



The Age of Autonomous Intelligence

Part II: AI, Hype, and the Long Road to Real Profits



Kevin Hebner, PhD
Managing Director,
Global Investment Strategist,
TD Epoch

Technological revolutions rarely unfold the way we expect. In hindsight they appear sudden and inevitable. In real time they are slow, expensive, and filled with experimentation, setbacks, and periods of doubt. Artificial intelligence (AI) is no exception.

This three-part series from our Fundamental Equities and Asset Allocation teams examines why the current AI moment may differ from prior waves of innovation, how those differences could shape labour markets and corporate outcomes, and why investors may need a longer time horizon than today's headlines imply.

In Part II, we turn from disruption to delivery. When will AI meaningfully lift productivity? How quickly can impressive demonstrations become dependable, scalable systems? And what does history tell us about the long, uneven path from breakthrough technology to durable profits?

AI feels like it arrived overnight. One moment it was a niche research topic; the next, it was writing emails, generating images and unsettling anyone whose job involves a keyboard. Since the public release of ChatGPT in late 2022, the headlines have been relentless. AI, we're told, is the most important invention in human history. More profound than electricity. Bigger than fire¹.



Investors have listened. Corporate spending on AI-related infrastructure has surged, with hundreds of billions of dollars flowing into data centres, semiconductors, and software. Markets have rewarded the companies at the centre of this spending boom, and expectations for faster productivity growth and soaring profits have become widespread.

But there's a quieter, more sobering question lurking beneath the excitement: *when do the economic benefits actually arrive?* History suggests the answer is almost never "right away."

This is not an argument against AI. Quite the opposite. AI is likely to be one of the defining technologies of this century. But if the past is any guide, it will take far longer than most investors expect for today's breathtaking demos to translate into broad productivity gains and sustained profit growth. Technology revolutions don't arrive on a schedule. They tend to unfold slowly, unevenly, and often in ways no one predicts.

Invention

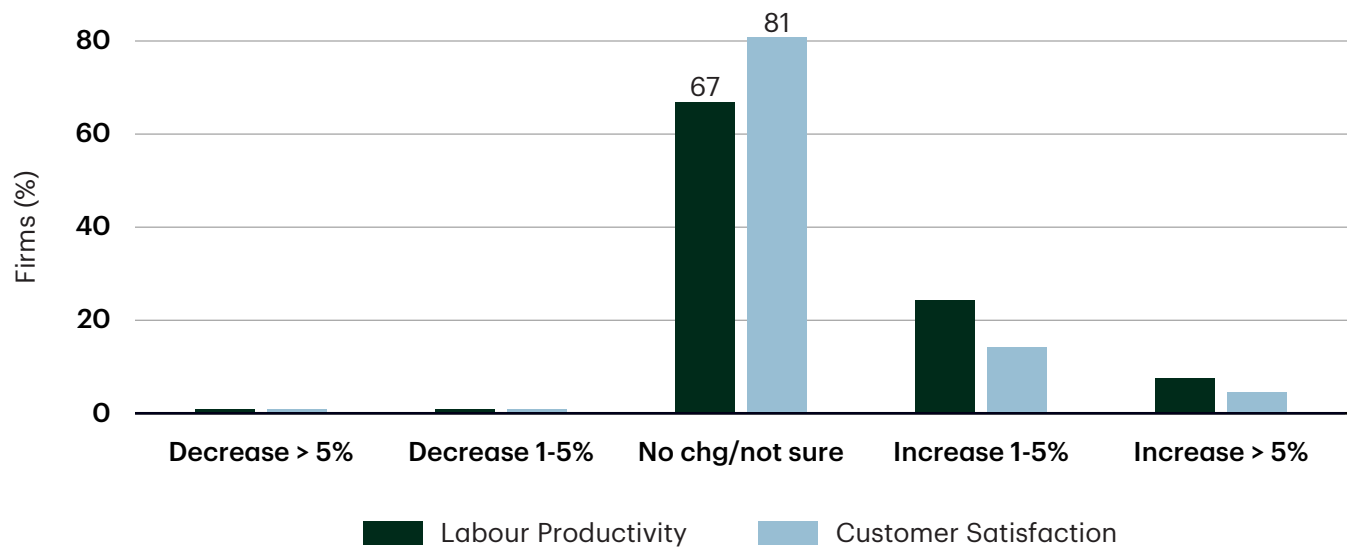
The Gap Between Experimentation and Impact

