THE MIDDLE CLASS ADAPTATION TO ARTIFICIAL INTELLIGENCE TECHNOLOGIES: OPPORTUNITIES, CHALLENGES AND SOCIO-ECONOMIC IMPACTS

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Annotation*. This thesis examines the use of artificial intelligence (AI) technologies by the middle class and analyses their opportunities, challenges and socio-economic implications. The middle class is considered not only in terms of income, but also through employment, education, digital capacity, access to productive assets and participation in modern service and knowledge-based activities. The study argues that AI can strengthen the economic position of middle-class households by increasing individual productivity, supporting entrepreneurship, improving access to education and professional services, and reducing the cost of information-intensive tasks. At the same time, unequal access to digital infrastructure, differences in AI literacy, occupational restructuring, privacy risks, algorithmic bias and uncertainty over responsibility may produce new forms of inequality. The thesis uses a conceptual and policy-oriented analysis of recent international evidence and institutional recommendations. Particular attention is given to the distinction between task transformation and full job automation, because the consequences of AI depend on how technologies are introduced into workplaces. The study concludes that inclusive skills development, affordable digital infrastructure, responsible workplace implementation, data protection, human oversight and support for small businesses are essential for ensuring that AI contributes to broad-based socio-economic development.*

Keywords: artificial intelligence, middle class, generative AI, digital skills, productivity, labour market, inequality, SMEs, AI governance.

Аннотация. *В тезисе рассматривается использование технологий искусственного интеллекта (ИИ) средним классом и анализируются связанные с ним возможности, вызовы и социально-экономические последствия. Средний класс рассматривается не только с точки зрения уровня доходов, но и с учётом занятости, образования, цифровых*

возможностей, доступа к производственным ресурсам и участия в современных сервисных и интеллектуальных видах деятельности. Показано, что ИИ способен повышать индивидуальную производительность, поддерживать предпринимательство, расширять доступ к образованию и профессиональным услугам и снижать затраты на выполнение информационно насыщенных задач. Вместе с тем различия в доступе к цифровой инфраструктуре и навыкам работы с ИИ, трансформация профессий, риски для конфиденциальности, алгоритмическая предвзятость и неопределённость ответственности могут усиливать социально-экономическое неравенство. Исследование основано на концептуальном и политико-ориентированном анализе международных источников. Обосновывается необходимость инклюзивного развития навыков, доступной цифровой инфраструктуры, ответственного внедрения ИИ на рабочих местах, защиты данных и человеческого контроля.

Ключевые слова: *искусственный интеллект, средний класс, генеративный ИИ, цифровые навыки, производительность, рынок труда, неравенство, малый бизнес, управление ИИ.*

INTRODUCTION

Artificial intelligence is increasingly becoming a general-purpose technology affecting how people work, learn, communicate, consume information and organise economic activity. Generative AI has accelerated this process because many applications can now be used through ordinary language interfaces without advanced programming knowledge. For the middle class, this creates a particularly important combination of opportunities and risks. People employed in professional, administrative, educational, creative and service occupations may use AI to perform routine cognitive tasks more quickly, while entrepreneurs and small firms may use it to improve marketing, customer communication, research and business administration. At the same time, these benefits are not distributed automatically. They depend on access to reliable digital infrastructure, appropriate skills, organisational capacity and institutional safeguards.

The international evidence also suggests that AI should not be understood simply as a technology that replaces workers. The International Labour Organization's 2025 update estimates that one in four workers globally are in occupations with some degree of exposure to generative AI, while emphasising that most jobs are more likely to be transformed than eliminated because human input

remains necessary. This distinction is important for understanding the middle class: the principal issue is not only whether a job disappears, but how tasks, required skills, bargaining positions and income opportunities change after AI is introduced.

METHODOLOGY

The thesis applies a conceptual and policy-oriented approach based on a review and synthesis of recent international research and institutional reports. The analysis focuses on three interconnected domains: first, household and individual access to AI-enabled tools; second, changes in work, skills, productivity and income opportunities; and third, distributional and institutional effects. The study draws particularly on evidence and policy guidance from the International Labour Organization, International Monetary Fund, OECD, World Bank and UNESCO. It does not present new survey or econometric results for Uzbekistan or another individual country. Instead, it interprets international evidence in order to identify mechanisms that are relevant to the socio-economic position of the middle class.

AI OPPORTUNITIES FOR THE MIDDLE CLASS

One of the most immediate opportunities is professional augmentation. AI systems can assist with drafting, summarising, translation, information retrieval, data processing, coding, presentation preparation and other cognitive tasks. The economic significance of such assistance depends on how workers combine AI with domain knowledge. Evidence from workplace research indicates that generative AI can improve the performance of workers on suitable tasks, particularly when the technology is used as an assistant rather than as an unrestricted substitute for human judgement. Consequently, AI literacy increasingly becomes part of professional competence.

