Deloitte.

State of Ethics and Trust in Technology

Annual report

Second edition

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Executive summary

Since the publication of our first *State of Ethics and Trust in Technology Report* in 2022, the rapid development of Generative Artificial Intelligence (AI) tools spurred the need for even greater attention to the ethical dimensions of emerging technologies. While Generative AI tools offer significant possibilities, it comes with the potential to inflict great human harm and reputational or financial damage to the organizations that produce and use them. And while Generative AI is the focus of today, similar potentials for good and harm exist across all emerging technologies.

Organizations can proactively promote trustworthy and ethical principles at every level and focus on incorporating ethics as part of the development and implementation of technological products and services. To align quality product development processes with corporate purpose, ethical principles, and societal values, organizations can embrace internal and external collaboration in co-creating ethical standards for technology. Leaders who define trustworthy and ethical principles for the use of emerging technologies can create social, reputational, and financial value for their organizations, cementing consumer trust and attracting future generations of talent.

This second edition Technology Trust Ethics (TTE) Report explores trends in how industry leaders perceive and address ethical issues related to emerging technologies, with a focus on Generative AI. We articulate the need for organizations to consider formulating and promoting ethical principles in the context of new and impending regulations. We identify actions leaders and organizations may take to help embed ethical principles into technological development and deployment.

This report presents the results of a study conducted to gain perspective on how ethical principles inform the development of emerging technologies. Our research began by reviewing key takeaways from last year's report and seeing how market shifts reinforced or altered those findings. We interviewed 26 specialists across industries to garner insights and test hypotheses. With these hypotheses, we launched a 64-question survey to over 1,700 business and technical professionals. The survey addressed the impact of Generative AI on organizations, the value placed on ethical principles for emerging technologies, and mechanisms to implement ethical behavior throughout organizations.

We hope this report supports your journey to increasing trust and confidence in your operations and contributing towards a more equitable society.

Key takeaways to consider

1

Organizations should develop trustworthy and ethical principles for emerging technologies, as reinforced by the rapid impacts of Generative AI in the past year.

2

Organizations should design and apply tailored ethical principles specific to each of their technological products.

3

Organizations should proactively embed trustworthy and ethical principles as part of a team-based collaborative development process for emerging technologies.

4

Organizations should actively seek to collaborate with other businesses, government agencies, and industry leaders to create uniform, ethically robust regulations for emerging technologies.

5

Organizations who design and earnestly adopt trustworthy and ethical principles should benefit from mitigating reputational and financial damage and reinforcing trust in employees and stakeholders.

Introduction

When we wrote the 2022 report on ethics and trust in emerging technologies, the state of artificial intelligence (AI) had been relatively stable over the past five years. As such, the report focused on emerging technologies broadly, including autonomous vehicles, blockchain, and quantum computing.

2023 has seen rapid, significant progress in the field of Generative AI. With the advancement of chatbots and other Generative AI tools, suddenly the once-familiar AI ground has shifted tremendously, opening new arenas of ethical inquiry. From questions of how Generative AI may exacerbate the digital divide to the potential for plagiarism, distribution of harmful content and misinformation, and worker displacement, organizations find themselves wrestling with new ethical issues posed by wide-scale adoption of this once-again new technology. As such, our report provides insight into how organizations are approaching the ethics of Generative AI along with other emerging technologies. Furthermore, our report highlights why organizations should embed trust into every aspect of internal operations, strategy, and decision-making, and the benefits from meaningfully building trust and ethics.
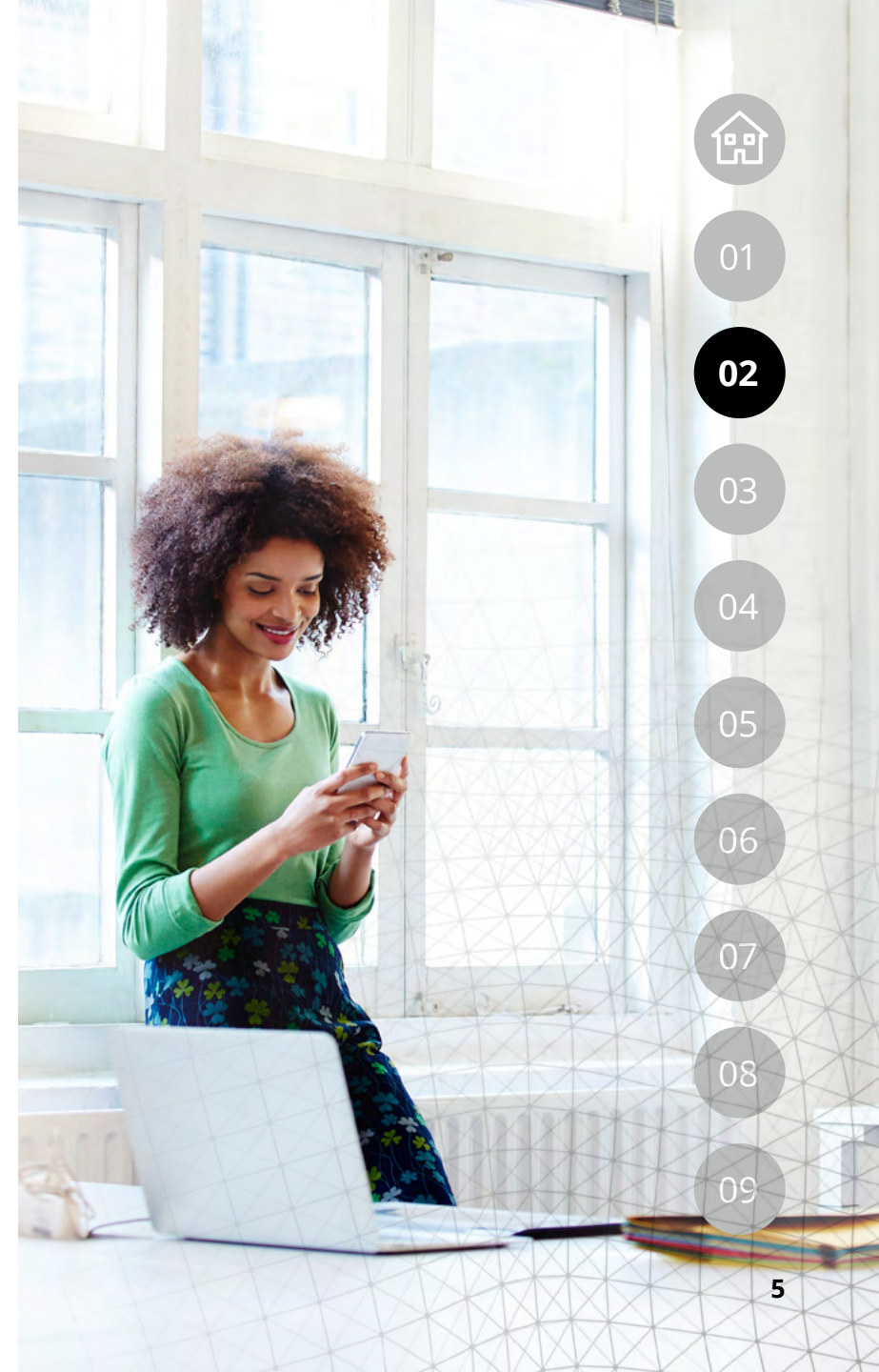
Emerging technologies under consideration

"Emerging tech" refers to digitally enabled tools representing new and significant developments within a particular field.[1]
These technologies can be grouped into the following categories:

Cognitive Technologies

including general and Generative AI, machine learning (ML), neural networks, bots, natural language processing, neural nets, and more

Digital Reality

including augmented reality (AR), virtual reality (VR), mixed reality (MR), voice interfaces, speech recognition, ambient computing, 360° video, immersive technologies, computer vision, and more
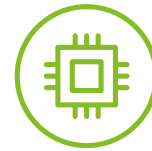
Ambient Experiences

including AI/ML assisted wearables, voice assistants, and in-environment devices

Autonomous Vehicles

including automotive, aerial, and maritime

Quantum Computing

including quantum simulation, quantum linear algebra for AI/ML, quantum optimization and search, and quantum factorization

Distributed Ledger Technology (DLT)

including blockchain, crypto, non-fungible token (NFT), and more

Robotics

including robotic process automation

While these technologies are already in use and rapidly evolving, Generative AI received the most attention this year for its groundbreaking potential to change the very nature of work.
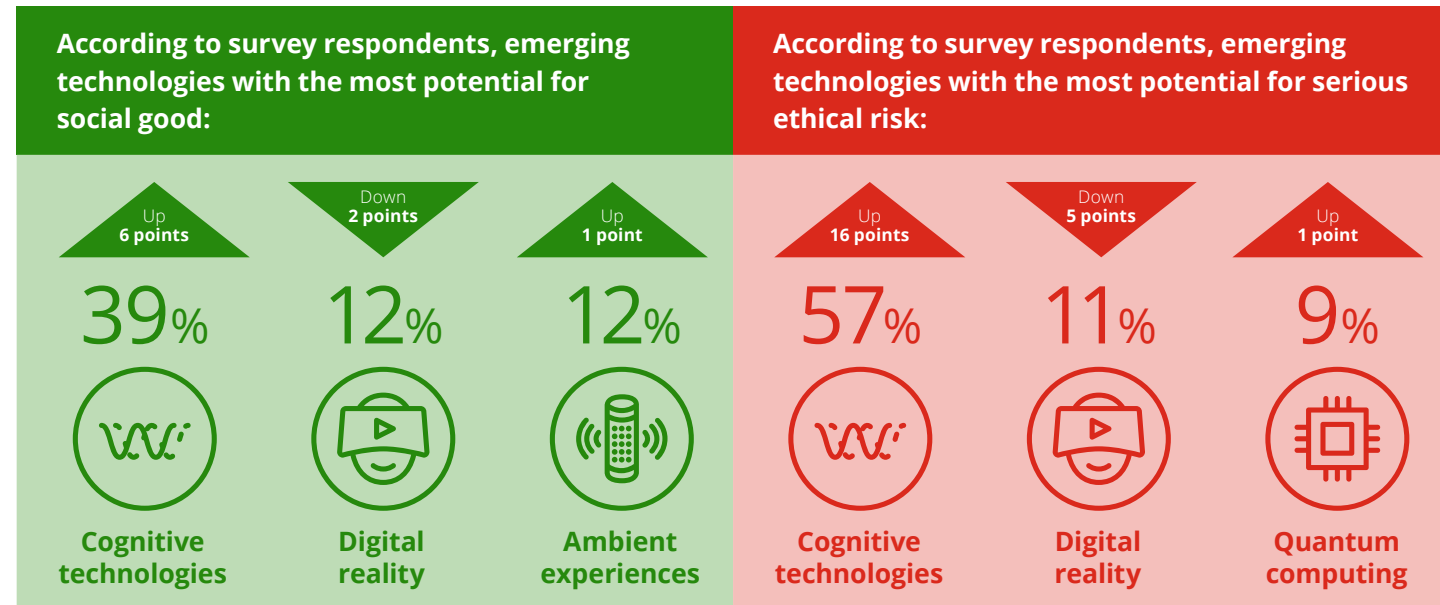
Perceptions of emerging technologies

As the basis for this report, we surveyed business leaders and developers of emerging technology about intended uses and broader implications of these technologies. Through the survey and interviews with specialists, we gained insight into these use cases.

Survey respondents felt the emerging technologies with the most potential for social good are cognitive technologies (39%)—which includes Generative AI—digital reality (12%), and ambient experiences (12%). Conversely, respondents identified technologies with the most potential for serious ethical risk as cognitive technologies (57%), digital reality (11%), and quantum computing (9%).

Industry leaders shared current and potential benefits and misuses of these technologies (see Figure 1 for a subset of responses). From last year the biggest shift in perception of both positive and negative outcomes occurred within cognitive technologies.

