The AI Value Paradox

Why Yesterday's AI Is Still Delivering Tomorrow's Business Value

Generative AI dominates the conversation. But some of AI's clearest financial returns still come from predictive analytics, machine learning, and optimization. The next opportunity is bringing them together.

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October 15th, 2026



The AI Conversation Has Shifted. Has the Business Value?

Executive AI discussions increasingly center on GenAI, copilots, large language models, and agents. These tools open new possibilities for content, coding, reporting, and automation.

But the investment conversation should also recognize the predictive models, forecasts, and optimization engines already shaping revenue, margin, cost, and risk decisions.

> **The opportunity is to connect proven analytical intelligence with new ways to explain, access, and act on it.**

At Data Busting Analytics, I help leaders connect proven analytical disciplines with GenAI, translating AI investment into measurable business value.

PROVEN VALUE

01 The AI Value Paradox: Proven Value Versus New Possibilities

Traditional machine learning and optimization have been delivering meaningful results for years. Consider the business decisions they support:

AI CAPABILITY	BUSINESS VALUE
Demand forecasting	Improving inventory, production planning, and working capital.
Supply chain optimization	Reducing transportation costs, waste, and network inefficiencies.
Dynamic pricing	Improving revenue and margins through better pricing decisions.
Fraud detection	Identifying suspicious activity and reducing financial losses.
Predictive maintenance	Reducing equipment downtime and improving asset utilization.
Customer analytics	Improving targeting, retention, conversion, and lifetime value.
Credit scoring	Assessing creditworthiness to improve lending decisions and manage default risk.

The common thread: better decisions, measurable outcomes

These capabilities improve repeatable business decisions with measurable financial consequences. For example, McKinsey reports that an aircraft original equipment manufacturer used autonomous agents to optimize procurement and inventory, cutting active inventory by 30% and lifting EBIT by roughly $700 million. [1]

One example does not establish which AI category creates the greatest aggregate economic value. It does, however, illustrate a useful principle:

> **AI creates powerful economic value when it is embedded in business operations and connected to decisions that influence financial performance.**

THE EVIDENCE | REPORTED VALUE AND ECONOMIC POTENTIAL

02 What the Research Says About AI Value

Two studies help put the opportunity in perspective. One examines companies' reported value today; the other estimates the economic potential of different AI capabilities.

BCG: predictive AI remains the largest individual category

BCG's 2025 Build for the Future study surveyed 1,250 executives and senior leaders. Exhibit 5 in The Widening AI Value Gap reports the following split of AI-driven value reaching the bottom line: [5]

45% PREDICTIVE

Forecasting and analytical AI

38% GENERATIVE

Generative AI applications

17% AGENTIC

Agentic AI workflows

Predictive AI is the largest individual category, though agentic systems can incorporate both predictive and generative capabilities.

McKinsey: a large analytical base, with GenAI adding value

McKinsey's 2023 report, The Economic Potential of Generative AI, estimated that nongenerative AI and analytics could unlock $11 trillion to $17.7 trillion annually. Across 63 use cases, GenAI could add $2.6 trillion to $4.4 trillion annually. [6]

The categories extend beyond traditional data science and content creation alone. Nongenerative AI includes advanced analytics, traditional machine learning, and deep learning; GenAI opportunities also include customer operations, software engineering, marketing and sales, and R&D.

Use the evidence to build a balanced AI portfolio. Reported outcomes and modeled potential answer different investment questions.

PRODUCTIVITY AND FINANCIAL OUTCOMES

03 GenAI Is Delivering Value, but the Financial Connection Is Often Less Direct

Productivity gains are real

Generative AI is already improving productivity. Research by Erik Brynjolfsson, Danielle Li, and Lindsey Raymond, published in The Quarterly Journal of Economics in 2025, examined more than 5,000 customer support agents and found that access to a GenAI assistant increased productivity by approximately 15% on average. [2]

Turning saved time into business value

Productivity and financial value are not interchangeable. If an employee completes a task 30% faster, the organization does not automatically reduce costs by 30%. The real question is what they do with the added capacity. If investments in GenAI let people finish work faster, that freed-up time only becomes value when it is redirected to prioritized, productive work - higher-value decisions, additional throughput, faster delivery, or growth without proportional increases in resources.

Taking that time to engage in non-prioritized work is not value. Spending more time at the water cooler is not value. The capacity created must translate into tangible results: increased throughput, reduced spending, faster delivery, improved quality, higher revenue, or growth without proportional increases in resources.

