Where AI Creates Value

A data-driven analysis of 5,752 AI deployments across 2,385 public companies

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The question nobody could answer

We started with a simple project: post a daily case study of a real company deploying AI. One company per day, pulled from earnings calls and SEC filings. How are they using AI? What's working? What's not?

We ran out of hand-curated examples in three months.

So we built a system to read every earnings call automatically. Extract every AI mention. Validate each one against independent sources. Score how real it is. That system now tracks 5,752 AI deployments across 2,385 public companies in the S&P 500, MidCap 400, SmallCap 600, Russell 2000, and international indexes.

Along the way, we kept hearing the same question from C-suite executives:

> *Where should we deploy AI to actually win? Not just compete. Win.*

Everyone knows they need AI. The board is asking about it. Competitors are announcing it. Consultants are selling it. But nobody had data on which AI investments actually correlate with stronger market performance.

We set out to answer that.

How we measured it

Reading an earnings call and counting AI mentions is easy. Knowing whether those mentions are real is hard.

A CEO who says "we're exploring AI-driven transformation" is performing for analysts. A CEO who says "our AI inspection system catches 97% of defects on the line, up from 89% last quarter" is reporting results.

We needed to tell the difference. So we built ARL: AI Readiness Level, a four-level scoring framework inspired by NASA's Technology Readiness Levels. NASA created TRL in the 1970s to stop aerospace contractors from overselling how ready their technology was. We applied the same logic to corporate AI claims.

LEVEL	NAME	WHAT IT MEANS
ARL 1	Corroborated	Multiple sources confirm the AI initiative exists. Could still be a pilot.
ARL 2	Production	Deployed at scale. Handling real workloads. Not a pilot.
ARL 3	Quantified	Specific measurable results: percentages, dollars, headcount changes.
ARL 4	Progressing	Those numbers are improving quarter over quarter.

We scored all 5,752 apps. Then we filtered to ARL 2 and above: production-validated deployments only. This removed the hype and left us with 5,127 real AI deployments across 2,238 companies.

Then we asked: among these real deployments, which patterns correlate with excess returns?

What we found

We used unsupervised clustering to let the data group similar deployments together. No predetermined categories. The algorithm found 50 distinct deployment patterns across the 5,127 validated apps.

These 50 patterns split cleanly into two types: horizontal and vertical.

Horizontal deployments are things any company can do. Customer support chatbots. Code generation assistants. Back-office automation. Fraud detection. These are available from the same vendors, sold to every industry, built on the same foundation models.

Vertical deployments are domain-specific. AI that inspects welds on a factory floor. AI that optimizes subsurface drilling paths. AI that accelerates clinical trial enrollment. These require specialized knowledge, proprietary data, physical infrastructure, and regulatory clearance.

The horizontal patterns are table stakes. The vertical patterns are where we found the return.

The table stakes

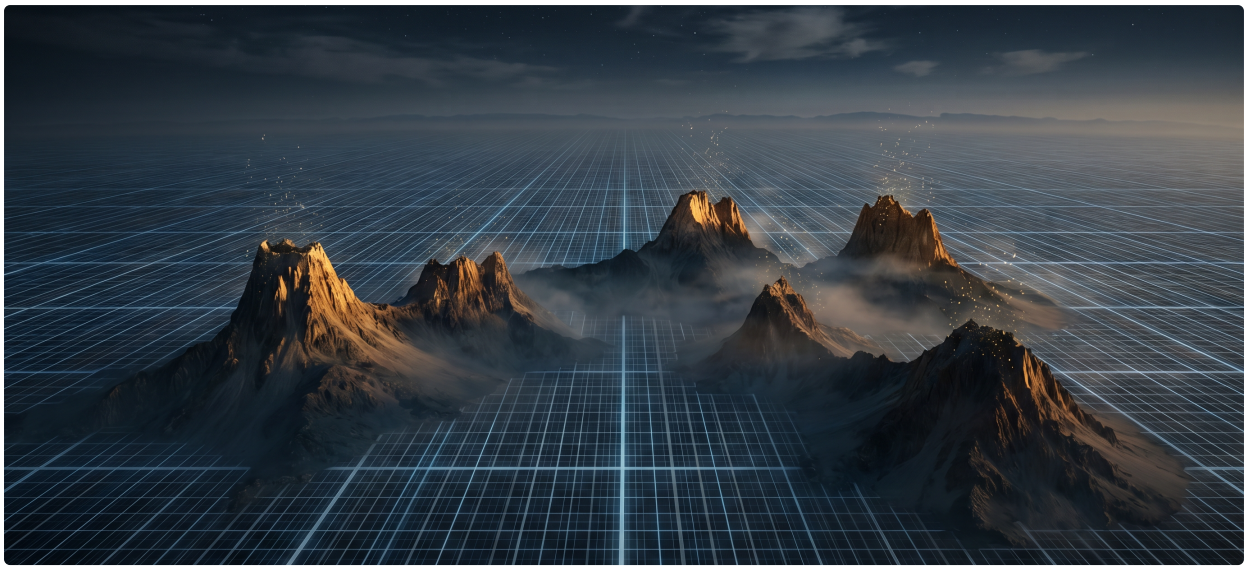
Three layers of horizontal AI showed up in the data. Every company needs them. None of them differentiate you.

LAYER	COMPANIES	MEDIAN EXCESS RETURN
Infrastructure	307	-5%
Operations	1,157	-14%
Customer-Facing	561	-13%

253 companies deploy AI-powered customer support. 171 automate software development. 124 run internal operations on AI. These are the largest clusters in our dataset. They are also all negative.

