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The Association of Accountants and Financial Professionals in Business

Next-gen controllership

Harnessing AI and emerging technologies to transform finance and accounting

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Laying the groundwork: Global research to trace the controllership technology journey

Emerging technologies are transforming the finance and accounting industry. With the adoption of artificial intelligence (AI) and new functionalities available in the convergence of data location, process automation, and data analytics technologies, financial institutions can now process transactions faster, more accurately, and with seemingly greater efficiency. However, the integration of these new technologies comes with a set of challenges. Legacy systems, which are often outdated and lack the necessary compatibility with newer technologies, can make the adoption of new technology innovations difficult and expensive. Additionally, the implementation of new technology requires significant investment in training, infrastructure, and cybersecurity measures. Despite these challenges, the benefits of emerging technology in finance and accounting can be promising, and companies that integrate these technologies effectively are likely to gain a competitive advantage in the industry.

From the winter of 2023 to the spring of 2024, IMA and Deloitte's Center for Controllership conducted a global survey of more than 900 finance and accounting analysts, managers, directors, controllers, and CFOs. The global survey aimed to read the pulse of how the finance and accounting functions are navigating the influx of emerging technology available against expectations for future implementations, possible applications, and controllership impact.

This report presents the findings from this survey alongside considerations from industry experts and professionals, offering insights into common emerging technologies used in the controllership function, the benefits these technologies may have on core accounting processes, and how technology may transform the function of controllership. We explored how professionals apply new tools, the challenges in adopting technology solutions and insights into overcoming these challenges, optimizing the positive impacts, and meeting expectations for the future of controllership.

The insights gleaned from this research form the bedrock of our guidance on how controllers and their teams can leverage a practical framework for navigating the unpredictable landscape of emerging technology. This framework aims to assist finance and accounting professionals to optimize the functional value of technologies that are set to become a staple in the next generation of controllership.

Section 1: Artificial intelligence: How AI is reshaping accounting and finance

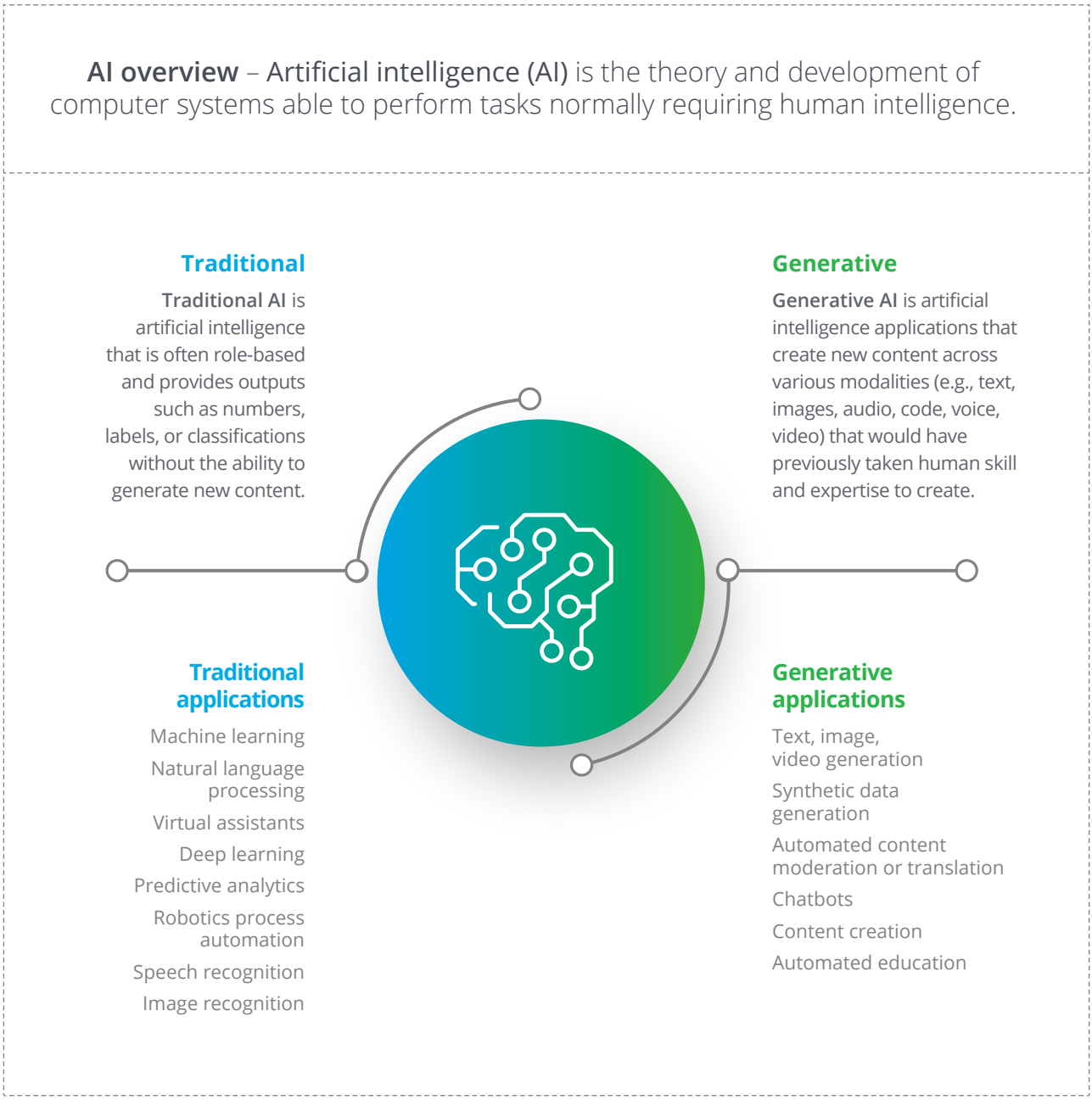
What is AI? For a term that is consistently in headlines and at the forefront of business discussions, you may find yourself wondering what exactly is AI?

The standard answer: **Artificial intelligence (AI)** is the theory and development of computer systems able to perform tasks normally requiring human intelligence. AI can be categorized into two main categories: traditional and generative (figure 1).

Traditional AI is often rule-based and provides outputs such as numbers, labels, or classifications. If you have ever used a virtual assistant on a website or leveraged predictive analytics technologies for your data, you were using traditional AI. This category of AI is optimized for processing large amounts of data following predefined rules that train the AI to respond to a given set of circumstances. It is distinguished by its response within prescribed parameters, but it does not adapt to situations outside its training set.

Generative AI (GenAI) has the ability to *generate* new content, as the name suggests. It is AI that can create content across various modalities, such as text, images, and code, which would have previously taken human skill and expertise to create.

Figure 1: Defining artificial intelligence: Traditional AI vs. Generative AI



But what does that mean?

Let's simplify. AI encompasses many technologies that work together to build innovative solutions that transform society and business alike.

In the finance function, that can include machine learning, natural language processing, deep learning, predictive analytics, robotic process automation, and speech recognition.

Why AI matters

The question is not if AI *will* affect your work, but *when*. Our global survey showed that the implementation and use of AI in the controllership function is expected to nearly double in the next three to five years. Furthermore, AI was ranked as the second most important technology skill for controllers to have training on in the next three to five years.

GenAI captured the public's imagination when it burst onto the scene in the second half of 2022. Few technologies have ever debuted to such fanfare. Adoption and use of GenAI have been sudden and rapid among the public. In one example, OpenAI reported reaching 100 million users within 60 days of releasing ChatGPT to the public.[2]

GenAI may be the next great chapter in the history of information.[3] For businesses, the opportunity to augment professionals and controllers with machine-assisted intelligence is a generational opportunity. It's a paradigm shift that may be poised to unlock doors to new business opportunities and fundamentally change how the enterprise organizes and operates.

The current state of AI

AI tools and other rule-based innovations are pervasive, but AI is entering a new era. The hype around AI innovation over the past year has reached new levels, and for good reason. What changed? In short, AI is graduating. It is transforming from rule-based traditional models to foundational data and language models that can generate its own rules.

While a rule-based model focuses on predictions and patterns using massive amounts of historical data and language models, GenAI can generate content and insights that builds upon foundational data. AI has advanced technological capabilities that can empower controllers and transform how business is done. With tools from intelligent automation to machine learning, natural language processing, and GenAI, organizations are presented with both opportunities and risks in finance and accounting.