Adoption is only the starting point

McKinsey's 2025 State of AI survey found that only 39% of respondents reported any enterprise-level EBIT impact attributable to AI. Most of those reporting an impact attributed less than 5% of EBIT to AI. [3]

The survey covers AI broadly, and benefits take time to materialize. The takeaway is to distinguish adoption, productivity, and financial outcomes.

Time saved is not the same as value realized. And deploying AI is not the same as transforming business performance.

The bridge from productivity to financial impact

1 TIME SAVED	2 CAPACITY USED	3 VALUE REALIZED
Create usable capacity	Increase throughput or reduce spend	Validate business results

A BALANCED AI PORTFOLIO

04 The Three Paths to AI Value

Think about AI value through three complementary paths. Together, they provide a practical framework for a balanced investment portfolio.

Path 1: Optimize Business Decisions

Capabilities: Predictive analytics, machine learning, forecasting, statistical modeling, and optimization.

Business value: Revenue growth, margin improvement, cost reduction, risk mitigation, and operational performance.

Use these capabilities to predict what is likely to happen and choose actions for high-frequency or high-impact decisions, including pricing, inventory, production, credit risk, and resource allocation.

Path 2: Accelerate Workforce Productivity

Capabilities: GenAI assistants, content generation, summarization, translation, coding, conversational analytics, automated narratives, and document processing.

Business value: Time savings, faster execution, better knowledge access, improved employee experiences, and increased capacity.

Convert improvements in how work gets done into sustained operational and financial benefits.

Path 3: Transform End-to-End Business Workflows

Capabilities: Integrated GenAI, predictive models, optimization engines, enterprise data, automation, and agentic workflows.

Business value: Better decisions, faster execution, scalable intelligence, and measurable end-to-end outcomes.

Use GenAI to make analytical capabilities more accessible, accelerate their development, and connect insights directly to business action.

Path 1 improves decisions. Path 2 improves productivity. Path 3 combines them to transform how businesses operate.

01 DECISIONS	02 PRODUCTIVITY	03 WORKFLOWS
Predict and optimize	Assist and accelerate	Integrate and transform

ACCELERATING ESTABLISHED DISCIPLINES

05 The Overlooked Opportunity: Make Proven AI Capabilities Faster, More Accessible, and More Scalable

Find the friction in your analytical lifecycle

Existing analytical investments often stall at familiar bottlenecks: lengthy data preparation, slow deployment, difficult-to-interpret outputs, and models isolated within specialist teams. Target these constraints before adding more tools.

Research behind the data-preparation bottleneck

The scale of this work is well documented: a 2019 IBM announcement described data scientists devoting up to 80% of their time to data preparation, a bottleneck that persists today. [4]

Recent evidence: the data layer is now the AI bottleneck

The bottleneck has not gone away - it has moved upstream. As model capabilities have advanced, the constraint has shifted from model building to the data layer that feeds it. Anaconda's 2025 State of Data Science & AI report found that data quality and pipeline consistency issues derail 45% of AI scaling efforts, making them one of the biggest barriers between pilot and production; only 22% of organizations have reached strategic scale. [7]

Gartner goes further, predicting that through 2026 organizations will abandon 60% of AI projects unsupported by AI-ready data - not because the models are weak, but because the underlying data is not ready. [8]

The financial stakes show up in IBM's 2025 CEO study: only 25% of AI initiatives have delivered their expected ROI over the past three years, and only 16% have scaled enterprise-wide. [9]

The model is no longer the bottleneck. The data layer is, and it is where the next wave of AI value will be won or lost.

05 | ACCELERATING ESTABLISHED DISCIPLINES | CONTINUED

Start with development speed and access

GenAI can reduce friction across the analytical lifecycle. Two opportunities provide a practical starting point:

ACCELERATING MODEL DEVELOPMENT
AI coding assistants can support data preparation, exploratory analysis, feature engineering, testing, documentation, and model experimentation.

DEMOCRATIZING ADVANCED ANALYTICS
Natural-language interfaces can make forecasting, scenario modeling, and optimization capabilities accessible to business users who lack specialized technical skills.

From analytical capability to business adoption

OPPORTUNITY	HOW IT SUPPORTS BUSINESS ACTION
Improving decision support	GenAI can translate complex model outputs into explanations, alternatives, and recommendations that business leaders can more easily understand and act upon.
Automating analytical workflows	Governed AI agents can coordinate data retrieval, model execution, scenario analysis, and reporting, with human oversight for consequential decisions.
Strengthening data foundations	AI-assisted data quality, metadata generation, classification, and governance workflows can reduce friction in developing and maintaining analytical solutions.

