

INTEGRATION OF ARTIFICIAL INTELLIGENCE IN TIME MANAGEMENT: THE PSYCHOLOGICAL IMPACT ON EMPLOYEES IN THE MODERN BUSINESS ENVIRONMENT

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Abstract

This paper examines and analyzes how the integration of artificial intelligence (AI) into time management processes influences operational efficiency and the psychological well-being of employees in the contemporary business environment. The motivation for this research arises from the rapid transformations shaping modern organizations, where digital tools have become essential for task optimization while simultaneously generating additional adaptive pressures on the workforce. The study adopts a mixed-methods approach, combining quantitative analysis based on an online questionnaire administered to a sample of 100 employees from various professional sectors with qualitative insights derived from the interpretation of responses and the assessment of employees' perceptions regarding the use of AI in their daily work activities. The findings indicate that AI-based technologies contribute to reducing repetitive tasks and enhancing productivity; however, their psychological impact varies significantly depending on employees' level of familiarity with digital tools, organizational culture, and the pace of technological adoption. The author's contribution lies in empirically highlighting how the use of artificial intelligence in time management affects both occupational stress levels and employees' adaptation to technological change, offering practical conclusions that support a balanced and human-centered implementation of digital solutions.

Keywords: time management, artificial intelligence, efficiency, psychological impact

1. Introduction

Time management represents a strategic process of planning, prioritizing, and efficiently allocating time resources, with the aim of maximizing operational performance while maintaining a sustainable level of professional workload. In the contemporary business environment, this process has become a critical driver of competitiveness, as pressure on productivity and the speed of managerial decision-making increase in parallel with technological change. The accelerated advancement of digitalization has transformed time management into a domain in which intelligent technologies, particularly artificial intelligence, are increasingly deployed to automate tasks, reduce operational time, and optimize workflows.

Within the context of this research, artificial intelligence is defined, in accordance with international standards, as a system based on algorithms capable of performing cognitive tasks associated with human intelligence, such as learning, reasoning, and decision-making [13].

Today, due to continuous digital development across all sectors, the use of artificial intelligence has become increasingly indispensable. Time management in the business environment remains a persistent challenge for managers and organizations alike, and it is one of the areas in which digital solutions have been most actively integrated to optimize organizational resources and enhance productivity. However, while the benefits of artificial intelligence are widely acknowledged, its full impact on employees—particularly from a psychological perspective—remains insufficiently understood, which highlights the need for deeper and more systematic investigation.

The modern business environment is becoming progressively more digitalized, and artificial intelligence technologies are significantly reshaping the way employees perform their tasks. At the same time, the widespread adoption of these technologies can influence employees' psychological well-being, generating both benefits and challenges.

Continuous technological development supports the automation of tasks and the optimization of processes, making it essential to understand how these advances affect not only operational efficiency but also psychological well-being and job satisfaction. The implementation of artificial intelligence can shape employees' perceptions of their workplace, their work-life balance, and interpersonal relationships within organizations. It is therefore crucial for organizations to be aware of the psychological implications of AI adoption and to implement strategies that support employees' adaptation to new technologies while ensuring a healthy and productive work environment.

In the Republic of Moldova, the implementation of modern technologies has already produced visible effects on the work environment. The use of artificial intelligence across various sectors has contributed to process simplification, the reduction of repetitive tasks, and more efficient use of employees' time. At the same time, increased levels of stress can emerge when the pace of change is rapid, underscoring the importance of adopting AI implementation strategies that take into account employee well-being and personal balance. Technology should function as a source of support, not as an additional stress factor. In public institutions and in education, important steps have already been taken, and the overall direction is a positive one. When implemented responsibly and supported by investments in training, artificial intelligence can reduce bureaucracy and improve service quality. The Republic of Moldova has the opportunity to leverage artificial intelligence in a balanced, human-centered manner, contributing to the development of a modern, efficient, and more supportive work environment for all.

2. Current level of research on the topic and research objective

The integration of artificial intelligence into organizational processes represents one of the most significant transformations of the contemporary professional environment, with direct implications for time management, decision-making, and employee outcomes.

