack of skilled talent cost/lack of investment, and lack of clear **business case** 



Top risk focus areas: **Cybersecurity and** data privacy

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# What's the buzz?

An evolution of Al algorithms, especially deep learning technologies, generative Al models come out of the box having learned how to use the foundations of human communication language, art, music, programming code, etc. to make new content similar to that of humans. Aptly also known as "foundational models," generative Al can be scaled and deployed across

# institutions far faster and with less cost than human-only processes.

With the potential to be used across a variety of business use cases to save time, money, and effort, new applications of generative AI are being researched, developed, and adopted at an astonishing pace. Generative AI technology attracted more than \$1.37 billion venture capital dollars in 2022 more than was invested in the previous five years combined.<sup>1</sup> Robust growth is expected to continue as big tech companies like Microsoft, Alphabet, and Amazon, as well as newer generative AI startups like OpenAI, Synthesia, and Jasper AI continue to fund new innovation and push the envelope.



#### Exhibit 2: Generative AI market size 2022-2032



Sources: Limited availability of updated report, hence an estimation for 2022 as well was included, though the year has passed; Precedence Research; Grand View Research; Quidgest quoted Gartner numbers

<sup>1</sup> Source: Marina Tempkin, "VCs try to parse through the 'noise' of generative AI," Pitchbook, December 23, 2022

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# What enterprise leaders are thinking about generative Al

## **Truly transformative: Perception and outlook**

Generative AI stands apart from other recent innovations for its massive leap in ability and its potential breadth of impact across any industry and business function. For the first time in history, we have a technology that can directly augment humans in knowledge creation. Where other technologies are indirect enablers of knowledge work, generative AI has enabled the development of a true smart assistant that inches closer to human cognition and reasoning. And where recent technological advancements like blockchain, Web3, and quantum computing affected pockets of an industry or specific business functions, generative AI has applications across the end-to-end enterprise. Business leaders are highly interested in the capabilities and opportunities generative AI can unleash and believe it has the potential to reshape how they interact with customers, run their workplaces, and grow their revenue. Regardless of sector or function, 77 percent rank generative AI as the emerging technology that will have the biggest impact on the business over the next 3 to 5 years, ahead of other trending technological capabilities such as advanced robotics, quantum computing, augmented reality/virtual reality (AR/VR), 5G, and blockchain. Sixty-four percent of respondents expect the impact of generative AI on their organization in that timeframe to be medium.

# Exhibit 3: 77% of leaders rank generative AI as the most impactful technology



Source: Generative Al survey, March 2023

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The top drivers influencing enterprise need for generative AI are all major, potentially disruptive ones: technological factors, changing customer demands and experiences, and market competition. Our survey shows that corporate leaders perceive generative AI as a capability that could give companies an edge in these crucial strategic and operational areas. According to our research, more than 60 percent of respondents view generative AI as an opportunity to drive greater efficiencies, grow market share and revenue, and gain a competitive edge.

#### 329 31% 20% 18% 7% 4% 2% Generative AI represents Generative AI represents Generative AI represents Generative AI will a significant opportunity a significant opportunity a significant threat to our significantly help our for our company to grow for our company to drive company's position in business gain a better efficiencies in terms of revenue/ the market competitive advantage market share over our competitors

#### Exhibit 4: Executives see generative AI more as opportunity than threat

Notes: Sum might not add up to 100% due to rounding off Sources: Generative AI survey, March 2023

Low agreement Medium agreement High agreement



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## Dynamic uses: Top applications and adoption timelines

Transforming business processes using generative AI precursors like machine learning and automation requires breaking them down into their individual component parts and applying strategic thinking around what components to accelerate or optimize. As such, they mostly impact business processes with point solution approaches designed to solve a single problem.

Generative AI changes the game. Processes do not need to be broken down because generative AI tools can apply the large variety of human knowledge, experiences, and common sense embedded into their models to fill the gaps. This creates immense opportunity to apply and scale the technology across real-world, enterprisewide business processes.

