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Perception of the benefits of artificial intelligence in public auditing and its impact on technology acceptance: empirical evidence from European regional audit institutions

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Abstract

Purpose – External public auditing faces increasing challenges due to the growing volume of information and rising demands for efficiency and accountability. Artificial intelligence (AI) offers significant potential benefits, such as task automation, big data analysis and risk detection, yet its adoption in the public sector remains limited. This study examines how external public auditors perceive the benefits of AI and how these perceptions, together with factors from the unified theory of acceptance and use of technology (UTAUT) model – effort expectancy, performance expectancy and social influence – affect their intention to use AI. Gender is considered a moderating variable.

Design/methodology/approach – A survey was conducted among 219 auditors from Regional Audit Institutions affiliated with the European Organisation of Regional External Public Finance Audit Institutions. Data were analysed using partial least squares structural equation modelling.

Findings – The perception of potential benefits emerged as the main determinant of intention to use AI. Performance expectancy only influenced intention indirectly through perceived benefits. Effort expectancy and social influence also had significant effects, with notable gender differences: instrumental factors predominated among men, while social acceptance played a greater role for women.

Originality/value – This research provides original empirical evidence on AI adoption intentions in the context of external public auditing. It extends the UTAUT model by incorporating perceived benefits as a key

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variable and offers recommendations to encourage AI adoption through strategies sensitive to auditors' perceptions and characteristics.

Keywords Artificial intelligence, Public audit, Technology acceptance, Potential benefits, External control institutions

Paper type Research paper

Introduction

Digital transformation has profoundly changed the practice of auditing in recent decades, redefining its methodologies, tools and objectives (Lombardi *et al.*, 2022; Majeed and Taha, 2024). This change has not been lost on the public sector, where external control institutions face increasing operational complexity due to the volume of information to be processed, pressure to generate public value and the need to increase efficiency and transparency in the use of public resources (Genaro-Moya *et al.*, 2025b; Torroba *et al.*, 2025). In this scenario, emerging technologies – and particularly artificial intelligence (AI) – offer new opportunities to renew public auditing by automating repetitive tasks, processing large volumes of data, detecting risks more accurately and promoting more proactive and comprehensive oversight (Issa *et al.*, 2016; Abdullah and Almaqtari, 2024; Voronova *et al.*, 2025).

These capabilities make AI a technology with high transformative potential. The automation of routine processes and predictive analytics can enable more continuous, accurate and risk-adapted audits. In addition, AI's ability to process unstructured text broadens the range of auditable sources, including legal documents, social media and press articles (Sun and Vasarhelyi, 2018; Munoko *et al.*, 2020). In the European public sector, these possibilities have not gone unnoticed. Institutions such as the European Court of Auditors (ECA) have integrated AI into their 2021–2025 strategy to increase institutional resilience and sustainability in the European Union, as well as into a specific roadmap to promote its use and supervision (ECA, 2021, 2024).

In this context, regional audit institutions (RAIs) – grouped together in the European Organisation of Regional External Public Finance Audit Institutions (EURORAI) – play a crucial role as guarantors of transparency, accountability and the efficient use of public funds (López-Hernández *et al.*, 2021). However, despite institutional interest and the potential benefits (PB) of AI, its practical adoption in the public sector is progressing more slowly than in the private sector (Charles *et al.*, 2022). This gap may be due to structural, cultural and perceptual factors, including a limited understanding of the real advantages of AI and a conservative attitude towards technological change (Otia and Bracci, 2022; Majeed and Taha, 2024; Mikalef *et al.*, 2023).

Understanding why the adoption of AI in public auditing remains low requires attention not only to technical or organisational issues but also to the individual perceptions of the professionals who are expected to use it. From the perspective of the unified theory of acceptance and use of technology (UTAUT), the acceptance of a technology depends on its potential users perceiving that it will improve their performance, that it will be easy to use, and that it is supported by their social environment (Venkatesh *et al.*, 2003). Complementarily, the innovation diffusion theory (Rogers *et al.*, 2008) emphasises that individuals tend to adopt an innovation to the extent that they perceive it to offer clear and superior advantages over existing practices. Consequently, perceptions of PB are crucial to understanding the intention to use (IU) technologies such as AI, especially in professions such as auditing, where professional scepticism can reinforce risk aversion.

Another crucial – and often overlooked – aspect in the study of technology acceptance is gender. Numerous studies have shown that perceptions of technology are not neutral, but are conditioned by different socialisation processes between men and women (Venkatesh *et al.*, 2000; Leaper and Friedman, 2007). In the technological sphere, women often face additional barriers such as a lack of role models, less prior experience or a higher perception of the effort required to master new tools (González-Pérez *et al.*, 2020; Zhang *et al.*, 2023). These differences influence not only the willingness to adopt a technology but also the factors that are most relevant to making that decision: while men tend to value performance expectations and instrumental benefits more, women tend to give greater weight to social influence (SI) and the support environment (Venkatesh *et al.*, 2003; Brand *et al.*, 2018; Binyamin *et al.*, 2020).