There are many AI tools available that the accounting and finance function can leverage. When asked which AI products are currently being used the most in controllership, respondents identified Microsoft products such as Azure Synapse as the highest used AI tool. Azure Synapse, like most of the tools in our survey, is mostly used for analytics purposes.

This tool was closely followed by OpenAI, with over 30% of respondents who use AI claiming to use OpenAI in their organizations.

Rounding out the top three AI tools that respondents mentioned using was Snowflake, which has AI capabilities to understand unstructured data, answer free-form questions, and provide intelligent assistance. Other AI tools also used within controllership include, Domo, Oracle, Sage Intacct, SAP Concur, and ThoughtSpot.

Deloitte's *insights*

While the interest in traditional AI and GenAI is reaching new heights, organizations are adopting AI tools at a lower rate than many may have expected. Organizations seem to be waiting for more niche tools to enter the market or more advanced out-of-the-box technologies to emerge with practical applications for the finance and controllership space.

GenAI adoption challenges

The top reported challenge for implementing GenAI tools was AI *integration with existing systems*, with 19% of survey respondents citing this has been a challenge with past implementations. This challenge was followed by *security concerns, data governance*, and lack of *skilled labor* for the top implementation challenges. For future planned AI implementations, *integration with existing systems* remained the biggest concern; however, respondents ranked challenges with *data governance* and *lack of skilled labor* higher for future expected challenges. It is expected to see challenges with *data governance* become a significant lift for many organizations as they plan to implement AI (figure 2).

While specific implementation challenges may vary, one common barrier is the alignment of system architecture. This relates to the noted challenges around data inconsistencies across applications. Inconsistent data governance across the organization leads to challenges in implementing integrated solutions.

Lack of funding and lack of leadership support remained the smallest challenges for respondents, both for previous and future implementations; however, respondents identified that lack of funding was becoming more of a concern going forward.

Other challenges noted by respondents included lack of skilled labor, limited use cases, trust concerns, reliance on bad data, a lack of leadership support, and problems with funding (figure 2).

Deloitte's *insights*

AI has been receiving much attention in the current climate. As it introduces a paradigm shift to accelerating transformation, finance leaders have been more engaged in the excitement, likely driving a willingness to fund implementations. However, that excitement may outperform the current impact of AI in the finance and accounting space. Therefore, the willingness, or perceived willingness, to fund AI tools may focus on more long-term or future investments until the impact aligns with the hype or offers more assurance for a return on investment.

Figure 2: Top AI implementation challenges in the past five years

AI is an operations force multiplier for human ambitions in finance

Benefits of GenAI in finance

According to respondents, the top reported benefits of AI are *increased automation enablement* and the *reduction of monotonous responsibilities* (figure 3). The global survey showed that 20% more respondents identified predictive and prescriptive analytics as a benefit in the next five years compared to the previous three to five years.

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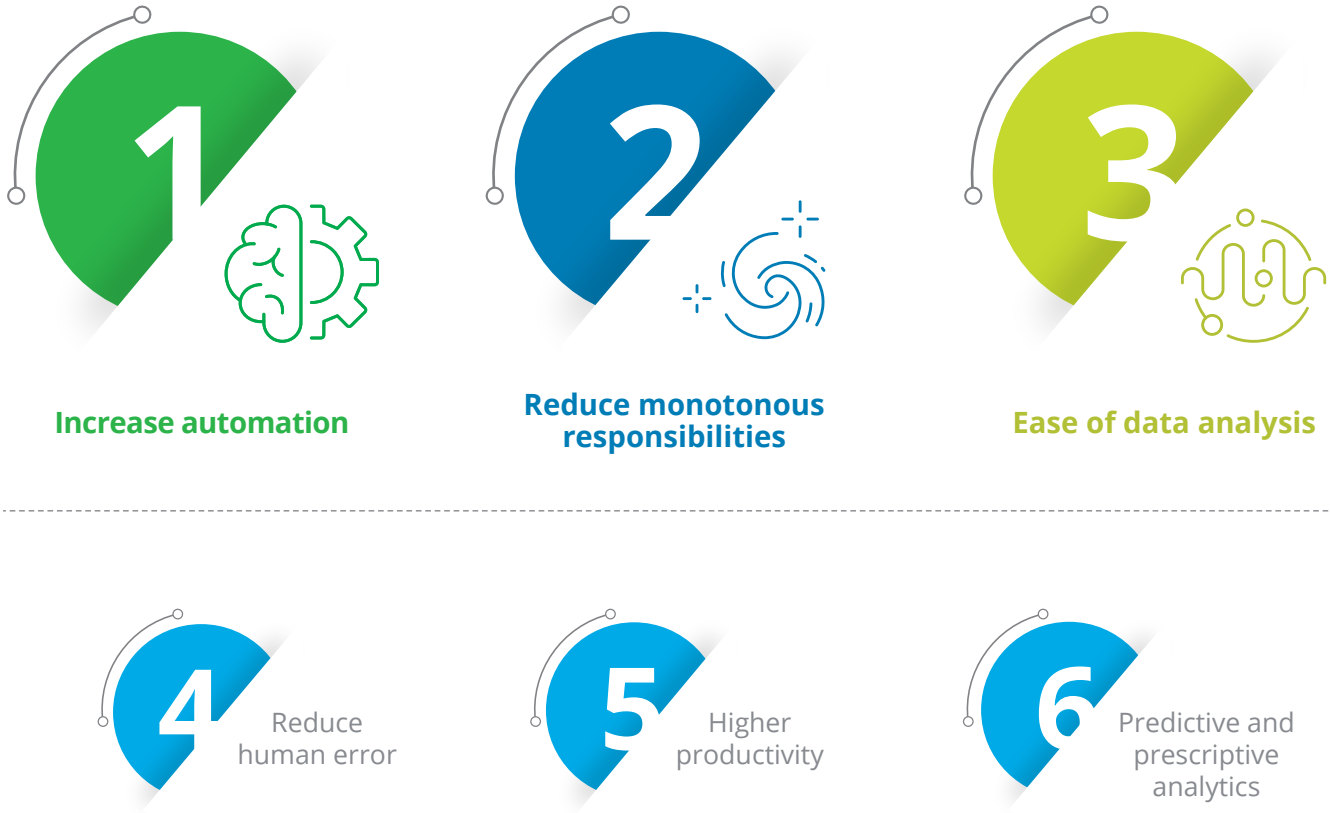
Organizations have historically utilized predictive (forecast based on historical data) and prescriptive (forecast-driven recommendations) analytics in more simplistic use cases. However, professionals have noted GenAI can increase the power of predictive analytics. With GenAI, the model can offer a prediction with the additional benefit of context and explanations around that prediction. Natural language models will make this more accessible. The adoption of built-in prescriptive analytics into larger offerings will also likely drive accessibility.

GenAI has the potential to reduce the burden of manually intensive tasks on humans, freeing them up to focus on higher value and more ambitious strategies. It is rocket fuel for operations that can enable a workforce to utilize technologies to guide decisions and focus more on critical or strategic tasks.[4]

Figure 3: Top AI benefits in the next five years



Deloitte's *insights* - Controllership AI use cases[5]

Increase automation – Automate journal entries; reduce manual tasks in order-to-cash cycle; process, match, and pay in procure-to-pay process to support touchless invoice processing

Reduce monotony – Create, track, and manage close activities; produce automatic smart accounting reports based on predefined template

Data analysis – Automatically analyze data and provide optional solutions; improve variance analysis with unstructured data; generate insights in video, text, or image format

Reduce human error – Reconcile inconsistent journal entries; assess reliability of accounting entries

Productivity – Reduce time spent on manual processes such as risk interviews, in which GenAI can analyze unstructured data sources such as discussions to uncover takeaways, themes, and insights; produce diagrams, slides, and other insight material from datasets, allowing humans to focus on any identified exceptions

Predictive and prescriptive analysis – Validate actuals in the close; provide trend analysis and insights for accountants; identify biggest drivers of cash flow; analyze historical fulfillment rates for inventory management[6]

GenAI use cases in accounting and finance

GenAI's broad applicability makes it a useful tool across personas and functions and throughout businesses. For example, using GenAI, the controllership function can systematize recurring entries and reconciliations, perform source-to-target chart of account mapping, review and analyze contract terms, and prepare internal and external financial reporting that includes commentary and insights.[7]

Finance leaders can use GenAI to maintain a pulse on the business and adapt to changing market conditions, predict and preempt strategic macroeconomic blockers, enhance organizational structure, and provide quick answers to evolving questions and real-time information. Controllers and finance leaders can use GenAI to run intelligent searches of knowledge bases, standard operating procedures, and regulatory documents; generate control compliance reports to provide domain-specific expertise to business decisions, and monitor compliance, ethics, and control across the business.[8]

With this ability, GenAI could create a more profound relationship between humans and technology. AI can be a force multiplier or assistant for workers—liberating them from more repetitive tasks and enabling the workforce to focus on more creative or strategic aspects of their jobs.[9]

Implementation considerations

The use of traditional AI and GenAI in accounting and finance may vary across functions. Respondents identified that advanced analytics and intelligent systems, such as data science and AI, are being implemented the most in financial reporting and financial planning and analysis (FP&A) within controllership. Other areas leveraging advanced analytics and intelligent systems include controls and compliance, treasury, general ledger and close accounting, and operational accounting.

