GLOBAL KNOWLEDGE BRIEF

The Artificial Intelligence Revolution

Part 1: Understanding, Adopting, and Adapting to AI

The Institute of Internal Auditors

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About the Expert

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Eric Wilson is the director of internal audit and CAE at Gulfport Energy. He previously led internal audit and consulting teams for various domestic and international companies in a wide range of industries, including energy, commercial real estate, and healthcare. He serves as a member of the Board of Advisors for the University of Oklahoma's Steed School of Accounting, has lectured on internal auditing at several universities, and holds active leadership positions with multiple local and nonprofit organizations. He currently serves on The Institute of Internal Auditors (IIA) Professional Knowledge Committee and North American Content Advisory Committee. He is a member of the Board of Governors of The IIA's Oklahoma Chapter.

INTRODUCTION

A Growing Area

When ChatGPT was released in November 2022, it was considered a significant leap forward in artificial intelligence (AI). Many compared it to the internet in terms of its potential to change and disrupt current business practices, regulations, and social norms.

ChatGPT and the rapidly emerging alternatives to it are examples of generative AI. Generative AI is powered by large language models, systems that are trained on enormous amounts of data from a variety of sources that are processed by a neural network modeled on the human brain to develop requested outputs. When prompted, it uses this training and algorithms to develop content — including text, images, videos, sounds, speech, and code — that resembles something a human might create.

While this specific system has received a tremendous amount of attention, it is only one example of the many tools that fall under the AI umbrella. AI is at the heart of every smart device that we use, and it also drives far more sophisticated applications that are transforming businesses. It is being put to work in business, government, health care, and many other fields to replicate human analysis and even decision making.

The global composite AI market is projected to increase from $900 million in 2023 to $4.4 billion by 2028, rising at a compound annual growth rate of 36.5% as the expanding availability of data and AI resources spur the use and development of new AI solutions[1]. The vast majority of business leaders (94%) believe AI will be critical to their organizations' success over the next five years, according to the most recent edition of Deloitte's "State of AI in the Enterprise".[2]

"AI may become the most disruptive technological development to date, creating new opportunities and risks in every aspect of business and life," according to an *Internal Auditor* magazine article[3]. Internal auditors are well-versed in assessing the risks and opportunities that affect whether an organization can meet its objectives. Using their insight and experience, "internal audit can help an organization evaluate, understand, and communicate the degree to which artificial intelligence will have an effect (negative or positive) on the organization's ability to create value in the short, medium, or long term," according to "Artificial Intelligence–Considerations for the Profession of Internal Auditing"[4] from The Institute of Internal Auditors (IIA).

94%

of business leaders believe AI will be critical to their organizations' success over the next five years.

Source: Deloitte - State of AI in the Enterprise, 5th Edition

Given the broad and rapid growth of AI use, it's important that internal auditors quickly develop a deep understanding of how it works, its practical applications in business and government, and the risks and opportunities it presents to organizations. This brief will examine these areas in depth and provide best practices and insights for keeping pace.

[1] "$4.4 Billion Composite AI Markets: Growing Intricacy of AI Applications for Better Performance and Accuracy to Drive Growth - Global Forecast to 2028," Research and Markets press release, June 13, 2023.
[2] "State of AI in the Enterprise, Fifth Edition," Deloitte, October 2022.
[3] "Auditing Artificial Intelligence," James Bone, *Internal Auditor*, October 14, 2020.
[4] "Artificial Intelligence—Considerations for the Profession of Internal Auditing", The Institute of Internal Auditors, 2017.

UNDERSTANDING AI

Machine Learning and Simulated Human Intelligence

Getting Beyond Simple Automation

The terms AI and automation are often used interchangeably. This reflects a limited understanding of AI's more powerful and game-changing potential. Indeed, while AI can automate routine tasks, it has much greater abilities and uses. For example, robotic process automation (RPA), a basic level of automation, uses structured data and logic to perform repetitive, rule-based processes, such as accounting workflows and data collection. In doing so, it enables people to take on higher-level tasks. It can replicate human *actions*, but more sophisticated AI tools can perform tasks that simulate human *intelligence*, such as understanding normal human communications, taking on problem solving, and offering higher performance and operational efficiency. Automation follows established rules, while AI relies on the training it has received to make its own decisions.

AI and machine learning solutions can fall into several categories, including:

- Descriptive: What happened?
- Diagnostic: Why did it happen?
- Predictive: What could happen next?
- Prescriptive: What should be done next?[5]

However, AI currently doesn't possess the kind of judgment or context that enables humans to make the best decisions, although those abilities may be enhanced as technology advances.

