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Building the Educational Foundation for Sustainable Digital Governance: A Survey of AI and Public Administration Competencies among Romanian Students

By Sorin Burlacu*[1], Carmen Valentina Rădulescu[2], Ioan I. Gâf-Deac[3], Ion Pârgaru[4]

ABSTRACT:
The accelerated digital transformation of public administration and the emergence of regulations on artificial intelligence require the redefinition of the skills needed by future civil servants in relation to the demands of sustainable digital governance. Although literature analyzes institutional digitalization and administrative capacity, there is a gap regarding the systematic assessment of students' preparation for the integration of AI, data-driven skills and the ethical dimension in the context of sustainable development. The study aims to assess the perceived level of preparation and skills gaps among students in the field of Public Administration and Environmental Economics in Romania, with a focus on advanced digital skills, AI literacy, administrative skills and transversal skills.
The methodology consists of an online questionnaire applied to students from bachelor's and master's degree programs analyzed through descriptive statistics, comparative tests between groups and regression models to identify the relationships between skills, institutional trust and the intention to use AI in the public sector. Preliminary results indicate significant differences between study levels and highlight gaps in applied AI skills and algorithmic governance.
The added value lies in integrating the educational dimension into the debate on sustainable digital governance, contributing to the substantiation of curricular reform and the alignment of administrative education with the European sustainable development agenda. Limitations concern the transversal nature of the research and the use of self-assessment of skills. Future directions include international comparative extension and the integration of mixed methods for in-depth validation.

Keywords: survey, AI, public administration, competencies

1. Introduction

The ongoing digital transformation of public administration, accelerated by the integration of artificial intelligence (AI) technologies, is reshaping governance models, administrative processes, and the competencies required of future civil servants. In the European context, recent regulatory frameworks—such as the AI Act and the Digital Decade agenda—emphasize not only technological adoption but also the development of human capital capable of ensuring ethical, transparent, and sustainable digital governance. Consequently, public administration is increasingly transitioning from a bureaucratic

[1]The Faculty of Administration and Public Management, Bucharest University of Economic Studies, Romania,
[2]The Faculty of Agrifood and Environmental Economic, Bucharest University of Economic Studies, Romania,
[3]INCE C. Kiritescu / Romanian Academy, Bucharest, Romania,
[4]Valahia University of Târgovişte, Romania,

paradigm to a data-driven and algorithmically supported system, where decision-making processes rely on advanced digital infrastructures and AI-based tools.

This transformation generates a structural shift in the competency profile of public sector professionals. Beyond traditional administrative knowledge, there is a growing demand for digital literacy, data analytics capabilities, AI understanding, and ethical reasoning in relation to algorithmic governance. At the same time, transversal competencies—such as critical thinking, adaptability, and collaborative problem-solving—are becoming essential for navigating complex socio-technical environments.

Despite the expanding body of literature on digital government and administrative capacity, existing research predominantly focuses on institutional readiness, technological implementation, and governance outcomes. Less attention has been paid to the educational dimension, particularly to how well current academic programs prepare students for the realities of AI-enabled public administration. This gap is especially relevant in emerging and transitioning contexts, such as Romania, where digital transformation processes are ongoing and unevenly institutionalized.

In this context, higher education institutions play a strategic role in shaping the competencies of future public servants and aligning curricula with the evolving demands of sustainable digital governance. However, empirical evidence regarding students' perceived readiness, skills gaps, and attitudes toward AI integration in the public sector remains limited.

Addressing this gap, the present study investigates the level of preparedness of students in Public Administration and Environmental Economics programs in Romania, with a focus on digital, AI-related, administrative, and transversal competencies. By employing a quantitative survey-based approach, the research aims to provide evidence-based insights that can inform curriculum development, policy design, and institutional strategies for strengthening digital governance capacities.

2. Literature Review

The accelerated integration of artificial intelligence (AI) into public administration has generated a substantial body of research examining its implications for governance, institutional capacity, and public value creation. Rather than representing a purely technological shift, AI adoption reflects a broader transformation of administrative systems, in which digital infrastructures, organizational arrangements, and human competencies co-evolve. Systematic reviews emphasize that AI deployment in the public sector is associated with both opportunities—such as increased efficiency, predictive capacity, and data-driven decision-making—and risks related to transparency, accountability, and legitimacy (Zuiderwijk et al., 2021; Madan & Ashok, 2023). Within this evolving landscape, public administrations are required to reconcile innovation imperatives with bureaucratic stability, regulatory constraints, and societal expectations, which positions human capital as a critical determinant of successful digital transformation.

