

Artificial Intelligence Primer for 2019

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Initiatives: [Artificial Intelligence](#)

Organizations now employ artificial intelligence in data-rich aspects of their operations. Based on the 2019 Gartner CIO Survey, 14% of organizations employ AI and nearly 50% intend to do so in 2020. CIOs should shift to operational use of this technology in 2019.

Scope

This initiative equips enterprises to create the strategy and tactics necessary to deploy artificial intelligence, to ensure they remain competitive.

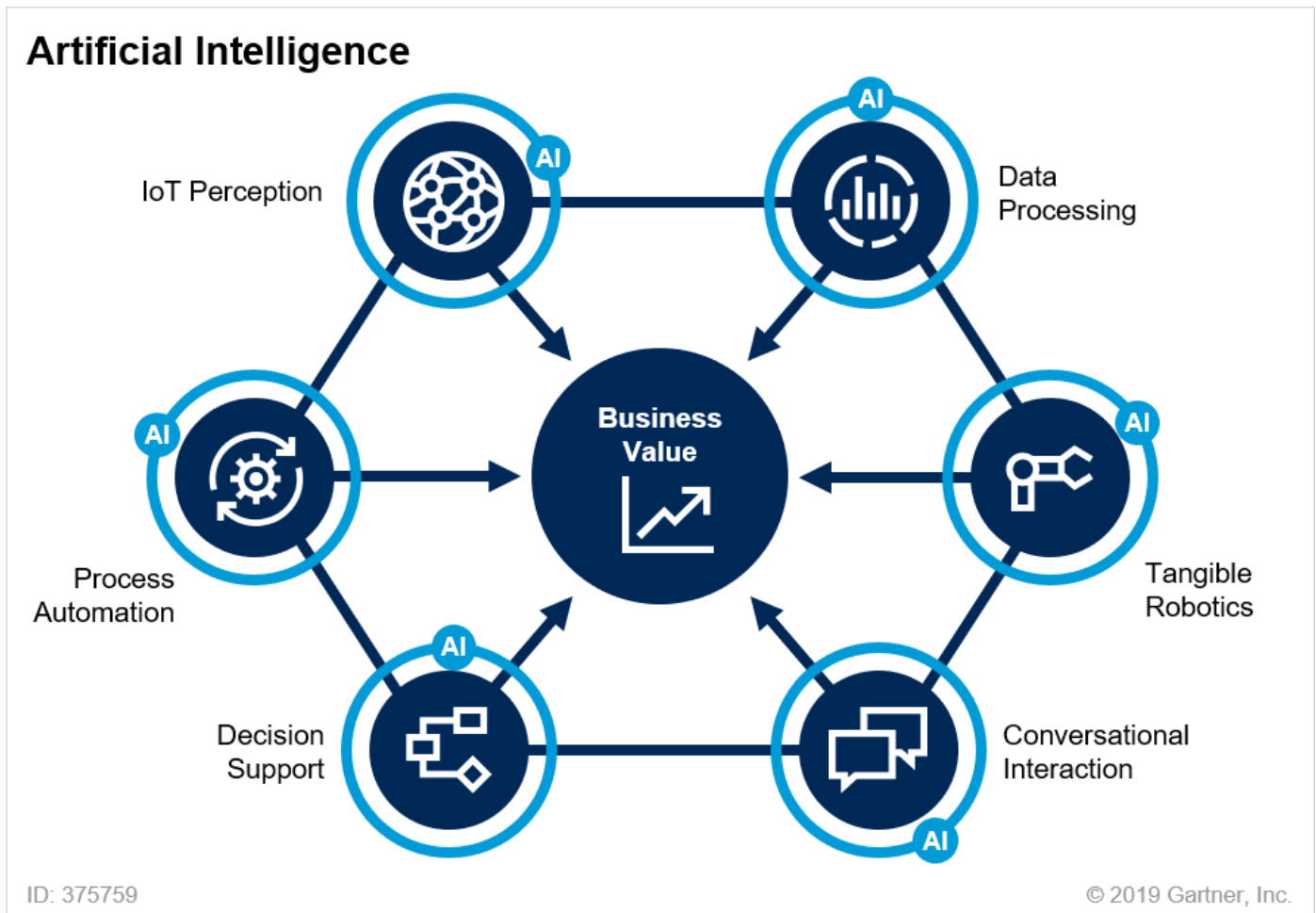
The topics we cover include these areas:

- **AI markets:** Examining the different means by which organizations gain access to AI capabilities, including via development, service providers, and software vendor-provided platforms and functions.
- **AI strategies:** Exploring the means of making it possible to employ AI across the organization in an appropriately tactical and strategic fashion, through the application of informal and formal organizational processes.
- **AI technologies:** Selecting and employing specific technologies for business value — such as conversational platforms, cloud AI services and specific advanced analytics strategies to empower workers and technologists.

