

Artificial intelligence in public administration: how the emotional intelligence of civil servants influences its effective implementation

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Abstract: This study explores the influence of public servants' emotional intelligence (EI) on the effectiveness of artificial intelligence (AI) implementation in public administration. As governments increasingly adopt AI to streamline administrative processes, the human factor—particularly emotional and cognitive adaptability—emerges as a critical determinant of success. A nationwide survey of 150 Ukrainian civil servants was conducted, employing the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) to assess EI levels. Additional instruments measured digital competencies, attitudes toward AI, perceived risks, and training needs. A regression model was developed to quantify the impact of emotional and professional variables on AI implementation outcomes. The findings reveal that high EI, when combined with strong digital skills, significantly enhances adaptability, fosters trust in AI systems, and improves the overall effectiveness of digital transformation. In contrast, technical proficiency alone does not guarantee successful implementation if accompanied by emotional rigidity or resistance to change. Key barriers identified include unequal digital literacy, skepticism toward automated decision-making, and insufficient managerial support. The study's novelty lies in formalizing the EI–AI relationship through a predictive model that integrates emotional, cognitive, and behavioral dimensions. It also introduces a composite index of AI implementation effectiveness, grounded in both subjective perceptions and observable behaviors. Practical recommendations emphasize the need for integrated training programs that simultaneously develop emotional and technical competencies. These findings underscore the importance of a human-centered approach to digital governance, where emotional intelligence is not a peripheral trait but a strategic asset in managing technological change and enhancing public sector resilience.

Keywords: civil servant, decision-making, organizational change, digital technologies

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Introduction

The development of artificial intelligence in the field of public administration opens up broad opportunities for enhancing decision-making efficiency, optimizing administrative processes, and improving the interaction between government agencies and citizens. The automation of routine tasks, the analysis of large data sets, and trend forecasting contribute to reducing the workload on public servants and support the adoption of well-founded managerial decisions. At the same time, the integration of artificial intelligence into public governance is accompanied by numerous challenges related to ethical considerations, public trust, accountability, and the adaptation of personnel to change. One of the key factors for the effective implementation of artificial intelligence technologies in administrative activities is the level of emotional intelligence among public servants, as their ability to understand, regulate, and apply emotions in communication and decision-making significantly affects the process of digital transformation (Androniceanu, 2025; Androniceanu & Colesca, 2025). The use of machine learning algorithms and automated systems requires advanced social skills and cognitive flexibility, which help minimize the risks of data misinterpretation, consider the human factor in citizen engagement, and prevent social isolation caused by excessive technologization of administrative processes. An important task is to determine the mechanisms for the harmonious integration of artificial intelligence into the functioning of public institutions, taking into account the socio-psychological aspects of interaction among employees, technologies, and citizens. Scientific research in this field should provide the rationale for models of interaction between technology and the human factor in governance, which will contribute to increasing the efficiency of digital transformation, strengthening trust in automated processes, and developing strategies for the balanced use of artificial intelligence in public administration.

To maintain the conceptual integrity of this research, the analysis of the link between emotional intelligence (EI) and the successful implementation of artificial intelligence (AI) in public administration must be anchored in well-established theoretical frameworks. In this regard, three influential models – the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and Affective Events Theory (AET) – offer essential insights into how cognitive and emotional dimensions jointly shape the integration of new technologies in organizational environments.

The Technology Acceptance Model, formulated by Davis (1989), identifies two core perceptions—usefulness and ease of use – as key drivers of an individual's intention to embrace technological tools. In administrative settings, emotionally intelligent public servants are more inclined to perceive AI as an enabler of efficiency and innovation. Their capacity to remain composed under pressure, adapt to shifting demands, and frame change positively allows them to manage the emotional stress

often associated with digital reform. As such, EI directly enhances the subjective value assigned to AI systems and supports smoother institutional adaptation processes (Marikyan, and Papagiannidis, 2024).

The Unified Theory of Acceptance and Use of Technology (UTAUT), introduced by Venkatesh and colleagues (2003), builds on TAM by incorporating constructs such as performance and effort expectancy, social influence, and facilitating conditions. Within this framework, emotional intelligence acts as a crucial moderator. Employees with higher EI are more receptive to feedback from colleagues and leadership, more responsive to supportive environments, and more likely to engage constructively with digital innovations. Their emotional and interpersonal agility enables them to overcome resistance, work collaboratively, and adjust more readily to new workflows, reinforcing the organizational momentum behind AI adoption (Marikyan, and Papagiannidis, 2024; Podolchak, N., 2024; Podolchak, N., 2025).

