

# CURRENT ARTIFICIAL INTELLIGENCE (AI) ADVANCEMENTS ARE RAPIDLY INCREASING INVESTMENT AND SIGNIFICANT TO GDP GROWTH

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DOI: <https://doi.org/10.5281/zenodo.21208386>

## ABSTRACT

*Artificial Intelligence (AI) advancements are driving a massive, global investment boom in infrastructure such as data centers, semiconductors, and specialized software which is significantly contributing to GDP growth unlike the task-based model of automation that has been applied to previous technologies. Artificial intelligence has similar scale advantages and may be an important driver of the superstar firms phenomenon. These support the hypothesis that intangible assets propel growth and global economic system the purpose of investment of the largest firms and industry contribute to increased industry concentration. Its share of artificial intelligence jobs is highest in the technology sector, but the rate of increase in artificial intelligence investments over time is similar across sectors. At the firm level, to achieve growth in artificial intelligence investments is more pronounced among ex ante larger firms and firms with higher cash holdings. Looking at the local labor market conditions, we observe that higher-wage and more educated areas experience faster growth. Our analysis suggests that the recent investments in artificial intelligence-related categories have contributed significantly to the real GDP growth in 2025. It has surpassed the contribution of income tax components to the real GDP growth made during the dot-com boom, both in levels and as a share of GDP capital investment perspective, we examined the near-term boost to growth from increased investment in research and development, infrastructure, software creation and company adoption. It highlights of the organizations that have successfully launched at least one artificial intelligence initiative anticipate that artificial intelligence will revolutionize their entire business and operational models.*

**KEYWORDS:** Strategic Economic Level, Dynamic Investment, Business Process, GDP Growth, Technological Aspect, Global Economic Growth

## Introduction

Artificial intelligence investment is not just a technological upgrade but a strategic economic level to redefine business models, markets, industries and the very fabric of the global economy. By dissecting the dynamics of artificial intelligence investment, we aim to unveil how it can propel economic activity, observed through the dual prisms of demand and supply. Artificial intelligence applications are revolutionizing traditional business processes, enhancing customer experiences and opening new revenue streams. These investments are not merely about automating routine tasks but are also about leveraging artificial intelligence to uncover insights, predict trends, and create more personalized and efficient services. This alignment helps ensure that several previous technologies have displayed labor effects consistent with task-

based models of automation artificial intelligence initiatives directly contribute to the company's strategic priorities, whether it's improving customer experience, optimizing operational efficiency or driving innovation.

## Dynamic Relationship Between Firm Artificial Intelligence Investments and Firm Growth

The artificial intelligence investments are associated with increased industry concentration; consistent with our finding that artificial intelligence favors ex-ante larger firms with more data. Micro-level evidence and helps to unpack the black box of where "new projects" and investment opportunities come from: new technologies like artificial intelligence, which allow firms to learn better and faster, can expand the investment opportunity frontier by decreasing firms' product development costs. The ability to perform better predictions with artificial intelligence can create

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new business opportunities.

Second, economists have argued that artificial intelligence is a general purpose technology (GPT) and can be leveraged across different business segments and sectors to solve a wide range of business problems. Examples of GPT include the steam engine, electricity, and the Internet.

These scatter plots suggest that higher intellectual outputs and well-defined strategic scores are not singular predictors of GDP growth. The apparent lack of a strong correlation in any of the metrics with GDP growth across advanced and other economies indicates the complex nature of economic development. Economic growth is likely influenced by a multifaceted array of factors including, but not limited to, economic policy, quality of governance, global economic conditions, and perhaps qualitative aspects of these intellectual and strategic outputs rather than their quantitative measures investments in artificial intelligence center around human expertise, with complementary investments in computing technology and data infrastructure. This differs from technologies that require mainly capital investments, such as industrial robots. This suggests that artificial intelligence investments can affect industry dynamics by reinforcing winner-take-most dynamics.

Cumulative Artificial Intelligence Investment Commitments

- Renewable Energy & Green Hydrogen
- Fitch Market is One of the Fastest-Growing Globally
- High-Growth Sectors
- Private Equity in Infrastructure
- Project Realization
- Sustainable Development
- Product Innovation
- Process Innovation and Reduction Cost

### **Product Innovation in Advance Technological Aspect**

The highlight that new technologies like artificial intelligence can contribute to growth and superstar firms through product innovation to the creation and introduction of a product or service that is new to the market or a substantial and novel iteration of an existing product challenge by proposing a new data-driven approach to identify artificial intelligence-related jobs, artificial intelligence can potentially affect product innovation in several ways. Product innovation refers to changes that improve design, materials,

feel, look, capacity, functionality, and overall user experience. The ability of artificial intelligence algorithms to quickly analyze large datasets and learn about the underlying relationships from data can potentially reduce the uncertainty of experimentation and make the learning process more efficient, which leads to more experimentation and creation of new products which does not depend on pre-specified lists of keywords.