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Analysis

[Artificial Intelligence Overview](#)



Gartner (January 2019)

Artificial intelligence (AI) applies advanced analysis and logic-based techniques, including machine learning, to interpret events, support and automate decisions, and take actions.

The 2019 Gartner CIO Survey shows that the proportion of CIOs employing AI has more than tripled from the previous year; 4% versus 14%. Half of the organizations in the survey intend to employ AI before the end of 2020.

AI is a transformative technology for the use of data and analytics that drives sustainable competitive advantage. This allows companies to design and deploy market-making and market-leading data and analytics strategies that are sustainable and scale with business ambitions. AI also supplies the continuous information needed to make the best use of data and analytics.

The rush to AI sets up a supply-demand challenge. Application vendors have raced to trumpet their AI capabilities, and organizations now report that multiple packaged applications in their stables offer AI features. Staff capable of battling with AI remain scarce, metrics to interpret its value are not reliably intuitive, and a business or government ecosystem in which AI is commonplace presents confusion and complication.

Every CIO needs to be aware that this technology has gone from speculative to operational. Your responsibility, as an IT leader, is to make this true for your organization in a way that benefits key metrics. This is the year in which you will want to tell management that your experiments and pilots have yielded to a foundation for recognizing, selecting and developing AI applications in a mature way.

Topics

There remain substantial concerns about pursuing AI strategically. Nevertheless, AI offers organizations opportunities to achieve formerly impossible efficiencies and innovations by delivering value that previously required too many people or too much time. Streamlining routine and nonroutine tasks frees employees to work on other problems and parts of the business. Conceiving a future in which AI is commonplace, and understanding the path you must take to start your enterprise along that road, is essential.

Our research centers on the following topics:

AI Markets

We examine the means for gaining access to artificial intelligence capabilities. We advise clients about organizing their business to take advantage of the benefits of AI. We also provide advice on selecting vendors, including service providers, and software vendor-provided platforms and functions. We help organizations develop a strategy for when to work on internal development, when to work with vendors, and when to partner with internal and external staff or services.

Questions Your Peers Are Asking

- How should I manage expectations in my organization in order to be most likely to achieve my goals without overpromising?
- What vendors deserve attention in selecting AI cloud services?

Recommended Content

🔑 Some recommended content may not be available as part of your current Gartner subscription.

- ["Hype Hurts: Steering Clear of Dangerous AI Myths"](https://www.gartner.com/document/3754263)
(<https://www.gartner.com/document/3754263>)
- ["Market Guide for AI Portfolio Cloud Service Providers"](https://www.gartner.com/document/3876063)
(<https://www.gartner.com/document/3876063>)
- ["Questions to Ask Vendors Who Say They Have Artificial Intelligence"](https://www.gartner.com/document/3779264)
(<https://www.gartner.com/document/3779264>)
- ["Find the Right Accelerator for your Deep Learning Needs"](https://www.gartner.com/document/3769160)
(<https://www.gartner.com/document/3769160>)

AI Strategies

AI strategies provide organizations with the means of making it possible to employ AI across the organization in appropriately tactical and strategic fashion through applying informal and formal organizational processes. Companies and governments need to develop internal structures that establish methods for how to achieve AI, from use case selection to proper procedures.

Questions Your Peers Are Asking

- How should I use artificial intelligence in my organization's goals?
- How will artificial intelligence benefit my customers?
- How should I strategize AI projects and products for internal applications?
- How should I prepare my organization to shift from piloting and early projects to stable and strategic use of AI across the organization?

Recommended Content

🔑 Some recommended content may not be available as part of your current Gartner subscription.

- ["Where you Should Use Artificial Intelligence, and Why"](https://www.gartner.com/document/3754164)
(<https://www.gartner.com/document/3754164>)
- ["How to Use AI to Create the Customer Experience of the Future"](https://www.gartner.com/document/3870029)
(<https://www.gartner.com/document/3870029>)
- ["Seven Factors that Make Business Cases for Artificial Intelligence Projects Different"](https://www.gartner.com/document/3854974)
(<https://www.gartner.com/document/3854974>)
- ["Choose the Right Center of Excellence for Your Artificial Intelligence Strategy"](https://www.gartner.com/document/3879564)
(<https://www.gartner.com/document/3879564>)
- ["Overcome Obstacles to Your AI Projects"](https://www.gartner.com/document/3880965) (<https://www.gartner.com/document/3880965>)
- ["Toolkit: How to Select and Prioritize AI Use Cases Using Real Domain and Industry Examples"](https://www.gartner.com/document/3887679)
(<https://www.gartner.com/document/3887679>)

AI Technologies

Artificial intelligence technology is inherently confusing, because of its connection to popular media science fiction and because people are inclined to imbue it with mental powers it does not possess, including the possession of "mind" instead of only calculative power. Understanding how to select and employing specific technologies for business value, such as conversational platforms, cloud AI services and specific advanced analytics strategies to empower workers and technologists is key to success.

