

Productive AI: How to Achieve Operational and Business Value

It's time to move artificial intelligence out of the lab and into the front office. Organizations that do so quickly will gain an advantage over slower competitors.

In challenging times, top-tier organizations have always done three things well: get closer to their customers; streamline operations; and create competitive advantage. Artificial Intelligence (AI) is uniquely qualified to enable all of them.

AI can help anticipate customer needs by studying past behavior and finding correlations. It can identify workflow inefficiencies, suggest repairs, and even take over rote office tasks. AI makes logistics faster, customer service reps more informed, and email marketing more impactful. It's doing so right now every day.

To get the maximum impact of AI, it must be operationalized. Many organizations today still treat AI as a science experiment. They assign AI tools to data scientists and developers and hope they come up with interesting ways to use them.

But developers aren't experts in the business. They are in a less advantageous position to spot, for example, what a 2% reduction in inventory or a 3% increase in email response rates would mean to the bottom line.

Team sport

The first step in operationalizing AI is to make it a team sport. The initiative needs to be driven from the top with

a view that the entire organization can benefit. Team members should be brought on board from software development, data science, and the business. You might even want to create an AI center of excellence, as 37% of enterprises already have.

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The next step is to create a disciplined process for evaluating potential AI uses and deciding which to operationalize. This is also a team sport. In the early stages, look for small projects and be prepared to fail fast. When you hit upon something that has clear business value, move quickly to scale it and recruit advocates to sell it throughout the organization. PR and executive sponsorship are part of the job.

Don't worry about being a little late to the game. The first-mover advantage is overrated. Leverage the work of early adopters as you build complete solution stacks, including models, training data, and scripts. Whether your goal is customized recommendations, image recognition, anomaly detection, or robotics, the

1. Deloitte, July 2020. deloitte.com/us/en/insights/focus/cognitive-technologies/state-of-ai-and-intelligent-automation-in-business-survey.html

models are already out there. Use them to speed up adoption and make AI a grab-and-go experience.

Success breeds acceptance. As you operationalize AI, your accomplishments will bring others on board. Over time, this flywheel effect will generate more ideas to advance the business, stoke support for AI, and create muscle memory. Eventually, teams will wonder how they got along without it.

Infrastructure confluence

Operationalizing AI is a singular opportunity for IT leaders. They are in a position to create shared, centralized infrastructure that bridges silos in the organization and promotes cross-functional ideation. AI will change the business fundamentally, and IT can be the catalyst.

When creating infrastructure, give yourself flexibility. Operationalizing AI is not about the cloud or the data center — rather it's both. Start with the cloud to find a good selection of tools and a low-cost sandbox for experimentation.

As your initiative proceeds, however, you will want to move out of science experiment mode and start using production data. That's the time to start thinking about bringing more AI projects in-house.

Machine learning and deep learning models use huge amounts of data, and much of it is likely to be captured and created within your own infrastructure. The time required to move large data sets back and forth to the cloud can eventually become a drag on productivity. It can also become a cost burden when egress fees are taken into account.

Training AI models for applications like image recognition and neural networks also places significant demand on storage systems. They must be able to scale almost limitlessly while meeting the high throughput demands of multiple parallel Graphics Processing Units (GPUs). These storage-intensive applications are better served by bringing computation to local data stores.

A combination of cloud and on-premises infrastructure usually works best. Developers can continue to experiment with models and libraries in the cloud. And production applications are built on-premises where data scientists can focus on models and not on the cost and time of moving data.

You can build your own AI system from off-the-shelf components — but note that simply adding GPUs to a general-purpose server doesn't turn a computer into an AI workhorse. Many organizations fall into the trap of expecting a lower cost infrastructure by following a DIY approach to AI systems, but soon realize any savings are greatly overshadowed by time and budget spent on systems design, integration, software engineering, troubleshooting, and support.

A purpose-built AI system, however, is designed to parallelize complex models across multiple GPUs with features like a high-speed interconnect fabric that is built specifically to orchestrate multi-GPU configurations. The I/O subsystem and network should enable problems to be parallelized and training distributed over multiple systems.

Performance is maximized using containers with complete AI software stacks. For example, machine- and deep-learning frameworks, models, libraries, drivers, and more should be leveraged so data scientists don't also have to be software engineers.

The bottom line

The business value of machine learning, deep learning, and robotics is too great to ignore. It's time to operationalize AI to improve outcomes, achieve efficiencies, and gain competitive advantage.



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