14 January 2026

AI That Actually Works: Moving Beyond Pilots to Scalable Business Impact

Over the past few years, artificial intelligence has moved from a future-facing curiosity to a boardroom imperative. Yet despite the enthusiasm, most organizations remain stuck in the same paradox: they are experimenting with AI everywhere but achieving meaningful impact almost nowhere.

Across the world, companies report hundreds of AI pilots, proofs of concept (PoCs), and demonstrations. But very few of these experiments ever become fully scaled, mission-critical systems. The gap between *AI promise* and *AI performance* remains stubbornly wide.

This challenge is not unique to any one industry. Whether in energy, manufacturing, logistics, financial services or digital infrastructure, leaders face the same underlying question: **How do we move from scattered experimentation to AI that actually solves real problems?**

The next phase of AI adoption will depend not on building more pilots, but on building *better* ones - guided by clear value, robust data, organizational readiness, and strong governance. And across industries, several emerging patterns show what it takes to make AI work at scale.

The PoC Trap: Why most AI projects do not scale?

The corporate world is full of PoCs that demonstrate technical feasibility but fail to create strategic value. In most cases, the issue is not the model - it is everything around it.

Many AI pilots begin with excitement about algorithms or tools, rather than a specific business problem. Technical teams build models without integrating them into real workflow, and business teams evaluate outputs without understanding how the system would operate at scale. Data is often incomplete, siloed, or difficult to access. Processes are not designed for AI intervention. Governance remains unclear.

The outcome is predictable: impressive dashboards, promising prototypes, but no path to actual deployment.

As one global consulting study shows, *less than 15% of AI pilots ever reach production*[1]. The majority fail not because they are “bad technology,” but because they lack an operational, data and organizational foundation for scale.

Solving this requires shifting from novelty-driven experimentation to **application-driven AI** - AI focused on specific, well-understood challenges that carry operational, financial, or strategic significance.

[1] *https://fortune.com/2025/08/21/an-mit-report-that-95-of-ai-pilots-fail-spooked-investors-but-the-reason-why-those-pilots-failed-is-what-should-make-the-c-suite-anxious/*

AI applications in Energy: From forecasting to autonomous operations

Few sectors illustrate this better than the energy industry, where use cases have matured rapidly but inconsistently.

In traditional power generation and field operations, AI is increasingly used to optimize maintenance, detect anomalies and reduce downtime. For example, Shell has deployed AI-based predictive maintenance across more than 10,000 pieces of equipment, significantly reducing unplanned outages[2]. These applications work because they are tied to clear operational KPIs and deep domain expertise.

In renewables, AI is accelerating forecasting of wind and solar output - critical for grid stability. Google uses AI at its wind farms to predict output 36 hours ahead, improving the value of renewable power sold to the grid[3].

Meanwhile, in energy infrastructure - such as the operations of LNG terminals, pipelines, and power plants - AI is being tested for intelligent routing, leakage detection, and real-time optimization. These applications remain early, but the direction is clear: **AI is becoming a performance lever in complex, asset-intensive environments where data is abundant and every percentage-point improvement matters.**

However, even in leading companies, scaling remains difficult. The core challenge is integration: AI must fit into existing SCADA systems, safety protocols, regulatory controls, and engineering workflows. Technical feasibility does not guarantee operational readiness.

Manufacturing & Industrial sectors: From automation to cognitive assistance

In manufacturing environments, AI adoption has advanced significantly in quality inspection, robotics, supply chain planning and workforce productivity.

For instance, Toyota uses AI-driven visual inspection to reduce defects in critical components[4]. Siemens has implemented AI to automate process optimization in chemical plants, increasing yield and reducing energy consumption[5]. In semiconductor fabrication, AI helps detect nanometer-level defects that are invisible to human inspectors.

Yet the next opportunity is not only automation - it is *cognitive assistance*. Engineers increasingly rely on AI to search complex knowledge bases, recommend solutions and inform design decisions. Several Japanese manufacturers are experimenting with “AI copilots for engineers” to consolidate decades of tacit knowledge.

These applications show promise, but they succeed when AI is embedded into human workflows - not when it replaces them. Factories are human-machine systems, and AI must augment, not disrupt, the operators at the center.

Financial Services: AI that must be explainable, responsible and compliant

In finance, AI is widely used in fraud detection, credit scoring, customer insights and operational automation.

---

[2] https://c3.ai/shell-achieves-major-milestone-scales-artificial-intelligence-predictive-maintenance-to-10000-pieces-of-equipment-using-c3-ai/

[3] https://deepmind.google/blog/machine-learning-can-boost-the-value-of-wind-energy/

[4] https://pressroom.toyota.com/toyota-and-generative-ai-its-here-and-this-is-how-were-using-it/

[5] https://innovateenergynow.com/resources/siemens-and-the-rise-of-industrial-ai-in-process-automation

But the sector also reveals one of the most difficult AI challenges: **explainability and compliance**.

Banks frequently build AI models for risk management or lending decisions, but struggle to deploy them because they cannot be easily explained or audited. As a result, many institutions rely on AI for preliminary analysis but keep final decisions under strict human supervision.