The academic literature highlights that the use of AI-based technologies can substantially contribute to the optimization of administrative tasks, activity prioritization, and the enhancement of individual and organizational efficiency, enabling employees to focus on high value-added activities [4], [11], [17]. At the same time, recent research draws attention to the

fact that the implementation of artificial intelligence generates complex psychological effects that cannot be overlooked. Empirical studies point to the emergence of anxiety, occupational stress, role-related insecurity, and concerns regarding loss of control over decisions or job stability, particularly in organizational contexts that are insufficiently prepared for technological change [5], [10], [15], [16]. These effects tend to intensify when the introduction of digital technologies is not accompanied by clear strategies for training, communication, and psychological support. From a time management perspective, artificial intelligence is increasingly recognized as a tool with high potential to support decision-making processes through large-scale data analysis, task prioritization recommendations, and the automation of repetitive activities [11], [14]. Davenport and Ronanki emphasize that AI-driven solutions such as virtual assistants and intelligent scheduling systems can significantly reduce administrative pressure on employees, allowing for a more efficient and balanced use of working time [4]. Similar contributions are highlighted by Giuggioli and Pellegrini, who argue that artificial intelligence can act as a catalyst for entrepreneurial performance when it is integrated responsibly and aligned with users' real needs [8]. Furthermore, recent research in the fields of management and digital transformation underscores the importance of artificial intelligence governance and the preservation of human decision-making control. The integration of AI into organizational processes should be guided by complementarity rather than substitution, ensuring that technology supports human judgment instead of replacing it [3], [12]. Duan, Edwards, and Dwivedi highlight risks related to data quality and employee adaptability, emphasizing the need for clear frameworks of supervision and accountability [5]. Similarly, Huang and Rust draw attention to ethical risks and employee resistance to change arising from excessive service automation [10].

In the context of the Republic of Moldova, the level of investigation of this issue remains limited, while the implementation of artificial intelligence is still at an early stage, constrained by factors such as digital infrastructure, technological competence, and organizational culture. Local studies reveal an ambivalent perception of artificial intelligence, viewed simultaneously as an opportunity for modernization and as a source of uncertainty [6], [14]. This reality highlights the need for in-depth, contextualized research focused on solutions tailored to national specificities. Within this framework, the objective of the present research is to analyze the impact of artificial intelligence implementation on time management and on employees' psychological well-being, identifying both associated benefits and risks, with a particular emphasis on maintaining human control over decision-making processes.

3. Methods and applied materials

Data were collected through the administration of online questionnaires to employees from various professional sectors in both Romania and the Republic of Moldova, allowing for the identification of cultural differences and variations in how individuals adapt to digitalization.

The analysis was based on 100 valid responses collected between January and May 2024, including participants with limited experience in using artificial intelligence as well as younger employees who are more familiar with digital technologies (Figure 1). This methodological approach made it possible to identify relationships between the use of artificial intelligence and levels of occupational stress or job satisfaction. The decision to

focus on stress reflects the underlying assumption that employee well-being is as important as productivity in contemporary organizations.

An important limitation of the study is the lower number of responses collected from the Republic of Moldova compared to Romania, which may affect the generalizability of the findings across the entire region. This situation reflects challenges related to participant access and differences in respondent availability; nevertheless, the data obtained remain relevant for highlighting emerging trends and for providing a preliminary comparative perspective on the impact of artificial intelligence on time management and employees' psychological well-being.