Questions Your Peers Are Asking

- What technologies deserve my organization's attention and interest?
- How can I measure the maturity of my Artificial Intelligence Strategy?
- Are there ways of understanding whether the artificial intelligence I choose is effective and valuable?

Recommended Content

🔑 Some recommended content may not be available as part of your current Gartner subscription.

- ["AI Technical Maturity for Enterprise Architects and Technical Innovators"](https://www.gartner.com/document/3879992)
(<https://www.gartner.com/document/3879992>)
- ["Artificial Intelligence Maturity Model"](https://www.gartner.com/document/3885363) (<https://www.gartner.com/document/3885363>)
- ["Maverick: What does Good Artificial Intelligence Look like? Build An {a}IQ"](https://www.gartner.com/document/3819170)
(<https://www.gartner.com/document/3819170>)
- ["Smart Vision: Seven Steps to Getting Started With Image and Video Analysis in Your Organization"](https://www.gartner.com/document/3785566) (<https://www.gartner.com/document/3785566>)
- ["AI Will Alter Application Development: Things to Do Now"](https://www.gartner.com/document/3783148)
(<https://www.gartner.com/document/3783148>)

Planned Research

- We will maintain and update the documents and Toolkits that we have developed to aid organizations in their transition from experimental AI pilots to more formalized approaches.
- We will examine individual AI-related technologies and ways of employing AI across organizations.
- We will create practitioner-sourced best-practice case studies, tools and templates that illustrate how AI is used to solve business problems.
- We will address how organizations should respond to the inevitable setbacks in their earliest AI projects.
- We will publish guidance on how to pursue business cases that employ AI for effective and improved outcomes.
- We will address how AI can benefit organizations in specific verticals, including those that lead and that are behind most of the market.

- We will examine the intersections between AI and other application and use categories, such as customer service, Internet of Things (IoT) and advanced analysis.
- We will develop case studies, tools and templates from practitioners who have quantified the value that AI offers their organizations.
- We will publish Market Guides for narrow aspects of AI technology aimed at specific capabilities, such as natural language processing.
- We will provide the first Magic Quadrants in AI application technologies, with the intention of comparing the major vendors — that have developed products alongside their best-known platforms — with smaller vendors focused on best-of-breed strategies.
- We will examine how to work with vendors and service providers in AI projects and product development, in order to achieve good contract terms.
- We will consider and evaluate advanced methods in AI-driven analysis as they continue to mature and add depth and flexibility to AI projects and products.
- We will explore how, as AI becomes a more common tool in business practices, AI-driven projects and products will overlap and intersect inside and outside organizations — amplifying its impacts in ways that cannot currently be predicted.
- We will examine how AI will amplify other advanced technologies.
- We will provide examples of advanced AI practitioners from industry and academia.
- We will provide practitioner case studies of how organizations have avoided the potential harm AI can cause.
- We will publish tools and templates and explore issues that highlight the AI governance practices, effective AI strategy, thoughtful forms of ethical and legal oversight, and other best practices.

Suggested First Steps

- [“Artificial Intelligence Hype: Managing Business Leadership Expectations”](https://www.gartner.com/en/documents/3877474) (<https://www.gartner.com/en/documents/3877474>) — Superheated rhetoric surrounding the potential benefits of artificial intelligence is inflating expectations among business leaders. Data and analytics leaders must demystify AI terminology to enable conversations focused on real business problems and use cases rather than on technology jargon.
- [“Artificial Intelligence Maturity Model”](https://www.gartner.com/document/code/358062?ref=grbody&refval=3920406) (<https://www.gartner.com/document/code/358062?ref=grbody&refval=3920406>) — The effects of AI technology are felt in most application

categories and business challenges. Gartner's AI maturity model helps CIOs accelerate and optimize their AI strategy and implementations to achieve the best value from AI.