This year, quantum computing entered the top three for the most potential for serious ethical risk; however, as a leader on AI said during one of our interviews, "Quantum is at the later part of early stage, still far out from real maturity—still in the stage of just initially testing it in production."[2] Potential issues could be forthcoming but are yet to be realized.

Figure 1: Emerging technologies with the most potential for social good and ethical risk

According to survey respondents, emerging technologies with the most potential for social good:			According to survey respondents, emerging technologies with the most potential for serious ethical risk:		
Up 6 points	Down 2 points	Up 1 point	Up 16 points	Down 5 points	Up 1 point
39%	12%	12%	57%	11%	9%
Cognitive technologies	Digital reality	Ambient experiences	Cognitive technologies	Digital reality	Quantum computing

Source: *2023 Deloitte Technology Trust Ethics Survey*

Potential benefits and misuses of emerging technologies

A longstanding school of thought in critical technology studies and computer ethics known as Values in Design (ViD) asserts technologies are built using assumptions that express value commitments.[3] Thus, technologies encode values into societies that adopt them.[4] For example, common surveillance technologies (e.g., doorbell cameras) embed the value of the right to see anything happening in or around one's property, but they also can infringe on users' privacy. Because these values are often unconscious, emerging technologies have a range of potential impacts, both beneficial and harmful.

The need for ethics in emerging technologies

As technologies grow more powerful, so does the potential for harm. And with any technology-related ethical misstep made by organizations, trust that took years to build can erode in an instant. Given the importance reputation can have on long-term success, organizations should prioritize ethical principles.

Ethical missteps cause multiple types of damage

Ignoring or downplaying ethical issues associated with emerging technologies comes at a cost. Ordered by perceived severity of damage to the organization by respondents, these include the following:

38% Reputational damage

Ethical missteps can leave customers distrusting the organization and tarnishing an organization's hard-won positive brand sentiment. Reputational damage especially affects younger generations, who tend to be values-driven; as a result, Organizations should be clear on permissible uses of technology.[5] Organizations that commit to ethical and responsible practices for emerging technologies can build trust with stakeholders and differentiate themselves in the market.

27% Human damage

Implementing emerging technologies before they are vetted, trained, and tested to understand risks can cause severe and lasting harm to individuals and communities. Potential harms include violations of privacy, technology-assisted discrimination, challenges to human agency, and job displacement. The World Health Organization warned too-speedy adoption of Generative AI could potentially cause a plethora of harms, including misdiagnoses and treatment biases.[6] Thus, companies could commit to ethical principles of emerging technologies that articulate not just guidelines, but specific goals, metrics, and an understanding of what a failure of these principles might look like.[7]

17% Regulatory penalties

Legal experts are scrambling to keep up with emerging technologies, and lawsuits filed allege harms such as copyright infringement,[8] privacy violations,[9] harm to children and teens,[10] and more. Adopting a clear set of ethical principles in addition to a thoughtful implementation plan may help companies proactively forestall these issues before regulators take action.

9% Financial damage

Reputational damage leading to loss of sales and costly lawsuits resulting from unethical behaviors can negatively impact an organization's bottom line.[11] While the adoption of ethical principles cannot guarantee financial solvency, research suggests companies that implement ethics as part of their business philosophy are more profitable than those that do not.[12]

9% Employee dissatisfaction

Unethical behavior or lack of visible attention to ethics can decrease a company's ability to attract and keep talent. One study found employees of companies involved in ethical breaches lost an average of 50% in cumulative earnings over the subsequent decade compared to workers in other companies.[13] An interviewee for this report suggested productivity may decline as people become less motivated to work in unethical environments.[14] Having a compromised employee base affects many aspects of a company.

10

The damages from ethical missteps can add up. One study estimates workplace misconduct cost US businesses $20 billion in 2021.[15] Conversely, companies that proactively establish and uphold ethical principles in technology use cases help foster trust amongst stakeholders, solidify their brand reputation, and increase profitability.

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> Hey, Chatbot.

> What's going on with Generative AI?

Generative AI is a noteworthy example of how we might expect to see emerging technologies affect markets moving forward. With potential impacts and risks in areas like information services, manufacturing, sustainability, science, and healthcare, AI highlights the need for ethical standards.[16]
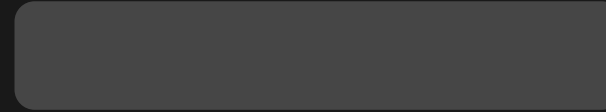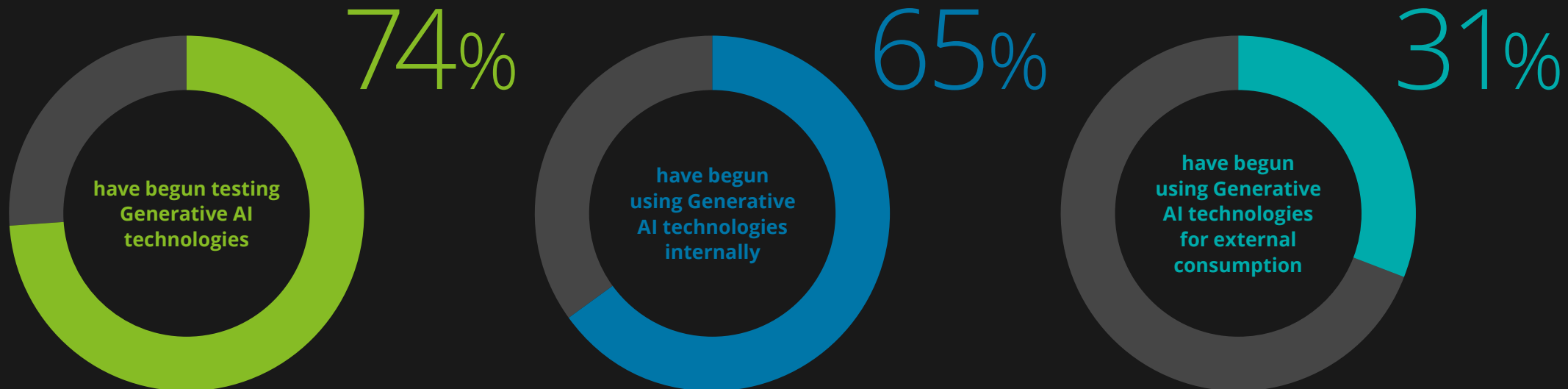
Generative AI is predicted to "change the nature of how we interact with all software"[17] and to add $4.4 trillion in value annually to the global economy.[18] AI's power and ethical concerns alike come from its ability to automate tasks previously done by humans. Though Generative AI entered the mainstream less than a year ago, it has shown its influence in areas like generative design, ad and marketing campaigns, customer assistance, personalizing customer experiences, and more.

Despite the relative nascence of Generative AI in the marketplace, most companies surveyed are already testing or using Generative AI tools:

74%

have begun testing Generative AI technologies

65%

have begun using Generative AI technologies internally

31%

have begun using Generative AI technologies for external consumption

Given Generative AI's newness, most organizations have work to do in adapting responsibly to this tool.

> Concerns with AI use
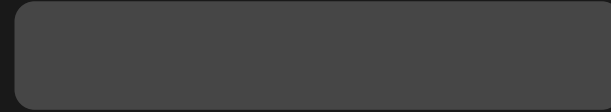
For all the buzz about Generative AI's potential for productivity and profit, respondents expressed trepidation about its potential downsides. These concerns are ranked below in descending order by the percentage of survey respondents who selected the issue as one of their top three concerns:

22%
Data privacy

Data privacy is a big concern associated with Generative AI tools. Developers and scientists acknowledge machine learning-based language models (LLMs) can inadvertently leak information from the data used to train them, potentially exposing sensitive data including personally identifiable information (PII). If LLMs are designed without addressing data protection, it risks incidents like training data extraction attacks, using queries to extract specific pieces of data.[19] Companies using Generative AI tools are providing workarounds to protect data privacy. For instance, one person interviewed for this report remarked his company engaged a third-party company to provide software that takes a sample of data and creates a dataset with no connectivity to original source data.[20]

14%
Transparency

Generative AI is trained on millions of data points and hundreds of features, leading to technically complex systems that often obscure how information is produced.[21] To dispel "black box" concerns, companies should focus on creating transparent and explainable AI solutions.

12%
Data poisoning

Generative AI tools depend on robust data training sets for their effectiveness. These sets can be deliberately "poisoned" or "polluted" by hackers and other bad actors, leading to the propagation of inaccurate results.[22] Companies should focus on safe and secure information sets, assuring customers of the data's provenance in trusted sources.

12%
Intellectual property and copyright

Some Generative AI tools are trained on data that can include copyrighted works, putting AI-generated work in murky legal territory.[23, 24] To minimize legal risk, companies using works derived from AI should attend to issues of ownership in IP and copyright.
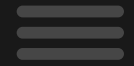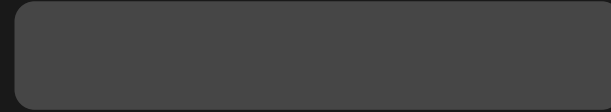
12%
Data provenance

Knowing where your data comes from and what it contains is key. Without this understanding, AI tools can extrapolate biases, leading to adverse customer affects, skewed outcomes, and lower accuracy.[25] In addition, several types of bias errors can be introduced from the human side, including sample/selection bias, exclusion bias, measurement bias, and association bias.

9%
Data "hallucinations"

Generative AI tools are known to make up or "hallucinate" data, including fabricating information like names and dates, medical explanations, plots of books, citations, and even historical events.[26] Companies should ensure their AI systems are sufficiently robust in their training and reliable in their outputs to minimize the potential for hallucinations.

8%
Authentic experiences

The sophistication of Generative AI tools makes it difficult to distinguish between human-generated and computer-generated text, images, and videos.[27] Companies should consider adopting ethical frameworks like the US government's "AI Bill of Rights," which reserves the right of users to know when they are interacting with a human versus a bot.[28]

7%
Job displacement

A report released in June 2023 suggested AI contributed to nearly 4,000 job losses in the previous month.[29] Companies should consider using AI to offset tasks to make human work more productive and implement job upskilling where appropriate.

3%
Static data

"Legacy analytic solutions" (i.e.siloed datasets) produces inaccurate AI results.[30] Solutions should design, test and release with current data that provides validated answers. For systems that do not use recent information, disclosures should be pronounced and frequent.