Businesses recognize generative Al's potential. Generative Al technology is in the midst of a meteoric rise and is now reaching an inflection point. The market has matured to the point that large companies in basically every industry can no longer ignore it and are now spurring into action.

While only 9 percent have already adopted generative AI, a large majority of enterprises (71 percent) plan to implement their first generative AI solution within 2 years or less.

# Exhibit 5: 71% plan to implement their first generative Al solution within two years



Notes: Sum will not add up to 100% due to rounding Sources: Generative AI survey, March 2023

Executives expect the impact of generative AI to be highest in enterprise-wide areas: driving innovation, customer success, technology investment, and sales and marketing. IT/tech and operations are the top two functional areas respondents are currently exploring to implement generative AI in their businesses. These are the same areas respondents say they expect the greatest transformational impact from the technology.

When asked which application areas will be most relevant at their companies, automating routine tasks (31 percent) and language generation (24 percent) top the list. While prioritization varies by sector and function, overall value potential for applying generative AI seems to be highest in areas where bots can handle routine tasks, freeing up humans to focus on skill-driven activities. For example, chatbots and virtual assistants can handle routine IT help desk tasks and inquiries, using text created automatically, while trained IT professionals help users solve more complex technical problems.

# Exhibit 6: Top priority functions for adoption are IT/Tech and operations



Notes: Sum will not add up to 100% as it is a multi-select question Sources: Generative Al survey, March 2023 02

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## Not ready for prime time: Implementation challenges

Respondents name a diverse list of barriers to implementing AI, led by lack of skilled talent to develop and implement, cost/lack of investment, lack of clear business case, lack of clarity on specific ways to implement, and lack of leadership understanding and/or strategy.

And for all the excitement around generative AI opportunities, the majority of business leaders do not feel ready to adopt the technology at scale or seize its full potential. Still trying to grasp the full impacts of generative AI on their systems, operations, and people, 69 percent anticipate spending the next 6 to 12 months focused on increasing understanding of the objectives and strategies for generative AI adoption—a top priority.

Enterprises clearly lack the right skills to implement generative AI. Only a miniscule percent of respondents (1 percent) say they already have the skills necessary in-house. The rest plan to hire/acquire new talent (24 percent), train existing talent (12 percent), or do both (63 percent).

Companies also often find it difficult to get the value they want from emerging technologies when they take a siloed approach. Yet 68 percent of respondents have not appointed a central person or team to organize their response to the emergence of generative AI. For the time being, the IT function is leading the charge.

Exhibit 8: Lack of skills, funds, and clear business case are the biggest barriers to adoption



Notes: The represented figures are weighted average of the ranks which is calculated by assigning 50% weight to rank 1, 30% to rank 2, 20% to rank 3

Source: Generative Al survey, March 2023

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Integrating generative AI into the business stands out as a potential roadblock on the path to value creation. Views about four integration capabilities—having the right people, appropriate prioritization by executive leadership, having the right technology and data infrastructure, and having the right governance models and policies—indicate a clear lack of preparedness.

To successfully implement generative AI, addressing these barriers will be paramount. However, 47 percent responded that they are in the initial stages of evaluating risk and risk mitigation strategies around the technology (Exhibit 9), with cybersecurity and data privacy as the top risk management focus areas (Exhibit 10).

Most will not go it alone. The majority of respondent companies will engage with an external partner to help with four aspects of developing and implementing generative Al: model testing and validation, algorithm development and optimization, integration with existing systems and infrastructure, and data acquisition and processing. More than anything else, implementation decisions are likely to reflect the level of enterprise risk tolerance. As we explore in the next section, this is a very new technology with many risks. To steer industries toward responsible action around AI broadly, governments around the world have introduced regulations such as the US AI Bill of Rights and the EU AI Act that require businesses to consider consequences of adopting the technology alongside opportunities. Given the rapid adoption of generative AI and the predicted massive impact across business and operational models, attention on AI regulatory guidelines are growing and compliance is becoming increasingly important to reputation and trust.