At first glance, AI appears to be everywhere. Companies talk about it constantly, product launches are frequent, and pilot projects abound. Look closer, however, and a familiar pattern emerges. Most firms using AI today are still experimenting rather than transforming. They are testing tools, running pilots, and exploring potential applications, but very few are seeing meaningful financial returns^{2,3}. AI systems often tend to fail to integrate smoothly into existing workflows. Employees require training. Processes must be redesigned. Data needs to be cleaned and structured. These frictions can slow everything down.

This gap between experimentation and impact may not be unusual. Early versions of major technologies are often impressive but unreliable, powerful but awkward. Turning a clever demonstration into something that consistently saves time, lowers costs, or boost revenues across an entire organization can be far harder than it looks.

For investors, this distinction matters. Markets tend to price future success well before it arrives, and expectations can race ahead of economic reality, even when the long-term story is fundamentally sound.

Over the last 12 months, how has your firm’s use of AI affected productivity and customer satisfaction?



Source: CFO Survey, Duke University, Richmond Fed, Atlanta Fed, Dec 2025.

Productivity

Productivity: The Most Stubborn Number in Economics

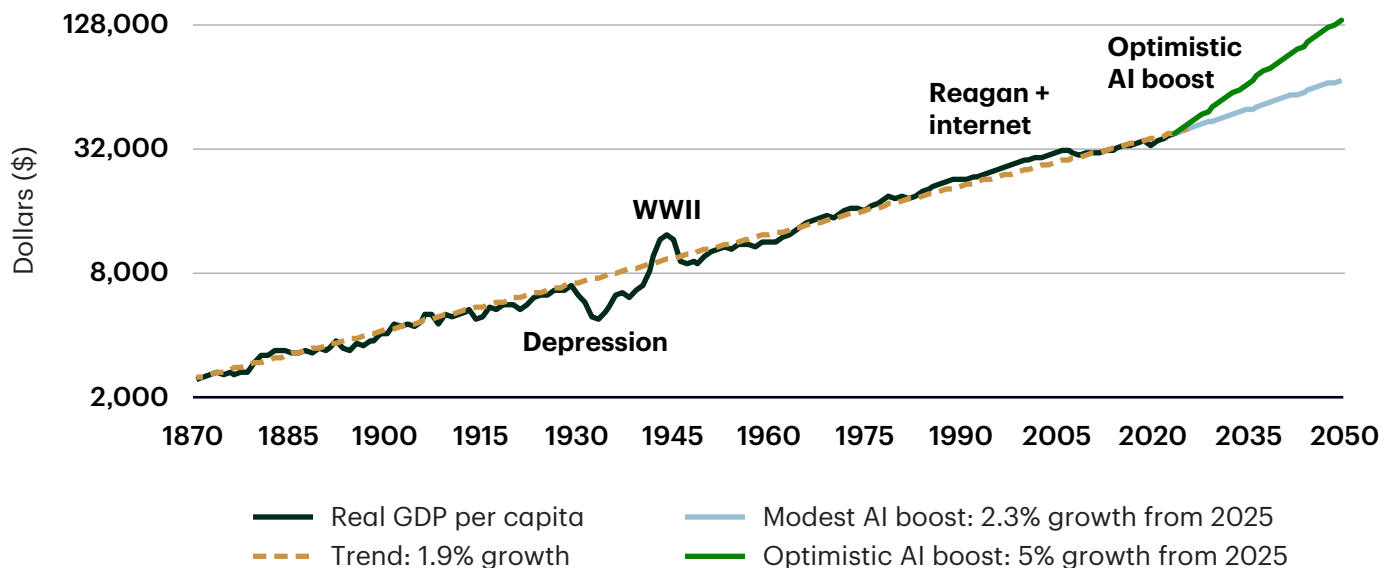
Much of the enthusiasm around AI rests on a simple idea: smarter machines should make workers more productive, and higher productivity should lead to faster economic growth and higher corporate profits. That logic is reasonable. The timeline is not.