Companies should adopt ethical frameworks like the US government's "AI Bill of Rights," which reserves the right of users to know when they are interacting with a human versus a bot.[28]

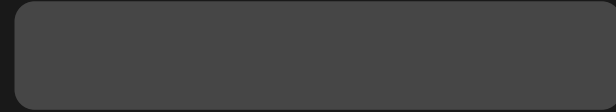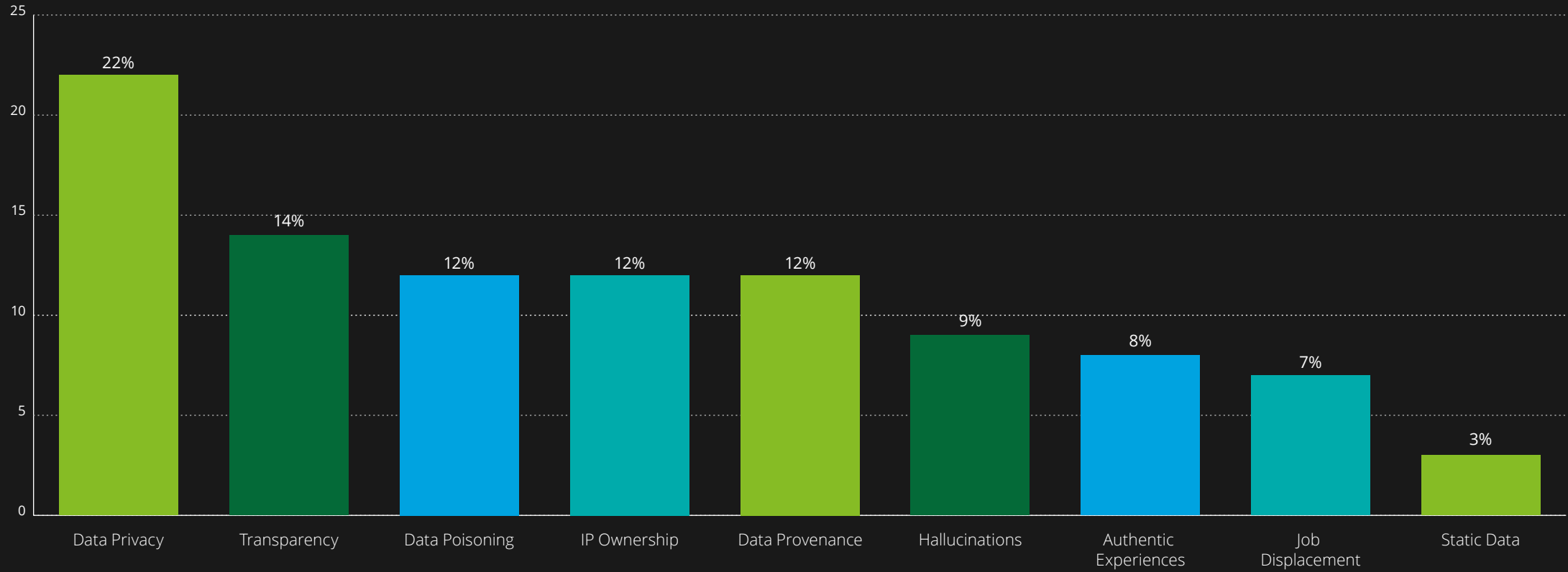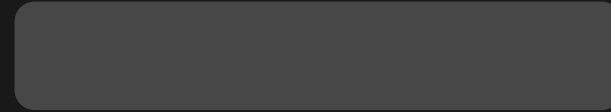**Figure 2. Top pressing ethical concerns with using Generative AI**
(Percentage)

Data Privacy	Transparency	Data Poisoning	IP Ownership	Data Provenance	Hallucinations	Authentic Experiences	Job Displacement	Static Data
22%	14%	12%	12%	12%	9%	8%	7%	3%

Source: *2023 Deloitte Technology Trust Ethics Survey*

To harness the transformative power of AI effectively and ethically, companies should consider assessing and rethinking their development strategy. Below is a multi-step framework to assist companies in integrating emerging technologies.

Exploration

To start, companies can familiarize themselves with the technology and development approaches. Exploring use cases can foster innovation and lay the groundwork for creating road maps to incorporate Generative AI. Exploration could consist of workshops in which teams of product owners, AI/ML practitioners, and business leaders brainstorm, then rank by return-on-investment areas in which AI/ML might create value to the company. "Value" here consists of both profits as well as brand value like reliability, company trust, and social goodwill. Companies can develop qualitative and quantitative cost/benefit analyses, weighing the impacts of incorporating AI against the risks.

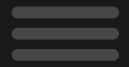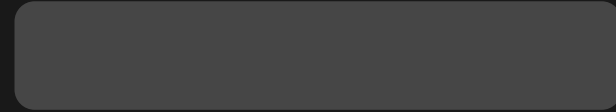Exploring use cases can foster innovation and lay the groundwork for creating road maps to incorporate Generative AI.

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Foundational

Incorporating Generative AI into a business could require building or identifying an internal data foundation for an LLM. Companies can thus decide whether to collaborate with existing platforms or hire talent to build in-house.

Among survey respondents, 30% indicated their companies opted to use existing capabilities through major AI platforms, 24% of respondents' companies used private capabilities through major platform developers, 26% created custom private tools in collaboration with major platform developers, 8% built a complete platform in-house, 6% were unsure, and 5% opted not to use Generative AI at all.

Whether to buy or build platforms depends on the type of business. For instance, higher tech companies tend to build their own AI platforms. As one person interviewed points out, companies who build their own platforms can more readily write ethical standards into their specs.[31] By contrast, life sciences companies often do not build in-house and rely on vendors for data solutions. Buying a platform or collaborating with third parties requires extending the company's trust and reliability, so companies should carefully review potential collaborators and their products for ethical principles.

Figure 3. Approaches to building foundational Generative AI capabilities
*(Percentage)*
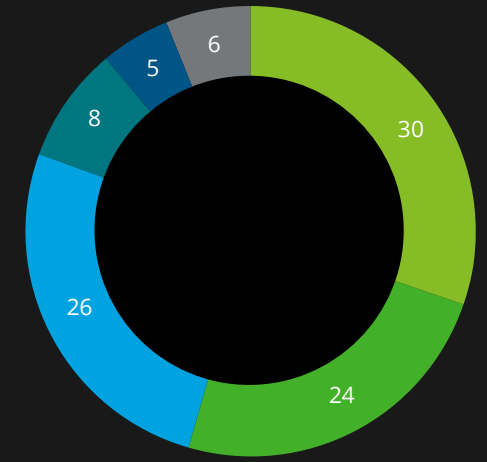
- 🟢 Utilizing public-based capabilities through major platform developers
- 🟢 Utilizing private-instance capabilities through major platform developers
- 🔵 Partnering with major platform developers to develop custom, private instance
- 🟦 Building completely in-house
- 🔵 We are not planning to use Generative AI
- ⚪ Unsure

Source: *2023 Deloitte Technology Trust Ethics Survey*
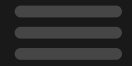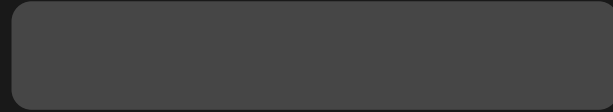
Governance

Formulating and abiding by robust standards and protocols can help forestall potential risks and harms of Generative AI. Before developing a specific set of standards and policies governing AI, the company should first consider defining ethical principles. 56% of respondents say their company does not have or are unsure if they have ethical principles guiding the use of Generative AI.

For governance, companies should consider AI Centers of Excellence (CoE), comprised of internal experts that develop, scale, and oversee AI strategy throughout the enterprise.[32] One person interviewed suggests by centralizing the development of AI and creating an internal CoE, companies may have better control over how adoption happens.[33] The CoE could lead implementation of AI, creating standards, responsibility frameworks, and guidelines, and developing trainings and education.

Trainings/Education

Training could encompass courses in the ethical principles of the company governing AI, and technical training that focuses on the diverse LLMs and how use cases should be enabled. With both types of training, employees can feel more invested and empowered.

Pilots

As part of introducing AI, companies should consider proof of concepts and pilot programs. By doing so, an interviewee says, engineers and product leaders can initiate experiments with different use cases and run a variety of product tests.[34] Pilots that fail to meet requirements or are deemed too high-risk can be cancelled at this stage.

Additionally, another specialist suggests, pilots and proofs of concepts can provide time to discuss the ethical, legal, regulatory, risk, and operational aspects of Generative AI.[35]
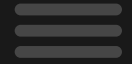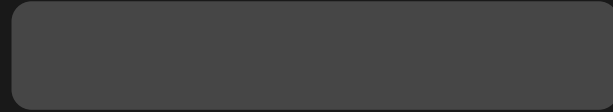
Implementation

A successful implementation strategy should include roadmapping, assignment of accountability, and built-in plans for transparency.

Product leaders, in concert with the CoE, can create launch plans and product roadmaps to help bring the newly enhanced products to market. Once released to the public, the company should have a team of data scientists and AI/ML experts ready to boost the product's capabilities and address issues..

Companies should consider accountability for product implementation, establishing product ownership and reporting structures for failures and other issues.

Companies should have a transparency strategy, defining what happens with user data, how the model arrives at a solution, and the confidence level of the model (i.e., how likely it is to "hallucinate").

Audit

Companies will likely need to scale and adjust their policies to account for the potentially harmful impacts of AI tools, according to one interviewee.[36] Another recommends establishing a feedback system to make sure products aren't manipulated for bad intentions.[37]

Companies should assign accountability for product implementation, establishing product ownership and reporting structures for failures and other issues.
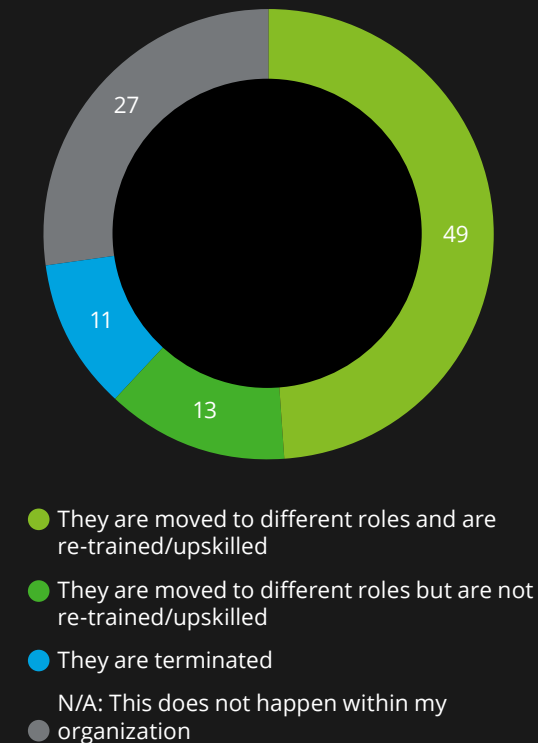
Job displacement was ranked low on the list of concerns by survey respondents compared to issues like data privacy and transparency. But still, what happens to workers when this technology is deployed?

Among respondents, 49% said workers at their organization displaced by AI moved to different roles and retrained and upskilled. 13% moved to different roles but not retrained or upskilled. 11% are terminated. And 27% of respondents have not had workers displaced by AI at their organization.

As one interviewee asserts, AI is not coming for our jobs, but rather our tasks.[38] Embracing AI and automating routine tasks can allow workers to pursue higher-level activities. Another person interviewed points out integrating Generative AI creates new jobs (for example, "Prompt Engineer").[39]

For workers displaced by tech, companies can invest in upskilling and retraining; some organizations have programs to pay for employee retraining.[40] Thus, companies might frame the adoption of Generative AI not as tech replacement but an opportunity for change management.

Figure 4. How respondents' companies handle employees displaced by Generative AI *(Percentage)*

- 🟢 They are moved to different roles and are re-trained/upskilled
- 🟢 They are moved to different roles but are not re-trained/upskilled
- 🔵 They are terminated
- ⚪ N/A: This does not happen within my organization

Source: *2023 Deloitte Technology Trust Ethics Survey*

How companies define and meet ethical principles for emerging technologies

As technology is moving faster than regulation, the onus for creating ethically sound technologies is increasingly placed on companies that design and develop those technologies.

Companies can establish ethical principles governing emerging technologies through four approaches:

1

By meeting compliance and regulatory standards *(up 2 percentage points in individual survey responses from last year)*

The focus of this approach is operating within legal, published guidelines minimally impacted by company values.

2

Following company culture *(up 7 percentage points from last year)*

This approach to instilling ethical principles relies on standards set by company culture, defined as the sum of formal and informal systems, behaviors, and values, all of which help create an experience for employees and customers.

3

Following standards of conduct
(down 4 percentage points from last year)

The focus of this approach relies on standards of conduct, defined as guiding pillars that manage an employee's entire professional responsibilities. They include things like avoiding discrimination, conflicts of interest, insider trading, bribery, and other commonly unaccepted ethical behaviors.

4

Defining specific ethical standards
(down 5 percentage points from last year)

In this approach, companies establish ethical standards specific to the organization and the products and services developed and used.

60% of respondents indicate their company considers their mission, purpose, and values when navigating emerging technologies. However, the survey indicates fewer companies use approach 4 (defining ethical standards specific to technology), arguably the most ethically robust of the four approaches. Applying ethical principles from one emerging technologies (like quantum computing) to another (like autonomous vehicles) is inadvisable because each technology are different.

