

Applying AI — Key Trends and Futures

Published 26 July 2021 - ID G00745081 - 4 min read

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Initiatives: [Artificial Intelligence](#)

Executive leaders must identify the key trends and future of AI, in terms of strategic emerging technologies, key skills and governance options. This includes what should be CIO and CTO executive priorities. In this report, we provide an overview of Gartner's related AI research and coverage.

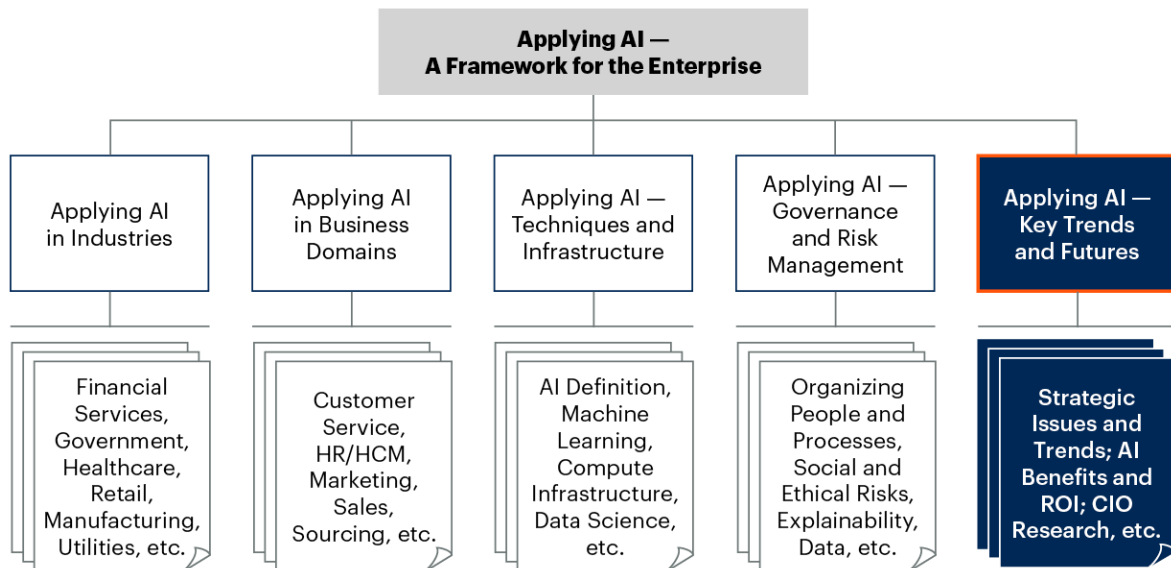
Analysis

Artificial intelligence (AI) is a part of over 50 separate research areas within Gartner. To make research and resources easier to locate, Gartner divides this broad topic into the research areas below. The top-level document is called [Applying AI — A Framework for the Enterprise](#).

This report focuses on the key trends and future of AI, including CIO and CTO priorities.

Figure 1: Locating AI-Related Research and Resources

Locating AI-Related Research and Resources



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The links below take you directly to the documents outlined in Figure 1.

- [Applying AI in Industries](#) describes where and how AI is applied in industries such as financial services, healthcare, retail, manufacturing and government.
- [Applying AI in Business Domains](#) describes where and how AI is applied within business domains and enterprise departments, such as customer service, HR, marketing and sales.
- [Applying AI — Techniques and Infrastructure](#) includes the fundamental techniques and practices that comprise AI and AI engineering.
- [Applying AI — Governance and Risk Management](#) includes strategies and methods related to transparency, interpretability, ethics, privacy and security issues. It also addresses personnel and skills development, staffing, developing AI centers of excellence and defining the ROI for AI projects.
- [Applying AI — Key Trends and Futures](#) (this document) focuses on the key trends and the future of AI, both in terms of strategic emerging technologies and key skills and governance options. It includes a focus on CIO and CTO executive priorities.

In the following sections, we provide an overview of Gartner's written and analyst resources as related to the future of AI:

- [AI Strategic Issues and Trends](#)
- [AI Benefits and ROI](#)
- [CIO-Focused Research on AI](#)

Research Highlights

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AI Strategic Issues and Trends

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AI is a foundational catalyst for a growing set of uses such as process automation, human augmentation and engagement. Using AI for well-scoped and targeted purposes delivers more flexible, insightful and autonomous systems. Opportunities enabled by AI, along with digital trends, are driving the next generation of digital business and the creation of digital business ecosystems.