Empirical and conceptual studies consistently underline that the effectiveness of AI-enabled governance depends not only on technological availability but also on the competencies of public sector actors. The literature on AI implementation in government highlights the importance of managerial and operational capabilities, including data

literacy, algorithmic understanding, and the ability to interpret and contextualize AI-generated outputs in complex decision-making environments (Sandoval-Almazan et al., 2024; Selten & Klievink, 2024). These findings suggest that AI adoption is fundamentally a socio-technical process, where institutional performance is contingent upon the alignment between digital tools and human competencies. In parallel, research conducted in the European context demonstrates that AI uptake across public administrations remains uneven, reflecting variations in institutional readiness, strategic orientation, and administrative capacity (van Noordt & Misuraca, 2022; van Noordt & Tangi, 2023). This heterogeneity reinforces the argument that digital transformation should be approached as a capability-building process rather than a purely technological upgrade.

Within this framework, the role of competencies becomes central. The literature distinguishes between several interrelated dimensions of competence relevant for AI-enabled public administration. First, digital and technical skills provide the foundational capacity to interact with AI systems, including the use of digital platforms, data processing tools, and algorithmic interfaces. Second, administrative competencies ensure that AI outputs are interpreted within institutional, legal, and procedural contexts, preserving the integrity of public decision-making processes. Third, transversal competencies—such as critical thinking, adaptability, and communication—enable individuals to navigate uncertainty, assess risks, and engage in collaborative problem-solving. The interplay among these dimensions reflects the increasing complexity of public sector work in digital environments.

Research on AI literacy further refines this perspective by conceptualizing the ability to understand, use, and critically evaluate AI systems as a multidimensional construct that extends beyond technical proficiency (Ng et al., 2021; Laupichler et al., 2022). Recent frameworks emphasize that AI literacy encompasses cognitive, practical, and ethical components, including awareness of algorithmic limitations, biases, and societal implications (Chiu et al., 2024). Empirical studies conducted in higher education indicate that AI literacy is positively associated with broader digital competence, prior exposure to AI tools, and structured learning experiences (Delcker et al., 2024). These findings are particularly relevant for public administration education, as they suggest that future public servants' readiness to work with AI is shaped during their academic formation rather than developed exclusively within organizational contexts.

At the same time, literature increasingly challenges a narrow, technology-centric view of AI preparedness. Studies in educational and organizational contexts emphasize that the effective use of AI requires a combination of technical knowledge and higher-order cognitive and social skills. Critical thinking is necessary for evaluating algorithmic outputs, while adaptability and learning capacity are essential in rapidly evolving technological environments. Communication and collaboration skills facilitate the integration of AI into team-based and inter-institutional processes. This broader competency framework aligns with research on sustainable public administration, which highlights the need to integrate technological innovation with ethical considerations and social responsibility (Burlacu et al., 2023).

Ethical and governance-related concerns represent another central dimension of literature. AI systems deployed in the public sector may affect citizens' rights, access to services, and perceptions of fairness, making transparency and accountability essential

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conditions for legitimacy. Empirical evidence suggests that trust in AI is shaped by both institutional factors—such as regulatory frameworks and organizational transparency—and individual-level factors, including competence and understanding of AI systems (Berman et al., 2024). In this sense, trust is not merely a passive attitude, but a relational construct influenced by knowledge, experience, and perceived control. The literature indicates that individuals with higher levels of AI literacy are more likely to develop calibrated trust, characterized by a balanced assessment of benefits and risks.

The relationship between trust and intention to use AI has been widely discussed in studies on technology acceptance and public sector innovation. In administrative contexts, intention to use AI is influenced not only by perceive usefulness and ease of use but also by institutional trust and normative considerations. Public servants and future employees may be reluctant to rely on AI systems if they perceive them as opaque, unreliable, or misaligned with public values. Conversely, higher levels of trust can facilitate the integration of AI into professional practice, particularly when accompanied by adequate competencies and organizational support. This dynamic is particularly relevant in the context of public administration, where the adoption of AI has implications for both efficiency and democratic legitimacy.

