



4 Pillars to Scaling Your AI Capabilities

A Whitepaper



Introduction

A [Gartner, Inc.](#) survey findings estimate that 80% of the 699 executives surveyed in the US, UK, and Germany believe automation improves business decision-making.

Automation is getting embedded in digital business, and artificial intelligence (AI) is becoming integral to automation strategies.

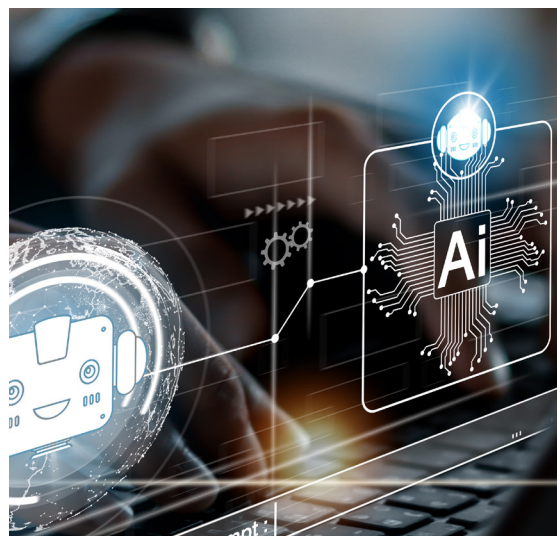
Organizations are using AI across functions to improve decision-making and strengthen competitive advantage.

Despite this, only about 54% of the AI projects get productized, and scaling AI projects continues organizations continue to face a significant challenge in mapping algorithms to a business value proposition. Therefore, it is becoming difficult for IT and business leadership to convince the management to invest in operationalizing the models.

According to 40% of organizations, demonstrating RoI potential for the thousands of AI models they have deployed is becoming a challenge due to governance complexity.

For instance, in one financial company, due to one of the machine learning models malfunctioning, the company lost \$20,000 within 10 minutes of scaling. They were unable to identify the root cause or even determine which of the models had a problem. As a result, they had to roll back, nullifying the time and effort that had gone into the project.

So, is AI scaling a lost cause? As of now, it appears as if it is easier to scale up one or two models rather than at the enterprise level, but all is not lost. If done right, this can be achieved. [Dow Chemical Company](#) was able to reduce the R&D time for polyurethane formulations from 2–3 months to just 30 seconds using AI and NLP.





4 Best Practices to Scale up Your AI

The scaling up of AI models requires businesses to rethink their strategy and integrate people, processes, and technology to operationalize AI quickly, efficiently, and effectively. MLOps or Machine Learning Operations is a consolidation of best practices and tools that enable this and rests on the following 4 pillars:

Pillar #1 Manage Data Expectations

Data is at the core of AI and ML models and data quality is critical for the accuracy and efficiency of the models. Therefore, the AI strategy should begin with ensuring data life cycle management - right from acquiring the right data to cleaning, and transforming it, and making it accessible for the purpose it is required.

Often, this first step requires a strategy as organizations face the challenge of data silos due to using disparate systems to store and process data. Data inaccuracy is another issue that can impact the effectiveness of the AI project.

Since data is retrieved from multiple sources and is available in multiple formats, incompatibility can further impede access and effective usage. Therefore, businesses need a robust strategy for data lifecycle management. Using automation by leveraging DataOps practices can help improve data orchestration.

For resource optimization, aligning all AI initiatives, platforms, models, generative AI and machine learning (ML) with key goals is critical. To achieve this:



- Identify outcomes and assess gaps to map use cases and integrate the effort.
- Testing the proof of concept is critical to ensure the solution is the right fit for the organization to meet its goals.
- Determine the key performance indicators and monitor their performance to ensure the project is on the right track and delivering as expected.
- As data is at the core of the AI models, the data architecture must be reviewed to ensure quality and governance.
- Ethical AI that is secure, contextualized, and free of bias is also essential for the success of the project.
- Automate with MLOps to reduce manual processes and reduce the risk of errors.
- Standardize the process for building and operationalizing models with constant iteration and refinement to prevent decay and continuous improvement.