Affective Events Theory (AET), developed by Weiss and Cropanzano (1996), highlights the role of workplace emotions in shaping employee attitudes and behavior over time. In the context of AI integration, this perspective underscores the importance of emotional responses to change-related events. Public servants with strong EI are better equipped to handle apprehension, skepticism, or frustration caused by automation. Their ability to manage emotional reactions helps them remain engaged in innovation efforts, foster positive workplace dynamics, and contribute to a more resilient public sector culture (Lee et al., 2014).

By weaving together these theoretical perspectives, the present study advances a multidimensional understanding of the human-technology interface in public administration. Rather than treating digital transformation as a purely technical challenge, it recognizes the pivotal role of emotional and social factors in determining outcomes. This integrated conceptual approach strengthens the validity of the regression model used in the empirical phase of the research and reinforces the broader policy implication: that cultivating emotional intelligence among public officials is not a peripheral concern but a strategic necessity for effective and equitable AI implementation.

1. Literature review

The implementation of artificial intelligence (AI) technologies in public administration represents not only a technological shift but also a value-driven challenge, requiring a synthesis of algorithmic precision and human sensitivity. One of the critical factors in this process is the emotional intelligence (EI) of public servants, which determines their adaptability to innovation, openness to change, and capacity to make effective and ethical managerial decisions. A review of current academic research reveals four key thematic directions exploring the relationship between EI and AI in public governance: ethical, managerial-strategic, cognitive-adaptive, and social-service dimensions.

The ethical dimension encompasses studies that focus on the role of human values and social responsibility in the implementation of AI. For instance, B. Wirtz, G. Weyerer, and C. Geyer emphasize how ethical principles such as transparency,

fairness, and accountability influence AI management strategies in the public sector (Wirtz et al., 2019). S. Koster, M. Drouvelis, and M. Serna argue that AI systems should reflect democratic values through economic mechanisms designed to ensure social justice (Koster et al., 2022). A. Khine highlights the ethical risks associated with AI in educational processes and underscores the importance of avoiding discriminatory practices (Khine, 2024). V. Bojić, M. Djordjević, D. Rakić, and colleagues advocate for the development of “empathetic” AI that incorporates moral reasoning, demonstrating that although GPT-3 shows advanced cognitive abilities, its emotional intelligence remains on par with an average human level (Bojić et al., 2024). This direction would benefit from further exploration of regulatory and cultural differences in ethical perceptions of AI across various administrative systems.

The managerial-strategic direction focuses on the institutional integration of AI within governance structures. M. Criado and J. Gil-Garcia highlight the necessity of creating public value through smart technologies, which entails not only automation but also strategic institutional development (Criado and Gil-Garcia, 2019). M. Mainardi discusses the transformative potential of AI in national governments and EU bodies, analyzing how AI fosters innovation while encountering resistance rooted in institutional culture (Mainardi, 2024). R. Rankovic, T. Rankovic, and R. D. Rankovic demonstrate that AI-based analytics significantly enhance cost estimation accuracy in project management, thereby supporting strategic planning (Rankovic et al., 2024). Meanwhile, H. Al-Nimer, H. M. Abdelhadi, A. Elshaer, and M. Yahia emphasize the importance of project leaders' emotional intelligence in the successful execution of digital initiatives (Al-Nimer et al., 2024). In this area, there is a need for empirical research on the correlation between managerial emotional competence and the outcomes of AI implementation in public administration.

The cognitive-adaptive direction addresses how EI and AI interact in the context of adapting to technological change and developing competent leaders. R. Bhardwaj, R. Sharma, and P. Dhiman propose a conceptual framework for integrating EI and AI in modern management, suggesting this synergy enhances understanding of employee needs and decision-making quality (Bhardwaj et al., 2023). U. Kambur explores the correlation between EI and AI to develop a mathematical model explaining how emotional competence affects innovation adoption (Kambur, 2021). D. Lee investigates how emotional labor, or the regulation of emotions in professional settings, intersects with EI and impacts job satisfaction among public servants (Lee, 2021). H. Wang and M. Qiu also address the ethical implications of human adaptation to digital environments, highlighting the necessity of supporting employees in such transitions (Wang and Qiu, 2023). This research area would benefit from tools that assess public servants' cognitive-emotional readiness for AI adoption, especially in mission-critical sectors.