The economic function through which new technologies are introduced into production and consumption. It entails recognizing new technological possibilities, organizing the human and financial resources needed to transform them into useful products and processes, and sustaining the requisite activities. It is important because technological advances have played a key role in facilitating radically improved standards of living. Therefore it is responsive to changes in demand and supply conditions. Instead, our algorithm learns the artificial intelligence-relatedness of each job empirically from the detailed skills of the job postings.

### **Product innovation has main categories are:**

- Incremental Changes of Existing Products
- Smart Expansion to New Markets
- Business Growth and Market Domination
- Improved Product Quality and Advance Technology
- Development of New Product Features
- Market Demand and Requirements

### **The Challenges of Global Economic Growth in Artificial Intelligence**

There are at least three fundamental blessings of globalization on nations that embrace it: faster economic growth, reductions in poverty, and more fertile soil for democracy the greatest beneficiaries of globalization are the long-suffering consumers in those nations that had been "protected" from global competition. This theory highlights the importance of adoption rates, which network effects, the regulatory environment, and the existing technological infrastructure can influence. The faster and more widely artificial intelligence is adopted, the greater its impact on economic productivity and growth.

The greatest beneficiaries of globalization are the long-suffering consumers in those nations that had been "protected" from global competition. Globalization expands the range of choice, improves product quality, and exerts downward pressure on prices. It delivers an immediate gain to workers by

raising the real value of their wages. Globalization expands the range of choice, improves product quality, and exerts downward pressure on prices and climate change.

The innovation impacts economic growth by providing multiple lenses to view this relationship. Schumpeterian and endogenous growth theories emphasize the transformative potential of artificial intelligence on economic structures and the importance of ongoing innovation. The rapid pace of technological advancement may outstrip the ability of regulatory frameworks to keep pace, leading to uncertainty and instability in financial markets. Furthermore, the concentration of artificial intelligence capabilities within a few dominant tech companies may create monopolistic practices and stifle competition. The policy makers must address these issues to ensure a level playing field and promote a healthy, competitive market environment. To fulfillment harness the benefits of artificial intelligence while addressing its challenges, a balanced approach is required. Policymakers, businesses and educational institutions must collaborate to develop strategies that support economic growth.

### **Artificial Intelligence Investments From Job Postings**

This is especially relevant in a quickly-evolving domain such as artificial intelligence, where new emerging skills can easily be missed. Our methodology circumvents these challenges by learning the artificial intelligence-relatedness of each of approximately 15,000 unique skills directly from the job postings data, based on their empirical co-occurrence.

The technology diffusion and innovation systems theories stress the importance of broad and effective adoption and supportive policies and interactions within the ecosystem. Examining artificial intelligence innovation through these theoretical frameworks allows for a comprehensive analysis of its economic impacts, guiding policymakers and business leaders in harnessing artificial intelligence potential for sustainable growth.

Key challenges include persistent inflation, demographic shifts, reduced productivity, and intense geopolitical fragmentation. These factors, alongside limited fiscal space, threaten to lock many economies into a lower-growth, inequitable, and unsustainable path. It delivers an immediate gain to workers by raising the real value of their wages. It transfers wealth from formerly protected producers to newly liberated consumers, with the gains to consumers exceeding the loss to producers

because the deadweight losses to the economy are recaptured through:

- Geopolitical Fragmentation and Trade Related
- Structural Slowdown and Low Productivity
- High Debt and Financial Vulnerability
- Structural Slowdown and Low Consumption
- Inflation and Monetary Policy

### **Conclusion**

The most important new technologies of the last decade artificial intelligence we introduce a novel measure of investments in artificial intelligence technologies at the firm level using two detailed datasets on human capital. Which reveal the actual composition of each firm's workforce, and job postings from Burning Glass Technologies, which indicate each firm's demand for particular skills? Artificial intelligence innovations catalyze economic expansion by introducing new efficiencies and capabilities, which are fundamental for boosting productivity and economic outputs. The positive correlations between artificial intelligence-related variables such as scholarly publications on artificial intelligence, patent applications, patents per million people, and national artificial intelligence strategies with GDP growth substantiate this hypothesis. These variables signify not only the generation of new technological knowledge but also the application and integration of this knowledge into the economy. Our unique measure allows us to examine both the determinants and the consequences of artificial intelligence investments by firms across a wide range of sectors.

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