On the operational side, some financial firms have achieved remarkable gains. JPMorgan's COiN platform reviews commercial loan agreements using AI, reducing 360,000 hours of manual review annually[6]. Meanwhile, OCBC in Singapore uses AI to improve fraud detection and reduce false positives by over 40%[7].

The lesson is clear: in financial services, AI works at scale when governance and auditability are built in from the start. Technology alone cannot overcome regulatory constraints; AI must align with compliance, not compete with it.

Digital Infrastructure: Meeting AI demand with intelligence, not just capacity

Data centers, telecom firms and cloud providers are under immense pressure as AI workloads surge. The challenge is not only capacity but efficiency.

AI is being deployed to improve cooling efficiency, reduce power consumption and predict equipment failures. Google achieved a 40% reduction in cooling energy at its data centers using DeepMind's AI system[8]. Japanese telcos use AI to optimize network routing during peak traffic loads.

However, scaling these solutions is difficult because infrastructure varies widely across sites and regions. AI must adapt to diverse operational conditions - making *local data quality* and *system integration* central bottlenecks.

What successful AI applications have in common

Across industries, the patterns are remarkably consistent. AI applications that scale typically share four characteristics:

1. **They solve real problems**, not abstract use cases. They address operational bottlenecks, financial pain points, safety risks or environmental requirements.
2. **They are built on strong data foundations**: Clean, reliable, integrated data remains the biggest barrier to scale.
3. **They integrate into existing processes**: AI that requires new workflows often fails; AI that enhances existing ones succeeds.
4. **They include governance from day one**: Companies that scale AI have clear rules for oversight, risk, and responsibility.

These factors matter more than which model or algorithm is used.

---

[6] *https://www.emreates.co.uk/research-2/jpmorgan's-coin-(contract-intelligence)-platform%3A-using-ai-in-mergers-%26-acquisitions-and-commercial-lending*

[7] *https://www.ocbc.com/group/investors/annual-reports/2024-annual-report/creating-value-through-ai.page*

[8] *https://deepmind.google/blog/deepmind-ai-reduces-google-data-centre-cooling-bill-by-40/*

The path forward: From experiments to enterprise impact

The next era of AI adoption will be defined not by how many pilots companies run, but by how many they scale. For leaders across ASEAN and Japan, the challenge is to shift from technology exploration to problem-driven application, backed by organizational readiness.

This requires clarity on where AI can deliver immediate value, commitment to building the right data foundations, and an operating model that blends human judgment with machine intelligence. It also demands realistic expectations - AI cannot fix broken processes or poor data on its own.

Companies that navigate this transition thoughtfully will unlock not only efficiency but strategic advantage. Those that remain trapped in perpetual experimentation risk falling behind in a world where AI will increasingly differentiate winners from laggards.

The promise of AI is real, but real value comes not from algorithms - it comes from **applications that solve real problems at scale**.

To find out more about how IGPI Group can provide support for businesses, browse through our insight articles or get in contact with us.

About the Author

Harsh Munim, Associate of IGPI Singapore

Harsh is a dynamic professional with an MBA from NUS Business School and a BBA in Finance from City University of Hong Kong, where he also had the opportunity to go on an exchange program to Indiana University Bloomington in the United States. With over 4 years of experience, Harsh brings a wealth of expertise to his role at IGPI. Prior to joining IGPI, he worked as a Senior Project Manager at an investment research firm in Hong Kong, where he managed diverse projects in Southeast Asia and Oceania. During his MBA, Harsh interned with IGPI, contributing to projects related to carbon credits, microgrids, and the consumer goods industry. He also gained valuable experience at IQVIA, where he supported global pharmaceutical companies on LOE strategy, segmentation, targeting, and go-to-market projects.

About IGPI Group

IGPI Group is a top management consulting & investment platform headquartered in Tokyo with a global footprint covering Singapore, Australia, Vietnam, Indonesia, China, Europe and India. The organization was established in 2007 by former members of the Industrial Revitalization Corporation of Japan (IRCJ), a USD 100 billion sovereign wealth fund focusing on turn-around projects in Japan. The group has 12 institutional investors, including Nomura Holdings, SMBC, KDDI, Recruit Holdings and Sumitomo Corporation. The group has three core businesses – management consulting, incubation & funding and major investments & business management. IGPI Group has approximately 8,500 employees on a consolidated basis.

About IGPI Singapore

IGPI Singapore was established in 2013 to provide end-to-end support, from strategy development to hands-on support, with capability of conducting M&A advisory as well as making principal investments. Leveraging long-standing relationships and trusted networks, IGPI Singapore is strongly connected with regional conglomerates across ASEAN, Japanese companies and major multinational corporations. Through these connections, the team has advanced initiatives and ventures with conglomerate partners, including smart city initiatives in Vietnam and Indonesia, among others, helping clients enter, grow, and transform across Southeast Asia.

Issued by: Industrial Growth Platform Pte. Ltd. (IGPI Singapore)
137 Telok Ayer Street #05-01 Singapore 068602
TEL: +65 6226 1524 URL: http://www.igpi.com.sg
Contact us: https://www.igpi.com.sg/contact-us/stay-connected/

LinkedIn