Deloitte's *insights*

Many experts identify the record-to-report process for internal or management reporting as one of the strongest use cases for FP&A. In addition, flux analysis and managing the close process could benefit from GenAI implementations.

Figure 4: Generative AI adoption in controllership

While traditional AI tools will likely continue to exponentially increase in finance and accounting use cases, it is important to note that GenAI adoption is quickly gaining traction across finance. Our global survey showed that 16% of respondents are either currently using or currently adopting GenAI, and almost half of respondents (44%) plan to adopt GenAI in the next five years (figure 4).

Key takeaways

- The ongoing adoption of traditional AI will likely continue to grow as it becomes standard technology in business. Per the survey results, emerging adoption of GenAI is also likely to increase over the next few years.
- When looking at the emerging AI tools and their various generative applications, the opportunities they present to finance and accounting are multifaceted. While many tools currently have analytics applications, GenAI tools are a paradigm shift to the finance and controllership landscape because of their broad applicability and convergence with other emerging technologies.
- With the challenges to AI implementations and concerns over governance and security, stepping into the opportunity to maximize benefits may be achieved with a successful AI implementation framework. This is discussed further in Section 4.

Section 2: Beyond AI: Technologies leading change in controllership

The big players: Next-gen tech

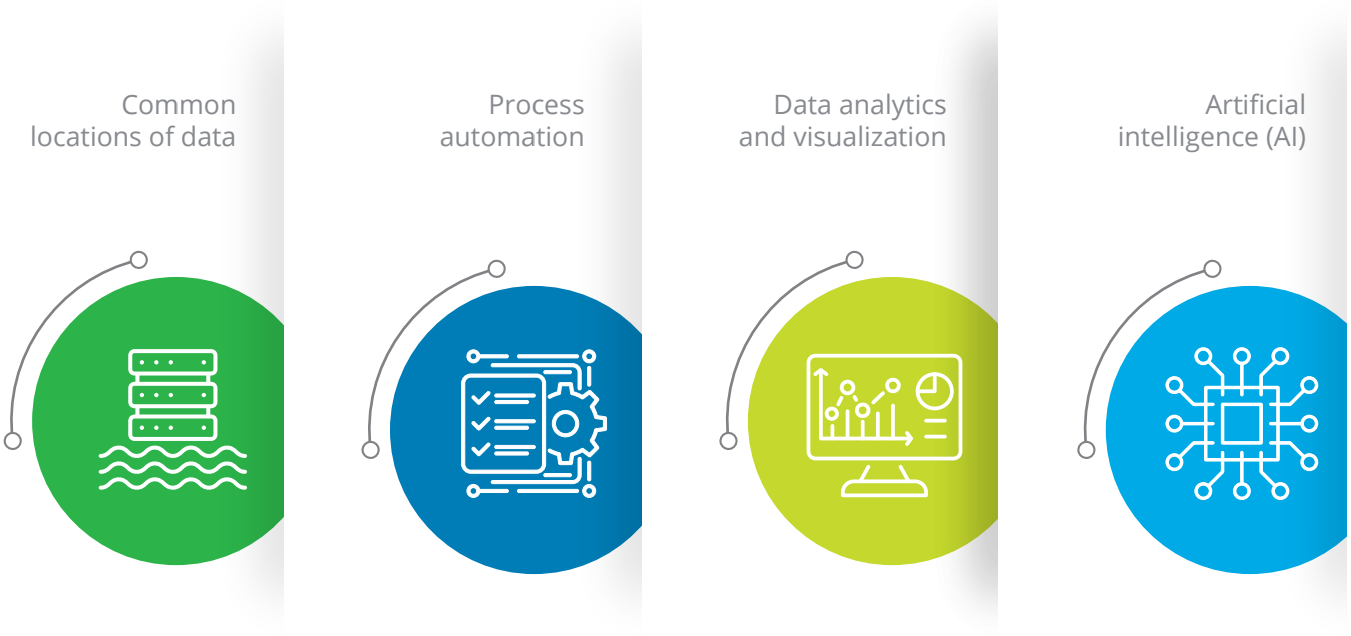
While the novelty of GenAI brings AI to the forefront of many emerging technology discussions, it's crucial to note that AI is not the *only* emerging technology taking up real estate in the next-generation accounting landscape. Other technologies such as process automation, data analytics, and data location continue to evolve and play a big role in accounting and finance. In this section, we will identify the most used technologies, implementation trends, and emerging functionalities for each category according to the survey (figure 5).

First, let's define the key areas in emerging technology outside of AI:

Data location and management technology

Data location and management refers to systems, methodologies, and infrastructure used to store, manage, and retrieve data across various physical devices and geographical locations. This technology encompasses both the hardware and software components necessary to ensure data is securely saved and efficiently accessible when needed. In controllership, this technology can include on-premise, cloud, or data mesh approaches to storage and data management.

Figure 5: Emerging technology areas in controllership



Data analytics and visualization technology
Data analytics tools convert raw data into actionable insights. It includes a range of tools, technologies, and processes used to find trends and solve problems by using data.

Data visualization technologies enable the graphical representation of information and data, often through visual elements like charts, graphs, and maps. Its practical application can include the visualization of ad hoc or strategic analysis, compelling presentations of context underneath typical variance analyses, and heightened understanding of data to communicate a wide variety of use cases including daily sales, revenue analytics, variance decomposition, and growth trends.

Process automation technology
Process automation refers to the use of technology to automate repetitive and manual tasks within a business process. It includes technologies like robotic process automation (RPA), intelligent document processing (IDP), workflow orchestration, AI, system integrations, and business rules. Its practical applications include automating financial processes such as data validation, forecast reports, and reconciliations.

Section 2.1: Data location and management survey trends

With most technology implementation initiatives trending upward, it may come as a surprise that results from our survey demonstrated the implementation of data location technology within accounting and finance is expected to decrease by 32% in the next five years (figure 6).

Respondents identified the most used data location technology as SAP, with 18% of respondents implementing SAP within the next five years. Other notable data location technologies include SQL, and Oracle. While most data location implementations are expected to decrease compared to the previous five years, the survey showed that Amazon Web Services (AWS) will have a 25% increase in implementations in the next three to five years compared to current use, the highest increase compared to other data location technologies (figure 6).

Deloitte's *insights*
While this trend deviates from other technologies, there are some possible explanations for this perception. The marketplace is moving toward modern ERPs—a wave that started about five years ago and likely has five years left. While ERPs typically involve an on-premise data warehouse, many organizations are moving toward a modern cloud-based warehouse. Seeking to participate in the cloud data warehouse trend, some traditional ERP vendors have created their own offerings as well. Another emerging trend is the data mesh strategy, in which individual corporate functions can own their respective data and then publish to a data catalog for consumption in analytics by other functions.

With the move toward cloud-based solutions and emerging data mesh technology, data location implementations may be moving more toward IT ownership. As a result, finance and accounting leaders may have less visibility or involvement in data location implementations.

Deloitte's *insights*
As noted previously, with the emergence of more cloud-based systems and the data mesh trend, the perception is that finance and accounting professionals may experience less involvement in the IT side of data implementation. Some considerations from professionals in the marketplace note that SAP is geared more to larger companies and has a stronger footprint in manufacturing rooted in its strength in ERP integration. Oracle, however, may have a stronger presence in other industries.rooted in its strength in ERP integration. Oracle, however, may have a stronger presence in other industries.

Section 2.2: Data analytics and visualization survey trends

The implementation of data analytics and visualization technology is expected to remain steady, with approximately 24% of respondents stating they have implemented this type of technology in the past five years and expect to implement this technology in the next three to five years.