Despite the relevance of these factors, the academic literature on the acceptance of AI in external public auditing remains scarce and fragmented. Most available studies have focused on private or internal audit contexts (Ferri *et al.*, 2021; Hatane *et al.*, 2024; Hamadeh *et al.*, 2025), ignoring the role of perceived benefits and possible differences based on the auditor's gender. This knowledge gap limits the design of effective digital transformation policies in the field of public control.

In view of this gap, this study has two main objectives. Firstly, to identify how external auditors of RAIs belonging to EURORAI perceive the PB of AI and in which areas they consider it can add the most value. Secondly, to analyse how these perceptions, together with the traditional factors of the UTAUT model – effort expectancy (EE), performance expectancy (PE) and SI – influence their IU AI, also taking gender differences into account.

This study seeks to make a significant theoretical and practical contribution. From a theoretical perspective, it proposes an extension of the UTAUT model by explicitly incorporating the perception of PB as a key explanatory variable, in line with the logic of the innovation diffusion theory and examines its interaction with PE. It also introduces a gender perspective as a relevant moderator for understanding technology acceptance. From a practical standpoint, it offers empirical evidence based on a broad and diverse sample of public auditors in Europe, allowing the formulation of specific recommendations for RAIs to design AI adoption strategies tailored to the perceptions, needs and profiles of their professionals. In this way, it aims to facilitate a more effective transition to digital public audits that are sustainable and offer greater added value for citizens.

Potential benefits of artificial intelligence in public audits

AI is defined as a technology capable of replicating behaviours characteristic of human intelligence, such as learning, reasoning, problem-solving and decision-making (Aghion *et al.*, 2017; Mansour *et al.*, 2025). These capabilities explain why AI is transforming professional environments, including the field of auditing, by enabling complex tasks to be tackled with greater efficiency and accuracy (Donning *et al.*, 2019; Voronova *et al.*, 2025).

In external public auditing, an activity characterised by high workloads and the processing of large volumes of information, AI offers several particularly relevant benefits (Power, 2024; Torroba *et al.*, 2025). One of the most notable is the automation of repetitive and error-prone tasks, such as data cross-checking or contract comparisons, which allows auditors to concentrate on activities requiring professional judgement while reducing the risk of human error (Voronova *et al.*, 2025; Genaro-Moya *et al.*, 2025a). AI also enables continuous and comprehensive analysis of large data sets, overcoming the limitations of traditional audit techniques that rely on sampling and periodic testing (Issa *et al.*, 2016; Abdelwahed *et al.*, 2025). Through advanced analytics, AI can detect patterns, anomalies and potential fraud more rapidly and accurately, and prioritise areas of higher risk, thereby

supporting a more focused allocation of audit resources (Abdullah and Almaqtari, 2024; Voronova *et al.*, 2025; Genaro-Moya *et al.*, 2025a).

Beyond quantitative analysis, AI's capacity for natural language processing allows auditors to examine unstructured information such as legal documents, emails or reports, expanding the range of available audit evidence and facilitating the identification of regulatory non-compliance (Munoko *et al.*, 2020; Sun and Vasarhelyi, 2018; Abdullah and Almaqtari, 2024). In addition, predictive analytics enable auditors to anticipate trends and potential deviations based on historical data, enhancing responsiveness and control in environments subject to continuous public scrutiny (Donning *et al.*, 2019; Issa *et al.*, 2016; Abdullah and Almaqtari, 2024).

Collectively, these capabilities support a more comprehensive, proactive and evidence-based audit approach. However, prior research indicates that awareness of AI's benefits remains uneven across public sector organisations, which may limit informed decision-making regarding its adoption (Mikalef *et al.*, 2023; Al Wael *et al.*, 2023). Accordingly, this study not only identifies which benefits are most clearly perceived by public auditors but also examines how these perceptions shape their IU AI, a relationship that is central to fostering effective adoption in public audit institutions.

The research model

The rapid advancement of disruptive technologies has prompted growing academic interest in the factors that determine their acceptance and use. In this context, the literature on technology adoption has developed various theoretical frameworks, among which the UTAUT model, proposed by Venkatesh *et al.* (2003), stands out. This model synthesises the main constructs of eight previous theories on technology acceptance and has demonstrated high explanatory power in different contexts (Ferri *et al.*, 2021).

The UTAUT model identifies three key determinants of the IU a technology through the following constructs: a) EE refers to the degree to which a person perceives that the use of a technology will be easy, b) PE relates to the belief that the technology will improve their job performance and c) SI reflects the perception that people in their environment consider its use to be appropriate (Venkatesh *et al.*, 2003). Furthermore, these determinants are conditioned by moderating variables such as gender. According to Venkatesh *et al.* (2003), IU is the immediate antecedent of effective use of technology.

