ANALYST BRIEF

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The right skills and strategically agile in-house processes often determine the success of artificial intelligence projects.

Scaling Skills for AI: Lessons from Early Adopters

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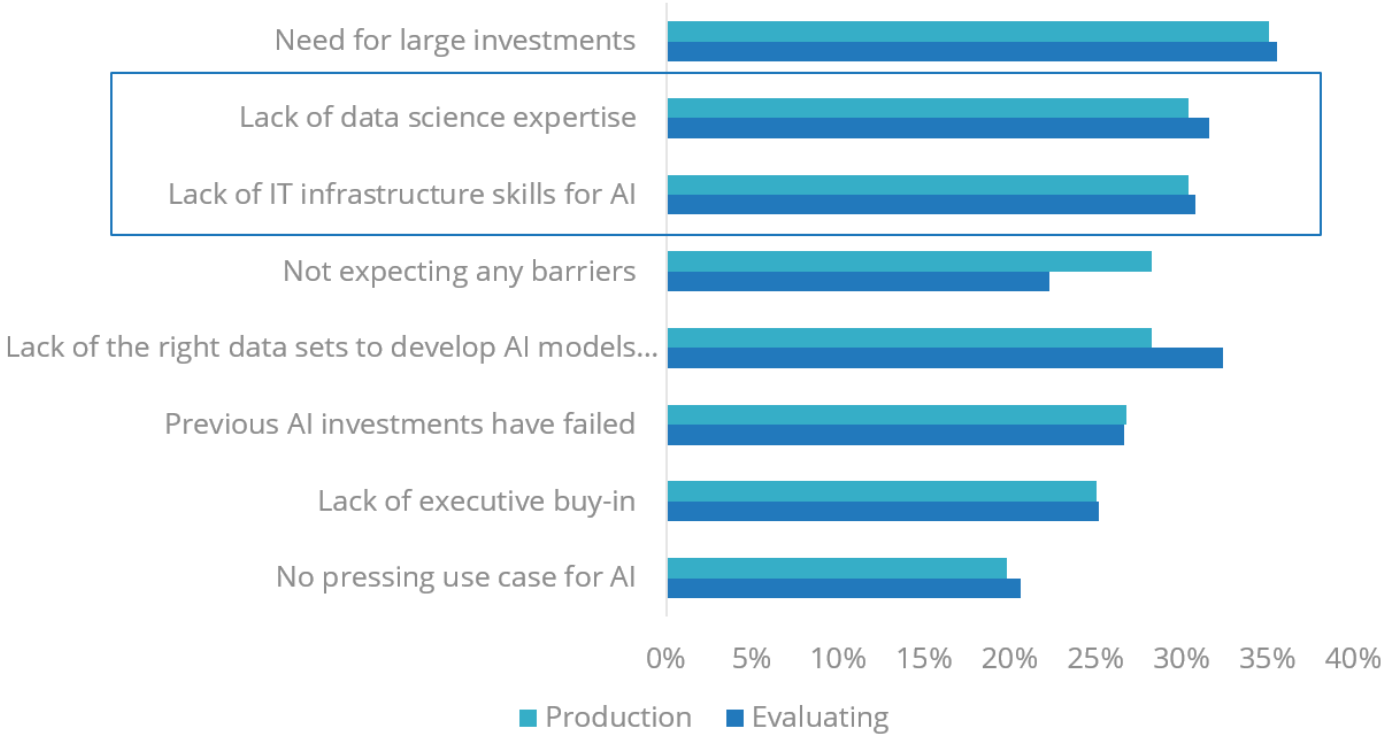
FIGURE 1: ***Difficulty in accessing the right skills is one of the major barriers to AI adoption, even for early adopters.***

Q What barriers are you seeing or expecting to see when trying to achieve AI realization across your organization?



n = 2,000

Source: AI InfrastructureView Survey, June 2021, IDC

I. Introduction

Artificial intelligence (AI) technologies are in high demand due to the myriad business problems AI can solve and the new products and services it can generate. The adoption of AI, however, can be hindered by a challenge that not even technology can fix: a lack of available skills. Getting the right skills and the right processes for the skilled workforce in place is, as a result, paramount.

As it scales, the complexity of AI increases in line with the adoption of the technology. This means that early adopters of AI understand the importance of overcoming challenges around human capital more than anyone else. Furthermore, many of the environments deployed for AI will remain on premises, with almost 70% of companies with AI in production saying they have acute compliance requirements, from data protection and privacy to industry regulations (per IDC's AI InfrastructureView 2021 survey). This places further emphasis on getting not only the right internal technology but the right investments in skills.

AI is also complex in that it is a distinctly different workload to all others and it has a long lifecycle consisting of multiple stages. Half of the companies that have AI in production are looking to overcome challenges with elements of deployment by increased training and building up data science expertise as well as specialist skills such as machine learning operations. Those that don't have this luxury will turn to other trusted sources for help.