AI practices, techniques and solutions continue to mature in critical areas, such as tool quality, skilled human resources, scalability, and understanding how to deploy and operate solutions in production. But much progress remains to be made, both in terms of technology and organizational issues such as security and bias.

Analyst resources: [Jim Hare](#), [Farhan Choudhary](#), [Anthony Mullen](#), Erick Brethenoux, Bern Elliot, Shubhangi Vashisth, Svetlana Sicular

Research resources:

- [Hype Cycle for Artificial Intelligence, 2021](#)
- [Hype Cycle for Data Science and Machine Learning, 2020](#)
- [Hype Cycle for Natural Language Technologies, 2021](#)
- [Predicts 2021: Artificial Intelligence Core Technologies](#)

- [Predicts 2021: Artificial Intelligence and Its Impact on People and Society](#)
- [Top Trends in Data and Analytics for 2021: Smarter, More Responsible and Scalable AI](#)
- [Top Strategic Technology Trends for 2021: AI Engineering](#)
- [2021 Strategic Roadmap for Enterprise AI: Natural Language Architecture](#)

AI Benefits and ROI

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AI benefits are typically derived from AI solutions in three areas:

1. **Insights from data.** Predictive analytics, machine learning and other AI methods are used to identify trends, clusters and other patterns in data. This can lead to augmented or automated decision making. Other insight areas that benefit from AI include models for optimizing, forecasting, personalization or fraud detection.
2. **User experience improvements.** Natural language processing (NLP) techniques, conversational platforms, visual and biometric information, and other methods are used to improve the customer service, such as with chatbots or improving the controls over equipment with multisensor input.
3. **Process improvements.** This applies to both physical and software-based processes. These often use a combination of techniques to automate or augment a task or application. For instance, AI embedded within business applications or to augment workers in a particular process.

Common ways of measuring benefits include risk reduction, speed of process, improved sales, increased customer satisfaction and reduced labor. Many business cases rely on a combination of tangible and intangible benefits.

Analyst resources: [Jim Hare](#), [Bern Elliot](#), [Pieter den Hamer](#), Moutusi Sau, Alexander Linden, Farhan Choudhary, Whit Andrews, Alys Woodward

Research resources:

- [Seven Factors That Make Business Cases for Artificial Intelligence Projects Different](#)

- [What Is the True Return on AI Investment?](#)
- [Toolkit: Use AI Use Cases' Strategic Industry Maps in Your Planning](#)
- [Toolkit: Strategic Industry Maps of AI Use Cases](#)
- [Artificial Intelligence Maturity Model](#)
- [Uncovering Artificial Intelligence Business Opportunities in Over 20 Industries and Business Domains](#)
- [What Is Artificial Intelligence? Seeing Through the Hype and Focusing on Business Value](#)

CIO-Focused Research on AI

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AI scales actions that organizations previously needed worker time to achieve, but that now can be automated based on the results of data science and probabilistic analysis.

Executive leaders should establish a central strategy for AI, whether it is intended to deliver tight control or federated authority. Assigning multirole AI teams to any AI project or product is a key way to achieve success. Budgeting for data preparation, skills development and acquisition, and strategic use-case selection and development, are all duties that executives must adopt.

Analyst resources: [Whit Andrews](#), [Jorge Lopez](#)

Research resources:

- [Executive Leadership: Artificial Intelligence Primer for 2021](#)
- [What Non-Technology Executives Should Do in Support of Responsible AI Initiatives](#)
- [4 Steps to Reduce the Risks of AI's 'God Problem'](#)
- [Quick Answer: What to Measure in an Artificial Intelligence Project](#)
- [AI-Successful Organizations Have These 4 Habits in Common](#)
- [Pursue a Pragmatic Center of Excellence to Boost Your Artificial Intelligence Strategy](#)

- [Formulate a Strategy for AI Skills Acquisition and Upskilling](#)
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Recommended by the Authors

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[Artificial Intelligence Primer for 2021](#)

[Executive Leadership: Artificial Intelligence Primer for 2021](#)

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