The survey results found that PowerBI is the most used data analytics and visualization tool in controllership, with 35% of respondents stating their organization is using PowerBI and 33% planning to implement the tool in the next three to five years (figure 6). This is consistent with what Deloitte has seen in the marketplace . Native and naturally integrated tools have the added benefit of ease of use and larger platform integration.

Other high-use data analytics tools include Python, SAP Analytics Cloud (SAC), and Tableau . We found that the use of SAC is expected to increase by 28% in the next three to five years when compared to the past five years, the highest increase in change of the analytics technologies.

Deloitte's *insights*

SAC is a native SAP visualization tool, and with an increased interest in SAP S4HANA and Central Finance, SAC will likely see an uptick in the opportunity for its use. In addition to these traditional reporting and visualization tools identified in the survey, we are seeing organizations use desktop analytics toolkits to transform, enhance, and improve quality insight and data. Other tools offer visualization capabilities as well as tools to automate business rules, apply criteria, and pull reports.

AI impact on data analytics and visualization

While natural language generation has been around in some form for many years, the next-gen AI capabilities may offer new applications for analytics and data visualization in controllership. Organizations will likely see an increase in AI integrations or add-on capabilities with the data analytics and visualization tools on the market. There are multiple ways this could present itself with transformative applications. Notably, GenAI will likely be an innovative tool for producing prompt-based data and visualization analytics—including automated or generative language prompts that can produce new visualizations, stories, and analyses of data.

Figure 6: Most used data analytics and visualization tools in controllership for the next 3–5 years

Other technologies available in survey question include Alteryx, Python, Qlik, R, and SAS.

Section 2.3: Process automation survey trends

The implementation of process automation technology is expected to remain steady with over one-fourth of respondents (26%) stating that they plan to implement automation technology in the next five years (figure 7). This is consistent with automation implementation trends Deloitte has seen in the past five years. With automation tools becoming increasingly available and user friendly, organizations are reviewing manual processes more frequently to identify automation opportunities.

The global survey showed that the most used tool for data preparation and automation is SQL server-enabled automation tools, with over 22% of respondents stating their accounting and finance function has used SQL-enabled automation in the past three to five years. Forward looking, SQL-enabled automation tools will continue to be the most used tools with 18% of respondents stating their organization plans to implement SQL in the next five years (figure 7).

Other common automation tools used in controllership include Power Query and Tableau, with 16% and 13% of respondents currently using these tools in the accounting and finance function. (figure 7).

Automation Anywhere use has the highest expected growth, with an increase by more than 50% over the next three to five years compared to current use according to the survey.

Automation Anywhere is utilized to automate transactional workflows, such as customer service and service management.

Deloitte's *insights*

SQL's popularity may be due to the broad applicability of multiple tools that leverage SQL data. SQL acts as a reconciling source to 'hub' systems, so businesses that leverage multiple data tools can use SQL to reconcile multiple sources of data or match source to target data. Other tools also utilize SQL servers, which further drives its expansive implementation. For example, SQL can be used in ERP systems to automate data validation processes. It is levered by various applications to perform automated reconciliations and for financial forecasting and data imaging.

What sets SQL apart from other systems on the market may also be how well known it is. It is also noted as being very user friendly, explainable, and traceable. SQL offers a common language for individuals who process large amounts of data and leverage scripts to manage data.

Deloitte's *insights*

What we have seen in the marketplace aligns with our view that RPA and intelligent automation will continue to grow. These technologies leverage a synthetic keyboard and mouse to execute business processes.

AI impact on on process automation

AI is having, and will continue to have, a transformative impact on process automation. The convergence of these two emerging technology solutions has wide-ranging applications in the finance environment.

Process automation tools are already starting to leverage AI for user-generated automations, allowing all users to create automation without the need for deep tech knowledge. For example, a user can leverage AI to automate a process by specifying various inputs to produce an output.

Another example may be reporting automation—where a user can generate reports with a prompt or question using GenAI. Finance and accounting professionals may notice some prominent automation providers already offering AI integrations with broad use cases. Some of these may look like utilizing AI to accelerate the user experience or generating content, context, and output to accelerate reviews. Other applications may be creating and handling customer queries without the need for human interventions, and shorting the life cycle of a desired state—including workflows, validation, and processes.

Figure 7: Most used process automation tools in controllership

1

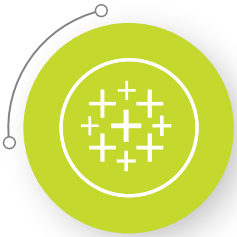
SQL Server

A proprietary relational database management system

2

Power Query

An ETL tool for data extraction, loading and transformation; used to retrieve data from sources, process it, and load data into one or more target systems



3

Tableau

A data visualization software that enables users to create interactive and shareable dashboards from various data sources to visualize and analyze information in real-time

Key takeaways

- Emerging technologies such as data storage, data analytics, and process automation play a big role in finance and accounting, driving continued evolution to the controllership landscape.
- With most technology implementation initiatives trending upward, many organizations have already undergone massive finance transformation initiatives and future growth will likely trend toward the convergence of these technologies and new integrations with AI functionality.
- AI is having, and will continue to have, a transformative impact on other emerging technology solutions, enabling wide-ranging applications and emerging functionalities for finance and controllership.
- Controllership can harness the convergence of emerging technology capabilities to optimize the function's value and shape a more impactful role for the controller.

Section 3: From traditional to tech: How emerging technologies are affecting controllership

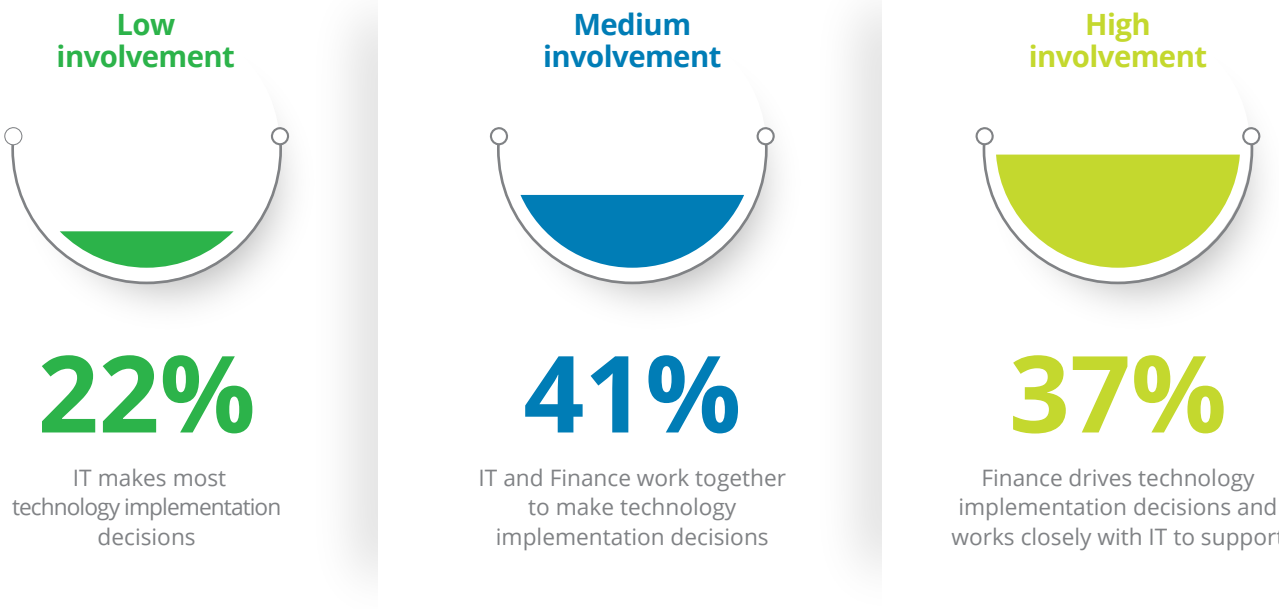
Deloitte's perspective on a sustained transformation mindset
Emerging technologies affect controllership both as a function and through the role of controllers. As new technology, data, and intelligent tools continue to emerge and innovate, controllers and finance professionals will continue their trajectory toward toward catalyst and strategist roles within their organizations.[10] Technology should facilitate less time spent building and publishing reports in favor of automated real-time reporting; less time of risk identification and more time on resolution; and a constant need for new skill sets to keep up with technology and AI innovation. In fact, in this rapid-paced world, it is expected that the controllership function will continue the shift toward a more sustained transformation mindset now and into the future.

