

Decoding the 7 traits of companies achieving success with AI

Introduction



As organizations adopt digital transformation strategies to prepare for the future, a core idea for how to accelerate that transformation is the adoption of AI. While most organizations fundamentally believe in the promise of AI, they are still only just beginning to use it. Only 1 in 5.5 organizations are deeply committed to AI, while more than half are experimenting or beginning to see it around their organization.

Given how experimental AI still seems to most of us, it's not hard for its thinking and design to veer off course. Unfortunately, it's easy to mistake a mediocre AI program for an excellent one at the early stages. Many organizations run AI projects that fail to generate any ROI, or any benefit at all other than the mere introduction of AI to the organization. In fact, over half of all AI programs currently being used generate no real measurable changes.

At the same time, we see companies that achieve AI results that far surpass their peers. These leading organizations haven't just embraced the idea of AI, they've woven it into the core of their business. Why do we see such a huge gap between belief in the concept of AI, and tangible, measurable results from it? And what do successful AI programs have in common?

New research involving more than 550 executives and leaders of major organizations has shed light on the secrets of successful AI programs and investments. These insights underscore the urgency of AI adoption in the current business landscape.

The research, commissioned by IBM and led by Wall Street Journal bestselling author and globally recognized AI thought leader Michael Gale, also shows crucial differences between companies that thrive with AI and ones that struggle. AI leaders revealed how they think, organize and design for success, how they manage collaboration, and how they select partners who can drive an AI program toward excellence.

The success of different companies' AI application can vary significantly because so many organizations are still in the experimental stages or have only isolated activities around AI. This makes comparisons across sectors or peer companies difficult. However, there are some key commonalities.

From the study, seven key traits emerged, providing insight into what separates those who thrive with AI from those who lag behind.

“ That level of differentiation in ROI from AI inside thriving companies compared with all others is a stark measure of the **power of AI to change, in revolutionary ways, the nature of a sector**. It might not happen overnight, but this is one of those dynamics that puts a vast distance between company A and company B in a sector in less than 1,000 days. Great AI will digitally transform your company's DNA to thrive in the digital age. ”

—Michael Gale

Top 10 AI influencer (Thinkers 360), Author of the Wall Street Journal bestseller, “The Digital Helix: Transforming Your Organization's DNA to Thrive in the Digital Age”

Trait #1:**Treat AI as a business strategy, not just a technical tool**

Successful AI organizations look beyond the technology of AI. Across all levels of the organization — from CEO and CIO to chief data scientists and business leaders — a full 85% of respondents see AI as a business imperative. Nearly 1 in 3 senior leaders (30%) believe that collaboration challenges will hinder progress. By making this a business imperative (and not just a technical imperative), organizations can focus on the wider issues of collaboration, as it would with any other core business process.

Successful AI strategy also helps businesses apply the appropriate skill sets and technical knowledge to building AI projects — and derive ongoing value from existing work. One data set that's been prepared for AI can be used across multiple projects. Work done now can be a foundation for projects for the next five years. A focus on AI as a business strategy leads to serious and scalable AI initiatives, and increases the value of an AI investment. Elevating AI to a strategic imperative is a catalyst for true transformation.

[Bridger Pipeline](#) is protecting the environment with deep learning. The company uses AI to enable the detection of potential leaks in one-fifth of the previous time, which reduces the threshold at which alarms are sounded, cuts the incidence of false alarms, and reduces controller fatigue.

Trait #2:**Think big and keep AI components close**

Organizations find greater long-term success when they build their AI innovation platforms in-house. Among AI organizations with significant revenue growth, 60% said they keep the AI strategy, data, technology, people and processes close to the core of their business. This means having local AI expertise and building on-premise AI infrastructure, rather than outsourcing these functions. Working together constantly across functions and experimenting together is essential for success. While AI success is a data-driven imperative, generating real-time human agility is a vital component.

The study also found that, when considering the total of all the revenue growth by all the companies surveyed, 59% was attributable to the companies which kept their AI close to them. Organizations prepared to disperse their AI infrastructure and ideas outside their organizations were 250% less likely to be in these high-growth revenue groups.

Organizations that are thriving with their AI gravitate toward on-premises AI infrastructure for a variety of organizational reasons. AI demands more compute power than traditional workloads, which favors purpose-built hardware. Some organizations need to tap into transactional and historical data that's stored in on-premises servers and mainframes. On-premises is not the only answer, however. As demand grows beyond the experimental phases, a hybrid cloud strategy — which augments on-premises resources with cloud infrastructure — can help AI scale.