In the Romanian context, digital transformation has been framed as a strategic priority linked to sustainable development and administrative modernization. Existing studies highlight the increasing role of digital governance, e-government systems, and technological innovation in reshaping public administration processes (Burlacu et al., 2022; Burlacu et al., 2025). At the same time, research on socio-cultural sustainability and resilience in public services emphasizes the importance of inclusive, equitable, and ethically grounded approaches to digital transformation (Burlacu et al., 2023). Complementary work on economic and cybernetic dimensions of AI further underscores its potential contribution to national development, while also pointing to the need for coherent policy frameworks and institutional capacity (Rădulescu et al., 2025). These perspectives suggest that the successful integration of AI in Romanian public administration depends on the alignment between technological innovation, human competencies, and sustainability objectives.

Despite the rapid expansion of literature, several gaps remain. First, most studies focus on public organizations, employees, or managerial perspectives, while relatively little attention is paid to students who will enter the public sector and shape future administrative practices. Second, research on AI literacy is predominantly situated in general educational contexts, without sufficient differentiation for disciplines closely linked to governance and public administration. Third, existing studies rarely integrate multiple dimensions—digital skills, AI literacy, administrative competencies, transversal skills, and institutional trust—into a unified analytical framework capable of explaining intention to use AI in public sector contexts. This fragmentation limits the ability to develop comprehensive models that capture the complexity of AI-enabled governance.

Addressing these limitations, the present study adopts an integrative perspective that connects educational and administrative dimensions, focusing on students from public administration and related fields. By examining the relationships among digital competencies, AI literacy, administrative and transversal skills, institutional trust, and intention to use AI, the research contributes to bridging the gap between higher education

and public sector transformation. In doing so, it responds to the need for empirically grounded insights into how future public servants perceive and engage with AI, providing a basis for both academic advancement and policy-relevant recommendations.

3. Research Methodology

The research adopts a quantitative, cross-sectional design aimed at examining the relationships between competencies, institutional trust, and the intention to use artificial intelligence (AI) in the public sector. This approach is appropriate for analyzing perceptions, self-assessed competencies, and behavioral intentions among students preparing for careers in public administration and related fields.

Data collected through an online questionnaire administered to students enrolled in bachelor's and master's degree programs. The target population consists of individuals with academic exposure to public administration, economics, or related disciplines, representing a relevant proxy for future public sector employees. The sampling strategy is non-probabilistic and based on voluntary participation, which is common in higher education research but requires cautious interpretation regarding external validity.

The questionnaire was designed to operate the key constructs derived from the literature: digital skills, AI literacy, administrative competencies, transversal skills, institutional trust, and intention to use AI in the public sector. Each construction was measured using multiple items evaluated on Likert-type scales ranging from 1 (strongly disagree) to 5 (strongly agree). Digital skills capture respondents' ability to use digital tools and technologies, while AI literacy reflects their understanding, evaluation, and responsible use of AI systems. Administrative competencies refer to knowledge and abilities related to public sector processes and decision-making, whereas transversal skills include critical thinking, adaptability, and communication. Institutional trust is defined as the level of confidence in public institutions to implement AI responsibly, and intention to use AI reflects respondents' willingness to adopt AI tools in future professional activities.

Prior to data collection, the instrument was pre-tested on a small group of respondents to ensure clarity, relevance, and internal consistency. Based on the feedback received, minor adjustments were made to improve item formulation and reduce ambiguity. The final version of the questionnaire was distributed electronically, allowing efficient data collection across different study programs.

The data analysis strategy combines descriptive, comparative, and inferential statistical techniques. In the first stage, descriptive statistics (means, standard deviations, and frequency distributions) are used to provide an overview of respondents' characteristics and to assess general patterns across the studied variables. This step allows the identification of central tendencies and variability within the sample.

In the second stage, comparative analyses are conducted to examine differences between bachelor's and master's students. Independent samples t-tests are employed to identify statistically significant differences in competencies, AI literacy, and intention to use AI between the two groups, based on the assumption that educational level may influence exposure to digital tools and the development of relevant skills.

In the third stage, regression analysis is applied to test the proposed relationships between variables. Multiple linear regression models are used to estimate the influence of digital

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skills, AI literacy, administrative competencies, transversal skills, and institutional trust on the intention to use AI in the public sector. Additional models are employed to assess the effect of digital skills on AI literacy and the effect of AI literacy on institutional trust. This approach allows for the identification of significant predictors while controlling for the simultaneous influence of multiple independent variables.