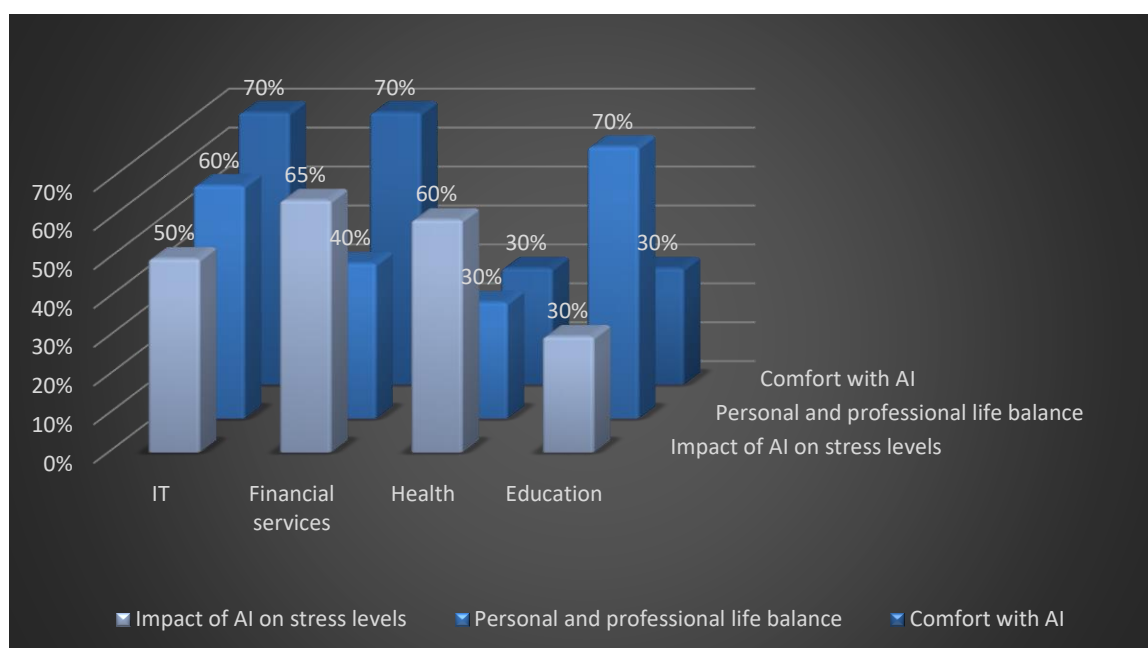


Figure 1. Impact of Artificial Intelligence on Stress Levels

Source: developed by the author based on data collected through an on https://docs.google.com/forms/d/e/1FAIpQLSeaFI3hozPmrjNjfV4umxyry2R400oOB5M0j8QGYyP_718Q9A/viewform?usp=publish-editor line questionnaire distributed to employees.

4. Results and discussions

Based on the analysis of the figure, several conclusions can be drawn according to three key parameters—the impact of artificial intelligence on stress levels, work–life balance, and comfort with AI—across different professional sectors.

In the IT sector, artificial intelligence is widely adopted, and most employees report a high level of comfort with its use. Nevertheless, stress remains present, most likely due to the fast-paced work environment and high performance demands. Approximately 50% of employees report an increase in stress associated with AI use, while 60% consider that AI has improved their work–life balance. In terms of technological comfort, 70% of respondents indicate that they feel either “very comfortable” or “moderately comfortable” using AI tools.

In financial services, although comfort with technology is relatively high, stress levels remain significant, reflecting the growing pressure for performance in this sector. About 65% of

employees experience increased stress following AI implementation. Only 40% perceive an improvement in work–life balance, while the remaining respondents report additional pressure. At the same time, 70% state that they feel comfortable using AI, suggesting that technological familiarity does not necessarily translate into reduced psychological strain.

In the healthcare sector, the adoption of artificial intelligence is more conservative. However, automation contributes to a reduction in administrative burden, and comfort with technology increases gradually. Approximately 30% of employees report increased stress, while 60% feel more relaxed as a result of automating administrative tasks, according to supplementary data. Only 30% believe that AI has contributed to optimizing their time, whereas 60% report feeling comfortable with AI-based solutions.

In education, AI adoption remains limited, and both comfort levels and perceptions of positive impact are relatively low, highlighting the need for additional training and familiarization. Around 30% of respondents report increased stress, 30% perceive benefits in terms of work–life balance, and only 30% indicate that they feel comfortable using artificial intelligence. The collected data reflect how employees across different sectors experience the changes brought by artificial intelligence in their work rhythms and daily lives. While technological integration promises greater efficiency and improved time management, the reality is that its impact is not uniform. Employees perceive both the benefits and the pressures of accelerated modernization differently, depending on the sector in which they operate.

In the IT sector, where continuous change is a defining characteristic, employees are accustomed to technological innovation and generally feel comfortable using AI. Nevertheless, half of the respondents report increased stress due to intense work rhythms, performance pressure, and internal competition—factors that technology does not eliminate and may, in some cases, intensify. At the same time, a considerable proportion of employees acknowledge the positive contribution of AI to time management and work–life balance.