Companies that create or use Generative AI products need to be familiar with established standards, internal policies, and procedures: industry-produced documents like the Data & Trust Alliance's Algorithmic Bias Safeguards for Workforce[41] and Responsible Data & AI Diligence for M&A,[42] governmental regulations like the European Union's General Data Protection Regulation's (GDPR),[43] the National Institute of Standards and Technology (NIST) AI Risk Management Framework,[44] and academic reports like the Berkman Klein Harvard report, which puts forward eight key principles on maximizing the benefits and minimizing the harms of AI.[45]

89% (up 2% from 2022) of survey respondents said, except for AI principles, their company does **not** have or are unsure if they have specific trustworthy and ethical principles governing emerging tech products. Among those that define principles specific to certain kinds of technology, the most common is cognitive technologies (72%), followed by digital reality (48%), ambient experiences (45%), distributed ledger (31%), quantum computing (29%), robotics (27%), and autonomous vehicles (24%) (see Figure 5).

Figure 5. Percentage of companies surveyed with standards specific to given emerging technologies
(Percentage)

Cognitive Technologies	72%
Digital Reality	48%
Ambient Experiences	45%
Distributed Ledger	31%
Quantum Computing	29%
Robotics	27%
Autonomous Vehicles	24%
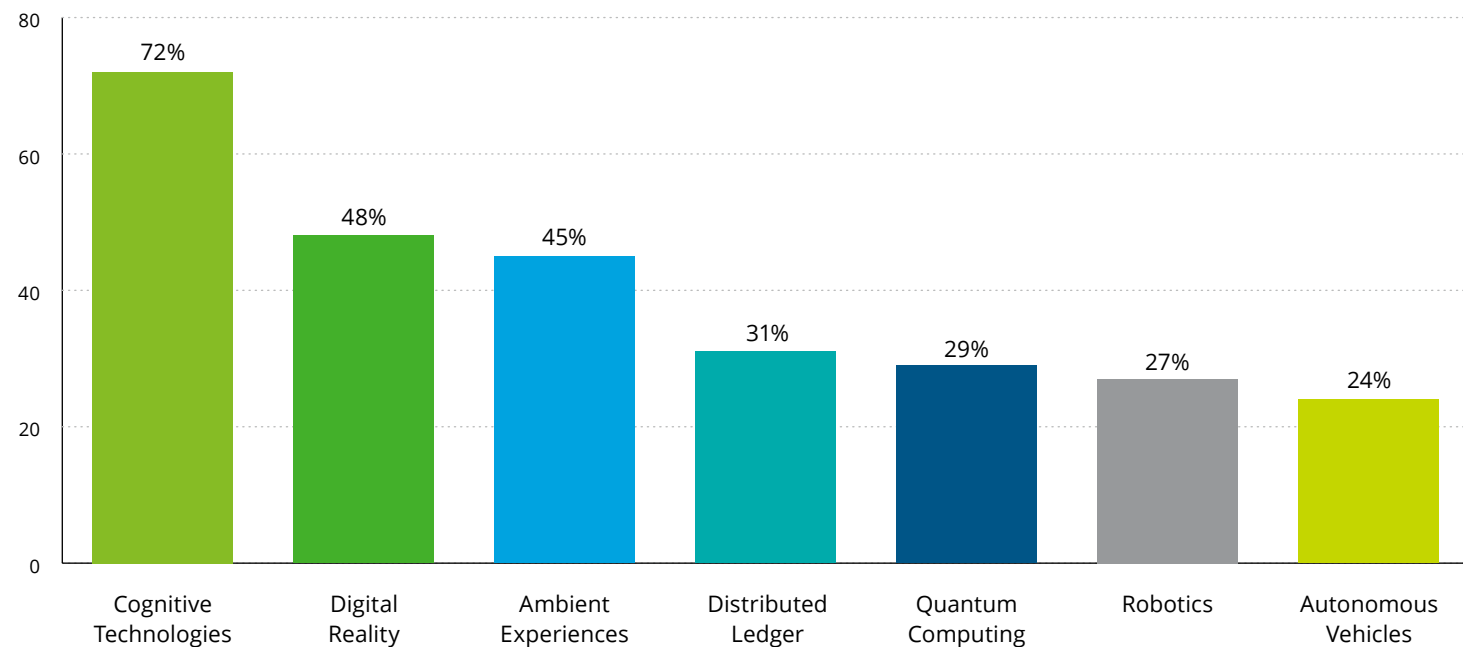
Source: *2023 Deloitte Technology Trust Ethics Survey*

For companies who take a robust ethical route—i.e., defining ethical principles specific to each of their products—doing so requires planning.

Ethical principles should be updated frequently

Companies implementing a regular ethical review process for emerging technology products can build trust, create higher quality products, and be leaders in safeguarding a common social good. The survey shows a trend of companies updating their principles frequently, moving from a longer cycle to a quarterly or better (53% of companies, up 10 percentage points from 2022). Those with slower review cycles may find their principles no longer apply to the products and services they are meant to govern.

Figure 6: Frequency at which organizations update ethical principles
(Percentage)
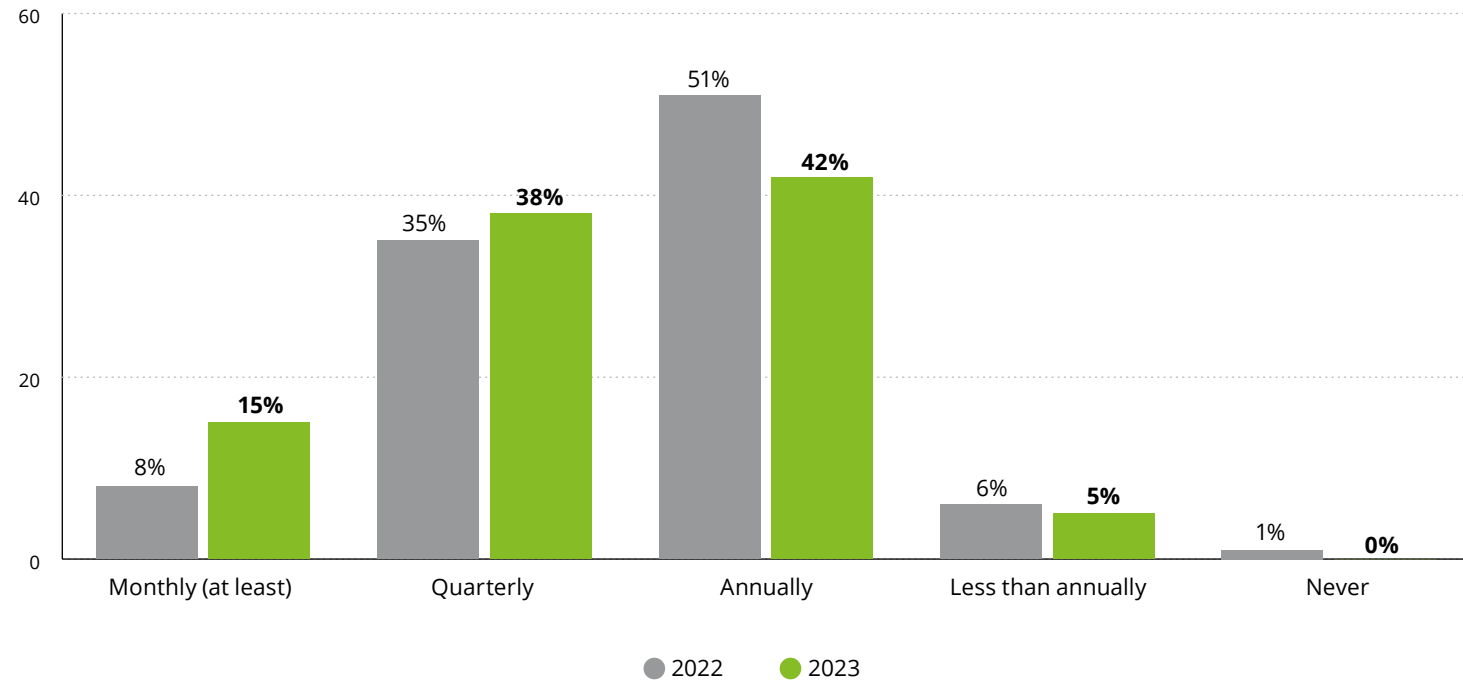
Source: *2023 Deloitte Technology Trust Ethics Survey*

The survey shows a trend of companies updating their principles frequently, moving from a longer cycle to a quarterly or better approach.

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Trustworthy and Ethical Principles of Emerging Technologies

The TTE Framework can serve as a first step in diagnosing the ethical dimensions of a company's emerging technology products.

Figure 7: Deloitte's Technology Trust Ethics (TTE) Framework

Technology Trust Ethics Framework

Reskilling & Education

SAFE AND SECURE
- Invulnerable
- User Protection
- User Friendly

PRIVATE
- Autonomous
- Confidential
- Discretional
- Consensual

TRANSPARENT AND EXPLAINABLE
- Justifiable
- Interpretable
- Auditable
- Visible

ROBUST AND RELIABLE
- Predictable
- Consistent
- Accurate
- Adaptable

FAIR AND IMPARTIAL
- Accessible
- Equitable
- Inclusive
- Unbiased

ACCOUNTABLE
- Answerable
- Resolvable
- Ownership

RESPONSIBLE
- Humane
- Common & Social Good
- Sustainability Focused
- Value Adding

Governance & Controls

Regulatory Compliance & Policy

Trustworthy and Ethical principles of emerging technologies

The principles are ordered by their relative importance according to survey respondents:

Responsible
The technology is created and operated in a socially responsible manner. Technology's benefits (e.g., quality, speed, safety, and/or price) are evaluated in comparison to potential misuses.

Safe and secure
The technology is protected from risks that may cause individual and / or collective physical, emotional, environmental, and/or digital harm.

Transparent and explainable
Users understand how technology is being leveraged, particularly in making decisions; these decisions are easy to understand, auditable, and open to inspection.

Robust and reliable
The technology produces consistent and accurate outputs, withstands errors, and recovers quickly from unforeseen disruptions and misuse.

Accountable
Policies in place to determine who is responsible for the decisions made or derived with the use of technology.

Fair and impartial
The technology is designed and operated inclusively to ensure equitable application, access, and outcomes.

Private
User privacy is respected, and data is not used or stored beyond its intended and stated use and duration; users are able to opt-in /out of sharing their data.

Collaborative
Technology standards are discussed amongst industry peers, government agencies, academia, standards associations, etc. to co-create ethical standards.

Adaptable
Technology policies are feedback-oriented (from both internal and external stakeholders), frequently reviewed, and updated.

Controlled
Technology end-users are evaluated to ensure they are using it as intended and in a non-harmful manner, with termination activated when misuse continuously occurs.

As with last year, **Responsibility** ranked by respondents as the most important ethical principle governing emerging technologies for organizations (24%). **Safe & Secure** came in a close second (22%), a +26% change from last year. While it ranked lower than the first two, prioritization of **Accountability** grew significantly from last year (+40% change). Given the seismic changes introduced by Generative AI tools, an explanation for these shifts can be inferred. Assigning clear accountability procedures for the development and use of nascent technologies may be necessary to establish trust in its use, prevent scapegoating, and reduce potential for human, reputational, and financial damage.

Intriguingly, even though respondents indicated **Privacy** was their top concern for Generative AI, for emerging technologies in general the principle of privacy showed the greatest negative change, with a 60% decline in concern from 2022 to 2023. Several studies suggest consumers view data sharing as an unavoidable.[46] However, Generative AI presents privacy concerns of a more , personal, and impactful nature.

The dimension **Fair & Impartial** showed the greatest change from 2022 to 2023 (+40%). This sharp increase in attention reflects concerns over the reputational and human damage that can occur when a company is perceived to create or promote inequity, bias, or discrimination.