4. Results

The results of the empirical analysis provide insights into students' preparedness for AI-enabled public administration and the relationships between competencies, institutional trust, and intention to use artificial intelligence in the public sector.

The descriptive analysis indicates that respondents report relatively high levels of general digital skills, reflecting widespread familiarity with digital technologies in higher education. However, the level of AI literacy appears more heterogeneous, suggesting that exposure to digital tools does not necessarily translate into a deeper understanding of AI systems and their implications. Administrative competencies are generally perceived as adequate, while transversal skills—such as critical thinking and adaptability—are consistently evaluated as important for future professional activity. Institutional trust shows moderate levels, indicating a combination of openness toward technological innovation and concerns related to the capacity of public institutions to manage AI responsibly.

Table 1. Descriptive statistics of the main survey variables

Variable	Mean	Std. Deviation	Minimum	Maximum
AI familiarity	2.91	1.13	1	5
AI contribution to decision-making	3.72	0.79	2	5
Algorithmic transparency	3.51	0.98	1	5
Service efficiency	3.88	0.97	2	5
Social/contextual risk	3.79	1.05	1	5
Academic preparedness	3.10	0.84	1	4

Table 1 presents the descriptive statistics for the main variables included in the analysis. The results indicate a moderate level of self-assessed familiarity with artificial intelligence concepts among respondents (M = 2.91, SD = 1.13), suggesting that, although students are not entirely unfamiliar with AI, their knowledge remains uneven. By contrast, the perceived contribution of AI to decision-making in public administration records a higher mean score (M = 3.72, SD = 0.79), indicating generally favorable attitudes toward the potential usefulness of AI in administrative processes.

Perceptions regarding the effects of AI are also relatively positive in relation to public service efficiency (M = 3.88, SD = 0.97) and algorithmic transparency (M = 3.51, SD = 0.98). At the same time, respondents express substantial concern regarding the possibility that algorithmic decisions may ignore social and human context (M = 3.79, SD = 1.05). Finally, the evaluation of academic preparedness remains moderate (M = 3.10, SD = 0.84), suggesting that current university training is perceived as only partially sufficient for understanding and critically assessing the impact of emerging technologies in public administration.

Comparative analysis between bachelor's and master's students reveals statistically significant differences across several variables. Master's students tend to report higher levels of AI literacy, administrative competencies, and intention to use AI in the public sector. These differences can be attributed to greater academic exposure, more advanced coursework, and increased familiarity with applied contexts. In contrast, differences in basic digital skills are less pronounced, suggesting that foundational competencies are already broadly developed across both groups.

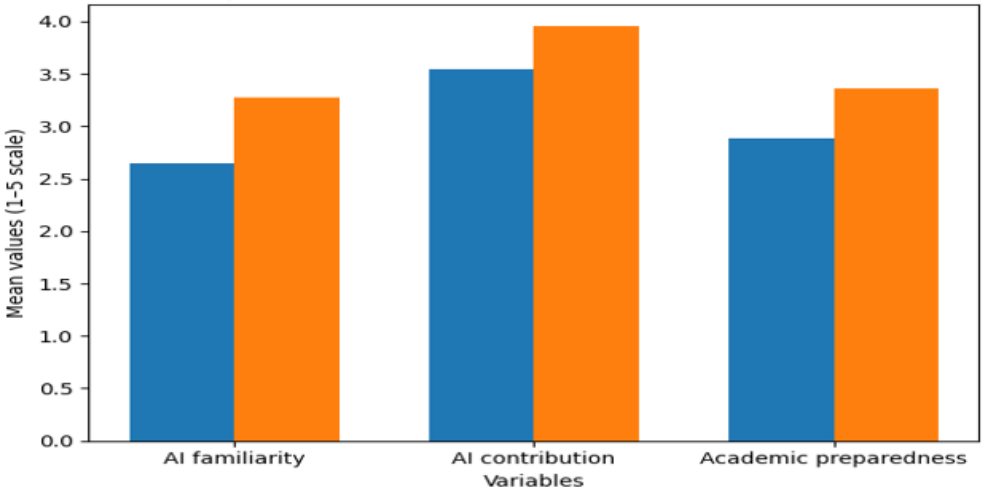

Figure 1. *Comparison of mean values between bachelor's and master's students across key variables related to artificial intelligence in public administration*
Source: Authors' own calculations.