Over the past 150 years, productivity growth in advanced economies has averaged just under 2% per year⁴. This long stretch includes the spread of electricity, the automobile, modern medicine, computers, and the internet. There were brief accelerations and occasional slowdowns, but nothing close to the explosive growth some AI optimists are predicting today.

This does not mean AI will fail to move the needle. Even a modest increase in productivity growth, sustained over many years, can generate enormous wealth. A few tenths of a percentage point compounded over a decade would be transformative. The key point is that history argues for **incremental gains, not an overnight miracle**.

The risk for investors isn't skepticism about AI's ultimate importance. It's assuming a speed and scale of impact that has little historical precedent.

Impact of AI on productivity: how large, how soon? The long term trend for real growth is 1.9%



Source: Federal Reserve Bank of Dallas, TD Epoch.
<https://www.dallasfed.org/research/economics/2025/0624>

Every Technology Revolution Takes Time

If AI feels unprecedented, it's worth remembering that every major technology once did. Electricity offers a useful example. The science was understood in the early 19th century. The light bulb appeared decades later. Yet it wasn't until the 1920s that most homes were electrified. Entire industries had to be built along the way: power generation, transmission, wiring standards, appliances, and safety systems. Factories were redesigned. Workers learned new skills. Productivity gains arrived, but only after a long, uneven transition⁵.

The internet followed a similar arc. Its foundations date back to the 1960s. The World Wide Web didn't arrive until the 1990s. The most valuable internet businesses, search, social media, streaming and cloud computing emerged years later. Many early leaders disappeared entirely.

Seen in this context, AI today looks very early. If ChatGPT is analogous to the first popular web browser, we may still be in the equivalent of the late 1990s, long before today's dominant platforms even existed.

Automation Is Powerful, and Slow

At its core, AI is part of a much older story: automation. For centuries, economic progress has come from shifting tasks from human labor to machines. This process has made societies richer and more productive.

But automation rarely happens quickly. Machines and humans are not perfect substitutes for one another. New technologies require human oversight, training, maintenance, and adaptation before their benefits can be fully realized⁶. Economists have long observed that this substitution unfolds gradually, constrained by bottlenecks, coordination challenges, and organizational inertia.

AI is no exception. While it excels at certain tasks, writing code, summarizing documents, analyzing data, it still appears to struggle in other aspects that humans find effortless, such as contextual judgment or real-world interaction. As a result, AI tends to complement workers before it replaces them, limiting the pace of productivity gains.

This Time is Different

The current tech cycle differs in important ways from past bubbles, particularly the late-1990s internet boom. Five key differences that stand out are:

- **The companies driving today's AI investment are extremely profitable.** Unlike many dot-com firms, today's hyperscalers generate substantial cash flow from existing businesses.
- **There has been relatively little debt or equity issuance.** The current buildout is largely being funded internally rather than through aggressive capital raising.
- **Valuations are elevated, but not extreme by historical standards.** They are stretched, not euphoric.
- **Infrastructure demand is real and immediate.** In the late 1990s, vast amounts of "dark fiber" were built well ahead of demand. Today, demand for GPUs, data centres, and power infrastructure is tangible and growing.
- **AI sits at the center of a global superpower race.** AI underpins economic strength, technological leadership, and military capability, giving governments strong incentives to sustain investment.