In financial services, pressure is even more pronounced. Although most employees are familiar with AI tools, a significant share perceives an increase in responsibilities and higher expectations. Only a minority report improved balance between professional and personal life as a result of technological support. These findings suggest that in high-responsibility sectors, digitalization cannot be treated solely as an operational tool; it must be accompanied by genuine concern for employee well-being. In healthcare, the transition toward AI integration is slower, yet its effects are visible. Employees recognize that AI helps reduce repetitive tasks, which contributes to stress reduction for many of them. However, its influence on work–life balance remains modest. This sector highlights an important lesson: technology can be a valuable support, but it cannot replace the need for adequate resources, clear processes, and appropriate training for medical staff.

In education, comfort levels remain low, and some employees associate AI with increased pressure. Teachers and institutional managers require support, training, and time to integrate new tools into their daily activities. The data clearly indicate that positive effects emerge only when technology is understood and used appropriately, rather than imposed without adequate preparation. Overall, the findings confirm that artificial intelligence can be beneficial, but its effects depend heavily on how it is implemented. Any modernization strategy must take into

account the perspectives of those working within these sectors, ensuring that technology serves as support rather than an additional source of pressure. AI integration should be viewed as an ongoing process, requiring continuous evaluation and monitoring of its impact on employees, along with timely corrective measures when necessary.

The author's contribution becomes evident through the critical interpretation of the data and the connection of empirical results to the real needs of employees. Rather than merely reporting percentages, the analysis emphasizes the human dimensions of digital transformation: how employees adapt, what makes them vulnerable, and what forms of support could mitigate the negative effects of technology. The need for personalized training emerges clearly, as comfort levels with AI differ significantly across sectors. While employees in highly adaptive sectors develop competencies rapidly, education and healthcare reveal a distinct need for training programs tailored to the pace and specific demands of professional activities.

Psychological support is highlighted through the correlations between AI use and reported stress levels. Sectors characterized by complex tasks—such as IT and financial services—indicate high performance-related pressure, suggesting that AI implementation should be accompanied by organizational measures aimed at stress management and burnout prevention. Ethical considerations are particularly salient in sectors that approach technology cautiously, such as healthcare and education. Concerns regarding data protection and the impact of AI on direct relationships with beneficiaries are reflected in lower adoption rates. These concerns should be addressed through policies emphasizing transparency, regulation, and organizational responsibility. Continuous evaluation is essential, as employee perceptions are not uniform. The data reveal significant variations across sectors, indicating that the impact of AI is not linear but deeply contextual. Consequently, AI integration should not be treated as a one-time technological intervention but as an evolving process in which organizations must continuously monitor effects on human resources and adjust internal processes accordingly.

The analysis demonstrates that the usefulness of artificial intelligence cannot be viewed unilaterally. While AI optimizes tasks, reduces idle time, and improves process accuracy, it can also generate tension if introduced without adequate preparation, support, and recognition of human limits. Technology must be calibrated to employees' real needs, and psychological impact should not be seen as an argument against AI, but rather as a critical direction for research and for improving organizational environments. This integrated approach—analyzing technology, performance, and employee well-being together—represents the distinctive value of this contribution.

5. Conclusions

The approach to understanding how artificial intelligence can support educational and entrepreneurial training processes highlights that digitalization is not just a set of technical tools, but a deeply human process, requiring personalization, adequate emotional support and a solid ethical framework, consistently applied. Personalized training appears here as an essential strategic vector: AI allows for fine calibrations of content, pace and level of difficulty, but without real human involvement — teacher, mentor, facilitator — these

adjustments risk remaining superficial. At the same time, the psychological component becomes a critical element, the introduction of new technologies frequently generates anxiety and uncertainty.

Ethical considerations are a mandatory pillar, through the way data is used, the level of transparency, potential power imbalances and the risk of technological dependence must be assessed not only declaratively, but operationally. Continuous assessment also cannot be reduced to automated commands, AI can provide data, but decisions need human discernment, dialogue and a learning-oriented organizational culture. The results show that it is not the technology itself that causes stress, but the way it is implemented, communicated and managed. Therefore, the psychological impact deserves a much broader investigation, with validated tools and an interdisciplinary approach. The integration of AI can only bring value if it is built responsibly, with care for people and with continuous attention to how technology transforms learning experiences and teachers' work.

