The AI Crunch Demands Practical Responses: A Gartner Trend Insight Report

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Initiatives:Artificial Intelligence

Despite boards of directors' yen for AI to automate processes and augment decisions, organizations' adoption lags ambition. Application leaders must work with their IT, business and AI leader counterparts to invest in data preparation and focus on common challenges like security and integration.

Overview

Opportunities and Challenges

- Organizations pursuing artificial intelligence (AI) face some significant hiring and training challenges, but just as important are concerns about how best to organize the staff they have and whom they'll hire or train.
- The costs of AI can be difficult to determine because of the complexity of implementation and the challenge of incorporating adjacent applications and data resources.
- Three in four participants in a Gartner board of directors survey indicated that AI is one of the three technologies most likely to impact their organizations' industry. At the same time, four in five CIOs who expected to move from the planning stage to deployment of AI in the last 12 months said their organization did not successfully do so.

What You Need to Know

- Combine training of internal workers with hiring from outside, develop data competency with direct investment in teams to do so, and establish strong executive sponsorships.
- Planning for costs related to AI demands experimentation and investment in measuring success in order to discover variables in cost and implementation challenges.

Insight From the Experts

Fulfilling AI's Promise Requires Starting With Small Steps

Whit Andrews, Distinguished VP Analyst, Gartner

Reaping the benefits of AI often takes longer than executives expect. AI can be an overhyped cure-all that some top executives see as a key to driving growth. Application leaders can ensure that the incremental steps needed to fulfill AI's potential are put in place.

The idea of thinking big but starting small is a chestnut that people find boring. It's much more exciting to envision sweeping change happening *now*. Unfortunately, that's rarely possible, especially where there's complex technical infrastructure, a resistant culture and application investment already in place. The hard work of transforming an organization takes time and money — and that needs patience and investment from top executives.

We recommend in this collection of research that, in order to improve their likelihood of maturing from pilot to production stage, organizations should:

- Mix training internal workers with hiring from outside
- Develop data competency with direct investment in teams to do so
- Establish strong executive sponsorships at the C-level
- Plan budgets in a common ratio, where implemented software costs between 2x and 4x the license costs
- Analyze financial and risk impacts of AI projects and efforts, even if such measurements are not a condition for identifying project success
- Track and plan for other common obstacles, such as application integration and security

AI depends on modest beginnings and the deliberate improvement of enterprise maturity commensurate with planned business outcomes, similar to the maturity improvements instituted with previous major technological changes.

There's no time to waste to ensure your organization remains competitive.

Sincerely,

Whit Andrews

Executive Overview

There are three areas that need attention before the benefits of AI can be fully realized:

1. **Integration:** 30% of survey respondents identified the complexity of integration with existing infrastructure as one of the three most significant obstacles to deploying AI. Prior surveys have indicated that the average AI installation demands integration with multiple systems, and on average more than three. Such complexity can come as a surprise to business executives, and

AI's focus on taking action instead of merely delivering analytical insights means that the integration requires more than data access.

2. **Security, privacy and ethical implementation:** 30% of respondents referenced security or privacy concerns as one of the top three obstacles, while 22% indicated risks or liabilities. Other surveys have mirrored these results; AI's reputation for delivering results that parallel or excel human insights — whether warranted or not — renders it more susceptible to emotional reaction among workers, executives and even technologists.

3. **Data preparation:** Organizations often cited challenges with their data as at least one of the key obstacles to their AI ambitions. Data scope and quality, data accessibility, and data volume or complexity were all cited as issues that were holding them back. Each such concern was cited as being a top three obstacle by more than 20% of survey respondents. From all data-related challenges, data volume or complexity was cited as a top three challenge most often (22% of survey respondents).

AI can be added sooner in parts of the organization in which data or functionality is made available through the applications already in place, or where data can be acquired that benefits the organization's goals. Executives can approve or recommend the inclusion of AI in applications that their workers already employ. They can also acquire new applications that are AI-first in their design and differentiation.

Develop AI projects and applications singly — don't seek out major projects that will consume all your skills and capacity.

Application leaders can still demonstrate progress by developing multiple new projects and applications one at a time, instead of looking to major projects that will consume the attention of all their skills and capacity. They can develop projects that employ similar or identical datasets to build on each project with the next.

Certain aspects of AI are currently unimportant but will challenge application leaders in the future. As in prior generations of technological advancement or growth, vendor selection and management are likely to prove challenging.

