

Applying AI — A Framework for the Enterprise

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Initiatives: [Artificial Intelligence](#); [Evolve Technology and Process Capabilities to Support D&A](#)

This research provides applications and software engineering leaders with an overview of AI and Gartner's AI-related research and analyst resources. Use this top-level document to identify areas for deeper investigation, and to develop AI plans and strategies to create an effective AI ecosystem.

Additional Perspectives

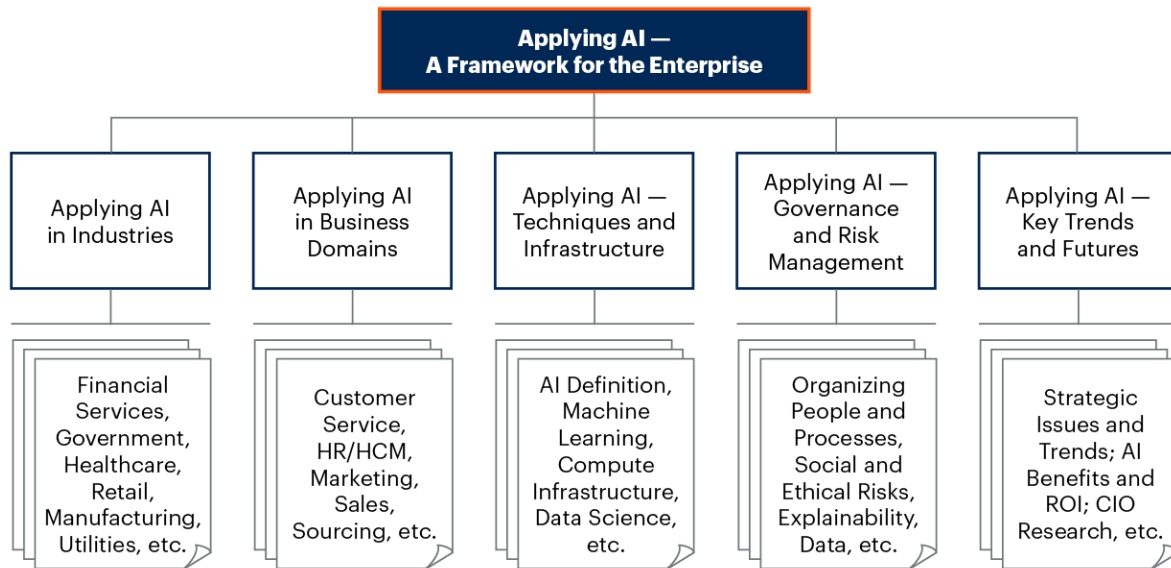
- [Summary Translation: Applying AI — A Framework for the Enterprise](#)
(13 June 2023)

Analysis

Artificial intelligence (AI) is a part of more than 50 separate research areas at Gartner. To make research and resources easier to locate, Gartner has divided this broad topic into the research areas shown in Figure 1. This special report is a top-level document called Applying AI — A Framework for the Enterprise.

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 in this special report, which was 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 (COEs), and defining the return on investment (ROI) for AI projects.
- [Applying AI — Key Trends and Futures](#) focuses on the key trends and the future of AI, in terms of strategic emerging technologies, as well as key skills and governance options. It includes a focus on CIO and CTO executive priorities.

Research Highlights

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Applying AI in Industries

AI is applied in vertical areas to address industry-specific problems. In some cases, it is for competitive differentiation, and, in other cases, AI techniques are common to a particular sector. Industries generate industry-specific types of data, and may be subject to unique constraints, regulations and ethical codes. However, they may use similar AI methods and algorithms and have similar business requirements. Industry segments covered include automotive, banking, financial services, healthcare, retail, government and higher education.

Analyst coverage is often specific to each industry. For general information on AI in industry, the following analysts may be of assistance: [Pieter den Hamer](#), [Jim Hare](#); [Frances Karamouzis](#), [Bern Elliot](#).

Below is a list of popular Gartner research related to AI in industries:

- [Applying AI in Industries](#)
- [Uncovering Artificial Intelligence Business Opportunities in Over 20 Industries and Business Domains](#)

Applying AI in Business Domains

AI applications solve a broad range of problems in an enterprise or organization. In many cases, they address needs that are common across multiple business domains. For example, AI can be used to improve human capital management (HCM) and recruiting, marketing, sales and lead management, customer service and support, security and fraud, and corporate legal practice.

Analyst coverage is often specific to each business area. For general information on AI in business domains, the following analysts may be of assistance: [Melissa Davis](#), [Bern Elliot](#), [Pieter den Hamer](#), [Jim Hare](#), [Frances Karamouzis](#).

Below is a list of popular Gartner research related to AI in business domains:

- [Applying AI in Business Domains](#)

- [Uncovering Artificial Intelligence Business Opportunities in Over 20 Industries and Business Domains](#)
- [Transform the Digital Employee Experience With an Evolving Digital Workplace](#)
- [5 Best Practices CISOs Must Adopt for a Successful AI Implementation](#)
- [Introduction to AI for Sales](#)
- [Use Generative AI to Enhance Content and Customer Experience](#)
- [Innovation Insight for AI-Enabled Skills Management](#)
- [Time to Impact of AI Investments in Finance](#)

Applying AI — Techniques and Infrastructure

The discipline of AI consists of a broad range of techniques and methods, including algorithms, data management, AI engineering, AI operations, augmented intelligence and composite AI systems. Applied areas include data science; machine learning (ML); natural-language technologies, such as text analytics and conversational platforms; and advanced computer vision. Our research covers all of these areas, and discusses how AI techniques reshape existing architectures and how AI integrates with existing processes or applications.

