Forbes AI

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Top 7 AI Challenges And How To Overcome Them

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Introduction

As recent events across the world have shown us, today's business climate can be altered overnight. Supply chains may suffer disruptions, companies may need to shift to new modes of operations, and carefully crafted sales and marketing strategies may need to be thrown out the window. Emerging technologies, particularly artificial intelligence (AI), can help companies quickly respond to changes in the business environment, recast priorities, shift resources and keep tabs on events on the ground.

But embracing new technologies like AI comes with challenges. While offering powerful solutions, AI simply can't be implemented and start delivering results right away to the business. A robust AI initiative requires the skills to artfully navigate organizational misconceptions and unrealistic expectations, as well as an ability to secure the needed resources to support what will be a growing and comprehensive effort.

"AI projects face unique obstacles due to their scope and popularity, misperceptions about their value, [and] the nature of the data they touch," says Whit Andrews, distinguished vice president analyst at Gartner. "To surmount these hurdles, CIOs should set realistic expectations, identify suitable use cases and create new organizational structures."[1]

A survey of more than 300 executives conducted by Forbes Insights highlights the challenges AI proponents face within their organizations. They are bullish on AI—all expect to increase their spending on AI-based solutions, with over half anticipating budget growth exceeding 10% over the coming year. Even so, it's still the early stages of AI—nearly one in five of the executives surveyed are still in the planning stages of AI, and another 53% report being in the experimentation or pilot stages. Only 3% indicate they have a fully deployed AI system within their business.[2]

Even in these early days, it's not too soon to start tackling the challenges that could potentially slow progress. As AI proponents move forward from planning to actual deployments, they face a number of headwinds.

In this report, we highlight the top seven challenges organizations face with their AI implementations and how to overcome them.

1. Acquiring The Right Skills
2. Scaling AI To Tackle Enterprise Problems
3. Identifying The Right Data
4. Keeping AI Algorithms Fresh
5. Creating Trust In AI Decisions
6. Measuring AI Return On Investment (ROI)
7. Thinking More Expansively When It Comes To AI

[1] The CIO's Guide to Artificial Intelligence, Gartner, 2018.
[2] AI Trends Survey, Forbes Insights, April 2019.

CHALLENGE 1

Acquiring The Right Skills

Finding or training people with the right skills to make AI a working reality is one of the most frequently cited challenges for organizations on their AI journeys, according to the Forbes Insights survey.

More than two out of three executives (67%) agree that the quality and availability of qualified personnel is a major constraint on building an AI capability. Similarly, 65% cite availability of personnel with needed expertise as a major challenge to AI, and 55% cite the limited bandwidth or availability of IT staff as a challenge to such efforts as well.

What organizations need are data scientists and analysts who can work with data and produce meaningful results, as well as developers who can craft AI systems. But that's only part of the story.

Along with targeted recruiting, executives need to look within their organizations for potential AI talent, as many current technology staffs can be trained to work in this new realm, if they haven't started training themselves already. In recent years, tools and platforms have come on the market that support AI development and deployment while also increasingly automating AI operations to enable non-technical users to work with AI solutions. Just as important are people who can communicate AI results to their business stakeholders, as well as guide the work of data scientists and developers.

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CHALLENGE 2

Scaling AI To Tackle Enterprise Problems

While there is great interest in AI, many implementations are still in the pilot or experimental stages.

An AI implementation may perform impressively as a proof of concept but applying it to enterprise problems on an industrial scale may require far more planning. **More than half of executives in the Forbes Insights survey (58%) note their companies are interested in AI but have been slow to implement it.**

To function as it should, AI requires a back-end infrastructure that will support model development, data acquisition, robust processes and real-time delivery of insights in tune with business requirements. While pilot projects or proofs of concept may have been conducted on smaller servers or even personal computers, moving to the enterprise production phase requires an infrastructure that can support the heavy lifting of enterprise requirements.

Executives need to look at new systems on the market as well as cloud-based options to deliver capabilities—potentially requiring more powerful CPU and GPU processing to expand compute capabilities as well as enhanced bandwidth.

AI initiatives must grow in the same manner as other major technology initiatives: win by win. Start with smaller, winnable projects and build from there. And remember, failure is an inevitable part of the process. According to an IDC survey, one in four companies see an almost 50% failure rate of their AI initiatives.[3]

Maintain a culture of experimentation and look at your initial AI efforts as learning experiences. Success will multiply as efforts mature.

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[3] Artificial Intelligence Global Adoption Trends & Strategies, IDC, July 2019.

CHALLENGE 3

Identifying The Right Data

An AI implementation is only as good as the data it is fed.

To ensure timely and quality results, the data sets fed into AI algorithms need to be accessible, clean, well-governed and secured. Unfortunately, AI algorithms cannot be configured to overcome low-quality or inaccurate data. Nearly 60% of executives in the Forbes Insights survey agree that quality and availability of data is a major obstacle to implementing AI. In addition, 61% agree that quality and availability of data is a major constraint on their ability to build an AI capability.