In the field of auditing, these constructs help us understand why an auditor might or might not adopt AI: if they consider that it requires little effort, improves their work and has social support, they are more likely to decide to use it. These determinants also reflect broader organisational and institutional conditions that are particularly salient in public auditing. In this setting, the perceived usefulness of AI is closely tied to organisational readiness, as auditors often need to justify new technological investments in environments with constrained budgets and under high public scrutiny (Sofyani *et al.*, 2026). Similarly, SI captures the legitimisation processes that are central in public institutions, where compliance requirements, formal procedures and culturally accepted practices shape what is considered appropriate and defensible (Hancu-Budui and Zorio-Grima, 2023). EE may also reflect the availability of training opportunities and institutional support, linking ease-of-use perceptions to organisational capacity-building efforts (Sofyani *et al.*, 2026).

Various studies have validated these constructs in auditing environments and emerging technologies. For example, Ferri *et al.* (2021) found that PE and SI positively influence the IU blockchain among Big 4 auditors in Italy, while EE showed a negative effect. Other studies also identified positive effects of these three factors on the IU technologies such as blockchain or metaverse in internal and external auditing (Majeed and Taha, 2024;

Hamadeh *et al.*, 2025; Hatane *et al.*, 2024). In the specific case of AI, Benhayoun *et al.* (2025) found that perceived ease of use favours readiness for adoption among auditors in Morocco. Meanwhile, Mansour *et al.* (2025) concluded that all constructs of the UTAUT model influence the willingness to learn about AI in accounting firms.

In addition to the direct effect on usage intention, previous studies have also analysed indirect relationships between the constructs of the model. In particular, it has been observed that SI can reinforce performance perception, which is explained by the process of internalisation: when reference figures consider a technology useful, individuals tend to incorporate that perception into their own judgement (Venkatesh and Davis, 2000; Fedorko *et al.*, 2021; Alhazmi *et al.*, 2025).

Based on these approaches, the following hypotheses are formulated:

H1. Public auditors who perceive a higher effort expectancy have a greater intention to use AI.

H2. Public auditors who perceive a higher social influence have a greater intention to use AI.

H3. Public auditors who perceive a higher performance expectancy have a greater intention to use AI.

H4. Public auditors who perceive higher social influence perceive a higher performance expectancy of AI.

Although the UTAUT model is widely recognised, various authors have highlighted the need to adapt and integrate it with new contextual factors to improve its explanatory power (Mansour *et al.*, 2025; Majeed and Taha, 2024). In the context of public auditing, this need is particularly pronounced. Public auditors operate in institutional environments characterised by strong accountability requirements, high levels of risk aversion and professional scepticism, where judgements must be grounded in demonstrable and verifiable evidence (Otia and Bracci, 2022; Seethamraju and Hecimovic, 2023; Sofyani *et al.*, 2026). Moreover, auditors are required to coordinate multiple stakeholders and interfunctional processes to enhance transparency and performance, which adds complexity that generic technology acceptance models may not fully capture (Sofyani *et al.*, 2026). As a result, extending UTAUT with constructs that better reflect this multidimensional environment becomes theoretically justified.

In line with this argument, the present study incorporates a distinct construct capturing auditors' perception of the PB of AI. AI offers a range of specific advantages for audit work, including process automation, large-scale data analysis and anomaly detection (Issa *et al.*, 2016; Genaro-Moya *et al.*, 2025a; Voronova *et al.*, 2025). From the perspective of innovation diffusion theory, these advantages correspond to the notion of *relative advantage*, that is, the degree to which an innovation is perceived as superior to existing practices (Rogers *et al.*, 2008). Assessing whether auditors recognise these advantages as concrete improvements over traditional audit methods is therefore critical for understanding AI adoption in public auditing.

Although PE is a central predictor of intention in the UTAUT model, prior research has noted that it captures a broad and relatively abstract belief about whether a technology is generally useful, without considering the extent to which users understand its specific and task-level advantages (Venkatesh *et al.*, 2003; Cai *et al.*, 2023). In contrast, PB represents a more concrete and differentiated assessment of how an innovation improves specific activities relative to existing practices. In the context of AI-enabled auditing, such benefits

may be perceived unevenly across audit areas (Abdelwahed *et al.*, 2023; Abdelwahed *et al.*, 2024). Accordingly, PB captures a more granular perception, closer to the concrete workflows of public auditors (e.g. text analysis, anomaly detection and continuous auditing), whereas PE reflects a high-level belief about overall performance improvement. This distinction is particularly relevant in public auditing, where professional scepticism and accountability concerns may prevent abstract performance expectations from directly translating into behavioural intention without clearly identifying how it generates tangible, task-level benefits (Otia and Bracci, 2022; Seethamraju and Hecimovic, 2023). Therefore, extending UTAUT with PB may be necessary to capture AI adoption in public sector settings that require a pluralistic evaluation of technological benefits (Romero-Torres *et al.*, 2025).

The technology adoption literature has already considered both general usefulness perceptions and perceived benefits within the same model across different contexts. For instance, in the case of managers' intention to adopt Big Data in private companies, Esteves and Curto (2013) found that while generic usefulness did not drive positive attitudes towards Big Data, perceived benefits played a decisive role. Other studies have shown that both PE and PB influence the IU new technologies, and that these constructs are interrelated (Shin, 2016; Karamchandani *et al.*, 2020; Moumtzidis *et al.*, 2022). Overall, the evidence suggests that the clearer and more tangible the perceived benefits are, the stronger the organisational motivation to adopt AI becomes (Shams *et al.*, 2025).

