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ARTIFICIAL INTELLIGENCE IN THE FINANCIAL SECTOR AS A DRIVER OF INNOVATION AND STRUCTURAL INEQUALITY

The rapid technological transformation unfolding in the global financial sector has multidimensional implications [1]. Asset management firms, banks, investment companies, and other institutional actors are increasingly integrating artificial intelligence into their analytical, operational, and strategic processes. These technologies transform traditional models of data processing, portfolio construction, risk assessment, and decision-making. At the same time, the rise of artificial intelligence generates new forms of structural and digital inequality. Understanding both the innovative potential and the uneven distribution of technological benefits is essential for evaluating the long-term dynamics of the financial system [2; 3].

Contemporary artificial intelligence systems demonstrate the ability to handle information at a scale and speed unattainable for human analysts. Financial institutions can analyze vast volumes of structured and unstructured data, including market signals, macroeconomic indicators, corporate reports, media content, and sentiment measures. This enables a deeper and more dynamic understanding of market processes and facilitates the early detection of emerging trends. In asset management, such capabilities play a decisive role in portfolio optimization, forecasting accuracy, and timely responses to market movements.

A central area of application is the due diligence procedure, which traditionally requires extensive manual work and multidimensional evaluation. Artificial intelligence systems can process contracts, financial

statements, ownership structures, regulatory disclosures, and open-source information. They can identify inconsistencies, hidden risks, and anomalies that could otherwise remain unnoticed. This shortens decision-making cycles and increases the reliability of risk assessments. Automated systems do not suffer from fatigue or cognitive biases, which enhances the quality and consistency of analytical outcomes [1].

The growing importance of artificial intelligence highlights another strategic factor: the quality and availability of data. The performance of analytical models depends heavily on the size and representativeness of datasets. As a result, data becomes a key source of competitive advantage. Institutions capable of collecting, maintaining, and processing large datasets gain a significant edge over their competitors. The ability to invest in data infrastructure creates new barriers to entry and contributes to structural inequality between large institutions and smaller market participants.

Artificial intelligence also reshapes the logic of hypothesis formation in investment. Traditional analytical models relied on linear relationships and historically determined assumptions. In contrast, machine learning models identify complex patterns, nonlinear interactions, and high-dimensional structures that classical econometric methods cannot capture. These capabilities enable the construction of adaptive investment strategies that consider cross-asset interactions, behavioral dynamics, and global shocks. Artificial intelligence, therefore, transforms not only analytical tools but also the methodological foundations of financial research [1].

A major area of change concerns the distribution of financial products. Personalized AI-based systems can generate individual investment recommendations grounded in behavioral patterns, risk preferences, demographic characteristics, and historical behavior. Such systems modify the nature of the interaction between investors and financial institutions. They provide clients with access to analytical capabilities that were once limited to professional investors. This creates the appearance of democratization of financial services but simultaneously reveals deeper inequalities.

The paradox of technological progress lies in the fact that personalized services are available mainly to individuals with stable digital access and sufficient digital literacy [3]. Investors who lack these capabilities are excluded from technologically advanced services and are forced to rely on less flexible or less informed decisions. Digital inequality perpetuates disparities in access to information, analytical tools, and the capacity to understand financial recommendations [4]. As a result, technological innovation may unintentionally reinforce existing social and economic inequalities.

Digital inequality also manifests through the concentration of data. Collecting and maintaining high-quality datasets requires substantial investments that are inaccessible for smaller institutions. They must depend on external providers and platforms, which reduces their autonomy and limits their ability to develop proprietary analytical solutions. This increases dependence on technologically advanced institutions and strengthens structural asymmetry within the financial system.

Regulatory challenges emerge alongside these technological developments. Artificial intelligence models are often opaque and may reproduce biases present in the data used for training. Ensuring transparency, fairness, and accountability in algorithmic decisions becomes an urgent task for regulators. Developing standards for model validation, risk monitoring, and data governance is crucial for striking a balance between innovation and systemic stability. The interaction between technological evolution and regulatory adaptation will shape the future architecture of financial markets.

Human capital is another critical dimension. Artificial intelligence transforms professional roles within the financial sector. Analysts and portfolio managers must acquire new skills related to data science, model interpretation, and algorithmic oversight. Institutions that invest in such skills can integrate artificial intelligence more effectively and respond to emerging technological challenges. Those unable to make such investments risk losing competitiveness and operational efficiency.

Overall, the rise of artificial intelligence in the financial sector has a mixed effect. It accelerates innovation, enhances predictive accuracy, and increases efficiency across multiple dimensions. Yet it simultaneously generates structural challenges linked to unequal access to datasets, algorithms, technological infrastructure, and expertise. Structural inequality in the financial sector is therefore not a marginal outcome but a systemic consequence of technological transformation.

The long-term trajectory of the financial system will depend on the ability to combine the innovative potential of artificial intelligence with strategies aimed at mitigating digital and structural inequality. Effective integration of artificial intelligence requires ensuring equal access to digital resources, expanding digital literacy, developing open data platforms, and creating regulatory frameworks that guarantee transparency and fairness [5]. Only under these conditions can the financial sector achieve sustainable and balanced development in the digital era.

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