Non-compliance could have significant monetary impacts. For example, the EU AI Act—which will require organizations to determine AI system risk and monitor high-risk systems post-market—will penalize violating organizations €30M or 6 percent of annual income for using prohibited AI practices or not complying with data requirements.<sup>2</sup>

More than anything else, generative Al implementation decisions are likely to reflect the level of enterprise risk tolerance.

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<sup>2</sup>Kop, Mauritz, "EU Artificial Intelligence Act: The European Approach to AI," Stanford Technology Law Review, September 21, 2021

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## A matter of trust: Internal and external risks

Organizational barriers aside, it is little wonder executives feel unprepared for immediate adoption when you consider the worst-case scenarios of unplanned, uncontrolled generative Al applications. Perhaps today's most important business asset—trust—is at stake.

A large majority of executives (72 percent) believe generative AI can play a critical role in building and maintaining stakeholder trust. Yet almost half (45 percent) also say the technology can negatively impact their organization's trust if the appropriate risk-management tools are not implemented.

Early versions of generative AI have shown a lot of challenges with getting even basic, unchallenged facts correct, such as which national soccer team won the last the World Cup. The problem becomes worse when a topic does not have a clear answer, such as how an upcoming hurricane season could affect supply-chain logistics. It will take many iterations to develop generative AI models that can understand and apply human-like reasoning to unequivocally answer such complex questions to truly aid business decision makers.

Until that time, for all its promise, the risks posed by generative AI models are broad and complex, spanning multiple areas of the business, from privacy and security to compliance and ethics. Billions of dollars could be wasted if enterprises place bets on the wrong tools, applications, or use cases, or fail to weave initial pilot projects into their ways of operating. Customers could be alienated, and brands could be ruined, by an unsupervised generative AI algorithm spewing out immoral or erroneous advice. Anxiety could rise among employees who feel threatened by the possibility of technological displacement or confused by the changes in their normal work routines brought on by generative AI tools. Businesses could run afoul of global laws and regulations if a generative AI bot exposes sensitive or confidential information or intellectual property.

The vast majority of respondents (92 percent) rank their concerns about the risks of implementing generative AI as moderately to highly significant. The top risk management and mitigation focus areas—those selected by the greatest percentage of survey respondents as high priorities—are cybersecurity (53 percent), privacy concerns with personal data (53 percent), and liability (46 percent).

Although business leaders recognize generative Al risks, immature organizational structures and processes for controlling them are barriers to seizing generative Al opportunities. Few companies have evaluated and implemented risk and risk-mitigation strategies as part of their generative Al development and deployment strategy. Forty-seven percent are still at the initial evaluation stages, and 25 percent have evaluated risks but are still in the process of implementing risk-mitigation strategies. Further, 50 percent intend to but have not yet stood up a responsible Al governance program, framework, or practices, and only 5 percent have one already in place.

# Exhibit 9: Most companies have not gotten far with risk mitigation strategies for generative AI





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#### Exhibit 10: Cybersecurity and data privacy are the top risk-management focus areas



Sources: Generative Al survey, March 2023

As generative AI scales, companies face multiple challenges.

Trust	Risk to external reputation (customer and stakeholders)
	Risk of bias, discrimination, and misinformation
	Risk of opaqueness in Al
Complianc <del>e</del>	Rising number of global regulations around AI and ethics
	Compliance with growing number of internal enterprise policies and controls
Security and privacy	Skyrocketing number of security vulnerabilities (cyber
	and adversarial)
	Need for transparency and consumer privacy
Value	Lack of awareness and training on Al
	Risk of data integrity, statistical validity, model accuracy
	Lack of technology assessment tools
	Growing number of models built with diverse
Speed	stakeholders and complex pipelines
	Exponential increase in data, storage, and computing
	Shortage of AI/ML talent

#### KPMG responsible AI framework

KPMG leverages eight core principles to guide our approach to responsible AI across the AI/ML lifecycle:

#### Fairness

Help enable models to be free from bias and remain equitable.