Additionally, AI is only as good as its training. In studying cases involving rule violations, researchers from MIT and other organizations found that if machine-learning models are not trained on the right data, "they are likely to make different, harsher judgments than humans would."[6] Risks related to AI's limitations will be discussed in another section.

[5] "AI and Machine Learning: It May Not Be as Difficult as You Think," RSM, September 7, 2022.
[6] "Study: AI Models Fail to Reproduce Human Judgements About Rule Violations," Adam Zewe, MIT News, May 10, 2023.

Putting AI to Work

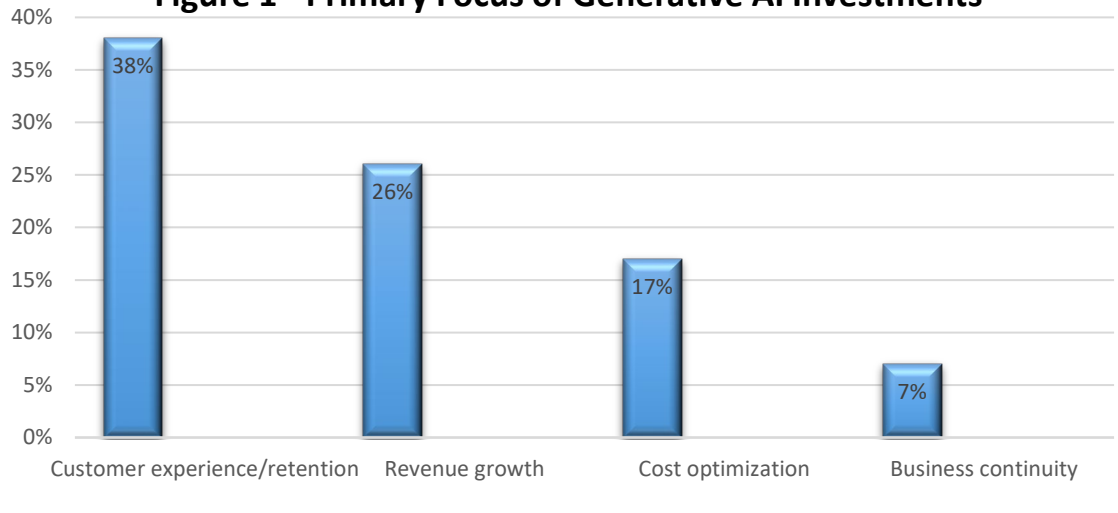
Practical applications of AI include everyday tools that have been in use for years, such as online search engines; chatbots that provide simple information and answers to questions; voice assistants, such as Alexa and Siri, that respond to commands and perform tasks; Google Maps and similar tools to select the best travel and delivery routes; self-driving cars; customized online shopping experiences; and personalized advertising. Gartner cites examples of the ways that generative AI, for example, can be used in drug design, material science, chip design, synthetic data, and part design.[7]

Other business and government use cases of AI include:

- Solving skill shortages by automating tasks.
- Enhancing IT or network performance.
- Designing strategies to retain or appeal to specified customers and improve customer experience. For example, a recent *Harvard Business Review* article noted that Brinks Home, a smart-home-technology company, used AI to gain brand recognition in a competitive market.[8]
- Identifying and preventing fraud or errors in financial information.
- Forecasting product or service demand based on customer history/feedback, along with market and economic activity.
- Addressing sustainability objectives. AI can help achieve 79% of the UN General Assembly's Sustainable Development Goals, according to Nature Communications.[9]
- Prioritizing customer opportunities or leads.
- Tracking responses to sales campaigns, market research, and search engine optimization (SEO).
- Streamlining and enhancing customer support activities.

At present, generative AI investments in business remain largely focused on improving customer relations and growing revenue. Most organizations have yet to commit significantly to efforts that drive new business opportunities or new markets using generative AI, according to a recent Gartner survey (see Figure 1).

Figure 1 - Primary Focus of Generative AI Investments



Source: Gartner survey of more than 2,500 executives, 2023[10]

[7] "Beyond ChatGPT: The Future of Generative AI for Enterprises," Jackie Wiles, Gartner, January 26, 2023.
[8] "Customer Experience in the Age of AI," David C. Edelman and Mark Abraham, Harvard Business Review, March-April 2022.
[9] "The Role of Artificial Intelligence in Achieving the Sustainable Development Goals," Ricardo Vinuesa, et al., Nature Communications, January 13, 2020.
[10] "Gartner Experts Answer the Top Generative AI Questions for Your Enterprise," Gartner, 2023.