Figure 1 illustrates the differences between bachelor's and master's students in terms of key variables related to artificial intelligence. The results show that master's students consistently report higher mean values across all analyzed dimensions. The most notable difference is observed in AI familiarity, suggesting that advanced academic exposure contributes to a better understanding of AI concepts. Similar patterns can be observed for perceived contribution of AI to decision-making and academic preparedness, indicating that master's students feel more confident in their ability to engage with AI-related topics. These findings support the assumption that educational level plays a significant role in shaping both competencies and attitudes toward AI in the public sector.

Table 2. Differences between bachelor's and master's students (independent samples t-test)

Variable	Bachelor (Mean)	Master (Mean)	t-value	df	p-value
AI familiarity	2.65	3.28	-3.12	110	0.002
AI contribution to decision-making	3.55	3.96	-2.45	110	0.016
Academic preparedness	2.88	3.36	-2.98	110	0.004

The results of the independent samples t-test confirm the existence of statistically significant differences between bachelor's and master's students across all analyzed

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variables. Master's students report significantly higher levels of AI familiarity ($t = -3.12$, $p = 0.002$), perceived contribution of AI to decision-making ($t = -2.45$, $p = 0.016$), and academic preparedness ($t = -2.98$, $p = 0.004$). These findings support the assumption that higher levels of academic exposure and specialization are associated with improved understanding and more favorable perceptions of artificial intelligence in the context of public administration.

The correlation analysis shows significant positive associations between the main constructs. Digital skills are positively correlated with AI literacy, while AI literacy is strongly associated with both institutional trust and intention to use AI. Administrative and transversal competencies also exhibit positive relationships with intention to use AI, supporting the assumption that both domain-specific and general skills contribute to technology adoption in the public sector.

Table 3. Correlation matrix

Variable	**1**	**2**	**3**	**4**	**5**	**6**
1. Digital skills	1					
2. AI literacy	0.58**	1				
3. Administrative competencies	0.42**	0.55**	1			
4. Transversal skills	0.47**	0.52**	0.60**	1		
5. Institutional trust	0.36**	0.49**	0.41**	0.38**	1	
6. Intention to use AI	0.51**	0.67**	0.53**	0.56**	0.45**	1

The correlation analysis reveals significant positive relationships among all the variables included in the model. Digital skills are moderately correlated with AI literacy ($r = 0.58$, $p < 0.01$), confirming their role as a foundational component of AI-related competencies. AI literacy shows the strongest association with intention to use AI ($r = 0.67$, $p < 0.01$), suggesting that understanding and critical awareness of AI systems are key drivers of adoption intentions.

Administrative competencies and transversal skills are also positively correlated with intention to use AI ($r = 0.53$ and $r = 0.56$, respectively), indicating that both domain-specific and general skills contribute to technology acceptance. Institutional trust demonstrates a moderate correlation with intention to use AI ($r = 0.45$, $p < 0.01$), supporting the assumption that confidence in public institutions facilitates the adoption of AI.

The regression analysis provides further support for the proposed relationships. Digital skills emerge as a significant predictor of AI literacy, confirming their role as a foundational component of AI-related competencies. AI literacy, in turn, has a strong and positive effect on the intention to use AI, indicating that individuals with higher levels of understanding and critical awareness are more likely to adopt AI in their future professional activities.

Administrative competencies also show a positive and statistically significant influence on intention to use AI, suggesting that familiarity with public sector processes enhances the perceived applicability of AI tools. Transversal skills contribute positively as well, highlighting the importance of cognitive flexibility and problem-solving abilities in complex digital environments. Institutional trust is positively associated with intention to use AI, indicating that confidence in public institutions plays a facilitating role in

technology acceptance. Furthermore, AI literacy contributes to institutional trust, suggesting that knowledge reduces uncertainty and supports more informed attitudes toward AI adoption.

Table 4. Regression analysis results for intention to use AI

Predictor	B	SE	Beta	t	p
(Constant)	0.84	0.42	—	2.00	0.048
Digital skills	0.18	0.07	0.19	2.57	0.012
AI literacy	0.41	0.08	0.43	5.12	0.000
Administrative competencies	0.21	0.09	0.20	2.33	0.022
Transversal skills	0.24	0.08	0.23	2.94	0.004
Institutional trust	0.17	0.07	0.16	2.29	0.024

The regression analysis confirms that the proposed model explains a substantial proportion of variance in the intention to use AI ($R^2 = 0.62$, $p < 0.001$), indicating a strong explanatory capacity. Among the predictors, AI literacy emerges as the most influential factor ($\beta = 0.43$, $p < 0.001$), highlighting its central role in shaping students' willingness to adopt AI in the public sector.