"AI is only as good as your data. If you have bad data, you're not going to have trusted, transparent AI," says Rob Thomas, author of *The AI Ladder: Demystifying AI Challenges.*[4]

To ensure the quality, security and viability of the data being fed into AI systems, be sure to work with owners of various data sources. This can be accomplished through approaches such as Data Operations (DataOps), which "enables collaboration among data consumers and data providers, creates a self-service data culture, and removes bottlenecks in the data pipeline to drive agility and new initiatives at scale," Thomas states. In addition, a well-designed and well-governed data environment ensures that compliance and privacy mandates are met, and "eliminates data inconsistencies, resolves duplicates, and creates a single version of the truth for users to access."

[4] The AI Ladder: Demystifying AI Challenges, Rob Thomas, O'Reilly Media, August 2019.

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of the surveyed executives agree that quality and availability of data is a major obstacle to implementing AI.

CHALLENGE 4

Keeping AI Algorithms Fresh

AI algorithms have short shelf lives and can quickly go stale as business circumstances change.

Situations and markets are constantly shifting, and it's important that the models on which algorithms run be continually updated with new data training sets developed via a labeling process involving image, text, audio or video annotation. Given this, a good part of data scientists' and AI developers' time will be spent building and altering models.

Just as people need training to work with AI systems, the algorithms themselves need to be "trained" to keep up to date with changes in situations and markers. This could require training algorithms on a weekly or even daily basis. For example, photos continually need to be labeled with identifying text within context. This training occurs through incoming data as well as humans manually identifying the meaning behind labels or categories that go into the models. Algorithms' ability to deliver accurate, timely and—hopefully—unbiased results requires constantly refreshed training sets. Markets, customers, employees and operational issues change too fast to depend on algorithms running on outdated rules.

There aren't enough data scientists to go around, so the key to effectively refreshing AI algorithms on a frequent basis is to automate as much of the process as possible. Enterprises can now keep algorithms up to date thanks to a new generation of available tools and available training sets. Such capabilities need to be part of an evolving overall infrastructure that supports AI.

CHALLENGE 5

Creating Trust In AI Decisions

With AI, the business is betting on machine outputs to guide its processes and decision making.

AI-driven decisions will increasingly be part of the customer experience and will take over more and more day-to-day operations of the business.

That's why an increased focus on governance and associated ethics need to be part of AI discussions. Inherent bias coming from data or the humans designing algorithms must be weeded out. While great attention and concern surround AI bias, it's important to note that AI is only as objective as the data and rules supporting it. At this point, only 25-30% of companies in a recent survey are investing heavily in developing control frameworks and methods to drive greater trust and transparency in AI.[5]

There is also pressure to provide explainability as a part of AI implementations. Explainability is needed to provide transparency to AI decisions, along with the factors that went into the decisions. Such explanations must be made available to internal stakeholders as well as external parties, like customers.

Enterprises need to develop processes and policies that oversee the impact of AI on decision making, both by humans and machines. In addition, AI teams charged with designing, building and overseeing AI implementations must receive regular training on ethics and accountability within these systems. There also needs to be frequent, regular auditing of these systems and associated results.

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[5] AI Transforming the Enterprise: Eight Key AI Adoption Trends, KPMG, January 2020.

CHALLENGE 6

Measuring AI Return On Investment (ROI)

Measuring and achieving ROI has always been a vexing challenge for technology projects, and AI adds a new dimension to that challenge.

Forty-two percent of executives in the Forbes Insights survey state that a poor ROI on their AI projects has made implementing the technology challenging. The same number of executives report difficulty getting support from senior managers as a challenge to AI deployment.

"AI calls for new ways of looking at value gained, beyond simple efficiency and traditional benchmarks," says Ken Nixon, former head of sales and business development for Intro-Blue. "The benefits are both soft as well as hard. AI is the backbone of the entire value add for our company, and its competitive edge over the others in the space. AI is better for our clients, and it drives all decisions we make about expanding the product for the future, with more data and better algorithms using AI and machine learning for better results."[6]

In the AI space, ROI needs to be redefined, as AI may save many hours of manual labor by automating repetitive and routine tasks but also promises to elevate employees' roles. As AI picks up various pieces of their jobs, however, it may be difficult to measure the productivity savings versus added value from pursuing higher-level tasks in that additional free time. Enterprises must adopt a more expansive and inclusive view of ROI, with a greater ability to look at the big picture.

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[6] The Future Applications of AI for Large Enterprises, Forbes Insights, November 2, 2019.

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KEN NIXON
FORMER HEAD OF SALES AND
BUSINESS DEVELOPMENT, INTRO-BLUE

CHALLENGE 7

Thinking More Expansively When It Comes To AI

So far, executives have been limited in their expectations of AI—focusing on replacing human labor in many routine tasks, from answering customer questions to addressing predictive maintenance requirements on production systems.

In the Forbes Insights survey, the primary objectives for moving to AI are increasing productivity (cited by 40%) and reducing operating costs (28%)—typically the initial business cases for AI. Only 18% see it as a way to get closer to their customers or improve customer engagement, and only 16% see its potential for creating new products and services.

The challenge is looking beyond simply automating manual tasks. "As enterprises evolve their AI expectations and projects, the technology will mature to have more transformative and strategic impacts," says Gartner's Andrews.