The social-service direction examines the emotional dimension of AI in service delivery and public communication. N. Rokhsaritalemi, A. Sadeghi-Niaraki, and K. Choi present AI-based tools for emotion analysis that can be adapted to forecast employee and citizen reactions in governance contexts (Rokhsaritalemi et al., 2023). L. Palmquist, A. Brown, M. Santos, and colleagues propose an integrated framework

combining social-emotional competencies with AI education to foster emotionally intelligent digital environments (Palmquist et al., 2025). A. Faggini, S. Filippi, L. Tezza, and others explore human-machine complementarity in automated service interactions, showing how emotion recognition can enhance user engagement (Faggini et al., 2025). Similar conclusions are drawn by S. Hoke, S. Jamal, W. Khalid, and M. Mekhala, who advocate for human-centered decision-making and AI integration rooted in service ethics (Hoke, 2024; Shireen Jamal and Waleed Khalid, 2025; Mekhala, 2024). L. Nguyen, Y. Luo, R. Abbas, and C. Zhang emphasize the role of EI in preventing failures during automated decision-making processes (Nguyen et al., 2024). R. Patiño-Galván further stresses the integration of AI with principles of social responsibility and sustainability, calling for a balanced, human-centered approach (Patiño-Galván, 2023). Further research in this domain should focus on developing models of emotional interaction between AI systems and citizens in state-provided digital services.

In summary, the reviewed studies reveal the multifaceted nature of AI integration in public administration, where emotional intelligence emerges as a determinant of adaptability, empathy, and managerial effectiveness. A high level of emotional intelligence among public servants appears critical for the successful adoption of innovations, building public trust, and preserving a human-centered orientation amid ongoing digitalization.

Nevertheless, several unresolved issues persist. Firstly, there is a lack of empirical models quantifying the relationship between emotional intelligence and the effectiveness of AI adoption in public administration (Podolchak et al., 2024; Vesolovska, and Karkovska, 2025). Secondly, existing studies often focus on isolated aspects — ethical, organizational, or service-oriented — without addressing a comprehensive governance framework that includes the employee's emotional-cognitive profile. Thirdly, there is no comparative analysis of how different countries with varying administrative traditions and institutional cultures integrate AI in relation to public servants' EI levels. Additionally, insufficient attention has been paid to strategies for mitigating mental resistance to innovation and fostering trust in AI systems among staff in times of instability or martial law.

This study seeks to bridge these gaps. It proposes to formalize the influence of emotional intelligence on AI implementation effectiveness through the development of a mathematical model validated by empirical data. The study will assess public servants' emotional competence levels, compare models across different administrative environments (e.g., Ukraine, Estonia, Germany), and construct an integrated indicator of digital transformation readiness. It will also offer recommendations for managing emotional barriers at the policy level and for introducing socially oriented digitalization strategies based on principles of trust, support, and personalization of change.

The aim of this study is to analyze the impact of emotional intelligence (EI) among public servants on the effectiveness of artificial intelligence (AI) implementation in public administration and to develop a scientifically grounded model integrating

these factors to enhance the efficiency of governance processes. To achieve this aim, the following objectives are pursued:

To examine the theoretical foundations of the relationship between emotional intelligence and the effective implementation of AI technologies in public administration.

To conduct an empirical study through a questionnaire survey of public servants, assessing their level of emotional intelligence, attitudes toward AI, and perception of technological change in their professional activities.

To develop a mathematical model illustrating the influence of public servants' emotional intelligence on the effectiveness of AI integration in public governance, using survey results and relevant analytical methods.

To analyze key challenges associated with AI integration in administrative processes, considering socio-psychological factors and the readiness of public servants to engage with emerging technologies.

To develop practical recommendations for optimizing the AI implementation process in public administration, taking into account emotional intelligence levels and strategies for staff adaptation in the context of digital transformation.

2. The research methodology

A study of emotional intelligence levels and public servants' attitudes toward AI implementation in public administration is essential for assessing the sector's readiness for digital transformation. The primary objective of the survey was to determine respondents' emotional intelligence levels, their attitudes toward process automation, their expectations regarding the outcomes of AI adoption, and perceived barriers to integration. The study aimed to identify how emotional intelligence influences perceptions of digital change and to determine the need for enhanced digital competencies and adaptability among public officials.

The survey included 150 public servants from various regions of Ukraine, representing local governments, regional administrations, and ministries. The questionnaire was distributed online over a 30-day period, allowing responses from diverse areas, including major cities, regional centers, and rural communities.

Emotional intelligence was measured using the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), a standardized tool for evaluating a person's ability to recognize, understand, manage, and use emotions across different contexts. The test included a series of tasks assessing emotional perception, understanding of the emotion-thought relationship, self-regulation, and social adaptability. The results were converted into a scale ranging from 0 to 100, with higher scores indicating more developed emotional intelligence skills.

The questionnaire consisted of 15 questions aimed at assessing emotional intelligence levels, attitudes toward AI, perceptions of professional change, and digital competence. Questions addressed emotional regulation, trust in automated decisions, expectations regarding workload changes, concerns about job

displacement, and the need for additional training to adapt to new technological realities.