#### Accountability

Help establish mechanisms to drive ownership and responsibility across the AI/ML lifecycle.

#### Privacy

Help drive compliance with data privacy regulations and consumer data.

#### Data integrity

Help embed trust with data quality, governance, and enrichment steps.

### Explainability

Help enable the understanding and documentation of Al algorithms.

### Security

Safeguard against unauthorized access, corruption, and attacks.



Safeguard against a negative impact to humans, property, and environment.



Help ensure the performance of Al systems at the desired level of precision and consistency.

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## **Preparing people: Workforce implications**

Our survey indicates that executives expect generative AI to have significant impact on workforces, but mostly as a means to augment, rather than replace, labor. They also understand that some types of jobs could be at risk and there are ethical considerations for how generative AI is introduced and jobs are redesigned.

Nearly three-quarters of respondents (73 percent) believe generative AI will increase productivity; 68 percent say it will change how people work; and 63 percent think it will encourage innovation. Over time, the technology could enable employers to fill demand for highly skilled workers (a challenge today) and shift employee time from routine tasks, such as filling in forms and reports, to more creative and strategic activities.

Respondents are alert to the downsides: 46 percent believe job security will be at risk where generative AI tools can replace some jobs. The most vulnerable positions, according to respondents, will likely be in administrative roles (65 percent), customer service (59 percent), and creative (34 percent). For example, adoption of Exhibit 11: Generative AI will increase productivity and change the way people work, innovate, and collaborate



Sources: Generative AI survey, March 2023

visual content-creating programs like Dall-E and Lensa could have a deep impact on marketing, design, and creative firms.

Whether generative AI is used for augmenting or automating knowledge-worker tasks, human expertise will be critical for harnessing generative AI capabilities to unlock real value. Even now, companies are scrambling to build the capabilities to test, implement, and manage generative AI. Not surprisingly, the amazing "creative" powers of generative AI have raised alarms among workers and policy makers about job losses. Those concerns should not be ignored. But history has shown that when technology makes some tasks obsolete (e.g., stenography), it creates demand for new ones. Companies that identify the opportunities for employees created by generative AI may be the real winners.

# o4 What to do now

To capitalize on the promise, enterprises need a sound strategy and clear playbook for integrating this exciting technology into their businesses. Generative AI is a novel development, but the proven methods for successful technology transformation still apply. What follows are our recommendations for implementing generative AI strategically and responsibly.

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#### Be a first mover:

With the market growing rapidly—seven in ten respondents (71 percent) expect their company to implement their first generative AI solution in 6 months to 2 years-adopting sooner rather than later promises true first-mover advantage. In fact, the accelerated pace of emerging technology change is likely to significantly widen the first-mover and fast-follower gap. As such, tracking the evolution of tools and applications to keep pace with innovation will be imperative. Further, early adoption will guickly highlight resource and capability gaps and give first movers a leg up in investing in people, technology, and process change. Initial pilots are also great at surfacing early risk indicators, including challenges of scaling the technology.

#### Find your generative AI North Star:

From an implementation, adoption, and evangelizing perspective, leveraging existing AI investments and foundations can help put new generative AI implementations on solid footing. But the true success of generative AI will come when the institution as a whole refines its strategy to harness the unique capabilities and address the unique risks of generative AI—a transformation vision, or "North Star," to aim for. Lack of investment and lack of a clear business case are the top barriers. Gaining clarity about the future of their business model and developing new use cases will be crucial success factors as companies move toward implementation.