Opportunities, Challenges, and Risks

In developing and implementing an AI strategy, companies must understand not only the possibilities, but also the limitations and threats that this technology can pose. As companies scramble to implement AI solutions, examples of AI opportunities include the ability to:

- Shorten the data processing cycle.
- Minimize potential errors by replacing human actions with perfectly repeatable machine actions.
- Use process automation to lower labor time and costs.
- Employ robots or drones for potentially dangerous work.
- Make more accurate predictions about topics that can range from potential sales in specific markets to predicting epidemics and natural catastrophes.
- Use AI initiatives and efficiencies to drive revenue and market share growth.[11]

For all its benefits, there may be challenges to harnessing AI. According to the IBM Global AI Adoption Index, nearly one in five companies cited difficulties in:

- Ensuring data security.
- Ensuring data governance.
- Managing disparate data sources and formats.
- Integrating data across any cloud.[12]

Organizations may not recognize how best to benefit from the opportunities of AI. At the same time, failure to fully understand the workings of these systems and the biases and errors that may infiltrate their training and output could leave companies unknowingly vulnerable to a variety of threats. Risks that may cause reputational or financial damage, among other threats, include:

- **Lack of transparency.** Unidentified biases or errors incorporated into AI technology can lead to a range of improper decisions, including discrimination in hiring or providing credit, for example.
- **Maintaining security and confidentiality of information.** "The potentially disastrous effects of a cybersecurity breach involving AI cannot be overstated," according to The IIA's Artificial Intelligence—Considerations for the Profession of Internal Auditing. The IIA recommended that if organizations don't already have sufficient cybersecurity, CAEs should continuously inform stakeholders that it must be built up rapidly. As organizations move to gather and store increasingly large volumes of data, they may be vulnerable to breaches, privacy violations, loss of data, or system failure caused by internal errors and the acts of hackers or other cybercriminals. Tactics used by cybercriminals can also include "model poisoning," where a machine learning model's training data is deliberately polluted. This can corrupt systems, produce incorrect data, trigger denial of service, or initiate malware attacks that can paralyze organizations.[13]

Initial Steps Toward Regulating AI

The rapid rise and the potential risks of AI have prompted calls for greater regulation. The European Parliament has approved a draft of the Artificial Intelligence Act, which calls for greater transparency and safeguards. The law establishes three levels of AI risk: applications and systems considered unacceptable risk, which are banned; high-risk applications, which are subject to stated legal requirements; and those of limited risk, which could comply with minimal transparency regulation. Generative AI would also have to comply with transparency requirements. Fines range up to $33 million, or 6% of a company's annual global revenues.

In the U.S., the White House has issued a fact sheet and a blueprint for an AI Bill of Rights aimed at ensuring safe and effective systems. China has also drafted regulations setting potential guardrails on generative AI. In addition, Sam Altman, the CEO of OpenAI, the creator of ChatGPT, has called for coordinated international regulation of generative AI and signed a statement on AI risk along with hundreds of other AI experts and public figures.

[11] Artificial Intelligence—Considerations for the Profession of Internal Auditing, Institute of Internal Auditors, 2017.
[12] IBM Global AI Adoption Index 2022.
[13] "Do Free AI Tools Pose a Security Risk to Your Business?", Rebecca Neubauer, Business News Daily, May 16, 2023.

- **Legal challenges.** Plagiarism, copyright infringement, or intellectual property violations are potential pitfalls if the content that AI generates is not original. Additionally, inadequate testing and oversight of AI can lead to ethically questionable results.
- **Vendor or supplier dependency**. This can be a particular threat as AI becomes key to a wide range of organizational systems and functions.[14] Among other concerns, organizations should ensure that risk-assessment indicators properly address the dangers involved in using or integrating third-party tools, given the associated concerns about vendor or supplier actions and behaviors.
- **Employment losses.** Organizations could face tough decisions if AI replaces workers who can't be reassigned or are unable to find similar jobs. In addition to the toll for individuals, unemployment in an area or industry can lead to economic and social disruption.
- **Regulatory risks.** As governments attempt to understand and address AI's use, organizations may have to pivot their AI strategies to an evolving regulatory landscape. There may also be legal risks if issues with their AI systems cause financial losses for others or if they violate human rights or ethical standards.
- **Environmental considerations.** The systems that power AI use large amounts of electricity, which can counteract organizations' sustainability efforts and hinder achievement of their environmental, social, and governance (ESG) goals.
- **Investment decision making and results.** The organization may be at a competitive disadvantage due to insufficient investment in AI initiatives or resistance to these initiatives from customers, employees, or other stakeholders. Return on AI investment (infrastructure, research and development, and talent acquisition) may not be adequate. Without a robust AI strategy, these issues may stymie an organization's effort to make the best use of AI tools.