This is not surprising. When every competitor has the same AI tools from the same vendors, nobody gains an edge. The result is a cost of competing, not a source of advantage. Like having a website in 2000 or a mobile app in 2012. You fall behind without it. You don't get ahead with it.

The data says: do this. You have to. But don't expect it to move the stock price.



Where the return lives

The vertical plays tell a different story. 73% of domain-specific AI deployment patterns showed positive excess returns. Only 15% of horizontal patterns did. The difference is statistically significant.

DEPLOYMENT PATTERN	EXCESS RETURN	COMPANIES
Automated Quality Inspection	+79%	20
Clinical Trial Optimization	+51%	42
Intelligent Drug Development	+44%	36
Subsurface & Well Optimization	+42%	35
Autonomous Systems	+32%	12
Industrial Robotics	+21%	26
Loan Loss Forecasting	+19%	32
Robotic Warehouse Operations	+15%	30

The top-performing pattern? Automated quality inspection on manufacturing lines. Companies using computer vision to catch defects, scan welds, and monitor production. One industrial company in our dataset deployed AI inspection across its assembly lines and saw defect detection jump to 97% accuracy. The system identifies flawed components that human inspectors miss, running continuously across shifts.

In clinical trials, we found biotech firms using AI to optimize patient enrollment and predict trial outcomes. One company cut its enrollment timeline significantly by matching patient records against trial criteria automatically, something that previously required months of manual review.

In energy, companies analyze decades of subsurface geological data to optimize drilling decisions. Every dry hole avoided is tens of millions in savings. The AI works because the data took decades to accumulate and the physics is domain-specific.

These are not glamorous deployments. Nobody is writing breathless blog posts about weld inspection AI. That's partly why it works.

What the winners share

We looked at what the positive verticals had in common. Five attributes kept showing up.

Atoms. The AI touches the physical world. Factory floors, drill sites, operating rooms, airspace. A competitor cannot replicate this by signing up for an API. They need cameras on production lines, sensors downhole, robots in warehouses. Physical infrastructure is slow to build and expensive to maintain.

Regulation. The deployment sits behind regulatory barriers. Clinical trials require FDA oversight. Autonomous systems need FAA clearance. Financial models face banking regulation. These barriers are measured in years, not sprints. No amount of engineering velocity gets you past a three-year regulatory process.

Time-locked data. The AI needs years of proprietary data that cannot be downloaded or purchased. Subsurface geology from decades of drilling. Clinical outcomes from thousands of patients. Manufacturing defect libraries from millions of production runs. This data was earned through operations over time. A new entrant starts from zero.

Costly failure. A mistake is expensive. A defective chip kills a product line. A bad drug trial wastes billions. A drilling error costs tens of millions. When failure is expensive, companies pay a premium for AI that reduces it. The value is measurable, which is why these deployments reach ARL 3 (quantified results) more often than horizontal ones.

Scarce expertise. The deployment requires specialists who are hard to hire. Geophysicists for subsurface AI. Clinical researchers for drug development. Manufacturing engineers for quality inspection. These people cannot be replaced by prompt engineers. The talent moat reinforces every other moat.

The more of these attributes a deployment has, the stronger the correlation with positive returns. Automated quality inspection has all five. AI customer support chatbots have none.

The strategic question

If you are a CEO, the data suggests a two-step approach.

First, build the infrastructure. Deploy horizontal AI in operations, customer-facing systems, and internal infrastructure. This is required. Your competitors already have it. The returns are negative not because the AI is bad but because not having it is worse. This is the cost of competing in 2026.

Second, find your verticals. Look at your business and ask five questions:

Where do we touch the physical world? Where do we operate behind regulatory barriers? Where do we have decades of proprietary data? Where does a mistake cost us millions? Where do we employ specialists who are hard to hire?

The intersection of those answers is where AI investment correlates with market outperformance. Not because AI is magic in those areas, but because the combination of domain knowledge, physical access, regulatory clearance, and proprietary data creates a deployment that competitors cannot easily replicate.

The question is not whether to deploy AI. It is where.

Methodology

This analysis covers Q1 2025 through Q1 2026. We extracted AI deployment mentions from earnings call transcripts and SEC filings (10-K, 10-Q) for 2,385 companies across five indexes: S&P 500, MidCap 400, SmallCap 600, Russell 2000, and select international ADRs.

Each mention was validated against independent sources and scored using the ARL (AI Readiness Level) framework. 5,127 deployments at ARL 2 or above (production-validated) were retained for analysis.

Deployment patterns were discovered using unsupervised clustering on semantic embeddings. Patterns were classified as horizontal (domain-agnostic) or vertical (domain-specific) based on the occupations, industries, and use case descriptions within each cluster.

Excess return is measured as trailing 52-week total return minus the corresponding benchmark index return (SPY, MDY, IJR, IWM). Statistical significance was assessed using Welch's t-test with Bonferroni correction across all clusters. Effect size was measured using Cohen's d. Returns were deduplicated by ticker within each cluster.

The baseline for spread calculations is the median excess return of all AI-deploying companies at ARL 2 or above (-0.8%), not the full market. Spreads indicate performance relative to other AI-deploying companies.

This is research, not investment advice. Correlation does not imply causation. Past performance does not predict future results. The AI deployments we observe in earnings calls may not be the cause of excess returns. Companies with stronger fundamentals may simply be more likely to deploy AI in domain-specific ways.

We publish updated analysis quarterly.