Controllership's involvement in tech implementations
One of the impacts of emerging technology on controllership includes the necessary involvement of the controllership function in technology decisions. A low involvement is defined as *IT making most technology implementation decisions*, medium being one in which *IT and finance work together*, and high involvement being one in which *finance drives technology implementation decisions* and *works closely with IT to support*.

Findings from our global survey showed 37% of accounting and finance professionals have a high involvement in technology decisions (excluding "Not sure" answers). However, with almost half (45%) of respondents that hold leadership positions claiming accounting and finance professionals have high involvement, there is a noted difference in perception. For the finance function, 41% of respondents claimed their finance function had medium involvement, and only 21% claimed low involvement (figure 8).

Deloitte's insights
To implement the right technology solutions for their organizations, controllers need to be more involved. Controllership professionals may need to become more educated on proper requirements for technology and often need to have more agency in the decision-making. Low involvement from accounting and finance professionals can result in a tech implementation that fails to meet the needs of the controllership function. The right solutions require full business involvement—and that especially includes controllership.

Figure 8: Controllership involvement in technology decisions



Crucial skills for controllership professionals

While technology skills may seem like the obvious answer for valued skillsets among finance and accounting professionals, we found that it is still not the most important in the eyes of leadership.

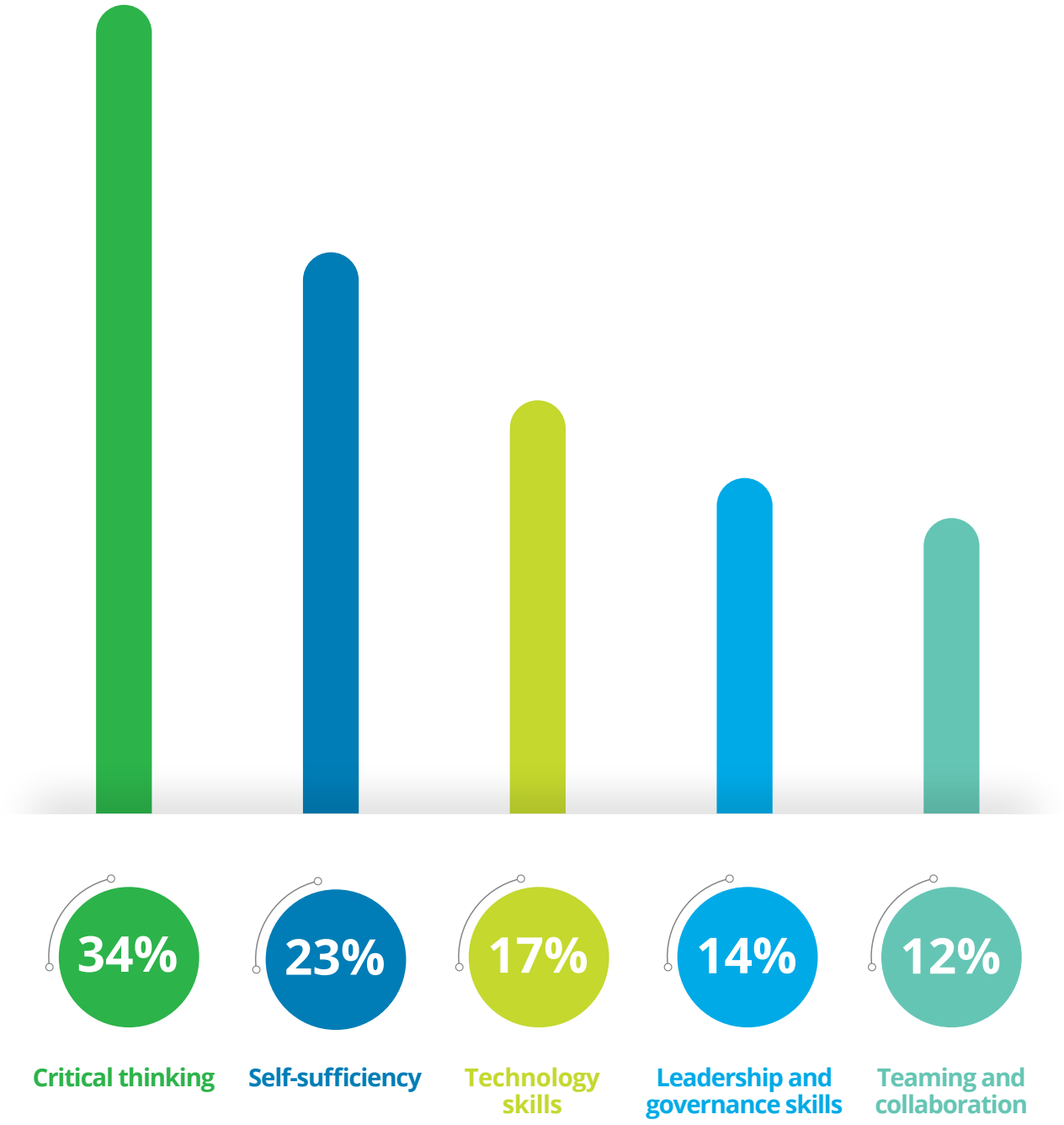
As technology skills are still in high demand, when asked what the most important skills are to improve in the next three to five years, respondents identified *critical thinking* as the most important skill. This was followed by *self-sufficiency* (self-awareness, curiosity, and lifelong learning) as the second most important skill (23%) to improve on in the next five years, ahead of *technology* with only 17% of respondents ranking it in the top important skills (figure 9). This finding emphasizes that while technology is an important tool to utilize, it does not replace the human aspect of the role and the need for accounting professionals with critical thinking and self-sufficiency skills.

Deloitte's insights

While this survey focused on technology, it was interesting that *technology skills* were only ranked third most important for skills in demand. So, are *critical thinking* and *self-sufficiency* more important? The short answer is yes. When implementing a new technology solution, finance leaders need to critique and provide sensemaking of a current or new design.

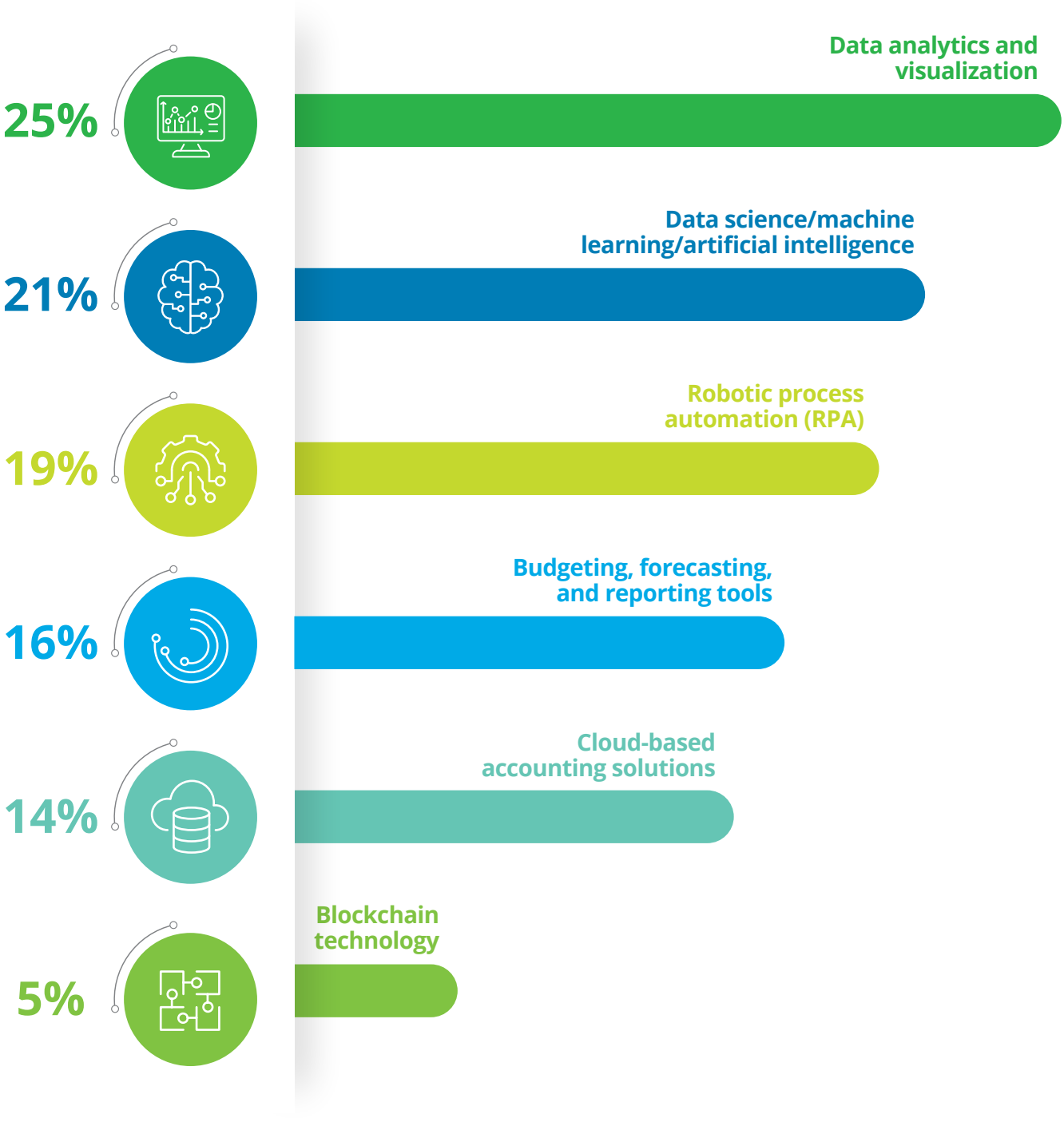
They need to critically think through the processes that will leverage the new technology and ask whether the processes need to evolve or adapt to enable the features and capabilities in the new implementation. Companies that implement technology solutions aren't necessarily the ones building it, so technology skills may not be as important in controllership as the critical thinkers who can come up with a tech-enabled solution that meets the needs of the business and desired state.