Controls that make it work

Validate outputs, govern access, and retain human oversight for consequential decisions. GenAI does not automatically improve model accuracy or replace experienced data scientists.

Make the handoff from model output to approved business action faster, clearer, and more reliable.

GenAI accelerates the analytical lifecycle

1 BUILD
Code, prepare and test

2 EXPLAIN
Interpret models and scenarios

3 OPERATE
Integrate, govern and monitor

FROM INTELLIGENCE TO ACTION

06 What This Could Look Like: From Forecasting to Financial Value

A hypothetical manufacturer or distributor manages thousands of products across multiple facilities and distribution centers. Inaccurate demand forecasts create excess inventory, stockouts, expedited transportation, and inconsistent planning decisions.

Combine forecasting and optimization with GenAI and governed automation to connect quantitative intelligence to business action:

WORKFLOW	HOW THE CAPABILITIES WORK TOGETHER
01 Predict	Machine learning models forecast demand by product, location, and time period.
02 Optimize	Optimization engines evaluate inventory allocation, production capacity, transportation alternatives, and service-level constraints.
03 Explain	GenAI translates model outputs into clear business narratives, highlighting demand changes, risks, trade-offs, and recommended actions.
04 Simulate	Planners ask, "What happens if demand increases 15% in the Northeast?" The system invokes forecasting and optimization to evaluate alternatives.
05 Execute	Within defined controls, approved workflows generate planning recommendations, update relevant systems, and track results.

Financial value comes from better inventory positioning, less expediting, fewer stockouts, improved working capital, and better decisions - beyond the generated explanation alone.

The connected decision loop

PREDICT - OPTIMIZE - EXPLAIN - SIMULATE - EXECUTE

AN ILLUSTRATIVE BUSINESS CASE | NOT A CLIENT RESULT

Illustrative financial impact

$3.9 million
Potential annual operating savings

$10 million
Potential working capital release

The business baseline

$1 billion annual revenue | $200 million average inventory | $80 million routine transportation spend, excluding expediting.

ILLUSTRATIVE IMPROVEMENT	POTENTIAL BENEFIT
5% reduction in average inventory	**$10 million working capital released**
3% reduction in routine transportation spending	**$2.4 million annual savings**
Separate expediting and operating cost reductions	**$1.5 million annual savings**

Track separately: Recurring operating savings and the release of cash tied up in inventory.

No double counting: The $1.5 million comes from expediting and non-transport operating cost accounts excluded from the $80 million transportation baseline. The $2.4 million applies only to routine freight; each saving is counted once.

Illustrative gross benefits: Deduct implementation and ongoing costs, validate the assumptions with Finance, and account for the cost of capital before committing to a net return.

Annual operating savings: illustrative composition



$3.9 million annual savings | $10 million working capital released separately

Hypothetical gross benefits before implementation and ongoing costs.

MEASURE THE OUTCOME

07 Stop Measuring Every AI Investment the Same Way

Match the measures to the value

Different AI investments require different measures. Evaluate each against its intended business outcome.

Productivity-oriented GenAI: Track adoption, time savings, output quality, throughput, and how the capacity created is actually used.

Predictive analytics and optimization: Track decision accuracy, operational improvement, costs, revenue, margin, and risk outcomes.

Integrated AI workflows: Track end-to-end process performance, decision quality, cycle time, adoption, and financial impact.

Strengthen accountability: put AI value into the business plan

Build benefits into forecasts. Incorporate agreed revenue, cost, margin, capacity, and cash-flow benefits into the relevant financial forecasts and operating plans, with explicit assumptions and timing. Separate recurring P&L improvements from working-capital release.

Set clear expectations. Establish a baseline, measurable targets, delivery milestones, and a credible view of what would happen without AI. Track realized results against the forecast and explain variances; time saved becomes a financial benefit only when capacity is put to productive use or spending changes.

Name the owners. Assign a business outcome owner accountable for benefits, a delivery owner for implementation and adoption, and a finance partner to validate results. Give each a defined review cadence and responsibility for corrective action.

Make AI value a business commitment: build it into forecasts, set clear expectations, name the owners, and hold them accountable for realized results.

Make accountability part of delivery



FORECAST
Build benefits into the plan

EXPECTATIONS
Set targets and review variances

OWNERS
Assign business, delivery and finance roles

LEADERSHIP PRIORITIES

08 What Leaders Should Do Differently

I would encourage leaders to challenge several assumptions in their current AI strategies.