The research shows a series of positive outcomes for companies running on-premises AI workloads:

- **Positive ROI.** A heavy focus on on-premises AI improves an organization's chances of getting the upper end of ROI by 71% and improves the chances of avoiding failure by 100%.
- **Better economics.** Keeping AI at the core of the business positively impacts OPEX, CAPEX, SGA and 24 other business metrics at the highest possible levels. Companies that keep AI close to their core business processes — including collaboration, technology, and centers of excellence — beat off-premises AI deployments by at least 45%.
- **Increased customer engagement.** When used to build customer engagement programs, AI that's kept close to the core has a 98% higher chance of upper-end ROI compared to off-premises methods.



Only **1 in 3** major corporations are fully committed to having AI at their core. But the ones that are see extraordinary levels of success.

Washington University St. Louis and Vanderbilt University are accelerating the creation and deployment of deep learning models that fill in the gaps in incomplete MRI brain scans. They use on-premises hardware and software solutions that enable **20X faster training of deep learning models**, which increases speed and accuracy of diagnoses.

“ The organizations that I work with that see results from AI are **building AI capabilities on-premise**. Their infrastructure and data science teams prefer to have institutional AI knowledge within the organization to **maintain control and ensure freedom**. ”

–Linton Ward
Distinguished Engineer, IBM Cognitive Systems

Trait #3:
Build in the right infrastructure right from the start



AI might start as experiments run on servers in small labs or under the data scientist’s desk. But highly successful AI demands infrastructure that can scale beyond experimentation, which puts the focus on both power and productivity. Accelerated hardware that uses both CPUs and GPUs has become the preferred engine for AI. And productivity improves when employees are empowered to access the data they need and deploy their models that help them achieve insights that lead to better decision making.

Power

- **39%** of organizations surveyed require improved processing power above that of a CPU.
- **37%** require more compute performance.
- **31%** require improved bandwidth.

“ When we talk about AI, what actually is different from every other IT investment is that the **process of development is different**, the compute requirements are asynchronous. And there is a process of exploration in training a model, there is a process of deployment, and they have different compute requirements. ”

–Hillary Hunter
CTO, IBM Cloud at a Gartner Symposium on AI

While compute power and performance are critical, technical specifications and needs go beyond just more power. Data scientists, developers and IT are critical to AI success, and their productivity hinges on having secure access to the data they need.

Productivity

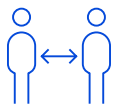
- **33%** of organizations require simplified programming to reduce data movement and meet locality requirements.
- **24%** require the ability to easily deploy private and hybrid cloud environments.
- **24%** require tools to get up and running, and for implementation and management.
- **20%** require increased developer productivity and resource utilization.

Vision Banco realized the x86 infrastructure it used to deploy machine learning models did not have the necessary compute and performance power to handle volumes of data. The organization needed **GPU acceleration** to handle the demands of AI and machine learning workloads.

“ Previously, it took us months to years to build and test new models. **Now we can do it in hours.**”

–David Browning
CEO, Oxford Cancer Biomarkers, on using AI to accelerate the analysis of digital images of tumors to determine the risk of colorectal cancer recurrence

Trait #4: Rethink your AI partners to succeed in this new world



More than half of organizations say they want to partner with vendors that provide end-to-end solutions, deliver AI expertise, and are trusted infrastructure vendors. Other qualities that organizations say are a high priority include the ability to get future AI infrastructure right and how a trusted AI partner is perceived.

Leading organizations view AI as a process of refinement. That often means setting up internal solutions and comparing them to vendor-derived solutions in search of a better model over time. A large infrastructure provider may be better equipped to keep up with the latest research and advances in AI technology. A truly hybrid solution may involve doing some processing in-house and relying on a vendor for specialized AI services, such as speech or visual recognition.

“ AI can have a significant role in enabling pattern discovery, such as with fraud, issue classification and categorization, data quality identification and remediation, and overall reduction of the cost of doing business. That involves a **complete end-to-end solution**, from development to deployment of machine learning models.”

–Elenita Elinon
Executive Director, JP Morgan Chase, on pioneering deployment of machine learning for massive, highly complex financial datasets

Trait #5:

Leverage multiple
AI technologies



Only 15% of organizations are using all four forms of AI — machine learning, deep learning, visual AI and natural language processing.

But leaders with on-premises AI are 5.8 times more likely to be doing all four forms of AI at the same time. Clearly building it right up front allows for significantly more analytic power and impact that can come from multiple forms of AI in parallel time.

There is no silver bullet AI solution, which means that organizations that build capabilities in-house are better prepared to leverage a variety of AI technologies, depending on the challenge at hand. For example, there will be times where machine learning will be a better solution than deep learning. Having in-house expertise and technology enables organizations to capitalize on flexibility and take advantages of options.

One of the benefits of building a center of excellence model is determining when you don't need AI. Being able to recognize when predictive analytics can do the job ultimately saves time and money for the organization.