Digital skills also have a positive and statistically significant effect ($\beta = 0.19$, $p = 0.012$), supporting the assumption that general digital competence provides a foundation for AI-related adoption. Administrative competencies contribute significantly ($\beta = 0.20$, $p = 0.022$), suggesting that familiarity with public sector processes enhances the perceived applicability of AI technologies.

Transversal skills show a positive and significant influence ($\beta = 0.23$, $p = 0.004$), emphasizing the importance of cognitive flexibility and problem-solving abilities in complex technological environments. Institutional trust also exerts a positive effect ($\beta = 0.16$, $p = 0.024$), indicating that confidence in public institutions facilitates the acceptance and intended use of AI.

The results also indicate that AI readiness is not a singular construct but a combination of interrelated competencies and perceptions that influence the adoption of emerging technologies in the public sector.

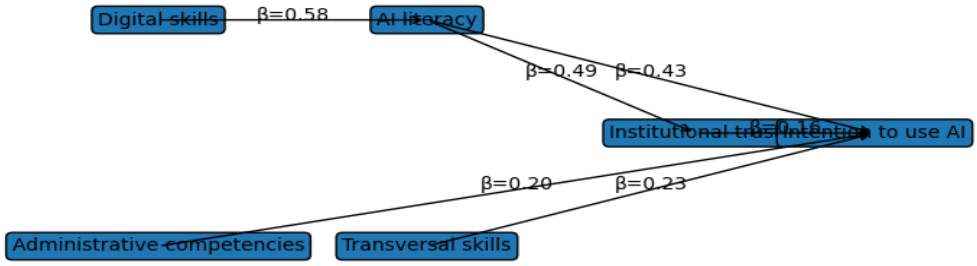

Figure 2. *Conceptual model with validated relationships between competencies, institutional trust, and intention to use artificial intelligence in the public sector. Source: Authors' own elaboration.*

Figure 2 presents the validated conceptual model derived from the regression analysis. The results confirm that digital skills significantly influence AI literacy, which in

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turn plays a central role in shaping both institutional trust and intention to use AI. Among all predictors, AI literacy has the strongest direct effect on intention to use AI, highlighting its pivotal role in the model.

Administrative and transversal competencies also exert significant positive effects on intention to use AI, indicating that both domain-specific knowledge and general cognitive abilities contribute to technology adoption. Institutional trust acts as a complementary factor, reinforcing the relationship between competencies and behavioral intention. Overall, the model illustrates a multidimensional structure in which technical, cognitive, and institutional factors jointly determine readiness for AI integration in the public sector.

5. Discussion

The findings of this study contribute to the growing body of literature on artificial intelligence in public administration by providing empirical evidence on how future public sector professionals perceive and integrate AI-related competencies. The results confirm that AI readiness is a multidimensional construct shaped by the interaction between digital skills, AI literacy, administrative competencies, transversal skills, and institutional trust.

A central finding of the study is the dominant role of AI literacy in explaining the intention to use AI in the public sector. This result is consistent with prior research emphasizing that understanding and critically evaluating AI systems are essential prerequisites for meaningful adoption (Ng et al., 2021; Laupichler et al., 2022; Chiu et al., 2024). The strong effect of AI literacy suggests that mere exposure to digital technologies is insufficient; instead, individuals must develop deeper cognitive and evaluative capacities related to AI in order to translate technological potential into practical use. This finding reinforces the argument that AI literacy should be treated as a core competence in public administration education rather than a complementary skill.

The positive influence of digital skills on AI literacy further supports the idea that general digital competence represents a necessary but not sufficient condition for AI readiness. This aligns with existing studies showing that foundational digital abilities facilitate the development of more advanced competencies, including those related to data interpretation and algorithmic reasoning (Delcker et al., 2024). However, the moderate strength of this relationship indicates that additional educational interventions are required to bridge the gap between basic digital proficiency and advanced AI literacy.