[14] "Artificial Intelligence and The Top 6 Business Risks," Chandu Gopalakrishnan, April 28, 2023, The Cyber Express.

THE ROLE OF INTERNAL AUDIT

Assessing Risk and Providing Foresight

Trusted Techniques and Proven Skills Support AI Risk Management

Internal audit is well-equipped to help organizations assess and communicate AI's impact on value creation and achievement of goals. Internal audit leaders can incorporate AI considerations into their risk assessments and determine how AI should be included in a risk-based audit plan. Practitioners should take an active role in AI projects from the outset. Acting as trusted advisors, internal auditors can offer advice and insight on implementation. This assumes proficiency has been or will be acquired in the relevant areas. Additionally, internal audit can provide assurance over related risk areas, such as AI's impacts on readiness and response to cyber threats. It's important to note that, to maintain independence and objectivity, internal auditors should not take ownership or responsibility for AI implementation or other steps.

If an organization already has implemented AI into its operations or a product or service, internal audit can:

- Offer assurance over risk management related to the reliability of the underlying algorithms and the data on which they are based.
- Ensure that related moral and ethical issues are being addressed.
- Offer assurance on AI governance structures.

AI Frameworks and Standards

In 2017, The Institute of Internal Auditors published one of the first frameworks for auditing artificial intelligence. Other relevant guidelines on AI include:

An AI Risk Management Framework from the U.S. National Institute of Standards and Technology (NIST), which includes related research and standards.

The Trustworthy & Responsible Artificial Intelligence Resource Center, part of NIST, is a repository for current U.S. federal guidance on AI.

The U.K. Information Commissioner's Office provides guidance and resources on AI.

The Organisation for Economic Co-operation and Development provides a framework, as well as information on principles and policies.

Internal auditors are equipped to perform these roles because of their:

- Understanding of the organization's strategic objectives and how they are achieved.
- Ability to assess whether AI activities are accomplishing their objectives.
- Ability to offer internal assurance over management's AI risk management efforts.
- Position as a trusted advisor that can offer insights on using AI to improve business processes or enhance product and service offerings.

Best Practices for Putting AI to Work

As daunting as AI may sound, the best approach for internal auditors is to embrace it as quickly and as much as possible.

"Don't hide from advanced technologies such as AI," advised Eric Wilson, CIA, CISA, director of internal audit and CAE at Gulfport Energy Corporation. For many companies, AI has already appeared on their risk profiles for several years, but some decide to put off tackling it due to lack of understanding of it and how it should be audited. However, Wilson notes that auditors will have to develop expertise in tools that their organizations are already using or may be taking on soon.

The best way to get started is by trying it out, something that's easy to do with generative AI such as ChatGPT or Bard. "See how it works, interact with the system," Wilson recommended. As part of the process, if the system utilizes an interactive language model, ask it to explain the logic it used to produce its answers. This is an option that's only available with a generative AI system, because it is language based, so it's worth giving it a try.

To gain a better understanding of systems that aren't as easily interfaceable as ChatGPT, Wilson recommends asking to shadow people within the organization who are using them. This can offer a practical understanding of how the system is being applied to different functions and uses. On a basic level, "find out if the people who are using it can explain it or describe how it is making a difference in the organization." Wilson said. "If they can't, this lack of expertise or gap in understanding on how the system works at a fundamental level may be an opportunity for improved utilization that internal audit can point out to the organization."

CONCLUSION

"This is an exciting time for internal audit to play a leadership role in providing assurance for AI," according to the *Internal Auditor* magazine article.[15] The initial hype is expected to abate as organizations wrestle with actual understanding and implementation, but its impact will expand as people and businesses find more innovative ways to put it to work.[16] Now is the time for internal auditors to understand the opportunities and risks for their organizations so that they can offer valuable assurance and insights on AI initiatives.

[15] "Auditing Artificial Intelligence," James Bone, *Internal Auditor*, October 14, 2020.
[16] "Gartner Experts Answer the Top Generative AI Questions for Your Enterprise," Gartner, 2023.

About The IIA

The Institute of Internal Auditors (IIA) is a nonprofit international professional association that serves more than 235,000 global members and has awarded more than 190,000 Certified Internal Auditor (CIA) certifications worldwide. Established in 1941, The IIA is recognized throughout the world as the internal audit profession's leader in standards, certifications, education, research, and technical guidance. For more information, visit theiia.org.

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