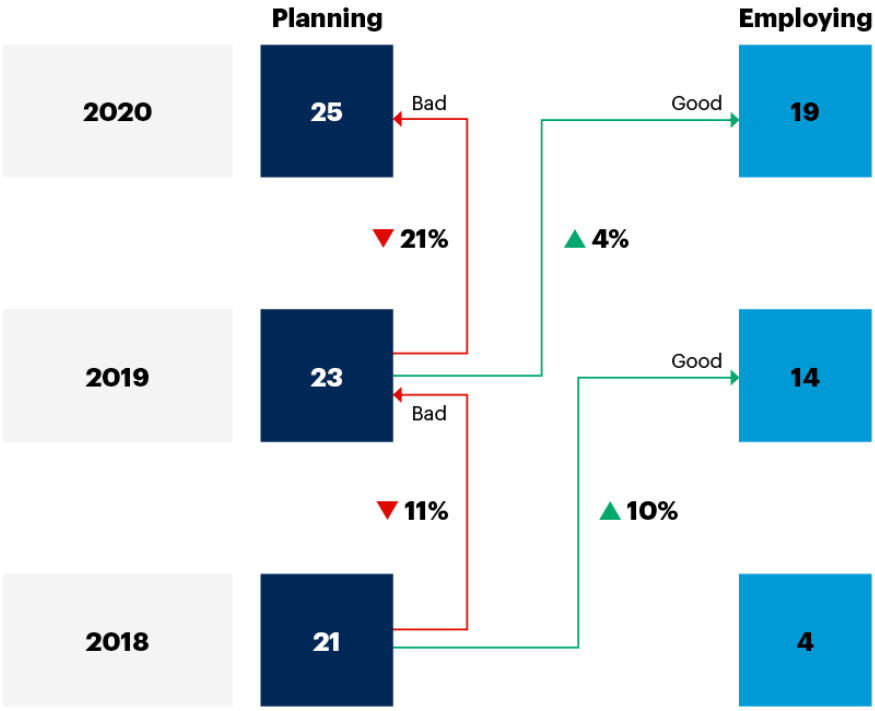
We believe that two areas will emerge as key to expanding AI in organizations over the next several years:

1. **Vendor selection and evaluation:** This will become more challenging as time passes. Application-resident AI is inherently difficult to evaluate because it's less visible with every passing year. Integration will depend (as is the case in all technology categories) on the vendors'

adherence to good standards for architectural simplicity. Vendors' access to key datasets to train their systems, or to synthetic data generation methods to supplement such datasets, are difficult to evaluate and to value. That won't stop vendors from claiming supremacy in such categories.

2. **Risks:** Early adopters of AI say that risks are a notable obstacle to their efforts. Pilots are easy to approve because they lack the importance of production applications and because they take place in environments where the human-in-the-loop decision making remains robust and important. Moving to production means some risks grow as AI replaces familiar means of accomplishing tasks.

AI Deployment Trends



n = 1,063 Respondents (2020), 2,882 Respondents (2019) and 3138 Respondents (2018); All Answering
Source: 2020 CIO Survey, 2019 CIO Survey, 2018 CIO Survey

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Figure 1. AI Adoption Lags Intended Trajectories

Research Highlights

Practical Advice to Beat the AI Crunch

Taking the short-term steps to be ready for long-term AI gains is essential. Our analysts look at the ways application leaders and CIOs can take their organizations from AI dreamers to winners in the digital sweepstakes.

The most important step in any journey is the first one. Success in AI demands that proper tools be used to plan the journey. Maturity models will help by allowing application leaders and CIOs know

where their organization stands. Only then can the next steps be taken without getting sidetracked into unnecessary projects that waste time and money.

Related Research

"Artificial Intelligence Maturity Model" — Gartner's AI maturity model provides application leaders and CIOs with a framework for understanding and defining their AI strategy.

"Leverage Gartner's AI Maturity Model to Scale Your AI Projects" — Gartner's AI Maturity Model can be used no matter what approach an organization takes to AI; for instance, at different rates and with different focuses.

"Artificial Intelligence Architect: A Key Role to Operationalize and Scale Your AI Initiatives" — AI initiatives are often stalled due to poor architectural choices, lack of preparedness and scalability in production. Enterprise architecture and technology innovation leaders can overcome these challenges by creating an AI architect role. Learn about the role and how to get started.

"How to Move Beyond AI Trials to AI in Production" — AI techniques are increasingly easy to use, yet many enterprises find it challenging to take advantage of new advances despite their availability as a cloud service. This research note provides application leaders with advice on how to advance their AI initiatives, and move from trials to production.