This raises the need to examine whether the general perception of performance effectively translates into a clear understanding of the added value of AI for audit work. Consequently, the following additional hypotheses are proposed:

H5. Public auditors who perceive higher potential benefits have a greater intention to use AI.

H6. Public auditors who perceive higher performance expectancy perceive higher potential benefits of AI.

The literature also shows considerable heterogeneity in the results obtained when applying UTAUT in different contexts, which could be explained by the omission of moderating variables such as gender (Matthews, 2017). Since its original formulation, Venkatesh *et al.* (2003) pointed out that gender modulates the relative importance of technology acceptance factors. In particular, subsequent studies have shown that women tend to value ease of use and social approval more, while men tend to be more motivated by goal achievement and expected performance (Venkatesh *et al.*, 2000; Leaper and Friedman, 2007; Brand *et al.*, 2018; Zhang *et al.*, 2023). These differences are explained by gender roles and differentiated socialisation processes, which shape attitudes towards technology and risk (Binyamin *et al.*, 2020). Similar patterns have also been documented in public auditing, where gender differences in risk aversion and professional expectations have been observed, potentially shaping how auditors engage with and accept new technologies (Mnif and Cherif, 2022; Hancu-Budui and Zorio-Grima, 2023). Moreover, even when women advance to senior roles, they may remain constrained to less influential assignments due to persistent gendered divisions of labour within audit institutions (Anderson-Gough *et al.*, 2005; Cheng and Wang, 2023).

Based on this approach, a final hypothesis is proposed:

H7. The gender of public auditors significantly moderates the relationships proposed in the model.

Figure 1 summarises the proposed research model and the hypotheses formulated.

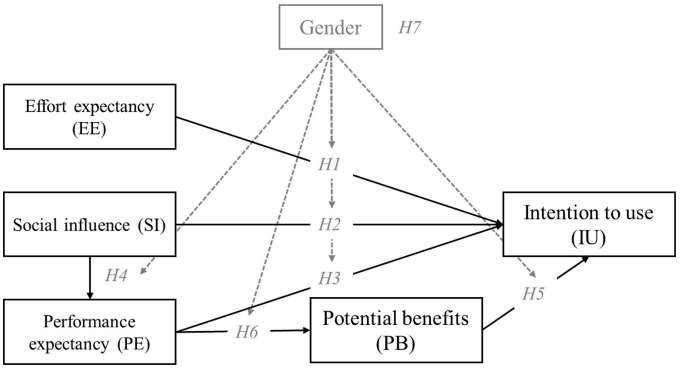

Figure 1. Research model
Source: Authors' own elaboration

Methodology

Research design and sample

The objective of this study is to examine the determinants influencing public auditors' IU AI. To achieve this, a survey methodology was used to gather data on auditors' perceptions. The proposed hypotheses were tested using partial least squares structural equation modelling (PLS-SEM) with the SmartPLS 4 software. The PLS-SEM method was chosen due to its prediction-oriented approach, its robustness with moderate samples and its ability to model complex relationships between reflective latent constructs (Hair *et al.*, 2019). The adequacy of the proposed model is evaluated by analysing both the measurement model (i.e. the relationships between constructs and their indicators) and the structural model (i.e. the relationships between constructs).

A non-probabilistic convenience sample was used, targeting active auditors from RAIs that are members of EURORAI. Survey invitations were distributed through EURORAI communication channels, which made it impossible to determine the total number of auditors who effectively received the survey and, therefore, to accurately estimate a response rate. Although the response rate cannot be accurately estimated due to institutional dispersion, the sample includes auditors from 11 European countries, as illustrated in Figure 2, providing a diverse and representative view of the group. It should also be noted that EURORAI member RAIs differ in size and organisational structure across countries, which partly explains the higher representation of some countries in the data set; however, since the aim of the study is not cross-country comparison, this imbalance does not affect the interpretation of the results.

Table 1 presents the demographic and professional characteristics of the respondents. The sample is gender-balanced, with almost 50% male and 50% female auditors. However, the age distribution is more uneven, with a concentration of respondents (41.55%) in the 46–55 age group. In terms of professional experience, the majority of participants have extensive auditing backgrounds, with 30.14% reporting over 20 years of professional practice. Regarding job categories, there is considerable variety, approximately 40 respondents each identified as Audit Managers or Audit Team Leaders, while the largest proportion of participants belong to the Junior and Senior Auditor categories.