Trait #6:

Planning and solving for
collaboration challenges
trumps proving ROI



Wondering where you fall on the spectrum of AI success might be the thing that keeps you up at night. When asked that question, business and technology leaders answered in ways that revealed some of the differences between those who keep AI at their core and those who do not.

Those with AI close to the core are over 60% more likely to be concerned about IT's responsiveness, and the need to collaborate with data scientists and line of business leaders. They are 33% less likely to worry about proving ROI value compared to their colleagues who do not get the same returns.

When AI strategies are at the core, decisions and investments are centralized, so organizations can establish common practices and make unified decisions. Data access and data governance are better managed. Collaboration helps break through organizational silos. Scaling happens strategically as teams advance from small AI experiments to larger AI projects in production. And resources are managed intelligently.

"It's not just the AI that's in isolation," said Margaret Dawson, VP of Portfolio Product Marketing, Red Hat, at the Gartner Symposium. "With every data source, every application, you have multiple dependencies. So how do you maintain that consistent governance across all of these different applications and data sources in order to achieve any kind of intelligence or intelligent applications in learning?"

“ As AI technology continues to advance, businesses must break down silos to ensure that their IT, business and data science organizations can handle rapidly evolving algorithms and accelerated computing models. Additionally, by leveraging resources and AI models available from third parties, organizations can provide their in-house teams with the **right tools and knowledge of cutting-edge AI technologies to deliver meaningful business results** from their AI projects. ”

—Will Ramey

Global Head of Developer Programs and Deep Learning Institute, NVIDIA

Organizations that kept AI close to their core found that their data scientists, IT and business leaders were better at facing alignment and collaboration challenges, as well as new opportunities, by almost 2 to 1.

Trait #7: Proactively plan for ambiguity and scale



When the survey asked AI leaders their most common challenges, their responses reflected the uncertainties of preparing for the AI future.

The most common challenge identified by everyone surveyed — from CTOs and other C-suite executives to business leaders — was technology.



When considering the next step forward with AI, **31.6% of organizations said the biggest challenge is the technologies they are trying to use**, both from a specifications and technical knowledge standpoint.

The second big challenge, highlighted by 29% of organizations, is dealing with issues that stem from a potential shift in business priorities.

Failure in thinking about scaling is the third big challenge that organizations face (26.9%). Organizations are still establishing pathways to scaling AI and lack an established framework to put learnings, platforms and results into a long-term plan.

A center of excellence model centralizes decisions and investments. “I am a fan of having smart defaults and of having people justify when they diverge,” said Hilary Mason, the Data Scientist in Residence at Accel, at the Gartner Symposium. “It’s important to design the strategy so that the investments you make are actually what you build on top of for the next five years.”

Further down the list of challenges is failure to deliver ROI, coming in fourth with 23.4% of organizations noting it. Interestingly, ROI is barely a tier 1 barrier to the next AI program or project. Even though so much of AI fails to demonstrate results, those failures are balanced by companies that keep AI close to the core and see more measurable ROI.

“ Our goal is to leverage machine learning across our entire organization through a **center of excellence model**. One of the biggest things that keeps me up at night is moving from experimentation to production. ”

—Lynn Calvo
VP, Emerging Data Technology, GM Financial

Summary



Implementing successful AI isn't easy. But that doesn't mean it's not worth the effort. Organizations that are seeing a high return on their AI investments have found that a cohesive strategy and the right technology are critical to their success.

The paradox mastered by those keeping their AI close to their core is that they are building a platform that combines current performance within an environment of active collaboration. Whereas traditional exploration of technologies came from small or isolated activities, the power of AI done close to the core shows how you can do more forms of AI, deliver deeper levels of success, and build human platforms for collaboration that set you up for longer-term successes.

Those who succeed with AI keep AI close to the core of how the business is managed. Organizations who keep AI at their core improve their chances of economic success by 190% compared to those who don't.

This research leads us to four recommendations for becoming highly competent at AI:

1. **Build a core team** that is cross-functional, even if the AI investments focus on one small area.
2. **Design for scale** beginning with your first activities, not after proof of concept.
3. **Use metrics** to keep track of an AI program's progress and be open to adapting to changes.
4. **Enable collaborative successes across groups.** Have AI team members educate their peers, and bring in additional knowledge in terms of markets, employees, processes and strategy.

[Learn more about how IBM AI infrastructure solutions can help you →](#)

About the study

IBM commissioned a study with Inc.Digital led by its managing partner Michael Gale, the author of the Wall Street Journal best-selling book on digital transformation, "The Digital Helix." As part of the research, 566 executives and departmental leaders in companies over 500 employees were interviewed. Participants answered six key questions around how they were building their AI engines for success.