Administrative competencies also emerge as significant predictors of intention to use AI, highlighting the importance of domain-specific knowledge in shaping technology adoption. This finding is particularly relevant in the context of public administration, where decision-making processes are embedded in legal, procedural, and institutional frameworks. Consistent with previous research, the results suggest that individuals who better understand administrative processes are more capable of envisioning how AI can be integrated into public sector activities (Sandoval-Almazan et al., 2024; van Noordt & Tangi, 2023). Thus, the effective adoption of AI does not depend solely on technical expertise but also on the ability to contextualize technology within governance structures.

The role of transversal skills further reinforces this multidimensional perspective. The positive and significant effect of these competencies indicates that cognitive flexibility,

critical thinking, and adaptability are essential for navigating the uncertainties associated with AI adoption. This finding aligns with recent educational research, which emphasizes that AI integration requires higher-order skills that enable individuals to interpret, question, and adapt to algorithmic outputs (Crompton & Burke, 2023). In this sense, transversal competencies act as enabling factors that support the effective use of both digital and administrative knowledge.

Institutional trust plays a complementary but meaningful role in the model. The results show that trust in public institutions positively influences the intention to use AI, confirming that perceptions of institutional reliability and responsibility are important determinants of technology acceptance. This finding is consistent with studies on trustworthy AI, which highlight the importance of transparency, accountability, and governance frameworks in shaping user attitudes (Berman et al., 2024). At the same time, the positive relationship between AI literacy and institutional trust suggests that knowledge reduces uncertainty and fosters more informed and balanced perceptions of AI. This interplay between competence and trust indicates that increasing AI literacy may not only improve skills but also enhance institutional legitimacy.

The observed differences between bachelor's and master's students provide additional insight into the role of education in shaping AI readiness. Master's students consistently report higher levels of AI literacy, administrative competencies, and intention to use AI, suggesting that advanced academic exposure contributes to both knowledge development and attitudinal change. This finding supports the argument that higher education institutions play a critical role in preparing future public servants for digital transformation, particularly through specialized courses and applied learning experiences.

From a broader perspective, the results highlight the need to reconsider how competencies for public administration are conceptualized in the context of digital transformation. Traditional competency models, focused primarily on administrative knowledge and procedural skills, appear insufficient for addressing the challenges posed by AI. Instead, a more integrated framework is required, combining technical, cognitive, and institutional dimensions. This approach is consistent with research on sustainable public administration, which emphasizes the importance of aligning technological innovation with ethical, social, and organizational considerations (Burlacu et al., 2022; Burlacu et al., 2023).

6. Conclusions

This study examined the factors that shape students' readiness to engage with artificial intelligence in the public sector, focusing on the interplay between digital skills, AI literacy, administrative competencies, transversal skills, and institutional trust. The findings confirm that intention to use AI is not determined by a single dimension, but by a combination of interrelated competencies and perceptions that reflect the complexity of AI-enabled governance.

A key conclusion is the central role of AI literacy as the most influential predictor of intention to use AI. This highlights the importance of moving beyond general digital skills toward a deeper understanding of AI systems, including their functioning, limitations, and ethical implications. While digital skills provide a necessary foundation,

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they are insufficient on their own to ensure effective and responsible adoption of AI in public administration.

The results also demonstrate that administrative competencies and transversal skills significantly contribute to AI adoption. This finding underscores the need for a balanced competency framework that integrates technical knowledge with domain-specific understanding and higher-order cognitive abilities. In the context of public administration, the ability to interpret AI outputs within institutional and procedural frameworks is essential for maintaining accountability and legitimacy.

Institutional trust emerges as an additional factor influencing intention to use AI, reinforcing the idea that technological adoption in the public sector is closely linked to perceptions of governance quality. The positive relationship between AI literacy and institutional trust suggests that increasing knowledge and understanding of AI may help reduce uncertainty and support more informed attitudes toward its use.

From an educational perspective, the differences identified between bachelor's and master's students indicate that higher levels of academic exposure are associated with stronger competencies and more favorable attitudes toward AI. This finding emphasizes the critical role of higher education institutions in preparing future public servants for digital transformation. Current curricula appear to provide a solid foundation in digital skills but may require further development in terms of AI-specific content and applied learning experiences.