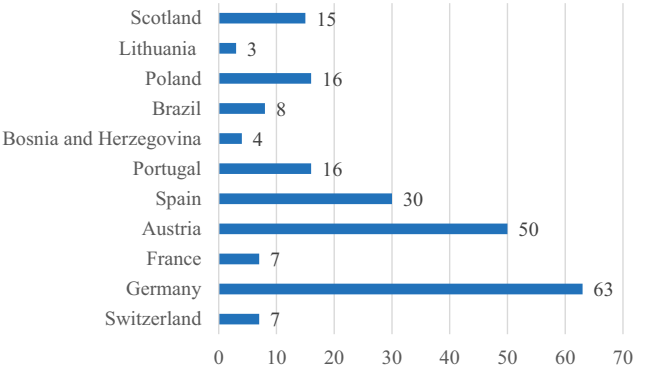

Figure 2. Auditors' countries
Source: Authors' own elaboration

Table 1. Demographic and professional characteristics

Category	Detail	Cases	%
Gender	Male	110	50.23
	Female	106	48.40
	Other	3	1.37
Age	<35 years	23	10.50
	36–45 years	62	28.31
	46–55 years	91	41.55
	>55 years	43	19.63
Experience	<Three years	41	18.72
	3–10 years	61	27.85
	11–20 years	51	23.29
	>20 years	66	30.14
Public auditor category	Junior auditor	63	28.77
	Senior auditor	72	32.88
	Audit team leader	43	19.63
	Audit manager	41	18.72

Source(s): Authors' own elaboration

Research instrument

The questionnaire designed for this study consisted of two sections. Section 1 included six items aimed at collecting demographic and professional information about the auditors. Section 2 comprised 22 items designed to measure the independent and dependent variables (see Appendix).

The items related to the constructs of the UTAUT model (EE, PE, SI and IU) were adapted from Ferri *et al.* (2021). The items of the PB construct are based on the benefits of AI in auditing identified in previous literature (Issa *et al.*, 2016; Sun and Vasarhelyi, 2018; Abdullah and Almaqtari, 2024; Mansour *et al.*, 2025; Voronova *et al.*, 2025). This construct represents the extent to which the use of AI could have a greater impact in several auditing areas compared to traditional working methods.

All items were measured using a six-point Likert scale, ranging from 1 ("strongly disagree") to 6 ("strongly agree"), to reduce the risk of central tendency bias (Ferri *et al.*, 2021). This approach eliminates the problem of "not sure" or "don't know" responses, encouraging participants to take a more definite stance (Zikmund *et al.*, 2003; Hussein *et al.*, 2007).

The questionnaire was validated by experts in auditing and technology adoption. A pilot test was then conducted with 12 auditors to verify the clarity and comprehensibility of the items, with no significant problems detected. To facilitate international participation, it was translated into English, French, Spanish and German using a double reverse translation process.

Results

In relation to the perceived PB, Table 2 shows the extent to which public auditors believe that the use of AI could have a greater impact compared to traditional working methods, presenting the areas in descending order. The activity in which auditors perceive the most benefits in the use of AI is in the analysis of large volumes of data, with a certain difference compared to the rest. It is followed, with similar scores, by the analysis of unstructured text, process automation and the review of accounting books. In last place, with a difference of one point out of six compared to the first activity, are the benefits of AI on regulatory compliance and legal auditing. However, public auditors in general also consider that AI brings improvements in this area, albeit to a lesser extent.

Assessment of the measurement model

The first step in evaluating the measurement model is to verify that all item loadings exceed the recommended threshold of 0.708, ensuring acceptable item reliability (Hair *et al.*, 2019). As shown in Table 3, this criterion is met. Next, internal consistency reliability is evaluated using Cronbach's alpha (CA) and composite reliability (CR). Higher values reflect greater reliability, with coefficients above 0.70 indicating a satisfactory reliability (Hair *et al.*, 2019). However, values above 0.95 may indicate redundancy among items. To address this issue, we removed PE1 and PE4 from the PE construct and IU2 from IU. According to conventional measurement theory, reflective indicators are considered interchangeable manifestations of the same underlying construct and therefore represent a random selection from the broader domain of possible indicators (Nunnally and Bernstein, 1994; Diamantopoulos *et al.*, 2012). Because both PE and IU are specified as reflective constructs, the removal of individual items does not

Table 2. Perceived potential benefits of AI

Potential benefits	Mean	SD
Review and use of large volumes of data	5.14	1.18
Text and unstructured document analysis	4.65	1.38
Automation of processes and controls	4.61	1.37
Review of financial statements, reporting and reconciliation of accounts	4.56	1.20
Detection and prioritisation of risk areas	4.36	1.32
Predictive analytics and prevention and detection of irregularities, fraud and corruption	4.32	1.37
Real-time and continuous auditing	4.19	1.35
Regulatory compliance and legal audit	4.12	1.37

Source(s): Authors' own elaboration

Table 3. Results of reflective construct measurements

Variables	Items	Outer loading > 0.7	CA > 0.7	CR > 0.7	AVE > 0.5
Effort expectancy	EE1	0.836	0.875	0.914	0.728
	EE2	0.897			
	EE3	0.915			
	EE4	0.756			
Potential benefits	PB1	0.769	0.912	0.929	0.621
	PB2	0.827			
	PB3	0.77			
	PB4	0.839			
	PB5	0.725			
	PB6	0.809			
	PB7	0.804			
	PB8	0.751			
Performance expectancy	PE2	0.951	0.891	0.948	0.901
	PE3	0.948			
Social influence	SI1	0.861	0.869	0.911	0.72
	SI2	0.87			
	SI3	0.766			
	SI4	0.892			

Source(s): Authors' own elaboration

compromise construct validity, unlike formative operationalisations, where each indicator captures a unique facet of the construct (Hair *et al.*, 2019). This procedure is also consistent with the recommendations of Diamantopoulos *et al.* (2012), who argue that when indicators show very high redundancy, removing conceptually overlapping items is advisable to preserve the quality of the measurement model.