Where AI will really begin to show its value is when it opens new possibilities where executives thought there were none. For example, AI can quickly spot outlying factors that human observers cannot see within large mounds of data. "What many executives do not realize is that they are almost certainly sitting on tons of administrative data from the past that can be harnessed in a predictive sense to help make better decisions," says Ravi Bapna, professor at the University of Minnesota's Carlson School of Management.[7]

AI allows organizations to look at problems and opportunities in new ways, and everyone—from board members to executives to frontline workers—can help discover novel approaches where AI can improve productivity, operations and customer experiences.

AI can deliver impressive results to businesses—but only if the challenges mentioned above are overcome. For AI to succeed, not only does it need to deliver value, but organizations also need to be ready to carry it forward.

"The ways AI can be used to augment decision making keep expanding," say McKinsey & Company partners Tim Fountaine, Brian McCarthy and Tamim Saleh. "New applications will create fundamental and sometimes difficult changes in workflows, roles and culture, which leaders will need to shepherd their organizations through carefully. Companies that excel at implementing AI throughout the organization will find themselves at a great advantage in a world where humans and machines working together outperform either humans or machines working on their own."[8]

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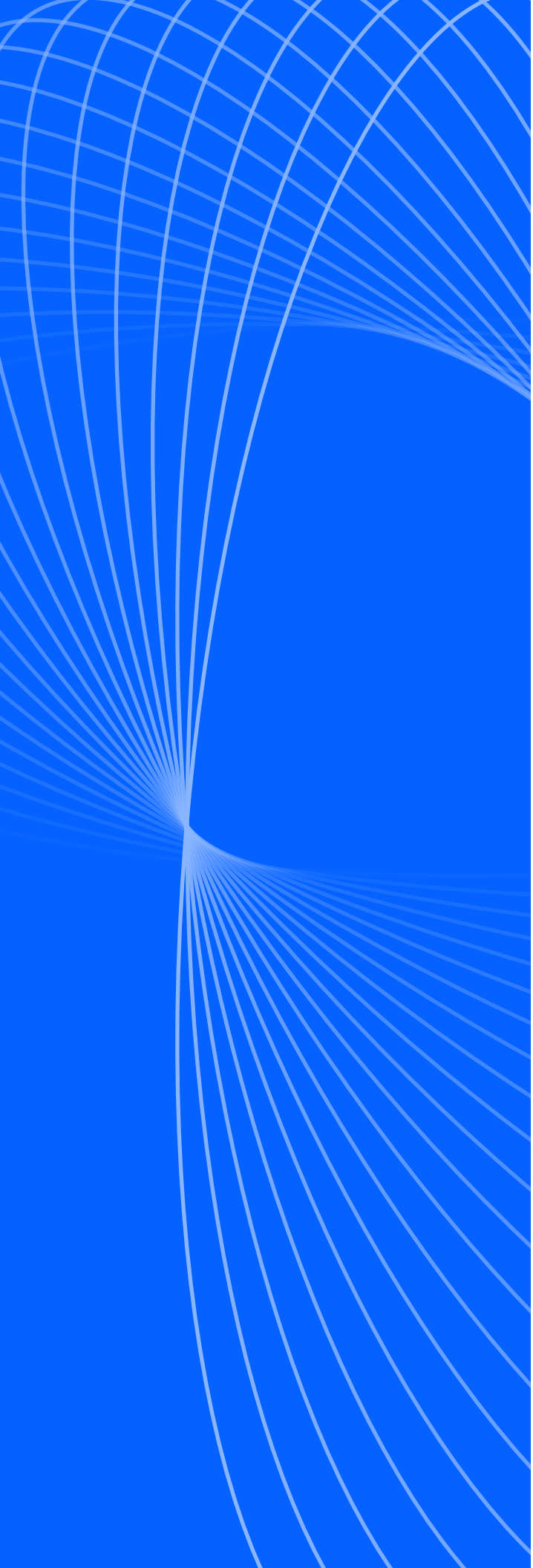
[7] Four Ways Leaders Can Gain Value from AI and Advanced Analytics, Knowledge@Wharton, January 15, 2020.

[8] Building the AI-Powered Organization, Tim Fountaine, Brian McCarthy and Tamim Saleh, July-August 2019.



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TIM FOUNTAINE,
BRIAN MCCARTHY
AND TAMIM SALEH
PARTNERS, MCKINSEY & COMPANY

Methodology

The findings in this report are based on a Forbes Insights survey of 313 executives who lead organizations in the United States.

Sixty-two percent are C-suite executives, representing CEOs (11%), CIOs (9%), CTOs (10%), CMOs (16%), CCOs (9%), COOs (3%), CSCOs (3%), CROs (1%) and other C-suite positions (1%). All executives were familiar with their organization's AI strategy.

The executives work in a variety of industries, including energy, financial services, insurance, retail, healthcare, life sciences, telecommunications, manufacturing, consumer products, automotive, government and technology. All represent organizations with $250 million or more in annual revenue, with 58% coming from organizations with more than $1 billion in annual revenue.

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