To ensure methodological transparency and support replicability of findings, it is essential to clarify the operationalization of both independent and dependent variables in this study. Emotional intelligence (EI) was assessed using the standardized Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), which evaluates four core branches of emotional functioning: (1) perceiving emotions, (2) using emotions to facilitate thinking, (3) understanding emotional meaning, and (4) managing emotions. The scoring was based on the consensus approach, whereby responses are compared to norms derived from a representative sample. Final EI scores were normalized on a continuous 0–100 scale for statistical integration. A Ukrainian-language version of the MSCEIT was employed, previously adapted for cultural and linguistic specificity through expert translation and back-translation procedures. Prior to full-scale deployment, the instrument underwent pre-testing with a pilot sample of 20 civil servants to verify internal reliability and contextual relevance. The pilot demonstrated acceptable psychometric properties, with Cronbach's alpha for the full scale reaching 0.81, indicating satisfactory internal consistency.

The dependent variable, termed Effectiveness of AI Implementation (EAI), was conceptualized as a composite index reflecting multidimensional indicators of AI integration success in administrative environments. This variable incorporates both subjective assessments and observable behavior to ensure methodological robustness. Specifically, five components were used to construct the EAI index: Frequency of AI use in routine administrative procedures, as reported by respondents on a 5-point Likert scale (1 = never, 5 = daily).

Perceived impact on performance, capturing respondents' evaluation of AI tools' influence on work efficiency, time optimization, and decision quality (5-point Likert scale).

User satisfaction with AI technologies, reflecting overall usability, accessibility, and utility from the perspective of public servants.

Observed adaptability to AI systems, where available, based on qualitative input or feedback from direct supervisors concerning employees' behavioral adjustment to digital tools.

Self-assessed sufficiency of training and preparedness, indicating whether respondents feel adequately trained and confident in operating AI systems.

Each component was individually standardized (z-scores) and assigned equal weight in the composite index to avoid bias toward any single dimension. The resulting EAI score reflects a balanced, behaviorally anchored, and context-sensitive metric of AI implementation effectiveness. This structure aligns with current recommendations in public sector innovation assessment, which emphasize the integration of perceptual, behavioral, and institutional inputs to capture digital transformation outcomes comprehensively.

For future research, it would be appropriate to further enhance the construct validity of the EAI index by incorporating external performance indicators, such as objective

service delivery metrics (e.g., response time reductions, processing accuracy), and by conducting longitudinal analysis to track changes over time. Additionally, triangulating the EAI score with citizen satisfaction surveys and qualitative interviews could enrich the understanding of AI's systemic impact within administrative settings. Integrating multilevel modeling approaches may also yield insights into the organizational and contextual moderators that affect the EI–AI relationship across different tiers of public governance.

3. Results

The advancement of artificial intelligence in public administration represents a pivotal area of digital transformation within state institutions, aimed at enhancing the efficiency of decision-making, optimizing processes, and improving engagement with citizens. However, the implementation of automated systems necessitates not only technological adaptation but also the consideration of social and psychological factors, particularly the emotional intelligence of public servants. Emotional intelligence, understood as the ability to recognize, regulate, and utilize emotions in professional contexts, plays a critical role in decision-making, citizen interaction, and the management of organizational change amid technological innovation (Table 1).

Table 1. Key aspects of the relationship between emotional intelligence of public servants and the effectiveness of artificial intelligence implementation in public administration

Aspect	The impact of emotional intelligence	The impact of artificial intelligence
Decision-making	Ensures validity, ethical considerations and social responsibility	Analyzes large amounts of data to predict and optimize decisions
Interaction with citizens	Increases the level of trust, promotes a personalized approach and effective conflict resolution	Automates service delivery processes and minimizes bureaucratic delays
Change management	Promotes adaptation of employees to new conditions through the development of flexible thinking and communication skills	Introduces innovations, reducing manual labor and increasing productivity
Trust in technology	Creates a positive attitude towards innovation, ensures transparency and ethical use of innovations	Provides tools for data analysis and control, reduces the risk of subjectivity
Management efficiency	Improves communication within organizations, promotes effective delegation and coordination	Automates routine tasks, increases the accuracy of administrative processes

Source: compiled by the author

Emotional intelligence among public servants plays a critically important role in the implementation of artificial intelligence (AI) within administrative processes, ensuring effective interaction between technological systems, personnel, and

citizens. Practical cases of AI application in public governance demonstrate that the emotional intelligence level of employees directly influences the success of automated decision-making integration, public perception, and trust in state services. In Ukrainian Administrative Service Centers (CNAPs), AI systems are actively used for automated citizen appointments, workload distribution among employees, and performance evaluation. However, analysis of real-world practices shows that despite high levels of technologization, citizen satisfaction remains strongly dependent on the emotional intelligence of staff. For instance, when the system assigns a queue number to a citizen without considering their social status (e.g., pensioners, persons with disabilities, or military personnel entitled to priority service), an emotionally intelligent employee can promptly intervene to correct the situation, thereby preventing conflict and reducing negative attitudes toward automation.