Digital transformation is not a technical process, but a relationship between people and technology, and this relationship must be cultivated with empathy, professionalism and authentic leadership. This finding confirms the need for personalized training programs, organizational policies for emotional support, and clear ethical mechanisms for implementing the technology. The study demonstrates that AI is useful when implemented with ongoing training, communication, and evaluation, and that psychological impact becomes a key indicator of true digital effectiveness. These findings open relevant directions for future research, such as longitudinal analysis of the impact of artificial intelligence on time management, investigation of psychological adaptation mechanisms, and development of ethical and sustainable models for integrating emerging technologies into education and organizations, in which decision-making control remains firmly in the hands of the human factor.

The resulting recommendations converge towards the same strategic logic: implementing personalized training programs, developing psychological support structures, defining clear ethical protocols and using continuous evaluation as a learning tool, not as a pressure.

Only in such a framework, in which artificial intelligence is used as a support tool and not as a substitute for human responsibility, can it become a real ally of time management, performance and well-being, contributing to a digital future with controlled risks and equitably distributed benefits.

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Rezumat

În articol se descrie și analizează modul în care integrarea inteligenței artificiale (IA) în procesele de management al timpului influențează eficiența operațională și starea psihologică a angajaților din mediul de afaceri modern. Motivația cercetării derivă din transformările accelerate din mediul de afaceri modern, unde instrumentele digitale devin esențiale pentru optimizarea sarcinilor, dar generează, simultan, presiuni adaptive suplimentare asupra forței de muncă. Studiul utilizează o metodologie mixtă, combinând analiza cantitativă realizată prin aplicarea unui chestionar online adresat unui eșantion de 100 de angajați din diferite domenii și analiza calitativă derivată din interpretarea răspunsurilor și evaluarea percepțiilor privind utilizarea IA în activitatea curentă. Rezultatele cercetării arată că tehnologiile bazate pe IA contribuie la reducerea volumului de activități repetitive și la creșterea productivității, însă impactul psihologic este diferențiat și depinde de nivelul de familiaritate cu instrumentele digitale, de cultura organizațională și de viteza adoptării tehnologice. Contribuția autorului constă în evidențierea, pe baza analizei empirice, a modului în care utilizarea inteligenței artificiale în managementul timpului influențează atât nivelul de stres ocupațional, cât și adaptarea angajaților la schimbările tehnologice, formulând concluzii utile pentru o implementare echilibrată a soluțiilor digitale.

Cuvinte-cheie: managementul timpului, inteligență artificială, eficiență, impact psihologic

Аннотация

В статье описывается и анализируется влияние интеграции искусственного интеллекта (ИИ) в процессы управления временем на операционную эффективность и психологическое состояние сотрудников в современной деловой среде. Мотивацией для исследования послужили ускоренные преобразования в современной деловой среде, где цифровые инструменты становятся необходимыми для оптимизации задач, но одновременно создают дополнительное адаптивное давление на персонал. В исследовании используется смешанная методология, сочетающая количественный анализ, проведенный с помощью онлайн-анкеты, заполненной выборкой из 100 сотрудников из разных сфер, и качественный анализ, основанный на интерпретации ответов и оценке восприятия использования ИИ в текущей деятельности. Результаты исследования показывают, что технологии на основе ИИ способствуют сокращению объема повторяющихся действий и повышению производительности, однако психологическое воздействие дифференцировано и зависит от уровня знакомства с цифровыми инструментами, организационной культуры и скорости внедрения технологий. Вклад автора заключается в том, чтобы на основе эмпирического анализа показать, как использование искусственного интеллекта в управлении временем влияет как на уровень профессионального стресса, так и на адаптацию сотрудников к технологическим изменениям, сформулировав полезные выводы для сбалансированного внедрения цифровых решений.

Ключевые слова: *управление временем, искусственный интеллект, эффективность, психологическое воздействие*

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