01 **First, stop treating AI strategy as synonymous with GenAI strategy.**
An effective AI portfolio should consider predictive analytics, machine learning, optimization, GenAI, and agentic capabilities based on the business problem being solved.

02 **Second, look for untapped value in existing analytical investments.**
Many organizations already possess models, data science expertise, and optimization capabilities that could generate greater returns with improved accessibility, integration, automation, and adoption.

03 **Third, use GenAI to accelerate established disciplines.**
Reducing the time required to develop, deploy, explain, and operationalize advanced analytics may create more value than launching another disconnected assistant.

04 **Fourth, prioritize decisions and workflows - not just use cases.**
Start with the business decisions that influence revenue, costs, margin, risk, and customer outcomes. Then determine which combination of technologies can improve those decisions.

05 **Fifth, build financial accountability into the portfolio.**
Distinguish potential benefits from realized results. Establish baselines, assign business ownership, and track financial outcomes alongside adoption and productivity.

06 **Sixth, look beyond claims of faster task completion.**
Productivity gains only matter when they convert into business results. Critically assess how GenAI productivity gains translate into measurable business outcomes and realized value - increased throughput, reduced spending, faster delivery, improved quality, or growth without proportional increases in resources.

07 **Finally, invest in the people and capabilities needed to make AI work.**
Technology alone does not create sustainable transformation. Data quality, governance, analytical literacy, business engagement, process redesign, and change management remain essential.

A practical leadership agenda

1 PORTFOLIO	2 WORKFLOWS	3 ACCOUNTABILITY
Choose the right capabilities	Redesign decisions and action	Own adoption and financial results

THE NEXT CHAPTER

09 The Next Chapter of AI Value

Turn the investment discussion into a business commitment

Start with a consequential decision, define the improvement, and choose the capabilities that can deliver it. Success is a better business outcome with a named owner and a credible measurement plan.

Your next AI investment should start with a business decision worth improving and a clear plan to capture its value.

DATA BUSTING ANALYTICS

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Turn AI opportunity into measurable business value.

I help leadership teams turn opportunities into an actionable investment and delivery plan:

1. Prioritize three decisions or workflows. Focus on revenue, margin, cost, risk, or working capital.

2. Build the value case. Establish baselines, quantify benefits and costs, and assign business and finance owners.

3. Define a 90-day action roadmap. Set delivery milestones, adoption expectations, and reviews against the forecast.

Start a conversation at DataBustingAnalytics.com/contact

SOURCES AND RESEARCH

Source Notes & Research

[1] McKinsey & Company. Redefining procurement performance in the era of agentic AI. An aircraft original equipment manufacturer used autonomous agents to optimize procurement and inventory, cutting active inventory by 30% and lifting EBIT by roughly $700 million.

[2] Brynjolfsson, Li & Raymond. Generative AI at Work, The Quarterly Journal of Economics, Vol. 140, Issue 2 (2025). Access to a GenAI assistant increased issues resolved per hour by approximately 15% on average among 5,179 support agents; effects varied by experience.

[3] McKinsey. The State of AI in 2025: Agents, Innovation, and Transformation (November 2025). Self-reported enterprise EBIT impact covers AI broadly; it does not isolate GenAI or establish causality.

[4] IBM (2019). IBM Unveils New Data Prep Tool Designed to Help Speed DataOps. The announcement cites up to 80% of data scientists' time on preparation; this is an industry estimate.

[5] BCG (2025). The Widening AI Value Gap, Exhibit 5. Respondents attributed 45% of AI value to predictive AI, 38% to generative AI, and 17% to agentic AI. These are self-reported allocations, not audited economy-wide returns.

[6] McKinsey (2023). The Economic Potential of Generative AI: The Next Productivity Frontier. Nongenerative AI and analytics: $11-$17.7 trillion annually; GenAI: $2.6-$4.4 trillion of additional annual value across 63 use cases. These are estimates of economic potential.

[7] Anaconda (2025). 8th Annual State of Data Science & AI Report. Data quality and pipeline consistency issues derail 45% of AI scaling efforts; 22% of organizations have reached strategic scale. Open source

[8] Gartner (2025). Lack of AI-Ready Data Puts AI Projects at Risk. Gartner predicts that through 2026, organizations will abandon 60% of AI projects unsupported by AI-ready data. Open source

[9] IBM Institute for Business Value (2025). CEO study - CEOs Double Down on AI While Navigating Enterprise Hurdles. Only 25% of AI initiatives delivered expected ROI over the past three years; 16% have scaled enterprise-wide. Open source

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