In the field of tax administration, automated algorithms are used to detect tax evasion risks, generate audit requests, and analyze transactions. In Estonia, for example, the e-Tax system automatically examines declarations and identifies anomalies in corporate financial reporting, reducing the need for human oversight. Nonetheless, when an official with low emotional intelligence blindly trusts the system's conclusions, it may lead to unjust penalties against entrepreneurs who have not violated any laws. The experience of EU countries suggests that the most effective model combines AI's analytical capabilities with human ability to interpret results while considering individual circumstances.

Another illustrative example is the use of AI-powered chatbots in social welfare communication. In the United States and the United Kingdom, automated systems in social service agencies quickly respond to inquiries, analyze citizen requests, and provide personalized consultations. Pilot projects in Ukraine, particularly at the Ministry of Digital Transformation, have shown that the effectiveness of such tools significantly increases when emotionally intelligent officials are involved in supporting and correcting automated responses. For instance, if the system fails to recognize a citizen's query regarding benefit entitlements, a staff member with strong communication skills can provide additional clarification, reducing citizen frustration and reinforcing a positive attitude toward digitalization.

In practice, the integration of AI into public administration demonstrates that technological solutions cannot fully replace the human factor, and the effectiveness of their application largely depends on the emotional intelligence of public servants. International studies show that the best outcomes are achieved in countries where automation is accompanied by emotional intelligence development programs for public officials, including specialized training, adaptation initiatives, and professional development. Therefore, in modern conditions, combining AI's analytical power with human empathy, communication, and cognitive flexibility is key to successful digital transformation in the public sector.

To illustrate key trends in respondent answers, Table 2 presents sample results for 10 individuals, with summarized data for the full sample expressed as percentages in the final row.

**Table 2. Assessment of emotional intelligence, attitudes toward artificial intelligence,
and public servants' readiness for digital transformation**

Respondent ID	Level of emotional intelligence (0-100), %	Attitude towards AI implementation (1 - negative, 2 - neutral, 3 - positive)	Believes that ai will reduce workload (1 - yes, 0 - no)	Believes that AI threatens work (1 - yes, 0 - no)	Level of digital competencies (0-100), %	Need for training (1 - yes, 0 - no)
1	85	3	1	0	78	0
2	60	3	1	0	85	1
3	45	2	1	1	55	1
4	90	3	1	0	82	0
5	55	2	1	1	50	1
6	40	1	0	1	42	1
7	72	3	1	0	68	0
8	88	3	1	0	80	0
9	50	2	1	1	48	1
10	30	1	0	1	35	1
Generalized results (150 respondents, %)	Medium level: 66 %	68% positive, 21% neutral, 11% negative	74% yes, 26% no	26% yes, 74% no	Average level: 61%	81% yes, 19% no

Source: author's own development

The developed mathematical model is based on a comprehensive analysis of how the emotional intelligence (EI) level of public servants influences the effectiveness of artificial intelligence (AI) implementation in public administration. To obtain relevant data, both objective and subjective assessment methods were applied for key variables. The level of emotional intelligence was measured using the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), which evaluates cognitive and emotional capabilities in the areas of emotion recognition, understanding, regulation, and application.

In addition to emotional intelligence, the model incorporates several other essential parameters, each assessed through specific methods:

- Digital Competence (DC) was evaluated using an adapted digital literacy test that included questions about the use of electronic document management systems, automated administrative tools, data processing skills, and proficiency in specialized software. Based on test results, each respondent received a score ranging from 0 to 100.
- Attitude Toward Artificial Intelligence (AI_AT) was determined through a mini-survey consisting of three questions assessing overall views on digital transformation, willingness to work with AI, and perceived impact of AI on professional tasks. Responses were ranked as: 1 – negative, 2 – neutral, 3 – positive.
- Expected Impact of Automation (AI_IMPACT) was evaluated based on two yes/no questions regarding expectations about workload reduction (1 – yes, 0 – no) and concern about job displacement (1 – yes, 0 – no).

•Need for Training (T) was recorded for respondents who expressed a lack of knowledge in digital technologies and a need for additional training.
Thus, the model integrates both objective testing results (MSCEIT for EI and digital competence assessment) and subjective responses regarding AI perception, automation impact, and training needs.

The mathematical model is presented as a regression equation:

$$E_{AI} = \alpha + \beta_1 EI + \beta_2 DC + \beta_3 AI_ATT + \beta_4 AI_IMPACT + \beta_5 T + \varepsilon \quad (1)$$

Where:

- EAI – effectiveness of AI implementation,
- EI – level of emotional intelligence,
- DC – level of digital competence,
- AI_AT – attitude toward AI,
- AI_IMPACT – expected impact of automation,
- T – need for training,
- α – constant term,
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ – coefficients representing the influence of corresponding variables,
- ε – random error term.

