

The Impact of Artificial Intelligence Technologies on The Efficiency of Investment Analysis in the Context of the Digital Economy

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Abstract: This paper investigates the theoretical and analytical impact of artificial intelligence (AI) technologies on the investment analysis process in the context of the digital economy. The study examines the role of AI in financial analysis, risk assessment, and investment decision-making. It highlights the practical application of data-driven decision-making, automated forecasting models, and algorithmic investment systems to improve economic efficiency. The findings suggest that AI facilitates more accurate, faster, and objective investment analysis, enhancing the overall performance and competitiveness of financial decision-making.

Key words: digital economy, artificial intelligence, investment analysis, algorithmic modeling, economic efficiency, FinTech, data analytics



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INTRODUCTION

Introduction. Investment analysis involves directing economic resources to the most efficient channels, evaluating capital returns, and minimizing associated risks. Traditional approaches relied heavily on human judgment, often resulting in subjective decisions and inaccurate forecasts.

Artificial intelligence introduces a new level of objectivity, speed, and precision to investment analysis. Technologies such as machine learning, deep learning, natural language processing (NLP), and big data analytics are creating a paradigm shift in this field. Companies can now monitor corporate activities, market dynamics, and macroeconomic indicators in real time, automatically integrating these insights into predictive models.

For instance, predictive models based on artificial neural networks can identify trends in stock prices, assess credit risks, manage liquidity, and optimize investment portfolios. This results in higher efficiency and lower risk for investors.

Applications of AI in Investment Analysis. AI technologies are actively applied at multiple stages of economic and investment analysis:

1. **Forecasting Systems:** Deep learning algorithms enable accurate predictions of market prices, asset trends, and financial indicators. Companies like Tesla and Amazon have implemented AI-based models to forecast market value.
2. **Algorithmic Trading:** AI-driven trading systems automatically execute investment decisions using real-time data, detecting trade signals and performing transactions without human intervention. This allows rapid response to market fluctuations.
3. **Risk Modeling:** AI technologies provide high-precision models for assessing credit, liquidity, interest rate, and currency risks. Financial institutions use these models to increase portfolio stability.
4. **Natural Language Processing (NLP):** NLP enables automated analysis of company reports, news articles, economic reviews, and social media, providing investors with actionable insights.

AI implementation in investment analysis can be represented as a sequential model:

1. **Data Collection:** Gathering large datasets from companies, banks, stock exchanges, and international financial institutions.
2. **Analysis and Processing:** Using machine learning models to detect economic trends and risk factors.
3. **Forecasting:** Evaluating investment profitability and risk-return ratios via AI algorithms.
4. **Decision-Making:** AI-based systems propose optimal investment options.

This model reduces human bias, increases accuracy and speed, minimizes errors, enhances adaptability to market changes, and improves the quality of economic decisions.

Despite its advantages, AI integration faces several challenges:

- **Data Quality and Completeness:** Incomplete or inaccurate data reduces model reliability.
- **Interpretability:** Complex neural networks often make AI outputs difficult to interpret for analysts.
- **Infrastructure and Expertise:** In some developing countries, underdeveloped digital infrastructure and lack of skilled personnel slow implementation.

In the digital economy, AI technologies are crucial for improving economic efficiency. They allow for:

- Optimal resource utilization
- Increased labor productivity
- Automation of bureaucratic processes
- Promotion of data-driven decision-making culture

Consequently, economic policy becomes more scientifically grounded. AI is expected to transform investment analysis not only technologically but also as a strategic management tool. Rapid, objective, and analytical decision-making is central to the success of the digital economy.

Conclusion. The integration of AI technologies into economic analysis and investment management elevates financial decision-making to a new qualitative level. AI enables rapid data processing, risk forecasting, decision optimization, and improved economic efficiency.

For successful implementation, it is necessary to:

- Develop robust digital infrastructure
- Enhance digital literacy of economic specialists
- Ensure data security

Ultimately, AI transforms investment analysis from intuition- and experience-based decisions to scientifically grounded, automated, and digitally resilient systems. This improves investment efficiency, strengthens economic competitiveness, and lays the foundation for innovation-driven growth.

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