The study has several implications for policy and practice. First, educational programs in public administration should explicitly incorporate AI literacy as a core component, alongside digital and administrative competencies. Second, curriculum design should promote the development of transversal skills, particularly critical thinking and adaptability, which are essential for navigating complex technological environments. Third, public institutions should invest in building trust through transparent and accountable AI governance frameworks, as trust plays a significant role in shaping adoption intentions.

At the same time, the study is subject to certain limitations. The use of self-reported data may affect the accuracy of the measured competencies, while the cross-sectional design limits causal inference. Additionally, the focus on students restricts the direct applicability of findings to current public sector employees. Future research could address these limitations by employing longitudinal designs, including multiple stakeholder groups, and integrating objective measures of competencies.

References

Berman, A., de Fine Licht, K., & Carlsson, V. (2024). Trustworthy AI in the public sector: An empirical analysis of a Swedish labor market decision-support system. *Technology in Society, 76*, 102471.

Burlacu, S., Dobre, F., Mateescu, V. M., & Andrei, I. V. (2025). From bureaucracy to e-government: Digital transformation of public administration in Romania for a sustainable future. *European Journal of Sustainable Development, 14*(3), 289–289.

Burlacu, S., Iacob, O. C., Dobre, F., & Buzoianu, O. A. C. (2024). Evolution and trends in the dynamics of services in Romania: Impacts on the national economy. *European Journal of Sustainable Development, 13*(3), 139–139.

Burlacu, S., Pârgăru, I., Iacob, O. C., & Gomboş, S. P. (2022). Digital public administration and the perspectives of sustainable development in Romania. *European Journal of Sustainable Development, 11*(4), 230–230.

Burlacu, S., Rădulescu, C. V., Bălu, E. P., & Dobre, F. (2023). Socio-cultural sustainability for resilience in public services: Strategies for achieving inclusive and equitable service delivery. *European Journal of Sustainable Development, 12*(3), 29–29.

Chiu, T. K., Ahmad, Z., Ismailov, M., & Sanusi, I. T. (2024). What are artificial intelligence literacy and competency? A comprehensive framework to support them. *Computers and Education Open*, *6*, 100171.

Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: the state of the field. *International journal of educational technology in higher education*, *20*(1), 1-22.

Delcker, J., Heil, J., Ifenthaler, D., Seufert, S., & Spirgi, L. (2024). First-year students AI-competence as a predictor for intended and de facto use of AI-tools for supporting learning processes in higher education. *International Journal of Educational Technology in Higher Education*, *21*(1), 18.

Laupichler, M. C., Aster, A., Schirch, J., & Raupach, T. (2022). Artificial intelligence literacy in higher and adult education: A scoping literature review. *Computers and Education: Artificial Intelligence*, *3*, 100101.

Madan, R., & Ashok, M. (2023). AI adoption and diffusion in public administration: A systematic literature review and future research agenda. *Government information quarterly*, *40*(1), 101774.

Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence*, *2*, 100041.

Rădulescu, C. V., Gâf-Deac, I. I., Bran, F., Burlacu, S., Bodislav, D. A., & Buzoianu, O. C. A. (2025). Cybernetic contributions of artificial intelligence to economic development in Romania. *Economic Computation and Economic Cybernetics Studies and Research, 59*(1).

Sandoval-Almazan, R., Millan-Vargas, A. O., & Garcia-Contreras, R. (2024). Examining public managers' competencies of artificial intelligence implementation in local government: A quantitative study. *Government Information Quarterly*, *41*(4), 101986.

Selten, F., & Klievink, B. (2024). Organizing public sector AI adoption: Navigating between separation and integration. *Government Information Quarterly*, *41*(1), 101885.

Stănilă, M. V., Profiroiu, C. M., Burlacu, S., & Bokor, E. C. (2025). Corporate governance in state-owned enterprises: A bibliometric analysis of key theories and the current state of debate. *Applied Research in Administrative Sciences, 6*(2), 24–37.

Van Noordt, C., & Misuraca, G. (2022). Artificial intelligence for the public sector: results of landscaping the use of AI in government across the European Union. *Government information quarterly*, *39*(3), 101714.

Van Noordt, C., & Tangi, L. (2023). The dynamics of AI capability and its influence on public value creation of AI within public administration. *Government Information Quarterly*, *40*(4), 101860.

Zuiderwijk, A., Chen, Y. C., & Salem, F. (2021). Implications of the use of artificial intelligence in public governance: A systematic literature review and a research agenda. *Government information quarterly*, *38*(3), 101577

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