To verify the model, predicted values of AI implementation effectiveness were calculated for a sample of 10 respondents using the developed regression equation. The calculated results are presented in Table 3.

**Table 3. Calculated effectiveness of artificial intelligence implementation based
on the regression model (sample of 10 respondents)**

Respondent ID	Level of emotional intelligence (EI)	Digital competence (DC) Level	Attitude towards AI (AI_AT)	Believes that AI will reduce the workload (AI_impact: 1 - yes, 0 - no)	Need for training (T: 1 - yes, 0 - no)	Estimated efficiency of AI implementation (EAI)
1	85	78	3	1	0	83.2
2	60	65	3	1	1	72.5
3	45	55	2	1	1	65.1
4	90	82	3	1	0	86.4
5	55	50	2	1	1	68.9
6	40	42	1	1	0	58.3
7	72	68	3	1	0	78.7
8	88	80	3	1	0	85.6
9	50	48	2	1	1	67.4
10	30	35	1	0	1	55.8

Source: author's own development

The obtained results enable a detailed analysis of how emotional intelligence, digital competence, attitudes toward artificial intelligence, and the need for training influence the effectiveness of AI integration in public administration. The calculated EAI values demonstrate a significant dependence of digital technology integration

efficiency on the psychological and professional characteristics of public servants, affirming the importance of a comprehensive approach to digital transformation.

Respondents with high emotional intelligence (85–90 points) and high digital competence (78–82 points) show the highest effectiveness in AI implementation ($EAI > 83$). This suggests that a combination of adaptability, strong communication skills, and digital awareness creates optimal conditions for the adoption and use of automated technologies. Such officials not only have a positive attitude toward digital changes but are also capable of integrating them effectively into their work without substantial psychological barriers.

Respondents with medium emotional intelligence (55–72 points) and medium digital competence (50–68 points) demonstrated EAI values in the range of 67–79. While generally supportive of digitalization, these individuals may face adaptation difficulties, especially when training is insufficient or technical support is limited. The differences in effectiveness within this group are largely explained by attitudes toward technology: those who perceive AI as a threat to their jobs report lower EAI scores, as they tend to resist new technologies.

Respondents with low emotional intelligence (< 50 points) and insufficient digital competence (< 50 points) show significantly lower EAI values ($EAI < 60$). This indicates that a lack of digital skills, combined with poor emotional regulation, leads to difficulties in accepting technological changes, greater distrust of automated systems, and reduced readiness to work in digitalized environments.

An additional factor affecting EAI is the need for training (T). Respondents who reported a need for additional preparation to work with AI scored lower in effectiveness even when other indicators were high. This highlights the importance of developing digital competencies alongside psychological and social adaptation.

The identified correlation between emotional intelligence, digital competence, and the effectiveness of AI implementation confirms the necessity of a multidimensional approach to digital transformation in public administration. The findings show that the success of automated system integration depends not only on technical capacities but also on the readiness of personnel for change, their emotional maturity, and communication skills.

The practical application of this model allows for forecasting AI implementation effectiveness in public institutions, identifying categories of civil servants who require additional training or support, and designing digital transformation strategies that account for the human factor. The model can assist in developing personalized training programs that enhance civil servants' ability to use AI tools effectively, ensuring the successful integration of new technologies into the public sector. This, in turn, contributes to improved administrative processes, reduced resistance to digitalization, and enhanced interaction between the state and citizens through effective use of automated systems.

4. Discussion and conclusions

This study offers valuable insights into the link between emotional intelligence and AI implementation in public administration; however, several methodological

limitations must be acknowledged. The sample of 150 public servants, while diverse in regional representation, lacks detailed demographic and institutional breakdowns by age, gender, job function, sector, or government level. This omission limits the generalizability of findings and prevents subgroup analysis that could reveal variation in attitudes or competencies across administrative contexts.

Additionally, the regression model does not control for potential confounders such as organizational support, managerial status, prior exposure to AI, or years of service. These unobserved factors may influence both emotional intelligence and AI engagement, potentially inflating the estimated effect of EI.

To address these issues, future research should incorporate stratified sampling and include key contextual variables in the analytical model. Controlling for organizational and structural influences would allow for a more precise understanding of how emotional intelligence interacts with institutional conditions in shaping digital transformation outcomes. Despite these limitations, the study establishes a foundation for broader empirical validation and refinement.

Although the study demonstrates a statistically significant association between emotional intelligence (EI) and the perceived effectiveness of AI implementation, it does not currently include direct behavioral or organizational performance indicators to validate this relationship. As a result, the practical implications of the findings remain partially theoretical.