Although only PE2 and PE3 remain, these two items capture the core dimensions of PE as theorised in UTAUT, perceived enhancement of job effectiveness and facilitation of service provision. The removed items overlapped conceptually with these two dimensions, and their exclusion therefore reduces redundancy without narrowing the domain of the construct. To ensure that this item elimination did not affect the robustness of the model, we also re-estimated the measurement and structural models using the full set of PE and IU indicators, obtaining highly similar results.

Regarding EE, although EE4 (stress reduction) shows a lower loading than the other indicators (0.756), it exceeds the recommended threshold and was retained because prior research conceptualises emotional comfort and the absence of stress as integral components of perceived effort in technology adoption (Ferri *et al.*, 2021; Majeed and Taha, 2024; Benhayoun *et al.*, 2025); moreover, robustness checks excluding this item yield substantively similar results.

Convergent validity was assessed in the third step by examining the average variance extracted (AVE). An AVE value of 0.50 or higher indicates adequate convergent validity (Hair *et al.*, 2019), which was confirmed for all constructs.

Finally, discriminant validity was evaluated to ensure that each construct is empirically distinct from the others. This was assessed using the heterotrait-monotrait (HTMT) ratio of correlations. As shown in Table 4, all HTMT values were below the recommended threshold of 0.90, indicating satisfactory discriminant validity (Henseler *et al.*, 2015).

Table 4. HTMT results

Variables	EE	IU	PB	PE
IU	0.528			
PB	0.626	0.571		
PE	0.72	0.531	0.832	
SI	0.403	0.522	0.541	0.616

Source(s): Authors' own elaboration

Assessment of the structural model

Before evaluating the hypothesised relationships, collinearity among constructs was examined using the variance inflation factor (VIF). VIF values exceeding 5 indicate probable collinearity issues (Hair *et al.*, 2019). As shown in Table 5, all VIF values were below this threshold.

Table 6 presents the significance of the relationships in the proposed model. All hypothesised relationships were found to be significant, with the exception of the direct effect of PE on IU. Nevertheless, the indirect effect of PE → IU was significant thanks to the mediating effect of PB, as was the indirect effect of SI → PB. Notably, the strongest effect was observed in the path from PE to PB, with a total effect of 0.753. Next, the explanatory power of the model was evaluated using the coefficient of determination (R^2), which was 0.410 for IU, 0.566 for PB and 0.297 for PE. As a robustness check, we re-estimated the model including country as a control variable; the magnitude and significance of the main relationships remained substantively unchanged.

Table 5. Collinearity statistics

Variables	EE	PB	PE	SI
IU	1.752	2.405	3.014	1.449
PB			1.000	
PE				1.000

Source(s): Authors' own elaboration

Table 6. Results of the structural model

Variables	Direct effects	Indirect effects	Total effects
EE → IU	0.268**		0.268**
PB → IU	0.298***		0.298***
PE → IU	−0.043	0.224***	0.181*
PE → PB	0.753***		0.753***
SI → IU	0.271***	0.099	0.37***
SI → PE	0.545***		0.545***
SI → PB		0.41***	0.41***

Note(s): ***$p < 0.001$, **$p < 0.01$ and *$p < 0.05$
Source(s): Authors' own elaboration

Multigroup analysis

The impact of moderating variables was assessed using a multi-group analysis (PLS-MGA). Before exploring potential gender differences in public auditors' perceptions, it is necessary to evaluate the measurement invariance of composite models (MICOM) following the procedure proposed by Henseler *et al.* (2016). This process comprises three steps: assessing configural, compositional and measurement invariance (see Table 7).

Configural invariance is established when the indicators, data treatment and algorithm settings are identical across groups, which is confirmed in this study. Compositional invariance requires that composite scores are generated equivalently across groups. As the original correlation is equal to or greater than the 5% quantile, compositional invariance is established. The final step consists of evaluating the equality of means and the equality of variances, which is verified because the confidence intervals include zero.

To examine whether gender differences exist, a permutation test was conducted (see Table 8). The results indicate significant differences between female and male public auditors in three direct relationships, PB → IU, SI → IU and SI → PE. To ensure the gender effects were not confounded by age, we confirmed that age distributions do not differ significantly across gender groups (chi-square test) and that results remain stable when age is included as a control.