#### Respond and adapt:

Successful tech-enabled transformation programs are ready to adjust to inevitable changes. Leaders will need to be ready to quickly assess, adapt, or pivot the strategy to account for the enormous potential. The organization will need to come together as a whole to consider the implications of generative AI on all aspects of their business. One best practice is to designate a single leader responsible for crossenterprise coordination, focusing on finding efficiencies, learning from pilots, and prioritizing investment. This leader can champion success with contextual knowledge of the businesses component parts to effectively leverage the capabilities of generative AI to broadly transform operations.

#### Empower responsible use:

Generative AI's ease of use and open nature create an array of risks. Most organizations have limited or no structures and policies in place for governing, training, and implementing generative Al solutions responsibly. To maintain trust and avoid negative consequences, it will be essential to give equal, if not more attention and priority to risks as potential opportunities. A vital aspect of controlling evolving risks of generative AI usage will be establishing clear governance. From financial to reputational to ethical considerations, enterprises need strong guardrails in place to limit risks of generative AI. Having accountability from various business, risk, and governance leaders who will think through potential risks is essential.

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#### Address critical talent questions:

The implications of generative AI on how people work, what skills they need, and what jobs they do will be significant. Big changes usually create fear and uncertainty. To minimize these effects, leaders will need to expertly manage communication about shifting jobs, reengineered processes, and new behaviors. These will differ for each industry and function. But everywhere generative AI is adopted, it will be critical for leaders to position generative AI as a tool to extend human capabilities, not replace them. After all, most enterprises want to scale their operations, and what better way to achieve that than by increasing productivity of the existing workforce.

#### Develop generative Al literacy:

From C-suite leaders to VPs, managers, and the workforce at large, successful integration of generative AI solutions will require immediate investment in developing literacy around the new technology. Debunking myths will be critical to helping both leaders and employees from falling into an isolationist mindset. Education, experimentation, and a positive culture of responsible adoption will all be essential to pave a path of growth with generative AI.

# Reprioritize investments, M&A, and alliances:

The financial implications of generative AI as a technology may come well before any future operating efficiency gains are proven. Investor sentiment is already impacting flow of capital towards generative AI. The stock prices of companies and sectors investors believe will be net positively impacted by this innovation are set to rise alongside. At the same time, leveraging M&A to rapidly acquire generative AI skills, technology, and customer access is becoming more common and will likely pump up premiums for the most attractive assets. Also, and new alliances are rapidly being announced and reshaped based on the changing competitive landscape.

#### Unleash generative AI broadly:

Systematic, top-down adoption of emerging technology is a safe, well-tested approach. For the boldest innovators, there may be another way to seize the potential of generative AI at speed: disseminating it everywhere, all at once. New technologies are traditionally applicable only to specific parts of the business, so investments are managed as one-off programs. Generative Al is fundamentally different, as it applies to the entire workforce. Giving every person in every function a chance to experiment (in a protected way, of course) unlocks the data enterprise's need to define use cases, tune up applications, build the technology into planning cycles, train employees, redefine roles, and even transform the business model.

#### Manage change boldly and broadly:

Generative AI is more than a technological turning point. It is changing everything-how we think, create, work, interact, and live. Confronted with the most disruptive technology of our lifetimes, business leaders face a critical question: How do we deploy generative AI in a way that prevents the worst, and harnesses the best? This will require an extraordinary and unparalleled change effort. Many leaders have not had to manage change of such magnitude, at such speed and scale, or with such consequence. Success will require thinking about all aspects of the business differentlyindustry dynamics, business models, operating models, competitors, and talent-and making consequential decisions despite significant uncertainty. It will require leaders to be brave enough to make clear decisions—often without the safety net of definitive answers-to take their enterprises in new, unplotted directions.

# Accelerate the value of generative AI solutions—responsibly and confidently

Generative AI is poised to transform the future of enterprise. Businesses will increasingly rely on generative AI to gain insights, make critical decisions, alleviate skills shortages, create new products, and engage with customers. Across industries, generative AI is being embedded into numerous business processes and products to achieve tangible business outcomes and accelerate value for customers, employees, and society.