To address this limitation, future research should incorporate objective behavioral metrics, such as system usage logs, task automation frequency, processing time reductions, error rates, and citizen satisfaction levels pre- and post-AI implementation. Tracking employee engagement and turnover in relation to EI-based leadership styles would also offer meaningful insights into the organizational impact of emotional competence.

Preliminary qualitative insights gathered during the survey phase suggest that departments with higher EI scores experienced smoother AI integration, improved internal collaboration, and reduced complaints. For instance, administrative centers with emotionally intelligent staff reported a 15–20% drop in service delays and increased citizen satisfaction, based on internal performance reviews.

Furthermore, employees with high EI were more likely to intervene when AI-generated decisions conflicted with human judgment or social norms—an observation consistent with prior studies linking EI to improved adaptability, conflict resolution, and digital leadership (Lee, 2021). Complementary research by Kaur and Sharma (2021) and Alhosani and Alhashmi (2024) confirms that emotionally intelligent environments enhance organizational resilience and improve the responsiveness of AI-supported services.

To strengthen empirical grounding, future studies should adopt a mixed-methods approach by combining statistical analysis with case studies and real-time performance data. Such triangulation would offer a more comprehensive view of how emotional intelligence contributes to tangible improvements in digital governance outcomes.

The results of the empirical study and mathematical modeling have made it possible to identify several key issues that influence the effectiveness of artificial intelligence implementation in the administrative processes of the public sector.

The first issue is the uneven distribution of digital competencies among public servants, leading to a noticeable gap between technological capabilities and the actual ability of employees to use AI tools effectively. According to the survey, 81% of respondents indicated a need for additional training to work with digital systems. Correlation analysis confirmed that digital literacy is a statistically significant predictor of successful AI integration. A similar pattern is discussed by B. Wirtz, J. Weyerer, and C. Geyer, who emphasize that even the presence of technical solutions does not guarantee effective implementation without appropriate digital training. They advocate for long-term digital strategies that include workforce development as a key condition for sustainable innovation (Wirtz et al., 2019).

The second major issue concerns the link between emotional intelligence and perceptions of AI. The study revealed that public servants with high EI are more open to using AI, viewing it as a tool for process improvement, while those with lower emotional regulation tend to perceive it as a threat to their jobs or as a source of additional stress. Notably, 26% of respondents considered AI a potential threat to their professional roles. R. Bhardwaj, D. Sharma, and M. Dhiman offer similar conclusions, arguing that high emotional intelligence fosters trust in algorithmic systems, thus facilitating their integration into management. They propose a methodology for integrating EI and AI in management systems to reduce resistance to change (Bhardwaj et al., 2023). Likewise, E. Kambur emphasizes the importance of the EI-AI relationship in shaping an "emotionally grounded" AI, perceived by staff not as a threat but as support (Kambur, 2021).

Another identified challenge is low adaptability to technological change among public servants. The study showed that even with adequate digital skills, AI implementation effectiveness remains low when negative attitudes toward change prevail. For example, among respondents with medium digital skills but negative views on AI, integration effectiveness was 12–15% lower than among those with positive attitudes toward technological innovations. This finding is supported by H. J. Lee, who explored how emotional labor in the public sector relates to job satisfaction. The author argues that civil servants with higher EI adapt better to external changes due to greater cognitive flexibility and lower susceptibility to emotional burnout (Lee, 2021).

Distrust of automated decisions also poses a significant barrier. The study recorded that civil servants with low digital literacy are more likely to be skeptical of AI-generated decisions, preferring manual methods even when such choices slow down administrative processes. According to research by S. Rokhsaritalemi, A. Sadeghi-Niaraki, and S.-M. Choi, this distrust is tied to the emotional perception of AI as an "alien" technology that disregards the human context. The authors stress that analyzing emotions — as reactions of both citizens and employees — is critical for designing trustworthy interfaces and services (Rokhsaritalemi et al., 2023).

Another issue is the lack of managerial support. The study indicates that institutions where digitalization is a strategic priority and is accompanied by training programs

show significantly higher levels of AI integration effectiveness. Conversely, in organizations lacking clear communication about innovation goals and mechanisms, employee resistance is considerably stronger. This observation aligns with findings by I. Mainardi, who highlights the importance of strategic leadership in managing change. The author demonstrates that proactive communication from management reduces employee anxiety and builds trust in new processes (Mainardi, 2024).

In a broader context, institutional and cultural factors also affect attitudes toward AI. M. S. Khine argues that AI education should incorporate social-emotional training components, especially in educational and administrative environments. The author proposes adaptive learning tools that not only teach digital skills but also reshape emotional attitudes toward technology, ultimately reducing resistance (Khine, 2024). In conclusion, the results of this study are closely aligned with current international findings and confirm that effective AI implementation in public administration is not possible without addressing the human factor — digital literacy, emotional intelligence, adaptability, and leadership support. A comprehensive digital transformation strategy must encompass not only technical modernization but also psychological preparation, institutional trust, and the development of emotional sensitivity within governance systems.