Generative AI presents privacy concerns of a more novel, personal, and impactful nature.
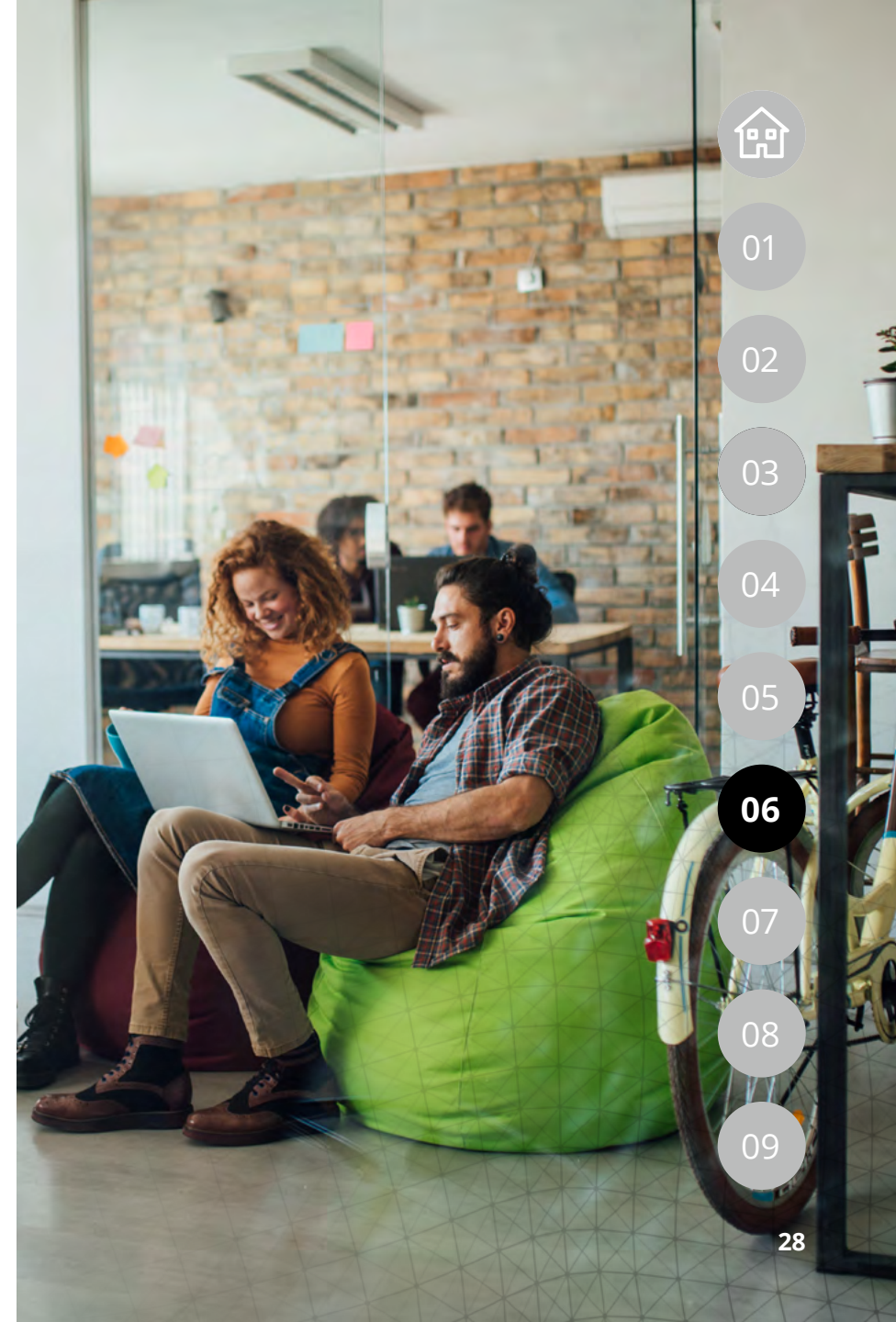
The importance of ethical principles to the organization vs. the individual

Survey respondents ranked each ethical principle based on the perceived importance to their organization and the importance to themselves. For most dimensions ("Safe & Secure," "Transparent & Explainable," "Robust & Reliable", "Accountable," and "Fair & Impartial"), responses showed small increases in concern from last year. From an organizational standpoint, the importance of **Responsibility** increased the most from 16% to 24%, while from an individual standpoint, **Accountability** and **Safe & Secure** increased the most from 7% to 10%. Across organizations and individuals, **Privacy** decreased the most (down from 19% to 7%, and 15% to 6%, respectively). **Transparency** remains steady as a concern and the black box nature of Generative AI suggests users won't know how an LLM is producing answers.[47]

Figure 8: Ethical principle's importance to the organization vs. individual (2022 vs. 2023) *(Percentage)*
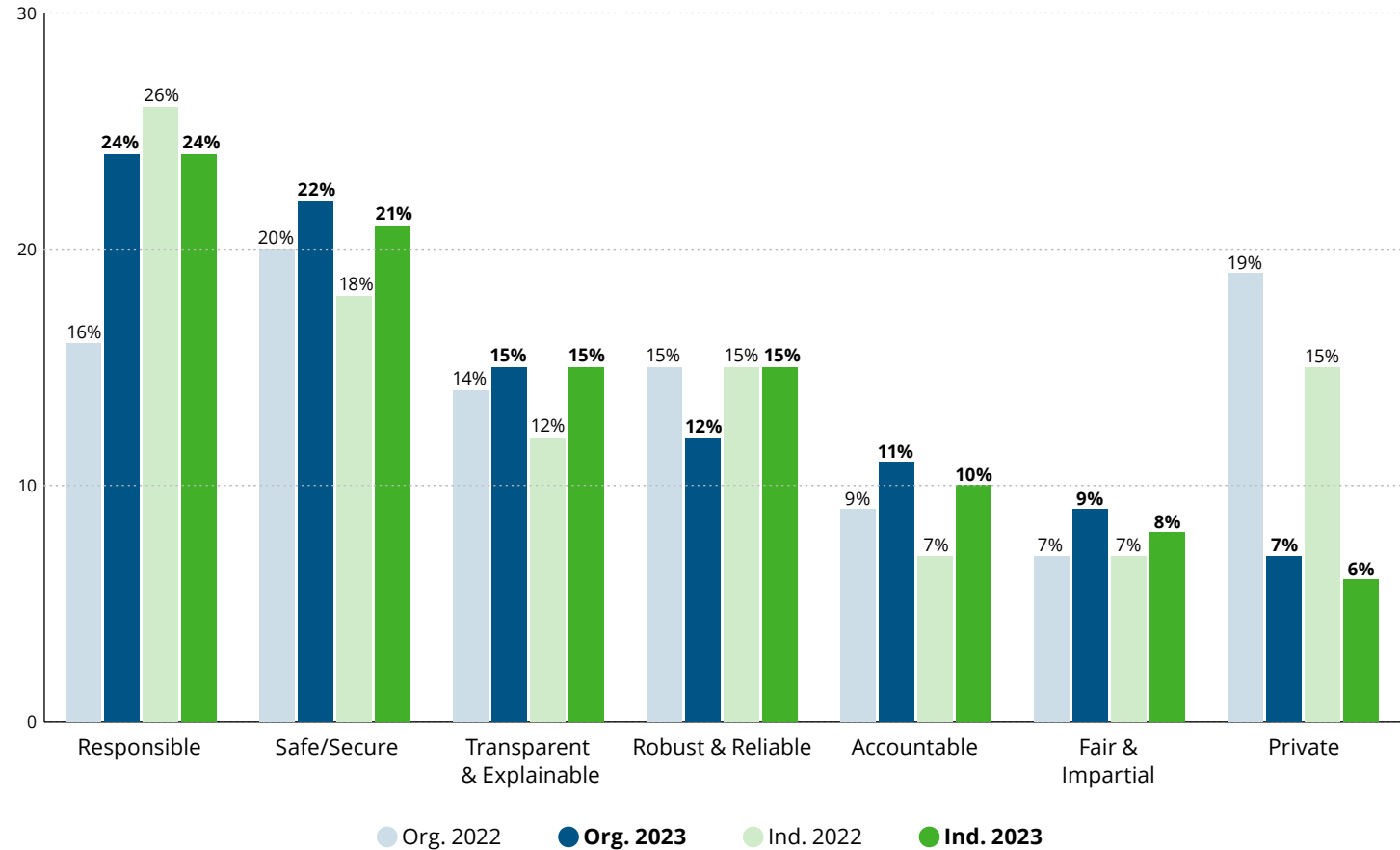
Legend: Org. 2022 | **Org. 2023** | Ind. 2022 | **Ind. 2023**

Source: *2023 Deloitte Technology Trust Ethics Survey*

Immediate actions companies can take to promote ethics in technology

As Deloitte's 2022 Technology Trust Ethics report established, simply having ethical principles is not enough. Companies should promote these principles and proactively embed them in everyday operations, using the following means:

When leadership promotes ethical standards, those within the organization tend to adopt them.

Top-down leadership communication

Ethical standards should be promoted from the C-suite throughout the company. When leadership promotes ethical standards, those within the organization tend to adopt them (89%). 85% (up 6% from 2022) of respondents say leadership shares the company's ethical standards; however, far fewer see values shared by mid-level managers (8%, down 3%) and individual employees (2%, down 3%). 5% of respondents claim ethical standards are not shared.

Figure 9 shows not all generations[48] buy into messaging promoted by leadership. This declining trend suggests a need for companies to reconsider the top-down approach.

Figure 9: Generational buy-in to executive messaging
(Percentage)
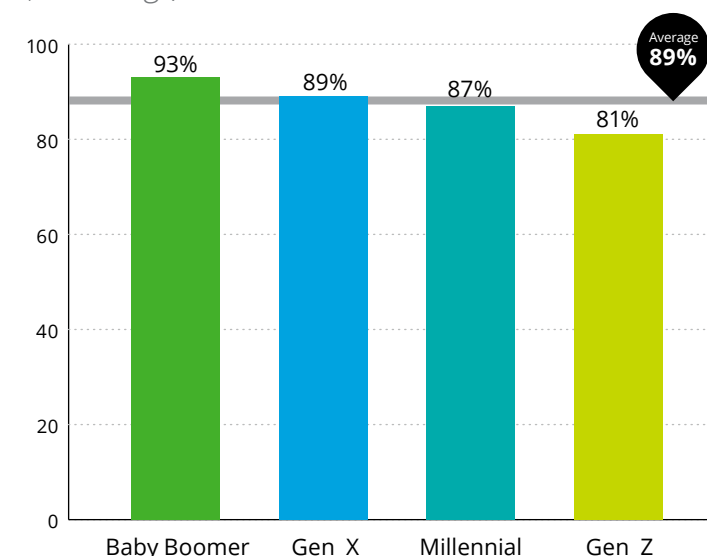
Average
89%

Baby Boomer — 93%
Gen X — 89%
Millennial — 87%
Gen Z — 81%

Source: *2023 Deloitte Technology Trust Ethics Survey*

This report defines generations as outlined in the 2022 Deloitte Diversity, Equity, and Inclusion (DEI) Transparency Report: Baby Boomer (1946-1964); Generation X (1965–1980); Millennial (1981-1996); Generation Z (1997+).

Ethics owners
(Chief Ethics Officer or similar role)

Larger companies (>$1B in revenue) are likelier (41%) than smaller companies (14%) to have a role dedicated to overseeing the company's ethical standards. Ethics officers may, however, need executive buy-in, adequate team size and budget, and decision-making power to fulfill their duties.

Most respondents (84%) at companies with a Chief Ethics Officer believe the role is appropriately empowered to drive ethical behavior throughout the company. As technology becomes more advanced, one interviewee noted the Chief Ethics Officer should have a mixed background demonstrating skills in technology, ethics, policy, and science[49] as their role evolves to encompass both traditional ethics concerns and those of nascent technologies.