II. Skilling Up

Those organizations that have AI in production very quickly roll it out across the business. According to IDC's survey, more than half of the companies that deployed AI successfully adopted an enterprise-wise strategy that includes consistent ways of rolling out projects and processes to drive efficiency. These include agile project development methods. The execution of an AI strategy rests upon a number of defined roles inside the business (including data scientists, developers, operators, data engineers, systems architects, and business analysts) that all work to AI governance frameworks and agile project pipelines.

The companies that have been most successful at deploying AI have had high levels of buy-in from C-level executives as well as in-house developers and lines of business (LOBs). In many cases, this buy-in is a result of training that takes place across the organization to enable LOBs and other AI users to be invested in the technology, providing possible new case studies and helping deliver outcomes post-project.

III. Leading Pathology Firm: An AI Groundbreaker

The adoption of AI has been the very foundation of one US-based technology pathology business. As an early mover in the space, having built a business around AI in 2016, it learned firsthand how to build up successful teams to manage deployments. The firm works with many of the world's leading biopharmaceutical brands and medical organizations, providing AI-powered technology tools and services for pathology. Outcomes are often life-critical, such as AI diagnoses for cancer and therapeutic efficacy for complex diseases.

The AI environments operated are complex. They use graphics processing unit (GPU) compute with high-speed storage and file-based access and object storage on a range of Kubernetes clusters. Teams of datacenter and IT experts sit alongside machine learning engineers and biomedical data scientists (industry experts trained by them into AI analytics). These teams underpin the delivery of their projects — about 90% of the company's AI models are home-grown! Line-of-

business roles such as data scientists are just as important as the technology-focused roles; they help guide and govern the quality of input data as well as drive results from complex algorithms to produce positive medical outcomes. The company has a head count of more than 220 people who work on AI-related projects, and it has a further 200 medical experts and thousands of pathologists who use the company to deliver analysis and gain insights.

Despite having well-established teams, the company's largest challenge remains skills and training — and it believes this will be ongoing. Teams often work intensively alone, but then burst across the company to deliver complex projects. One of the biggest challenges the teams face is the fluidity of new product requirements. It has adopted agile processes for delivery of new projects and admits that, in many cases, teams must be willing to step away from projects and start again during the design phase as technical or other challenges arise. Blueprints are created along the way, however, helping decrease the time to market for successive projects. Another challenge is keeping up with technology road maps and future proofing for new product requirements. This company relies on its vendor relationships to help with that.

As AI use grows across organizations, companies will inevitably deploy more projects. Respondents to IDC's AI InfrastructureView 2021 survey that had AI in production were more likely to spend 90+ days building machine learning and deep learning models than those still evaluating the technology. They found gains with deployment, however, with many spending considerably less time when it came to preparing completed models for deployment. They were also more likely to have expert buy-in for technology purchases from data scientists, which helps with future proofing compute and service investments.

IV. Benefits

Healthcare is a particularly robust market for AI, but advanced deployments are also being seen in many other markets such as retail, financial services, utilities, and manufacturing. Those with AI in production today find that the biggest benefit to the business is, by far, improved customer satisfaction. This is followed by the automation of decision making, simulated business scenarios and opportunities, and reduced complexity in decision making.

To achieve benefits, first movers have carefully defined roles around AI and have trained line-of-business functions to use AI outcomes and guide new projects across the business. This results in high buy-in from the C-level down — important when about 40% of AI projects fail due to a lack of executive buy-in. First movers have also clearly defined policies, guidelines, and processes and have championed agile project development processes to get projects off the ground.

V. Considerations

According to IDC's survey, companies using internal staff to deploy AI projects are more than twice as likely to have AI in production than those that don't have the right skills in pace. There are options, however, for those organizations that are more challenged when it comes to finding the right skills for their core-to-edge on-premises environments. When it comes to familiarity with AI environments, IDC's AI InfrastructureView 2021 survey found that solution and hardware suppliers, IT outsourcers, and hosting service providers were seen to be some of the most familiar with AI strategies, providing options for third-party support for companies that don't want to go the journey alone.

VI. Conclusion

The C-level is paying much closer attention to AI capabilities as peers and competitors find new ways to go to market and drive efficiencies, and as the board asks them to look more closely at the bottom line. This places even an even greater emphasis on skills. Just as important will be the processes that make the roles around human capital and the delivery of projects more efficient — and successful. Those companies that do well will not only attract the right staff or instigate the right third-party relationships; they will also have the right processes, stakeholders, buy-in, training, and information technology decision makers invested in recommending, deploying, and leveraging AI infrastructure. AI is a tool that bridges many company departments and, as such, requires a holistic approach.

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About the Analyst

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Penny Madsen is a senior research director for IDC's BuyerView, a portfolio of primary research products that provide insights into end user use and adoption of AI, cloud, edge and related infrastructure platform technologies and services. Her research covers trends, investments and purchase decisions, helping leading vendors and infrastructure providers develop strategies for future customer deployment scenarios.

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