Figure 9: Most important skills for controllership teams



However, this does not negate the importance of technology skills. When asked which areas of technology will require the most training for controllers in the next three to five years, 25% of respondents stated *data analytics and visualization* was most needed (ranked 1, 2, or 3), followed by *data science, machine learning, and AI* (21%) and *robotic process automation* (19%). *Blockchain technology* was identified as the least important skill for controllers, with only 5% of respondents identifying this in the top three (figure 10).

Figure 10: Technology skills needed in controllership



AI + Humans = a new era of potential

AI—specifically the relationship between AI and humans—may be one of the primary drivers of change that will have an impact on the finance and accounting workforce in the coming years. In fact, an AI-empowered workforce may help deliver a new era of human potential. Because for all its tantalizing possibilities to automate and augment processes, AI still requires human talent—and organizations that tackle finance technology and talent together may better position themselves to achieve a competitive advantage. It is essential to remember that as AI becomes more prominent in its use and importance in finance and controllership, the human connection is and will remain just as (if not more than) important as ever.

Key takeaways

- Emerging technologies are driving a lot of change to the role of the controller as an authority in decision-making and driver of strategic imperatives.
- The majority of finance and accounting leaders are moderately or highly involved in technology implementations, which, in turn, is changing the skills demanded of the role, including the demand for critical thinking, self-sufficiency, and technological skills.
- While emerging technology is changing the role of the controller, increased controllership involvement in technology implementations through the life cycle of transformation may drive better outcomes and successful transformations that align with business objectives.

Section 4: How to thrive: A framework for future decision-making

Deloitte's considerations to help drive next-gen controllership

Controllership and the new technology imperative

Controllers can harness the capabilities of emerging technologies and optimize the function's value by taking the reins and performing a more hands-on role throughout the transformation and implementation process.

Today's imperative to transform through emerging technology is changing the financial landscape. Technology is evolving rapidly and on a massive scale; it may seem like finance leaders can never keep up. This rapid pace of change drives the accelerated digital transformation of controllership affecting operating models, data models, processes, strategies, roles—the whole function. The speed and scale of this shift can leave controllers feeling uneasy about embracing emerging technology while maintaining stewardship over their organization's financial information.

While transformation through technology has challenges, a key to successful transformation is ownership. Controllership can harness the capabilities of emerging technologies, operate efficiently through change, and optimize the function's value having a more hands-on role throughout the implementation process.

Taking the reins

Enhanced, targeted involvement by the controller's organization in its technology implementation can help achieve its vision for transformation. With a focus on key areas, organizations can drive outcomes that reflect their organizational requirements and aspirations, and continually aim for best-in-class transformation.

Finance leadership involvement: Many technology transformations have a lot of stakeholders across the enterprise and with that comes competing priorities and objectives both inside and outside finance. As such, it is imperative that the controllership function has a seat at the table as a leader in the transformation journey, which is all the more crucial in the complex landscape of technology implementations.

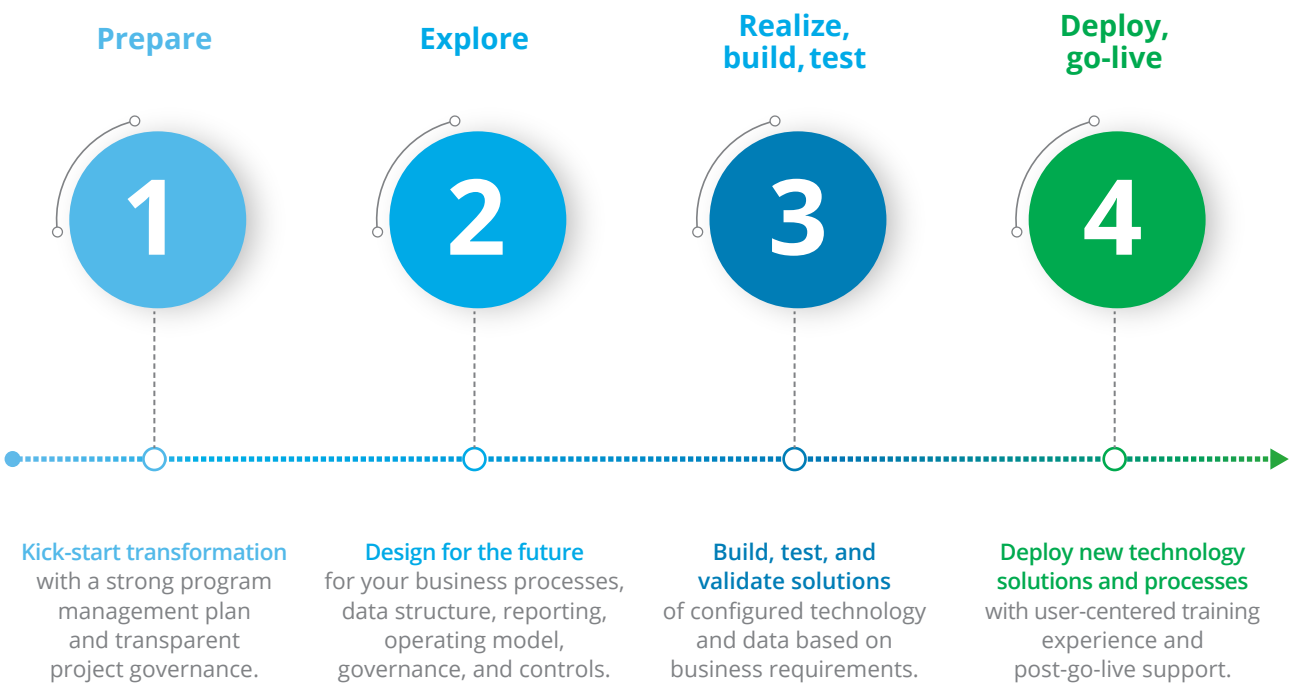
Clear roles and responsibilities

Any process needs clear roles and responsibilities, communicated effectively to the affected workforce to successfully achieve objectives. However, organizations may have multiple directives or have challenges defining roles and responsibilities that support the transformation lifecycle in a meaningful way. Aside from clearly defined responsibilities, consider roles beyond legacy involvement to support other activities throughout the implementation life cycle that would benefit strategic objectives (figure 11).

Cross-functional integration: Many technology-enabled transformations will affect multiple functions across the organization, and the requirements of each function will affect how far controllers can go with a potential solution. To enable a more successful transformation with the right solutions for the business, cut through the functional, business unit, or geographic silos from the start to promote collaboration and avoid designing solutions that do not capture the full set of requirements, leading to rework.

Consistency and traceability: Digital technology solutions that truly benefit the business will always have strong, consistent, and transparent documentation during the entire life cycle of the transformation program. Everything should be documented—from the design, to building and testing, through go-live and post-launch. This includes decisions, change management, status tracking, and results. It will also involve tools, resources, and training for team members and the ongoing efforts after implementation.