Why Reliability Matters More Than Flash

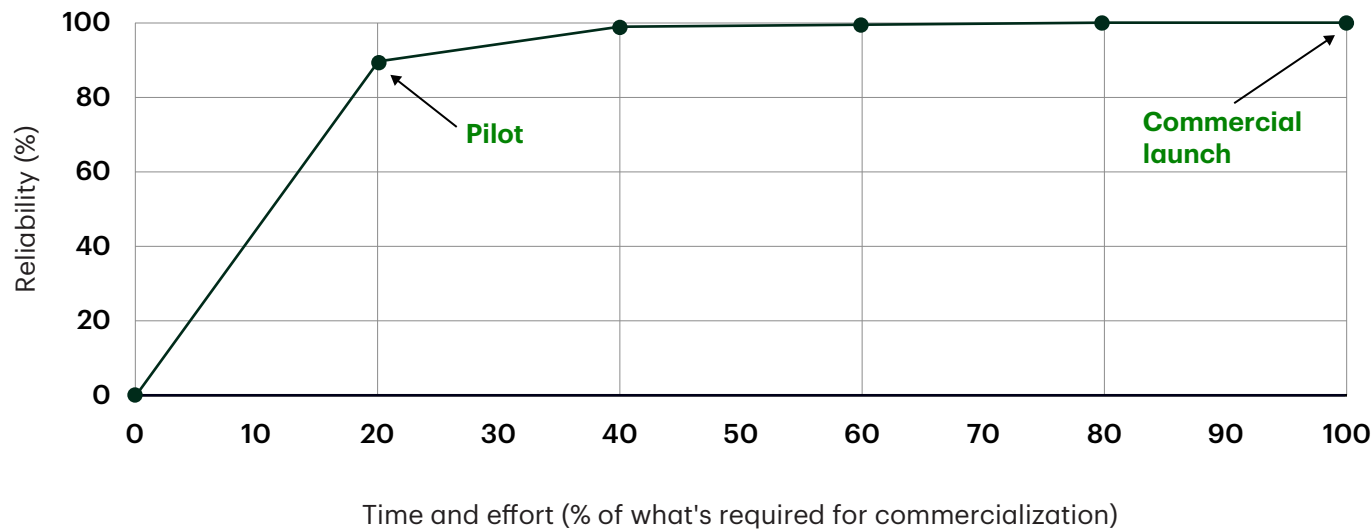
Another reason AI progress feels faster than it really is, comes down to reliability. Early versions of new technologies often work impressively some of the time. For low-stakes tasks, that can be good enough. For most business-critical or safety-critical applications, it isn't.

An AI system that gets things right 90% of the time sounds impressive, until the remaining errors create more work than they save. For many real-world uses,

acceptable error rates appear to be closer to near perfection. Achieving that level of reliability is vastly harder than reaching "pretty good."

This helps explain why technologies such as autonomous vehicles, robotics, and medical AI have progressed more slowly than early optimism suggested. The final stretch from promising to dependable is often the longest and most expensive^{7,8}.

March of nines – 90% reliability (pilot launch) gets you 20% of the way to a successful commercial product



For illustrative purposes only.

Reliability

What This Means for Investors

For investors, the lesson is not to avoid AI, but to approach it with discipline, diversification, and a sense of historical perspective.

1

First, while AI-related capital spending remains enormous, the pace of growth seems unlikely to remain as torrid as it has been over the past few years. History suggests that once investors recognize productivity and profit, gains may arrive more gradually than initially hoped, spending tends to settle onto a more sustainable trajectory. That does not mean investment collapses, only that it matures. Railways, electricity, automobiles, and the internet all followed this pattern, and AI appears unlikely to be an exception.

2

Second, today's environment favours quality technology companies over speculative ventures. By quality, we mean firms with established user bases, durable business models, and the ability to generate sustainable free cash flow. These companies can be better positioned to absorb heavy upfront investment, iterate through setbacks, and ultimately scale successful AI applications. In contrast, history shows that many early-stage startups—despite compelling ideas tend to struggle to survive the long journey from innovation to profitability.