Having an ethics owner is important, but diligence should not stop there. 34% of respondents said a Ethics Officer does not change or lowers feelings of responsibility towards ethical decision-making.

Technology review approaches

Ethics review boards and technology review boards were cited as the most common method for identifying ethical concerns. However, to be effective, ethics reviews should be embedded in all phases of the technology lifecycle, from design to implementation. Most respondents say their companies lack a review board and/or process to review ethical standards for existing (56%) and new (56%) technology.

To understand ethical concerns with emerging technologies, companies might conduct user outreach through focus groups, interviews, anonymous surveys, and field observations. Currently only 36% of respondents' companies use diverse focus groups.

Having an ethics owner is important, but diligence should not stop there.

Trust- and Ethics-based KPIs and incentives

Only 35% of respondents surveyed say their organizations use ethics-based key performance indicators (KPIs) during performance reviews. Among those 35% of respondents, the table below shows percentage of use of the most common ethics based KPIs.

Companies often create measurable metrics to encourage behavior (e.g., sales metrics tied to compensation). Likewise, compensation and other incentives could be tied to the achievement of ethical KPIs, demonstrating ethics as a true company priority.

Figure 10: Percentage use of common ethics-based KPIs among survey respondents
(Percentage)
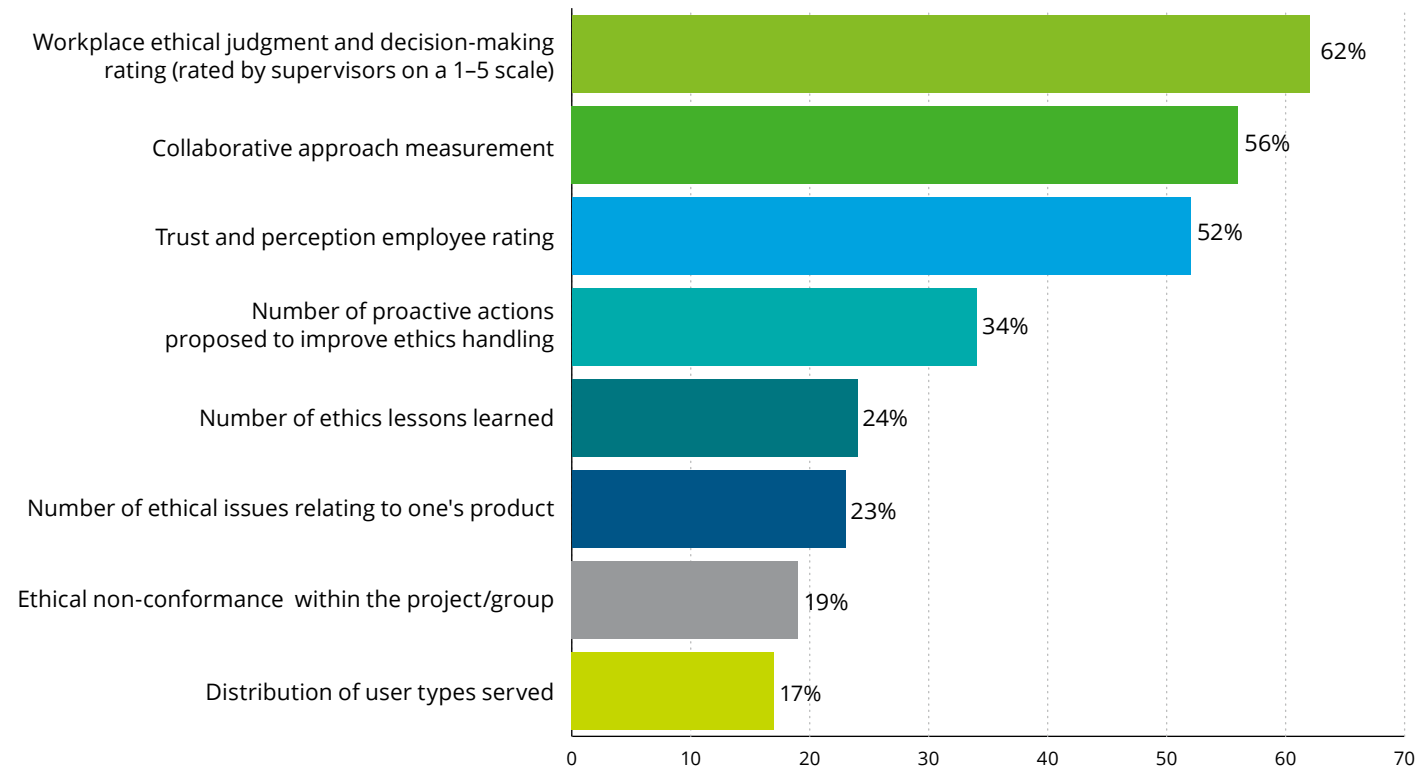
Source: *2023 Deloitte Technology Trust Ethics Survey*

Immediate actions companies can take to promote ethics in technology

Common taxonomy

For ethical principles to be effective, the whole organization should share a common language. 15% of respondents said there was no common taxonomy across their company.

Sharing leading practices across the organization

Open communications help colleagues share ethical lessons learned and problem-solving tips. 66% of individuals surveyed said their companies share leading practices across the organization to identify potential ethical issues.

Ethics training

Most respondents spend 1–4 hours per year in mandatory ethics-focused training for developing technologies. Currently, only 15% of respondents spend more than one day annually in training on the ethical implications of these technologies. Since 65% of respondents find training changes their ethical behavior during development, organizations may aim to improve their training content and frequency.

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Sharing and reporting ethical concerns

To bolster transparency and establish trust among employees, customers, and shareholders, organizations can promote a system for reporting ethical concerns.

Internal stakeholders use the following channels to report ethical concerns:

Additionally, respondents indicated the following additional channels for reporting concerns:

- Direct communication with the involved individuals

- Direct to C-suite and/or HR

- Speaking up during design reviews

Figure 11: Means by which respondents report ethical concerns at their company
(Percentage)
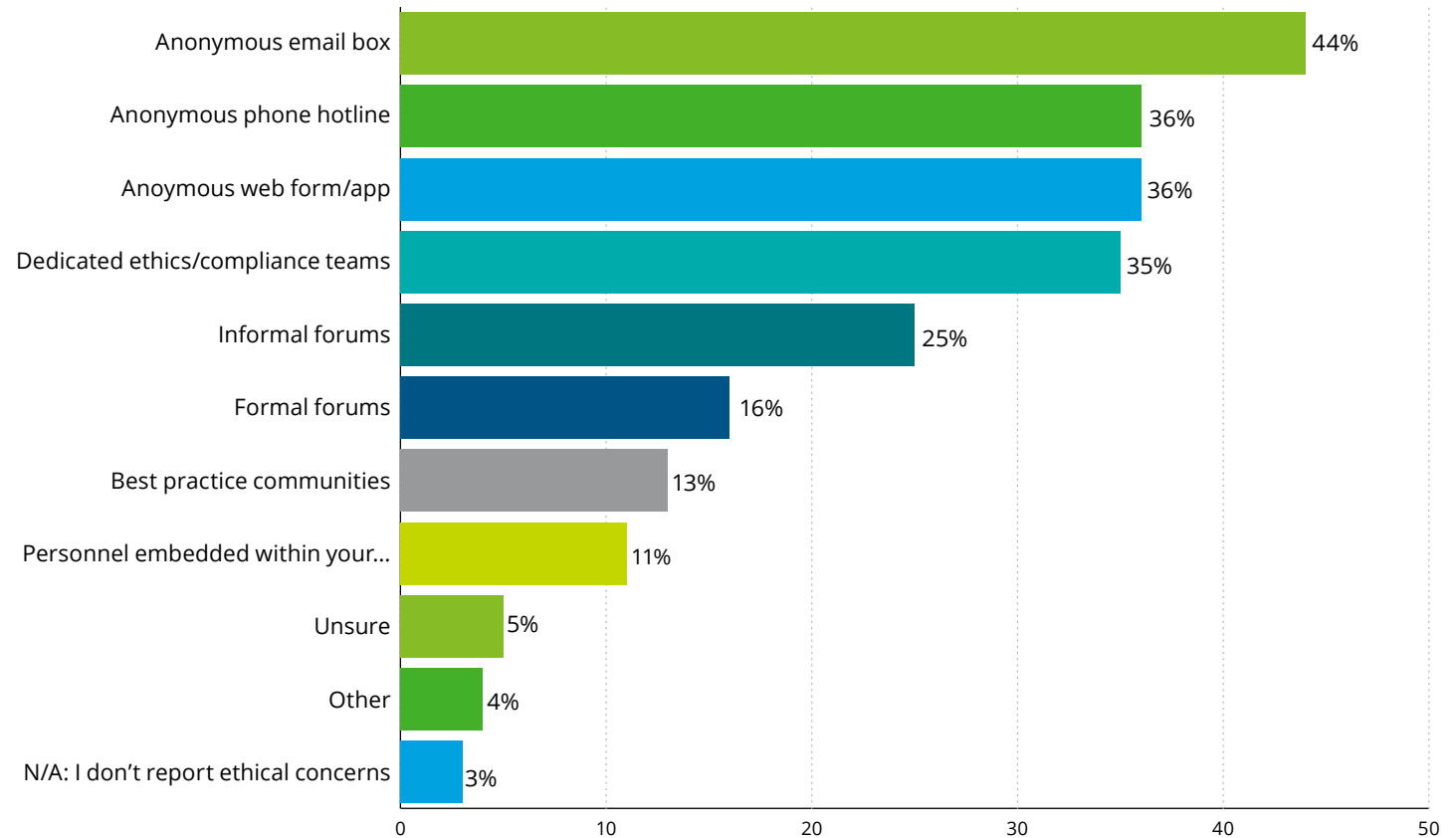
Note: Figures do not sum to 100% since respondents could select multiple reporting channels
Source: *2023 Deloitte Technology Trust Ethics Survey*

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Some respondents, especially younger employees, feel middle management does not escalate ethical concerns (see Figure 12). The perception middle management is not sharing ethical concerns up the chain of command is shared among some of the specialists interviewed.[50, 51, 52]

Most survey respondents (68%) said flagging ethical concerns is "encouraged and praised" at their companies, while 31% said management took a neutral view on reporting. 1% (a small number, but three times as much as last year) said flagging ethical concerns was discouraged. While this is a small percentage of respondents, the number should be tracked over time to ensure such discouragement does not increase.

One interviewee suggested an ethics-focused employee survey; companies could use the results to incorporate feedback into company practices related to developing technologies.[54] Such surveys reveal, for instance, employees will quit companies whose ethical principles do not align with their own.[55]

57% (a 12% increase from 2022) of respondents state their company offers avenues for non-employees to report ethical concerns.

Figure 12: Percentage of respondents by generation[54] who feel middle management appropriately escalates concerns related to technology development/usage
(Percentage)
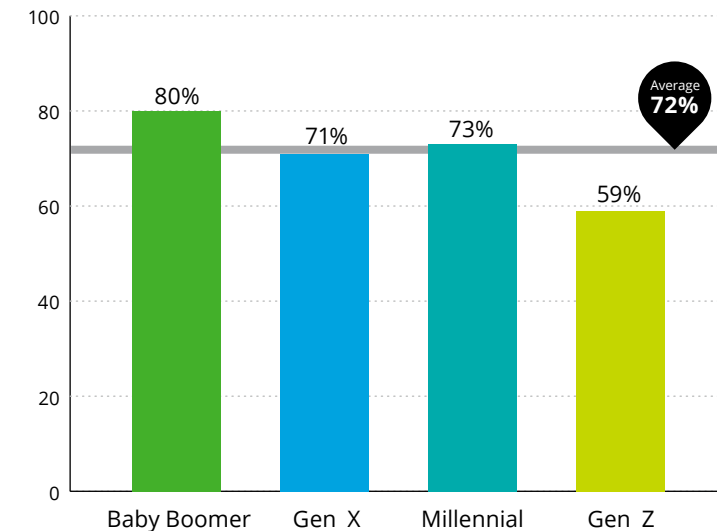
Source: *2023 Deloitte Technology Trust Ethics Survey*

This report defines generations as outlined in the 2022 Deloitte Diversity, Equity, and Inclusion (DEI) Transparency Report: Baby Boomer (1946-1964); Generation X (1965–1980); Millennial (1981-1996); Generation Z (1997+).