Figure 11: The technology implementation life cycle



Source: Deloitte tech implementation readiness

Building an AI risk management framework

A strong AI risk management framework puts trust at the core of AI operations. It contemplates the AI life cycle stages, regulatory jurisdictions, adjacent programs, control frameworks, and governance cadences needed to manage AI risk and establish trust in AI capabilities for internal and external stakeholders. The first step to bringing this framework to life is implementing an enterprise AI policy, which can serve as the foundation for effective, responsible, and ethical AI practices. To give an idea of a trustworthy framework, let's look at the framework through each governance-cadenced routine that would make up an enterprise AI policy.[11]

The framework within the enterprise AI policy

AI tracking and inventory

The first step in the framework is defining an AI standard across the organization. Without it, there is no trust for the framework or foundation for a responsible AI use case. Defining AI for the enterprise also includes incorporating a risk rating or tiering methodology and using a centralized inventory that can be maintained.

Life cycle standards

Across the lifecycle at the core of the framework are clear and concise standards. This means having defined processes and procedures across the AI life cycle—from design, to development, and deployment. Creating and implementing a well-defined control structure is just as important along with established tollgates with cross-functional stakeholder involvement.

Risk assessment and measurement

An enterprise AI policy that builds a trustworthy AI framework must put risk management at the forefront. Organizations should prioritize designing and monitoring risk metrics and categorizing risks aligned to an organizational risk taxonomy. It is also critical to enable meaningful reporting that includes qualitative and quantitative approaches to AI risk.

Regulatory and functional alignment

The enterprise policy's congruence to other regulatory standards includes aligning an AI framework to risk programs such as data risk, model risk management, and privacy risk. This is a key enabler of successful AI integration and should provide the flexibility to meet different regulatory requirements across jurisdictions.

Pillars of a trustworthy AI framework

Comprehensive AI risk management principles serve as the cornerstone of sound AI practices. Deloitte's Trustworthy AI™ framework can provide a backdrop to a sustainable, safe, and responsible AI environment and risk management program. These are the pillars that make up our Trustworthy AI framework (figure 12).

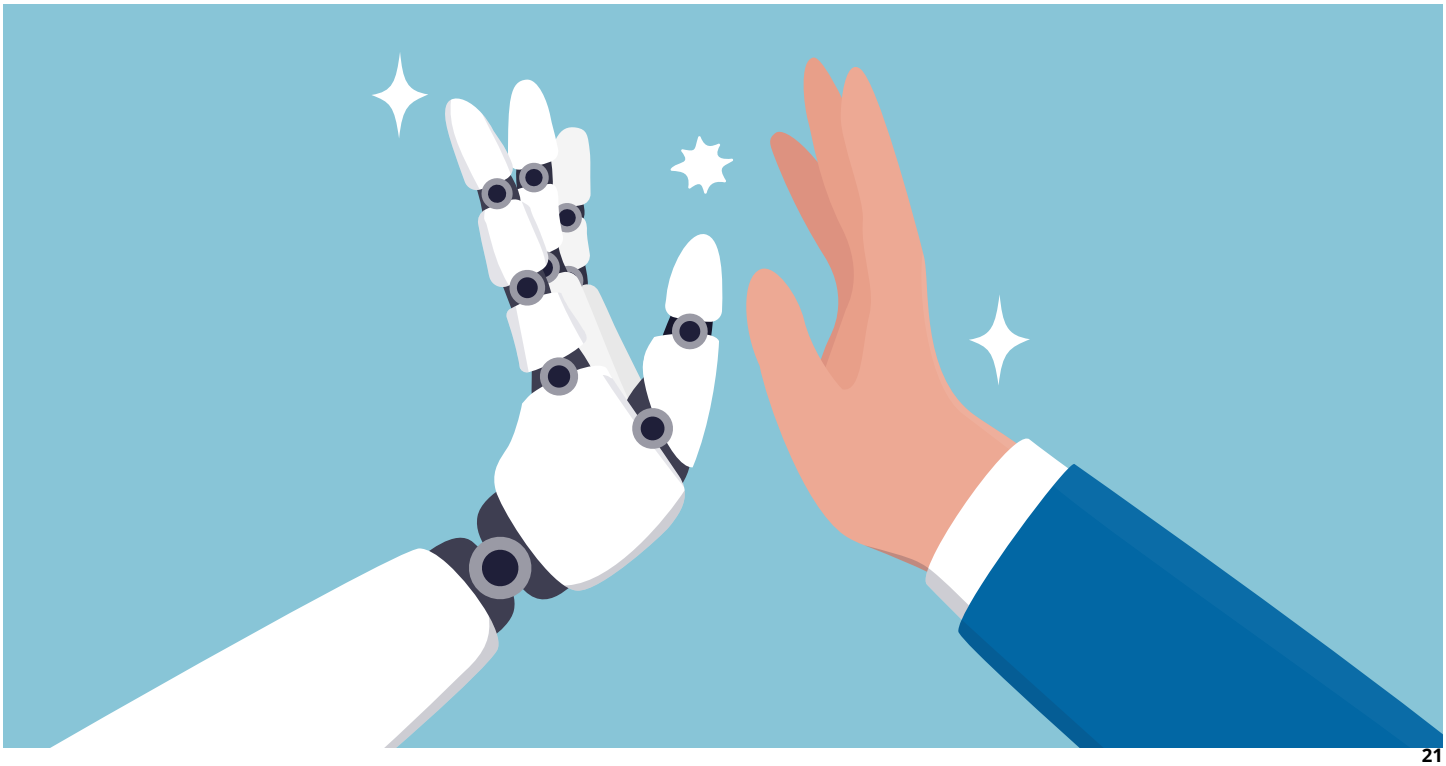
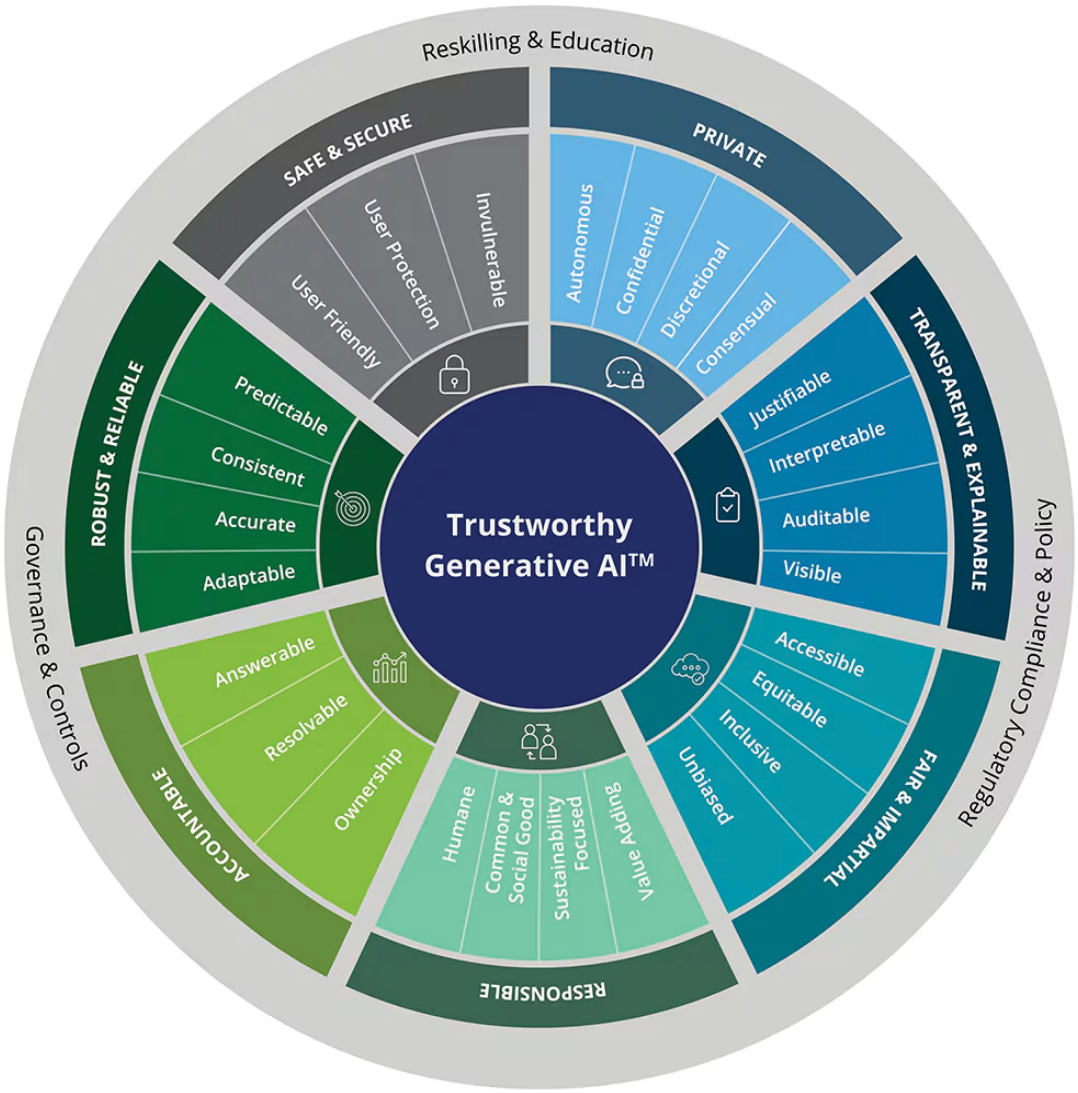