Analyst coverage is often specific to a technique and an area. For general information on AI techniques and infrastructure, the following analysts may be of assistance:

[Chirag Dekate](#), [Afriz Jaffri](#), [Svetlana Sicular](#), [Jim Hare](#), [Carlie Idoine](#), Peter Krensky, Pieter den Hamer, Radu Miclaus, Wilco van Ginkel, Erick Brethenoux

Below is a list of popular Gartner research related to AI techniques and infrastructure:

- [Applying AI — Techniques and Infrastructure](#)
- [5 Practical Steps to Implement AI Techniques](#)
- [Data Science and Machine Learning Trends You Can't Ignore](#)
- [A Mandate for MLOps, ModelOps and DevOps Coordination](#)
- [How CDAOs Can Lead Upskilling Initiatives in Data Science and Machine Learning](#)

Applying AI — Governance and Risk Management

As AI techniques and their implementations proliferate within organizations, it becomes critical to organizations to develop AI strategies that address the governance of these techniques. Governance strategies must include (but should not be limited to) transparency, interpretability, ethics, privacy, trusted autonomy and security issues. Organizations will need to introduce a governance framework that should address the discovery, upskilling and sharing of AI competencies. Organizational considerations aimed at marshaling AI techniques, tools and competencies are also in the AI governance domain.

Analyst resources:

- Organizing people and processes; managing social and ethical enterprise risks — [Svetlana Sicular](#), [Avivah Litan](#), [Frank Buytendijk](#) (ethics), Gabriele Rignon, Jorgen Heizenberg, Peter Krensky, Bart Willemsen
- AI explainability, data, and privacy and protection — [Avivah Litan](#), [Svetlana Sicular](#), Van Baker, [Frank Buytendijk](#), Sumit Agarwal, Bart Willenmsen (privacy and protection)
- ModelOps and adversarial attack resistance: [Sumit Agarwal](#), [Chirag Dekate](#), [Erick Brethenoux](#), [Avivah Litan](#), [Jeremy D’Hoinne](#), [Mario De Boer](#), Joerg Fritsch, Wilco Van Ginkel

Below is a list of popular Gartner research related to AI governance and risk management:

- [Applying AI — Governance and Risk Management](#)
- [A Comprehensive Guide to Responsible AI](#)
- [How to Ensure Your Vendors Are Accountable for Governance of Responsible AI](#)
- [Market Guide for AI Trust, Risk and Security Management](#)
- [What Executives Need to Do to Support the Responsible Use of AI](#)
- [Top 5 Priorities for Managing AI Risk Within Gartner’s MOST Framework](#)

Applying AI — Key Trends and Futures

The AI discipline is evolving rapidly, and will continue to be a critical area of differentiation and productivity improvement. Attention to emerging techniques and practices is required by practitioners, leaders and CIOs, all of whom must anticipate the changes and understand their strategic implications. Key CIO issues include ethical use, employee augmentation and strategic differentiation. Crucial AI leader issues include investment priorities and emerging trends, such as generative AI techniques, as well as upcoming hardware innovation, such as quantum computing or neuromorphic chips. Also crucial to consider are the emerging practices and new applications that will require new skills and governance mechanisms.

Analyst resources:

- AI strategic issues and trends — [Jim Hare](#), [Pieter den Hamer](#), [Anthony Mullen](#), [Erick Brethenoux](#), [Bern Elliot](#), [Svetlana Sicular](#), [Rajesh Kandaswamy](#)
- AI benefits and ROI — [Jim Hare](#), [Bern Elliot](#), [Pieter den Hamer](#), [Moutusi Sau](#), [Whit Andrews](#), [Alys Woodward](#), [Ben Yan](#)
- CIO-focused resources — [Frances Karamouzis](#), [Anthony Mullen](#), [Peter Krensky](#), [Jorge Lopez](#), [Ben Yan](#) (CIO China), [Bern Elliot](#)

Below is a list of popular Gartner research related to the future of AI:

- [Applying AI — Key Trends and Futures](#)
- [Uncovering Artificial Intelligence Business Opportunities in Over 20 Industries and Business Domains](#)
- [Case Study: Driving Speed to Value With AI/ML \(Kaiser Permanente\)](#)
- [ChatGPT and GPT: A Board Reference Presentation](#)
- [Executive Leadership: Artificial Intelligence Primer for 2023](#)

Document Revision History

[Applying AI — A Framework for the Enterprise - 26 July 2021](#)

Recommended by the Authors

Some documents may not be available as part of your current Gartner subscription.

[Uncovering Artificial Intelligence Business Opportunities in Over 20 Industries and Business Domains](#)

[Artificial Intelligence Primer for 2023](#)

[Hype Cycle for Artificial Intelligence, 2022](#)

[Forecast Analysis: Artificial Intelligence Software, Worldwide](#)

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