- [“Overcome Obstacles to Your AI Projects”](https://www.gartner.com/document/code/355907?ref=grbody&refval=3920406) (https://www.gartner.com/document/code/355907?ref=grbody&refval=3920406) – AI projects face several hurdles. These include, their large scope, popularity, misperceptions about their value and the nature of the data they touch, as well as cultural concerns. Overcoming these challenges requires CIOs to set realistic expectations, identify suitable use cases and create organizational structures.
- [“A Framework for Applying AI in the Enterprise”](https://www.gartner.com/document/code/368243?ref=grbody&refval=3920406) (https://www.gartner.com/document/code/368243?ref=grbody&refval=3920406) – Enterprise architecture and technology innovation leaders should use this research note to optimize Gartner support when defining and developing enterprise strategies and plans.
- [“Debunking Myths and Misconceptions About Artificial Intelligence”](https://www.gartner.com/document/code/375965?ref=grbody&refval=3920406) (https://www.gartner.com/document/code/375965?ref=grbody&refval=3920406)

Essential Reading

- [“ 5 Steps to Practically Implement AI Techniques](https://www.gartner.com/en/about/policies/research-docs) (https://www.gartner.com/en/about/policies/research-docs) – Moving from “I want to use AI” to a tactical approach aimed at practically and sustainably solving business problems, while managing expectations, does not require superpowers. CIOs can follow these five steps to pursue an AI strategy in a pragmatic fashion.
- [“Market Guide for Hosted AI Services”](https://www.gartner.com/document/code/342429?ref=grbody&refval=3920406) (https://www.gartner.com/document/code/342429?ref=grbody&refval=3920406) – AI services offer developers easy access to enhancements without having to build AI models. Application leaders in AI should use these services to enable features such as natural language understanding, sentiment analysis and image recognition.
- [“Toolkit: Strategic Industry Maps of AI Use Cases”](https://www.gartner.com/document/code/383290?ref=grbody&refval=3920406) (https://www.gartner.com/document/code/383290?ref=grbody&refval=3920406)

Tools and Toolkits

- [“Toolkit: How to Select and Prioritize AI Use Cases Using Real Domain and Industry Examples”](https://www.gartner.com/document/code/352311?ref=grbody&refval=3920406) (https://www.gartner.com/document/code/352311?ref=grbody&refval=3920406) – This Toolkit will help data and analytics leaders select and prioritize the most promising areas for AI, using sample domains and industry use cases.

Evidence

The 2019 Gartner CIO Survey was conducted online from 17 April through 22 June 2018, among Gartner Executive Programs members and other CIOs. Qualified respondents are each the most

senior IT leader (CIO) for their overall organization, or a part of their organization (for example, a business unit or region). The total sample is 3,102, with representation from all geographies and industry sectors (public and private). The survey was developed collaboratively by a team of Gartner analysts, and was reviewed, tested and administered by Gartner's Research Data and Analytics team.

Gartner Research Circle poll, "When does your organization plan to launch a center of excellence for AI?" Responses were collected from 6 April through 22 April 2018. Gartner Research Circle is a Gartner-managed panel composed of IT or IT-business professionals. 156 members replied, and the distribution of responses is as follows:

- Already present – 15%
- By 2020 – 11%
- By 2023 – 1%
- Beyond 2023 – 7%
- Never – 10%
- Don't know – 56%

Document Revision History

Artificial Intelligence Primer for 2019 - 17 January 2019

(<https://www.gartner.com/document/code/375759?ref=ddrec>)

Artificial Intelligence Primer for 2018 - 15 January 2018

(<https://www.gartner.com/document/code/343984?ref=ddrec>)

Artificial Intelligence Primer for 2017 - 3 February 2017

(<https://www.gartner.com/document/code/318582?ref=ddrec>)

Smart Machines Primer for 2016 - 8 March 2016

(<https://www.gartner.com/document/code/301312?ref=ddrec>)

Recommended For You

Artificial Intelligence Maturity Model (<https://www.gartner.com/document/3885363?ref=ddrec&refval=3920406>)

China Summary Translation: 'Artificial Intelligence Primer for 2019'

(<https://www.gartner.com/document/3910966?ref=ddrec&refval=3920406>)

Overcome Obstacles to Your AI Projects (<https://www.gartner.com/document/3880965?ref=ddrec&refval=3920406>)

Deliver Artificial Intelligence Business Value: A Gartner Trend Insight Report
(<https://www.gartner.com/document/3872663?ref=ddrec&refval=3920406>)

AI Technical Maturity for Enterprise Architects and Technology Innovators
(<https://www.gartner.com/document/3879992?ref=ddrec&refval=3920406>)

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