Pillar #2 Get the Team Right

Scaling up AI is not just about AI but about how the AI powers the various operations of the organization.

Therefore, while a strong AI team is necessary for the development and a data science team to fuel it, other skill sets are required to scale. A good mix will be to have.

- Data scientists create the predictive models,
- ML engineers optimize, package, and integrate the models with products and monitor the quality continuously.
- A team to manage risk, compliance, and governance.
- Domain skills to ensure the AI solution meets the specific needs of the particular function based on the specific use case.
- IT for managing the infrastructure.



Pillar #3 Get the Right Tools and Technology

One of the greatest hurdles to scaling up is the distinct toolchains used for the various parts of AI/ML development that do not easily talk to each other and make it difficult to create a repeatable workflow.

Data scientists work with many different types of tools for data science and machine learning requirements when building a single model and stitching them together to run it.

IT or governance also works with another set of tools. This becomes a challenge when scaling up, delaying time to market.

Faster outputs require greater collaboration between the different stakeholders across the model lifecycle, making the right tool or platform essential. Such tools and platforms must also facilitate speed, safety, and creativity.

Therefore, when choosing the tools, factors to be considered include:

- Interoperability of tools with the existing ecosystem
- Logging, monitoring, and governance tools approved by IT
- Meet the needs of data scientists, IT teams, and governance.
- Provide flexibility to data scientists to use libraries and enable self-service.
- Facilitate collaboration.
- Enable security, access control, and compliance.



Pillar #4 Create an Enabling Environment

The company's culture, finally, plays an important role in the success or failure of the scaling up of AI. The first step is getting the stakeholders' buy-in to leverage AI for automating and improving process efficiency.

There may be a reluctance to change old habits, but more importantly, there will be fear of being replaced. Reassurance on how the transformation will only augment and not substitute the resource is critical.

The second is to assess the skillsets of the current employees and the ability to adapt to the large-scale AI transformation and the way they are required to interact with machines.

Based on the findings, the organization must be willing to retrain employees to acquire the skills needed to keep pace with the transformation. It may also require a restructuring of the policies, business processes, and workflows to suit the new way of working.

Communication becomes critical to help employees understand the implication of the changes, the expectations, and the benefits of the changes being made. When the employees are more involved and invested in the success of the project, the likelihood of its success increases.





Indium - Your AI Partner for Success

A **US-based** real estate, infrastructure, and environmental consulting services firm, built an ML model to detect the type and direction of transmission wires from thousands of images to make better-informed decisions about infrastructure projects and cut project implementation costs.

The company wanted to scale up the annotation process while keeping costs low. Indium Software, a cutting-edge solution provider, used MLOps solution to annotate 3000+ docs and convert them into VOC and COCO formats that can be consumed directly by the ML model. The model re-training was automated with human-in-the-loop, to help find the right-fit model faster. The MLOps solution was then containerized with AWS ECR and deployed on AWS EC2.

We were able to accelerate the re-deployment of the model by 6x times using pre-processing module and auto-retraining.

Indium helps organizations scale up their AI by working closely with the stakeholders, identifying and prioritizing use cases aligned to business goals, creating an MLOPs blueprint and toolchain best suited to the company's needs, executing the blueprint, training employees for knowledge transfer, and monitor governance for continuous improvement.

Some of our USPs include:

- 7+ years of experience in delivering industry-focused ML solutions.
- Accelerating performance by 3x using pre-built MLOps solutions to automate standard ML lifecycle processes.
- Expertise in data and AI
- Implementing MLOps best practices
- Providing end-to-end MLOps support

To know more, visit <https://www.indiumsoftware.com/mlops-services/>



FAQs

What is the greatest challenge to scaling AI today?

Getting the right data that is clean, reliable, and available is the biggest challenge to scaling AI as it is crucial for the performance of the models.

What are some of the best tools for scaling AI?

Frameworks such as TensorFlow, Keras, Scikit-Learn, PyTorch, and XGBoost are used commonly by developers to scale AI.

Why is scaling AI important?

Businesses can improve operational efficiency, automate tasks, improve customer delight by customizing offerings, and mitigate risks by operationalizing AI projects.



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