57% (a 12% increase from 2022) of respondents state their company offers avenues for non-employees to report ethical concerns.

35

The importance of collaboration in establishing ethical principles

In both interviews and the survey, respondents mentioned the importance of **collaboration** as an ethical principle. Emerging technology standards could be discussed amongst industry peers, government, academia, and standards associations as a means of formalizing widely agreed-upon governance.

Internal collaboration

Ethically sound technologies begin with the design process, recognizing the value judgments (consciously or not) made by product managers and developers as part of the design. One person interviewed suggested to align with company ethical values, the design process can be collaborative, incorporating engineers and technological developers with ethics teams and leadership to build ethical principles from the bottom up.[56] However, to avoid "ethics washing," ethics teams should be adequately resourced and supported by leadership and given proper authority. Implementing ethics reviews as well as rewarding individuals for addressing issues can incentivize ethical behavior.[57] Assigning internal teams to product design may catch errors or ethical lapses before they go public.[58]

Team-based collaborations increase buy-in to a company's ethical principles and can lead to more quality products through increased critical thinking. Collaboration helps principles to:

- align with real company values;

- be specific to the technology and its risks;

- be built into the technology from the beginning rather than added later.

Team-based collaborations increase buy-in to a company's ethical principles and can lead to more quality products through increased critical thinking.

Bringing Gen Z on board

As survey responses indicate, Gen Z respondents are less likely to trust messages about ethics broadcasted from the top down. Gen Z respondents are also much less likely than older generations to believe middle management appropriately escalates ethical concerns.

Such disconnect from traditional organizational hierarchies may have to do with the perception of "ethics washing". Generation Z professionals are keenly aware of social and ethical issues, and they are known for holding companies accountable to ethical principles.[59] As younger generations continue to increase their share of the US workforce, companies could consider incorporating their ideology as a priority to attract and retain younger talent.[60]

Members of Gen Z are concerned about the ethical implications of AI, particularly its long-term impacts.[61] As Gen Z professionals enter more positions of leadership over the next five to ten years, companies should consider preparing future leaders with the knowledge and skills to create and follow ethical principles. Given younger professionals' concern about ethical issues, including their voices now could better facilitate companies' long-term ethical strength.

Young tech professionals may be drawn to internal teams that demonstrate ethical principles from the very start of a technology's development. They are also likely to respond to a healthy mix of top-down and ground-up work for incorporating ethics into technology.
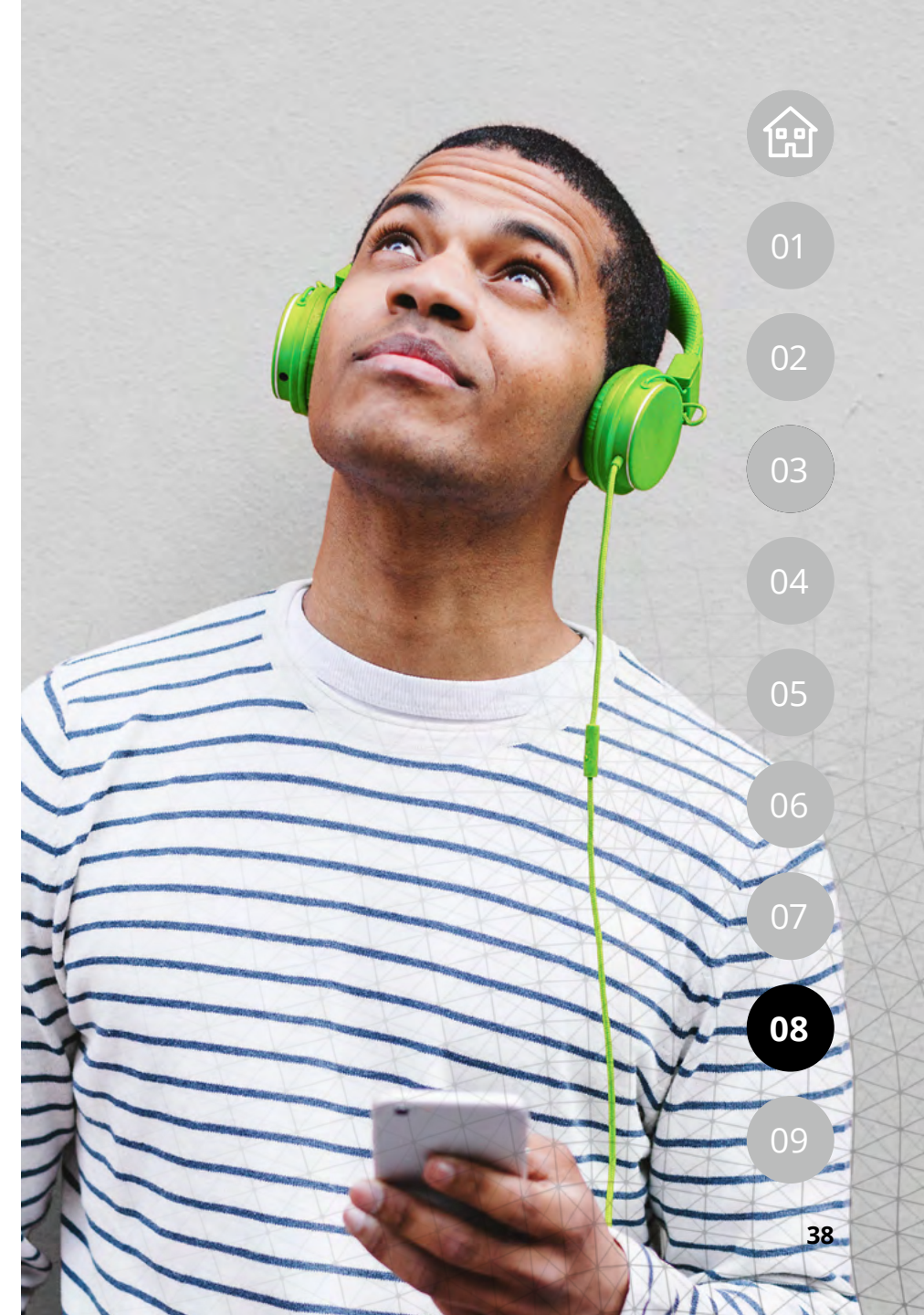
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External collaboration

Companies can collaborate with peer organizations and regulatory bodies to establish robust standards. Currently, only 27% of survey respondents' companies collaborate with other commercial organizations and only 23% collaborate with government organizations to review ethics concerns.

Some organizations are already working to create standards:

- The Coalition for Content Provenance and Authenticity (C2PA.org) is a collaboration with Adobe, the BBC, Intel, Microsoft, Sony, and Truepic focused on combating misleading information online through the development of technical standards for certifying the source and history of media content.[62]

- IEEE TIPPSS (Trust, Identity, Privacy, Protection, Safety, Security) is an open standard governing the Clinical Internet of Things, electronic health and medical records, and connected healthcare systems.[63] While this technical standard applies to the healthcare sector, it could be extended to business governance.

Given the prevalence of open-source tech, which fosters faster innovation, there should be a keen focus on bad actors moving at the same speed.[64] With the rapid evolution of emerging technologies, now may be the time for companies to collaborate with commercial and government entities.

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Preparing for regulatory scrutiny

The past decade has seen an increasing gap between the pace of technological development and the legal mechanisms designed to govern its effects. 71% of survey respondents believe government could have a bigger role in setting ethical standards for emerging technologies (see Figure 13 for approaches).

Regulation is one facet of protecting citizens' rights and presents an opportunity for businesses and government to collaborate. As indicated by survey respondents from both 2022 and 2023, business and government leaders want mutually beneficial regulation and are open to collaborative partnerships to create agreed-upon standards.

Regulating emerging technologies may necessitate striking a balance between protecting citizens and ensuring markets allow for "innovation and businesses to flourish."[65] Many believe regulation can and should support innovation goals while providing appropriate guardrails.

One thing is clear: given the rapid evolution of emerging technologies, a new approach to regulatory development could be valuable. One Deloitte report suggests five principles for guiding the future regulation of emerging technologies: following a more nimble, responsive *adaptive approach;* prototyping and testing new regulations via *regulatory sandboxes;* focusing on results and performance in outcome-based regulation; moving from one-size-fits-all regulation to a data-driven, segmented approach with risk-weighted regulation; and engaging players across the technological ecosystem with collaborative regulation.[66]

Figure 13: Organizational support for types of government responsibility in technology regulation
(Percentage)
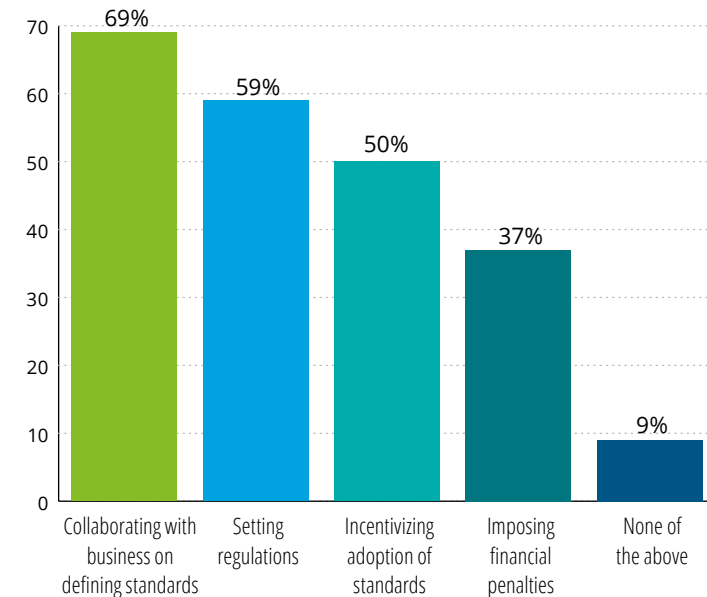
Source: *2023 Deloitte Technology Trust Ethics Survey*

Globally, governments are in varied stages of considering, debating, and enacting regulation for emerging technologies:[68]

AI

The European Union (EU) is arguably the furthest along in its consideration of AI regulation. This includes the EU's AI Act (pending proposal), which assigns AI applications to four risk categories: unacceptable-risk applications (such as government social scoring) which are banned; high-risk applications (e.g., CV-scanning tools that rank job applicants), which are subject to compliance with public registration as well as risk management requirements; AI with certain transparency requirements (e.g., chatbots); and low-risk applications, which are unregulated.[68] If approved, the EU AI Act is expected to influence global standards for the use of AI, as it applies varying degrees of responsibility to entities that develop, distribute, and use AI systems inside Europe, regardless of where the entity is headquartered.