Figure 12: Pillars of Deloitte's Trustworthy AI™ framework



- **Pillar one: Safe and secure** – AI systems can be protected from risks (including cyber) that may cause physical and/or digital harm.
- **Pillar two: Private** – Consumer privacy is respected, and customer data is not used beyond its intended and stated use. Consumers are able to opt in or out of sharing their data.
- **Pillar three: Robust and reliable** – AI systems have the ability to l earn from humans and other systems and produce consistent and reliable outputs.
- **Pillar four: Accountable** – Policies are in place to determine who is responsible for the decisions made or derived from the use of GenAI technology.
- **Pillar five: Responsible** – The technology is created and operated in a socially responsible manner.
- **Pillar six: Fair and impartial** – AI applications include internal and external checks to help ensure equitable application across participants.
- **Pillar seven: Transparent and explainable** – Participants can understand how their data is being used and how AI systems make decisions; algorithms, attributes, and correlations are open to inspection.

Key takeaways

- Controllers can harness the capabilities of emerging technologies, operate efficiently through change, and optimize the function's value by having a more hands-on role throughout the implementation process.
- A successful implementation process utilizes controllership and finance leader involvement, cross-functional integration, clearly defined roles and responsibilities, and consistent and traceable processes and documentation throughout the implementation lifecycle.
- A strong AI risk management framework puts trust at the core of AI operations. Controllers and finance professionals can create an AI policy for the enterprise through a trustworthy framework that defines and standardizes AI across the lifecycle, manages risk, and aligns to regulatory requirements.

Conclusion: A way forward

Today's imperative to transform through emerging technology is continuing to evolve the financial landscape. Process automation, data analytics, and data storage play an increasingly significant role in finance and controllership. The convergence of these technologies and the increasing adoption of AI are now creating new functionalities that are expected to have an all-encompassing impact on the next generation of technology and future of the controllership function.

However, the integration of these new technologies comes with challenges. Finance and controllership functions are navigating the influx of emerging technology available against expectations for future implementations and uncertainty. Data governance and legacy systems, often outdated and lacking the necessary compatibility with newer technologies, can also create hurdles when adopting new technology innovations.

The simple fact is transformation through technology is hard. But the convergence of emerging technologies and the introduction and layered integrations of GenAI present a generational transformation for controllership—and finance leaders have an opportunity to take on the challenge.

The key to this opportunity is ownership. The controllership function is more critical to technology transformation and strategic delivery than ever before, and leading organizations recognize the competitive advantage of having controllership occupy an influential seat at the decision-making table throughout the technology implementation life cycle. To take that seat, controllership functions should be prepared to play leading roles in the strategic objectives and transformation of operations and service offerings through new technologies, GenAI, and integrated applications.

Finance and controllership leaders who take the reins of transformation through ownership and involvement in technology implementations can better position themselves to harness the full spectrum of benefits possible in emerging technology and GenAI in the finance ecosystem. With a trustworthy technology implementation framework, organizations can support key integration activities to prepare, explore, build, and deploy new technologies; and controllers can steer emerging technology solutions that are set to become a staple in finance and empower next-gen controllership.

End notes

1. As used in this document, "Deloitte" means Deloitte & Touche LLP, a subsidiary of Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of our legal structure. Certain services may not be available to attest clients under the rules and regulations of public accounting.
2. Mike Bechtel et al., Tech Trends 2024, Deloitte Insights, 2024.
3. Ibid.
4. Ibid.
5. Deloitte, *The FinanceAI™ Dossier*, 2024.
6. Deloitte, Generative AI, accessed November 2024.
7. Deloitte AI Institute
8. Beena Ammanath et al., *The Generative AI Dossier*, Deloitte AI Institute, 2023.
9. Bechtel et al., Tech Trends 2024.
10. Anthony Waelter and Beth Kaplan, "World-class controllership: Charting your course to success," Deloitte, 2017.
11. Beena Ammanath et al., *Trustworthy AI in practice*, Deloitte AI Institute, 2022.

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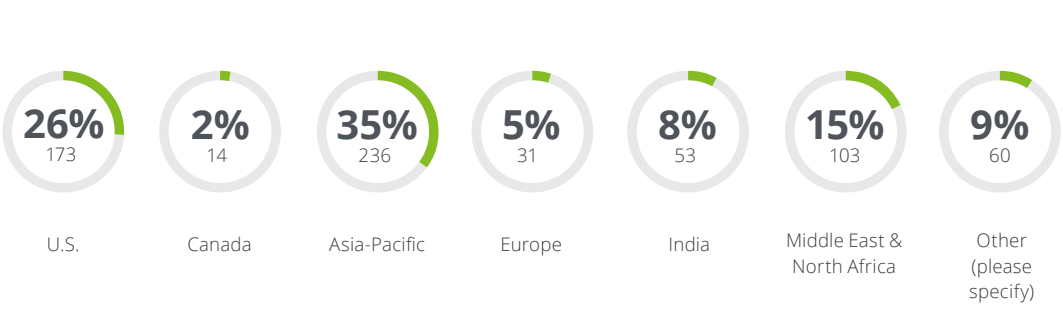
About the survey

Demographic summary

Job title

Region



Demographic summary (cont'd)

Company market position

- 29% (210) — Ahead of our competitors
- 44% (314) — On par with our competitors
- 14% (99) — Lagging our competitors
- 13% (95) — Not sure

Company structure

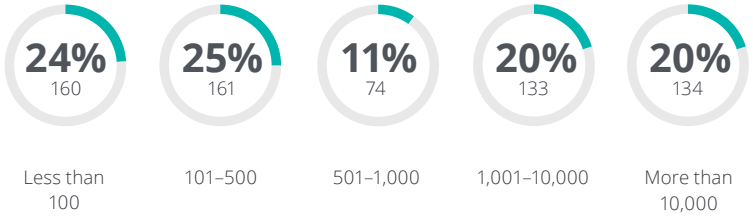
- 4% (29) — College/ university
- 48% (335) — Privately held company or sole proprietorship
- 12% (87) — Government/ state-owned enterprise
- 5% (37) — Nonprofit entity
- 21% (144) — Publicly traded corporation
- 7% (46) — Wholly foreign-owned enterprise
- 3% (22) — Other (please specify)

Company industry

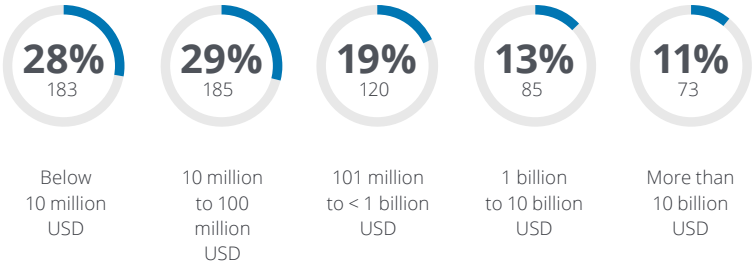
- 30% (206) — Consumer and Industrial Products
- 8% (57) — Energy and Resources (includes power and utilities)
- 23% (157) — Financial and other business services
- 5% (37) — Government and Public Services
- 6% (42) — Life Sciences and Health Care
- 11% (74) — Technology, Media, and Telecommunications
- 17% (113) — Other (please specify)

Demographic summary (cont'd)

Company size
(number of employees)



Company size
(annual revenue)



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