3

Third, diversification matters more than ever. While we remain constructive on U.S. equities, many portfolios are heavily concentrated in a narrow slice of U.S. technology. The AI buildout extends well beyond software and mega-cap tech firms. It is also driving demand for infrastructure, including data centres, power generation, transmission networks, and cooling systems, as well as commodities such as copper, aluminum, and energy, inputs essential to electrification and computing capacity. Broadening exposure across regions and sectors can help investors participate in the AI theme while managing concentration risk.

4

Finally, AI is likely to accelerate creative destruction and intensify the innovator's dilemma. Every major technology revolution reshapes corporate leadership, often more dramatically than investors expect. Companies that dominate today can struggle to adapt, while new challengers can emerge in unexpected places. History strongly suggests that the list of market leaders a decade from now may look very different from today's. For investors, this underscores the importance of flexibility, diversification, and a willingness to reassess long-held assumptions.

Taken together, these implications point to a familiar conclusion: transformative technologies reward patience, quality, and balance, not just enthusiasm. AI's impact can be profound, but the path from promise to payoff may be long and uneven, just as it has been for every major technological shift before it.

Perspective

The Long View

AI's influence on the economy is expected to be significant. But if history is a guide, the benefits are likely to arrive gradually, shaped by adoption curves, organizational change, and the hard work of making systems reliable at scale.

For investors, that raises the next and perhaps most important question: who ultimately captures the value? Will gains accrue primarily to technology providers, to businesses that successfully apply AI, or to workers and consumers? And how might competition, regulation, and geopolitics redistribute those rewards?

In Part III, we turn to the governance and ESG implications of the AI revolution, examining how regulation, corporate responsibility, and institutional frameworks will shape who ultimately captures value, and at what cost. ■



¹ Sam Altman, public remarks on artificial intelligence and investor expectations, 2025

² McKinsey Global Institute, The State of AI in Enterprise.

³ MIT Sloan Management Review, Why AI Pilots Fail.

⁴ Federal Reserve Bank of Dallas, long-term U.S. productivity growth data.

⁵ Historical academic and industry research on electricity, automobiles, computers, and the internet.

⁶ Jones, C., et al. (Stanford University), Past Automation and Future AI: How Weak Links Tame the Growth Explosion.

⁷ Morgan Stanley Research, Robotics and Automation Outlook.

⁸ Academic and industry research on AI reliability standards in autonomous vehicles, robotics, and medical imaging.

The information contained herein is for information purposes only. The information has been drawn from sources believed to be reliable. Graphs and charts are used for illustrative purposes only and do not reflect future values or future performance of any investment. The information does not provide financial, legal, tax, accounting or investment advice. Particular investment, tax or trading strategies should be evaluated relative to each individual's objectives and risk tolerance. This material is not an offer to any person in any jurisdiction where unlawful or unauthorized. These materials have not been reviewed by and are not registered with any securities or other regulatory authority in jurisdictions where we operate. Any general discussion or opinions contained within these materials regarding securities or market conditions represent our view or the view of the source cited. Unless otherwise indicated, such view is as of the date noted and is subject to change. Information about the portfolio holdings, asset allocation or diversification is historical and is subject to change. This document may contain forward-looking statements ("FLS"). FLS reflect current expectations and projections about future events and/or outcomes based on data currently available. Such expectations and projections may be incorrect in the future as events which were not anticipated or considered in their formulation may occur and lead to results that differ materially from those expressed or implied. FLS are not guarantees of future performance and reliance on FLS should be avoided.

TD Global Investment Solutions represents TD Asset Management Inc. ("TDAM") and Epoch Investment Partners, Inc. ("TD Epoch"). TDAM operates in Canada and TD Epoch operates in the U.S. Both entities are affiliates and wholly-owned subsidiaries of The Toronto-Dominion Bank. TDAM and TD Epoch products are also available through a network of affiliated and unaffiliated distributors. Please contact our distribution partners to find out more. ®The TD logo and other TD trademarks are the property of The Toronto-Dominion Bank or its subsidiaries.

®The TD logo and other TD trademarks are the property of The Toronto-Dominion Bank or its subsidiaries.