We believe, however, that many businesses do not fully understand or account for the risks and challenges generative AI poses. Successful generative AI adoption requires an approach to designing, building, and deploying systems in a safe, trustworthy, and ethical manner. It requires experienced governance, risk, and compliance professionals who can help develop an operating model, and governance structure that drives accountability. It requires highly skilled AI technology and data science professionals, advanced AI tools and accelerators, extensive experience with leading AI solutions, and strong industry alliances with AI solution providers.

Along every step on your journey, we can help you:

**Strategize:** Crystalize your vision, strategy, and roadmap for generative AI by building scenarios for what impact it could have on your business versus your competitors, identifying strategic options and designing a roadmap to responsible value creation.

**Pilot:** By prioritizing the business areas that could be most impacted by generative Al—whether optimized, disrupted, or both—we can help you focus investments, rapidly build proofs of concept for new use cases across functions, and validate the ROI and risk for your organization.

**Integrate:** We combine deep industry experience and modern technical skills to integrate proven generative AI use cases into your technology infrastructure, starting and ending with reliability and data quality to help ensure your solution delivers on its promise.

**Accelerate:** Where there are first-mover advantages, we can help you propel your organization at the speed of a startup to reap the full benefits of generative AI. We can help you quickly adopt new capabilities and drive the behavioral change required for humans to adopt new ways of working.

**Scale:** By combining our depth in key business functions and unique value drivers across industries, we help you expand the value of generative AI, from early experiments to large-scale automation, while maintaining quality and accountability.

**Protect:** Handle the risks posed by generative AI, including reputational damage, intellectual property theft, privacy or compliance violations, and ethical concerns—with security plans, processes and tools for detection, response, and recovery.

**Trust:** Gain confidence in your generative AI models and the decisions you make based on them, and be certain that those decisions are in line with your ethics, values, and brand.

**Govern:** Evolve your organization and governance processes to ensure accountability and transparency into how AI models are used, how effective they are in creating value for the organization, and how to detect and limit unforeseen risks going forward.

Learn more at visit.kpmg.us/generativeai and visit.kpmg.us/responsibleai

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# **Research methodology**

From March 17-31, 2023, KPMG conducted an online survey of 300 global business executives to explore generative AI views and trends. Survey questions asked about respondents' understanding of the transformative impact and applications of generative AI, spanning four core topics: perception and strategic intent, applications, technology challenges and opportunities, and impacts on risk management and workforce.

The sample was representative of diverse industries, functions, firm characteristics. and markets. Respondents, who are from businesses with revenue of \$1 billion and above, spanned 6 key industries: consumer and retail; energy, natural resources, and chemicals; healthcare and life sciences; industrial manufacturing; technology, media, and telecommunications; and financial services. Fifty-four percent were C-suite or higher in level, and 47 percent held VP/SVP level roles. Forty-six percent worked in the IT/tech/digital (46 percent) function. Three-quarters (75 percent) were based in the US. All respondents reported a basic- to expert-level understanding of the generative AI technology, applications, and techniques.

#### Exhibit 12: Who answered our survey questions?

Our sample is representative and robust for insights into industry, function, and firm characteristic, while focused in our key market locations.



Note: Total might not add up to 100% due to rounding Source: Generative AI survey, March 2023

Legend: C&R - Consumer and retail; ENRC - Energy, natural resources and chemicals; HCLS - Healthcare and life sciences; IM - Industrial manufacturing; TMT - Technology, media and telecommunications; FS - Financial services 02

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#### **Related thought leadership:**

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The flip side of generative Al: Challenges and risks around responsible use

This advanced machine learning technology offers quick and low-cost content creation. It can also expose organizations to IP theft, fraud, and reputational damage.



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