"Accelerate Your Machine Learning and Artificial Intelligence Journey Using These DevOps Best Practices" — AI and machine learning (ML) initiatives are maturing across organizations, but enterprise architecture and technology innovation leaders continue to face significant challenges in moving them to production. We provide best practices on how and where DevOps can help in accelerating operationalization.

"Magic Quadrant for Cloud AI Developer Service" — Application leaders can use this Magic Quadrant to shortlist vendors of cloud AI services that developers can use to enhance applications in the key areas of language, vision and automated machine learning (autoML).

"Magic Quadrant for Data Science and Machine Learning Platforms" — This Magic Quadrant evaluates vendors of data science and machine learning (DSML) platforms. Gartner defines a DSML platform as a core product and supporting portfolio of coherently integrated products, components, libraries and frameworks (including proprietary, partner and open source). Its primary users are data science professionals. These include expert data scientists, citizen data scientists, data engineers and ML engineers/specialists.

"How to Effectively Determine an AI Project Budget" — Costs for an AI project can vary based on the technology and use case, deployment options, in-house expertise and implementation approach, plus a number of other costs. Determining the budget required is further complicated by the vendors themselves, with a wide range of costs for professional services and a lack of consistency in pricing for the software/SaaS.

“Complete AI Projects Faster With Features in Business Apps” — AI embedded into products by software vendors forces application leaders to determine the level of organizational commitment and proper vendor selection criteria to secure the success of deploying embedded AI features in business apps.

“Organizational Best Practices for Successful AI and ML Initiatives” — The success of AI and ML initiatives is not only a matter of technological innovation. In fact, most barriers to AI adoption are nontechnical in nature. We focus on several organizational best practices that will help to lower these barriers.

“Four Habits of AI-Successful Organization” — AI will persist as a major new aspect of software and services for organizations, with profound impacts on IT departments and significant effects for their business counterparts. Four key habits demand long-term commitment and will foster long-term payoffs, too.

“Seven Factors That Make Business Cases for Artificial Intelligence Projects Different” — There is more to using AI than adding new technology or using the latest modeling techniques. CIOs documenting business cases for AI projects should inspect the link between business benefits and challenges to achieve desired business outcomes.

Gartner Associates Supporting This Trend


Svetlana Sicular, VP Analyst


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Soyeb Barot, Sr Director Analyst


Van Baker, VP Analyst


Erick Brethenoux, Sr Director Analyst

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AI Use Cases, Implementation and Adoption: Gartner Talks With AI Expert

Data Science and Machine Learning Trends You Can't Ignore

The Future of AI and the Gartner AI Hype Cycle

The Future of Data Science, Machine Learning and AI

Articles

"Top Trends on the Gartner Hype Cycle for Artificial Intelligence"

"Gartner Predicts the Future of AI Technologies"

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Join the Gartner Research Circle, an exclusive online community where business leaders participate in a two-way dialogue on mission-critical topics, key initiatives and industry developments with our Research & Advisory analysts and experts across numerous disciplines.

Evidence

The 2020 Gartner CIO Survey was conducted online from 4 June 2019 through 5 August 2019 among members of Gartner Executive Programs and other CIOs. Qualified respondents were 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 was 1,070, 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.

Results do not represent "global" findings or the market as a whole but reflect sentiment of the respondents and companies surveyed.

The Gartner View From the Board of Directors study was conducted to understand how boards of directors view the impact of technology on their enterprises and their assessment of their organizations' readiness to deal with the technology disruption. The primary research was conducted online during July and August 2019 among 133 respondents in the U.S., EMEA and APAC. Companies were screened to be midsize, large or global enterprises. Respondents were required to be a board of director. If they served on multiple boards, respondents answered for the largest company, defined by its annual revenue, for which they were a board member. The study was developed collaboratively by Gartner analysts and the Primary Research Team member who focused on digital business.

Results do not represent "global" findings or the market as a whole but reflect sentiment of the respondents and companies surveyed.

Gartner's 2019 AI Organizations Study was conducted online during November and December 2019 among 607 respondents from organizations in the U.S., Germany and the U.K. Quotas were established for company size and for industries to ensure the sample was a good representation across industries and company sizes. Organizations were required to either have developed AI or intend to deploy AI within the next three years.

Respondents were screened to be part of the organization's corporate leadership or report into corporate leadership roles, have a high level of involvement with at least one AI initiative and have one of the following roles when related to AI in their organizations: determine AI business objectives; measure the value derived from AI initiatives; or manage the development and implementation of AI initiatives.

The study was developed collaboratively by Gartner analysts and the Primary Research Team.

Results of this study do not represent "global" findings or the market as a whole but reflect sentiment of the respondents and companies surveyed.

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