A second opportunity concerns entrepreneurship and small and medium-sized enterprises. AI can lower the cost of activities that previously required specialised labour, including content creation, market research, customer communication and routine administrative work. The OECD's 2025 discussion paper stresses that AI has substantial potential for productivity and innovation in SMEs, while also identifying persistent adoption gaps between smaller and larger firms. Connectivity, data and computing resources, skills and finance are therefore important conditions for successful adoption.

A third opportunity is the expansion of learning and access to services. AI-assisted tools can provide personalised explanations, language support, writing assistance and rapid access to information. For middle-class households, this may reduce the time and cost associated with education and some professional services. However, these benefits require users to evaluate AI-generated information

critically. The value of AI is therefore connected not only with access to technology, but also with the user's capacity to verify, contextualise and responsibly apply its outputs.

CHALLENGES AND RISKS

The first major challenge is unequal capacity to use AI effectively. Access to a digital tool does not mean equal ability to obtain economic value from it. Workers with stronger education, digital skills and occupational autonomy may integrate AI more productively, whereas workers with limited skills may experience weaker benefits or greater exposure to task displacement. This creates a risk that AI could widen differences within the middle class itself, particularly between digitally capable professionals and households whose employment is concentrated in more routine activities.

The second challenge concerns occupational restructuring and income security. AI may reduce the time required for some tasks while increasing the importance of other tasks such as verification, problem-solving, communication and decision-making. The ILO's evidence supports a task-based interpretation: exposure to generative AI does not automatically imply full automation of an occupation. The key policy issue is therefore how workers and organisations manage transitions, including retraining, job redesign and social dialogue.

The third challenge relates to privacy, accuracy, bias and accountability. Individuals may enter sensitive information into AI systems without fully understanding how data are processed. AI-generated outputs can also contain factual errors or reproduce biases present in training data. UNESCO's global Recommendation on the Ethics of Artificial Intelligence emphasises human dignity and human rights together with transparency, fairness, privacy, accountability and human oversight. These principles are particularly relevant when AI is used for employment, education, financial decisions or other activities that can materially affect people's opportunities.

SOCIO-ECONOMIC IMPACTS AND INSTITUTIONAL CONDITIONS

The socio-economic effect of AI on the middle class should therefore be understood as a combination of productivity gains, occupational change and distributional effects. Where AI complements human capabilities, it can increase output per worker and create opportunities for new services and business models. Where adoption is concentrated among firms and workers with greater resources, however, the same technology can reinforce existing inequalities. The result depends on institutions that determine who has access to infrastructure, training, finance and decision-making power.

For SMEs, institutional support is particularly important because smaller firms often face financial, technical and skills constraints. OECD evidence shows that AI adoption among SMEs remains below that of larger firms and identifies connectivity, skills, data and computing resources, and finance as important enabling conditions. Policies that broaden these foundations can help prevent AI adoption from becoming concentrated only in large firms.

Workplace institutions also matter. Employees should have opportunities to participate in decisions concerning the introduction of AI, especially where technology changes performance assessment, task allocation or employment conditions. Human review should remain important in high-impact decisions. In addition, accessible mechanisms for correcting errors and challenging automated decisions can strengthen trust. UNESCO's framework similarly places human oversight, accountability, transparency, privacy and non-discrimination at the centre of responsible AI governance.

POLICY IMPLICATIONS

Several policy priorities follow from the analysis. First, AI and digital literacy should be incorporated into lifelong learning, higher education and professional development. Training should focus not only on operating particular tools but also on evaluating outputs, protecting data, recognising bias and applying AI within professional standards. Second, affordable and reliable digital connectivity should be expanded so that technological opportunities are not limited by household or regional differences.

Third, small businesses need practical support for responsible AI adoption, including access to training, digital infrastructure and appropriate financing. Fourth, labour-market policies should facilitate transitions through reskilling, social dialogue and mechanisms that protect workers during organisational change. Finally, data protection, transparency, accountability and human oversight should accompany the diffusion of AI. These priorities are consistent with the international institutional approach reflected in ILO labour-market analysis, OECD work on SME adoption and UNESCO's ethical framework.

CONCLUSION

Artificial intelligence creates substantial opportunities for the middle class, particularly through higher productivity, improved access to knowledge and services, support for entrepreneurship and the transformation of information-intensive work. Nevertheless, these benefits cannot be assumed to be automatic or equally distributed. Differences in digital skills, infrastructure, organisational capacity and access to finance may determine who benefits most from AI. At the

same time, occupational restructuring, privacy risks, algorithmic errors and accountability problems require institutional responses.

The central conclusion is that the socio-economic effect of AI on the middle class depends less on technological availability alone than on the conditions under which the technology is accessed and used. An inclusive approach should combine AI literacy, digital infrastructure, SME support, worker participation, social protection and responsible governance. International evidence therefore supports a model in which AI complements human capabilities while institutions ensure that productivity gains are accompanied by fairness, accountability and broad access to opportunity.

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