Indications suggest it will take companies significant effort to conform to standards recommended by the EU; a Stanford study, for instance, showed leading AI models are "woefully noncompliant with responsible AI standards."[69]

In the US, many federal, state, and local policymakers are working to better understand AI's capabilities and the challenges it presents before they move forward with regulation. Several voluntary frameworks to guide the responsible development and use of AI have been released, including the aforementioned NIST AI risk management framework.[70] Congress is highly involved in AI issues, and both the Senate and House are holding hearings and expert convenings into the fall to discuss policy solutions. Meanwhile, the White House is developing a National AI Strategy, and the Office of Management and Budget plans to publish

draft rules for the federal government's use of AI. In April 2023, the Federal Trade Commission, Consumer Financial Protection Bureau, Justice Department, and Equal Employment Opportunity Commission issued a joint statement asserting their authority to protect consumers from companies whose AI products cause harm.[72]

The Biden administration has also worked directly with companies developing powerful AI systems to secure voluntary safety and security commitments. In July 2023, for example, the White House announced commitments from Amazon, Anthropic, Google, Inflection, Meta, Microsoft, and OpenAI aimed at promoting "safe, secure, and transparent" development of AI.[72]

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Blockchain

The EU adopted regulations on European Markets in Crypto Assets (MiCA) rules. The regulation aims to "[foster] technological development and ensure financial stability and consumer protection."[73] As a result, the EU is expected to have a unified approach to crypto-asset regulation across all 27 member states, making it possible for firms approved in one country to "passport" their business into other countries with minimal additional paperwork. These passports require crypto firms to comply with higher disclosure standards than under current national regulations.

Digital reality

The EU is among the first major jurisdictions to consider regulation of immersive virtual worlds (e.g., metaverses) with its European Digital Rights and Principles, which intend to "guide the vision of the future virtual worlds, reflecting EU values and fundamental rights."[74] This metaverse regulation aims to clarify expectations and rules by adopting a threefold approach for people, technologies, and infrastructure.

Other regulations include India's Information Technology Rules, which mandate social media platforms to exercise greater content control,[75] and EU's Digital Services Act, which will govern content moderation on large digital platforms.[76]

Without sufficient regulation, companies are responsible to protect their brands through self-regulation. The potential problems with this can be seen in technologies like cryptocurrencies. With little initial regulation in place, innovation flourished; but the industry crashed in 2022 after serious ethical missteps by some actors in the space. Now, after the crash, cryptocurrency is facing heavy regulations around the world.[77]

Without sufficient regulation, companies are instead responsible to protect their brands through self-regulation.

Promoting trust and ethics in technology:
the way forward

The stakes of ethical failures of emerging technologies may be higher than ever, and the potential harms of those failures encompass reputational, organizational, financial, and human damage. To help create long-term sustainability and continued trust from stakeholders, organizations should enact a socially responsible stance by proactively and collaboratively establishing ethical principles from pre-development to post-deployment of emerging technologies. This section summarizes considerations for companies to become ethical technology leaders.

Considerations for companies to become ethical technology leaders

1

Define how your company approaches trust and ethics.

- *Is there alignment between the company's culture, Standards of Conduct, ethical principles, and compliance and regulatory standards?*

- *If not, how could you begin to create this alignment?*

2

Select trustworthy and ethical principles relevant to your company's and your customers/clients' use of emerging technology.

- *Which ethical principles are relevant to your organization and its products/ services?*

- *Which ethical principles are relevant to your customers/clients who are using your products/ services?*

- *Have you had open conversations with internal and external stakeholders to validate that the chosen principles accurately reflect your goals and values?*

- *Have you had open conversations with your customers/clients to validate that the chosen principles in your products/services accurately reflect their goals and values?*

3

Embed identified trustworthy and ethical principles within your company.

- *How are ethical considerations messaged within your organization?*

- *Do you have appropriate channels to gather feedback?*

- *Do ethics owners have appropriate resources and authority to influence product design teams?*

- *Are employees evaluated based on attentiveness to ethics? Are they compensated for flagging ethical concerns?*

4

Establish collaborative relationships both within and outside your company.

- *Are all business units brought to the table in the development of new technologies? (I.e., not just technology developers, but ethics team/owners, marketing, customer success, legal, etc.)*

- *Are middle managers empowered and encouraged to escalate issues reported from direct reports?*

- *To safeguard ethical concerns and proactively meet and shape regulations in technological development, has the company explored partnerships with other companies, standards organizations, academia, and government entities?*

5

Consistently review and adapt principles to ensure trustworthy and ethical behavior throughout rapidly evolving technology advancements.

- *How regularly does your company review its core ethical principles and the ethical implications of its technological products?*

- *How are you staying current on the latest technological developments, both internally and externally?*

Promoting Trust and Ethics in technology: the way forward

Carefully discussing and executing these steps can help position your company to be a trustworthy and ethical leader in the emerging technology space. Consider Deloitte's Technology Trust Ethics framework (Figure 7) to assess the ethical implications of emerging technology and as a guide to responsible decision-making in its design, operation, and governance.

As a society, we are at an important juncture in technology advancement. Companies designing, developing, and deploying emerging technologies have a responsibility to minimize harms and an incredible opportunity to maximize the technology's positive potential. This is an opportunity to build organizational purpose, link long-term value with the future of technology, and simultaneously leverage emerging technology to return some of that value to society.

Through our collective commitment and action, we can forge a trustworthy and ethical future.

About the survey

The study was conducted as follows:

- Reviewed last year's report to re-visit initial hypotheses—and ideate new ones—on the state of ethical technology principles given the changes in technology development.

- Created an interview guide that led our conversations with 17 industry specialists, serving as our primary research.

- Performed secondary research to identify trends at the cross-section of trust, ethics, and emerging technology.

- Interviewed 9 Deloitte TTE Steering Committee members to understand Deloitte opinions and market observations on trustworthy and ethical technology.

- Consolidated interview findings into key takeaways.

- Built and executed a 64-question survey to quantitatively validate industry specialist interview findings across a statistically significant population (1,716 respondents).

- Analyzed the survey data to validate hypotheses and support the white paper's key arguments.

All survey respondents were business and technical professionals who are actively involved in either developing, consuming, or managing emerging technologies, including artificial intelligence, machine learning, blockchain, augmented reality, virtual reality, quantum computing, computer vision, robotics, and more. Respondents could be either full-time or part-time employees.

The survey represented respondents from: North America (n = 1,100), Europe (n=357), South Asia (n=120), East Asia (n=44), South America (n=27), Middle East (n=27), Oceania (n=23), Africa (n=11), Central America (n=4), and other regions (n=3).

Figure 13: Primary industry
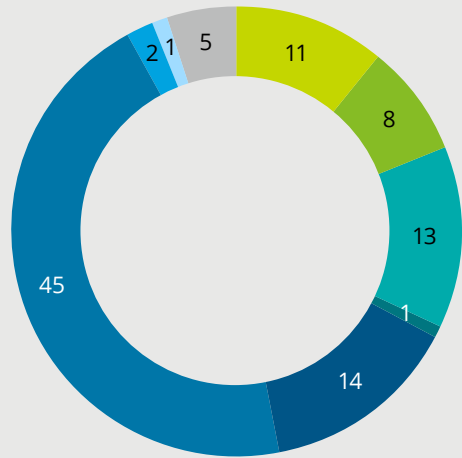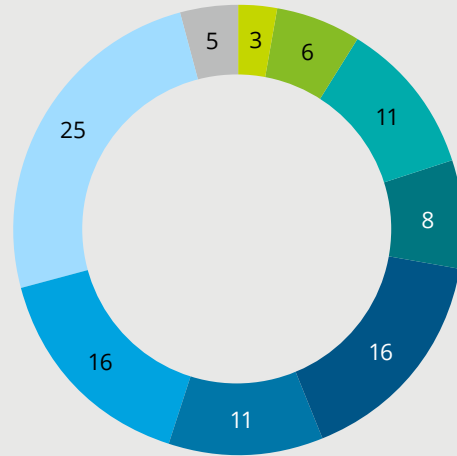*(Percentage)*

- Consumer
- Energy, Resources & Industrials
- Financial Services
- Government & Public Services
- Life Sciences & Health Care
- Technology, Media, & Telecommunications
- Academia
- Non-Profit
- Other

Figure 14: Annual revenue
(Percentage)

- More than $200 billion
- $50–$200 billion
- $49.9–$10 billion
- $9.9–$5 billion
- $4.9–$1 billion
- $500 million–$0.9 million
- $100–$499 million
- Less than $100 million
- Prefer not to answer

Figure 15: Function
(Percentage)
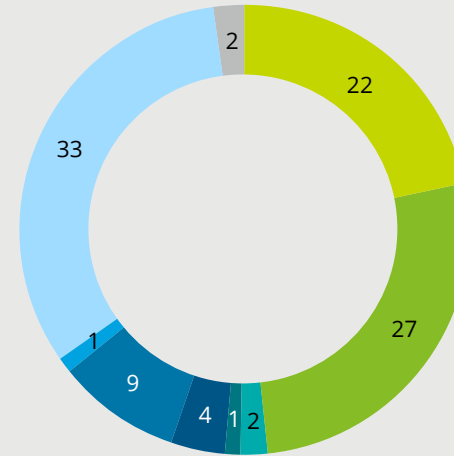
- General Management, Strategy, etc.
- Product Development, R&D, Design, Testing, etc.
- Governance, Compliance, Legal, Regulatory, etc.
- Finance, Forecasting, Accounting, etc.
- Operations, Sourcing, Procurement
- Sales, Marketing, Customer Service
- HR, Communications
- IT
- Other

Figure 16: Role type
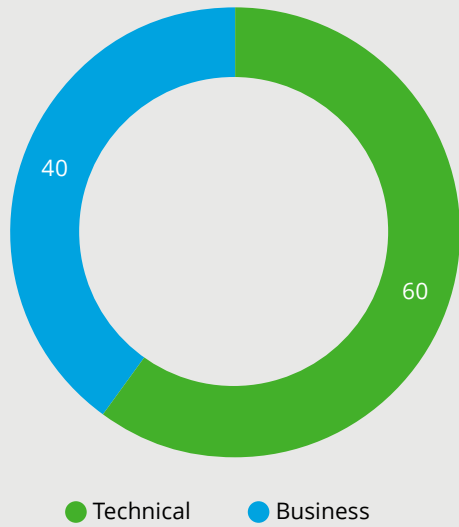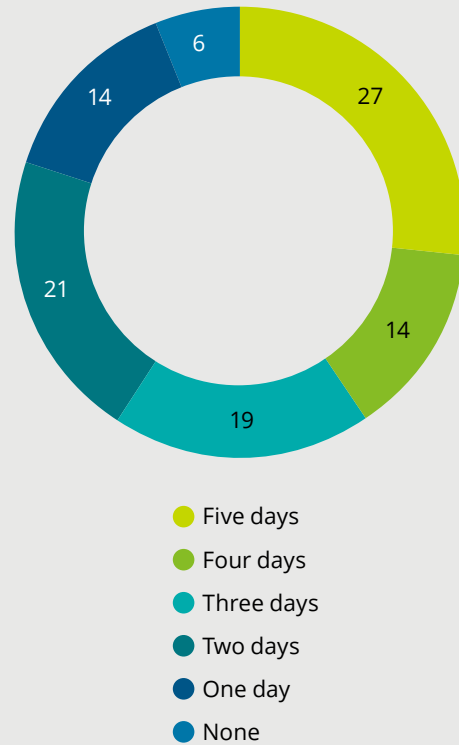*(Percentage)*

- 🟢 Technical
- 🔵 Business

Values: 60 (Technical), 40 (Business)

Figure 17: Workweek remote
(Percentage)

- 🟡 Five days
- 🟢 Four days
- 🔵 Three days
- 🔵 Two days
- 🔵 One day
- 🔵 None

Values: 27, 14, 19, 21, 14, 6

Authorship and acknowledgments

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Acknowledgments

A research effort of this size requires collaboration of dedicated professionals, and we are grateful for their varied contributions.

We would like to thank the following Deloitte leadership and subject matter experts for their contributions: Sachin Kulkarni, Mac Worsham, Caitlin Levine, and Kwasi Mitchell.

We would also like to thank the Technology Trust Ethics team for their time spent performing core research, developing and reviewing the survey instrument, and reviewing the final report:

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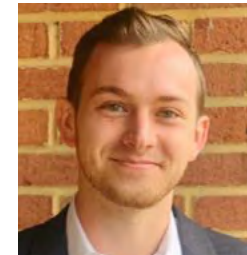
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