Discussion

The results of this research confirm that external public auditors of European regional institutions affiliated to EURORAI perceive that AI can bring substantial benefits to public auditing. Specifically, auditors identify a greater potential impact of AI on tasks such as analysing large volumes of data, processing unstructured documents, automating processes and reviewing financial statements. These areas coincide with those that the literature has identified as most susceptible to transformation through AI, especially due to the increasing complexity and volume of data that characterise modern auditing (Issa *et al.*, 2016; Abdullah and Almaqtari, 2024; Mansour *et al.*, 2025; Voronova *et al.*, 2025).

Auditors' preference for applications geared towards data processing and analysis can be explained both by their high operational workload and by the possibility of replacing repetitive and error-prone tasks with more efficient automated processes (Torroba *et al.*, 2025; Genaro-Moya *et al.*, 2025a). By enabling continuous and comprehensive analysis, AI not only increases efficiency but also contributes to improving audit quality, reducing the likelihood of relevant errors going unnoticed. This capability is particularly valuable in contexts where accountability and public confidence in the integrity of financial reports are critical (Abdullah and Almaqtari, 2024; Genaro-Moya *et al.*, 2025a).

In particular, public auditors show a strong consensus regarding the benefits of AI for reviewing and using large volumes of data. This likely reflects both structural and professional realities within EU public auditing. In recent years, the availability and complexity of financial and administrative data have increased considerably due to digital reporting systems, the dispersion of information across multiple repositories and the growth of open-data initiatives (Issa *et al.*, 2016; Otia and Bracci, 2022; Romero-Torres *et al.*, 2025). This evolution has transformed the nature and intensity of organisational control and evaluation processes, making data handling one of the most resource-intensive components of audit work (Power, 2024; Torroba *et al.*, 2025). As a result, public auditors are highly familiar with the challenges associated with data-intensive tasks and readily perceive AI as an effective solution.

However, the perceived benefits are not uniform across all areas. Audits related to regulatory compliance or legal control are rated as areas of lesser impact, possibly because

Table 7. Results of the MICOM procedure

Construct	Step 1 Configural invariance	Original correlation	Step 2 5% quantile	Compositional invariance	Mean difference	Step 3a Confidence interval	Equal mean	Variance difference	Step 3b Confidence interval	Equal variance	Step 3 Measurement invariance
EE	Yes	0.999	0.994	Yes	0.071	−0.272, 0.256	Yes	−0.277	−0.394, 0.381	Yes	Yes
IU	Yes	1	1	Yes	−0.111	−0.259, 0.271	Yes	0.177	−0.229, 0.224	Yes	Yes
PB	Yes	1	0.999	Yes	0.018	−0.284, 0.262	Yes	−0.233	−0.451, 0.443	Yes	Yes
PE	Yes	1	0.999	Yes	0.032	−0.272, 0.267	Yes	−0.012	−0.409, 0.386	Yes	Yes
SI	Yes	0.995	0.995	Yes	−0.081	−0.266, 0.288	Yes	0.204	−0.302, 0.323	Yes	Yes

Source(s): Authors' own elaboration

Table 8. Gender differences in auditors' perceptions

	Direct effects			Total effects		
Variables	Female	Male	Difference	Female	Male	Difference
EE → IU	0.296**	0.269*	0.026	0.296**	0.269*	0.026
PB → IU	0.123	0.447***	−0.323*	0.123	0.447***	−0.323*
PE → IU	−0.113	−0.052	−0.061	−0.024	0.299*	−0.323
PE → PB	0.718***	0.785***	−0.067	0.718***	0.785***	−0.067
SI → IU	0.463***	0.164	0.3*	0.447***	0.293**	0.154
SI → PE	0.663***	0.433***	0.231*	0.663***	0.433***	0.231*
SI -> PB				0.476***	0.34***	0.136

Note(s): ***$p < 0.001$, **$p < 0.01$ and *$p < 0.05$
Source(s): Authors' own elaboration

their technological applications are not as obvious to auditors or require more specific knowledge. As previous studies have pointed out, many administrations are still unaware of the specific applications of AI, which limits their understanding of the benefits it could bring (Mikalef *et al.*, 2023; Al Wael *et al.*, 2023). In contrast, in the private sector, large firms such as Deloitte have already integrated natural language processing systems to review large volumes of contracts, thereby optimising legal and regulatory reviews (Sun and Vasarhelyi, 2018; Voronova *et al.*, 2025). Public auditors may also be more hesitant to rely on AI in sensitive domains such as regulatory compliance or legal audits. In these areas, liability, procedural rigour and professional scepticism are central; delegating parts of legal interpretation to AI may raise concerns about accountability and legal risk (Otia and Bracci, 2022; Seethamraju and Hecimovic, 2023). Consequently, auditors may feel that human judgement cannot be substituted in these contexts, particularly within public audit institutions that act as guardians of accountability and often operate within conservative organisational cultures (López-Hernández *et al.*, 2021; Otia and Bracci, 2022).