The results of the study confirmed the significant influence of public servants' emotional intelligence on the effectiveness of artificial intelligence (AI) implementation in public administration. It was established that a high level of emotional intelligence correlates with a positive perception of digital technologies, greater adaptability to change, and improved integration of automated solutions into administrative processes. Conversely, low levels of emotional intelligence and digital competence considerably hinder the digital transformation process due to resistance to technological innovations, distrust of automated systems, and the need for additional training.

The main challenges identified in the integration of AI into administrative processes include unequal levels of digital competence among public servants, distrust toward automated decisions, limited cognitive flexibility among some employees, and insufficient managerial support. Survey data show that 81% of respondents require additional training, and 26% perceive AI as a threat to their professional activities. Furthermore, even among officials with high digital competence, AI implementation effectiveness decreases when they have a negative attitude toward change. This emphasizes the importance of accounting for socio-psychological factors in the digital transformation of public administration.

The developed mathematical model enables the prediction of AI implementation effectiveness based on assessments of emotional intelligence, digital competence, attitudes toward technology, and training needs. The model confirmed that successful AI implementation is achievable when emotional intelligence and digital skills are developed simultaneously, fostering trust in technology and minimizing resistance to change. It also allows for the identification of employee categories in need of adaptation and training, forming a foundation for personalized strategies to prepare public servants for working in a digital environment.

Based on the collected data, practical recommendations were formulated, including the need to establish a comprehensive training system for public servants. This system should address both technical and socio-psychological aspects of interaction with technology. The optimization of the digital transformation process must involve not only technological upgrades but also the psychological preparation of personnel, including communication training, development of emotional regulation, and cognitive flexibility. Special attention should be given to implementing adaptive mechanisms that reduce resistance to change and promote effective use of AI in the public sector.

Although the regression model presented in this study establishes statistically significant associations between emotional intelligence (EI), digital competence, and the effectiveness of AI implementation in public administration, a deeper exploration of the psychological mechanisms underpinning these relationships is necessary to enhance interpretive precision. Emotional intelligence is not a monolithic construct but a composite of interrelated cognitive-emotional abilities, each of which may influence behavioral outcomes in distinct ways.

Using the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), this research evaluated EI across four foundational domains: (1) perceiving emotions, (2) using emotions to support reasoning, (3) understanding emotional patterns, and (4) regulating emotions. Preliminary correlation analysis indicated that the third and fourth domains—understanding emotions and managing emotions—were most strongly associated with higher effectiveness scores in AI implementation. These capacities are particularly salient in public sector digitalization efforts, as they support emotional self-regulation during periods of organizational change, facilitate stress management, and enable public servants to interpret and respond constructively to emotionally charged situations that may arise during human-machine interactions.

Beyond direct associations, the study also identified a potential mediating role of attitudinal variables. Public servants with higher EI demonstrated more favorable dispositions toward AI technologies, which, in turn, were associated with greater engagement and more effective use of such systems. This suggests that emotional intelligence may influence AI implementation outcomes not only through intrapersonal competencies but also via attitudinal pathways—an interpretation supported by earlier empirical studies (e.g., Bhardwaj et al., 2023; Lee, 2021). These findings reinforce the notion that emotionally intelligent individuals are more likely to perceive technological change as an opportunity rather than a threat, thus reducing resistance and increasing openness to innovation.

To substantiate these mechanisms, future research should employ advanced statistical techniques such as mediation analysis and structural equation modeling (SEM). These methods can disentangle the direct and indirect effects of EI components and test the significance of attitudinal variables as mediators. Incorporating longitudinal data would also allow for the examination of causal pathways—specifically, whether targeted interventions aimed at strengthening emotional regulation or empathy translate into improved attitudes and more sustainable patterns of AI engagement.

Unpacking the internal dynamics between emotional intelligence and AI adoption enriches the theoretical contribution of this research by highlighting EI as a modifiable enabler of digital transformation. Rather than viewing EI as a static personal trait, this study supports its interpretation as a dynamic, trainable competency that facilitates adaptive behavior, fosters trust in automated systems, and enhances readiness for innovation. Such an approach offers actionable insights for designing personalized training programs and institutional policies that integrate emotional development into broader digital transformation strategies in the public sector.

Future research directions include expanding the empirical base of the study, analyzing the long-term effects of AI integration into public governance, and developing innovative training approaches for civil servants within the context of digital transformation. Continued investigation into the role of emotional intelligence in successful digital technology adoption will support the creation of more effective adaptation mechanisms and contribute to the optimization of AI integration within public administration systems.

Conflict of Interest Statement

The authors declare that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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