From an explanatory perspective, this study offers relevant insights by integrating the UTAUT model with the perception of PB as an additional construct. Firstly, it confirms that the perception of PB is the main direct predictor of the IU AI among public auditors, which is consistent with previous findings in other contexts, such as private companies (Esteves and Curto, 2013; Shin, 2016; Shams *et al.*, 2025). This evidence reinforces the value of integrating elements of the innovation diffusion theory (Rogers *et al.*, 2008) into technology acceptance models, as users seem to require a clear perception of the specific advantages of innovation over their current methods to justify its adoption.

A particularly relevant finding is that PE does not directly influence IU, but does so indirectly through perceived PB. This mediation effect provides important insight into the cognitive mechanisms underlying technology acceptance in public auditing. While auditors may hold a general belief that AI can enhance performance, such abstract expectations are insufficient to trigger behavioural intention in isolation. Public auditors operate in professional environments characterised by heightened risk aversion, strong accountability requirements and a deeply embedded culture of professional scepticism, where decisions must be defensible and grounded in demonstrable evidence (Otia and Bracci, 2022; Seethamraju and Hecimovic, 2023; Sofyani *et al.*, 2026). This is further reinforced by the need to justify investments in new technologies under constrained budgets, making it essential that AI is associated with multiple, clearly articulated and defensible benefits (Sofyani *et al.*, 2026).

Within this context, perceived PB function as a cognitive translation mechanism. They transform abstract performance expectations into concrete, task-level assessments that auditors can relate directly to their daily work and professional responsibilities. Only when auditors can clearly identify how AI contributes to specific activities – such as data analysis, anomaly detection or continuous auditing – do general usefulness beliefs become credible, actionable and compatible with their evidence-based judgement standards. This explains why PE alone does not directly motivate adoption, but becomes influential once it is channelled through perceived PB.

In relation to the other factors in the UTAUT model, both EE and SI significantly influence usage intention. Auditors are more likely to adopt AI if they perceive it as easy to use and if they have social support in their work environment. These results are consistent with previous research in the private sector, where both constructs have been shown to have positive effects on the adoption of technologies such as blockchain or the metaverse (Ferri *et al.*, 2021; Hatane *et al.*, 2024; Majeed and Taha, 2024; Hamadeh *et al.*, 2025; Mansour *et al.*, 2025). This pattern is particularly relevant in public auditing, where EE may reflect the availability of training opportunities and institutional support, linking AI adoption to organisational capacity-building efforts (Sofyani *et al.*, 2026). Similarly, SI captures the legitimisation processes typical of public institutions, in which compliance requirements, formal procedures and culturally accepted practices shape what is considered appropriate and defensible (Hancu-Budui and Zorio-Grima, 2023). In this context, European audit institutions may face challenges in ensuring that staff possess the necessary training, given that AI represents a new and highly complex field of knowledge, while simultaneously responding to growing demands for accountability (Otia and Bracci, 2022; Genaro-Moya *et al.*, 2025a).

In the public context, this effect is particularly relevant, as European audit institutions may face challenges in ensuring that their staff possesses the necessary training, given that AI represents a new and highly complex field of knowledge, while simultaneously responding to growing demands for accountability (Otia and Bracci, 2022; Genaro-Moya *et al.*, 2025a).

Of particular interest is the role of SI as an indirect factor that enhances PE and, through this, perceived PB. As explained by Venkatesh and Davis (2000), this effect can be interpreted through the process of internalisation, in which the beliefs of reference figures influence the personal evaluation of the usefulness of technology. Thus, when colleagues, superiors or other influential people value AI positively, auditors tend to adopt that perception as their own, which reinforces their IU it.

Finally, the analysis of gender differences offers findings that are particularly relevant from an organisational point of view. The model reveals that, in the case of male auditors, the IU is strongly influenced by perceived benefits and, to a lesser extent, by PE. In contrast, among female auditors, the determining factor is SI, both directly and through its effect on performance perception.

These differences reflect patterns of differentiated socialisation, widely documented in the literature, according to which men tend to adopt a more instrumental and goal-oriented orientation, while women tend to place greater importance on the relational context and social validation (Venkatesh *et al.*, 2003; Leaper and Friedman, 2007; Brand *et al.*, 2018; Zhang *et al.*, 2023; Binyamin *et al.*, 2020). Public auditing is not exempt from these dynamics. In highly regulated environments subject to intense scrutiny and reputational sanction, reliance on socially shared signals may function as a risk-management strategy. In such settings, where acting on individual judgement can be costly but aligning with group norms may be comparatively safer, women have been shown to rely more strongly than men

on social information (Brand *et al.*, 2018). This logic is consistent with evidence that female auditors are generally more risk-averse than their male counterparts, which may lead them to approach emerging technologies such as AI with greater scepticism regarding their PB and to rely more heavily on social information when forming adoption intentions (Mnif and Cherif, 2022).

Institutional dynamics may further reinforce this mechanism. Although gender representation within European audit institutions is often balanced at the employee level, fewer than 25% of leadership positions are held by women (Hancu-Budui and Zorio-Grima, 2023). This asymmetry may shape career progression and professional visibility, increasing pressure on female auditors to demonstrate competence and align closely with organisational expectations (Mnif and Cherif, 2022). Prior research also suggests that even when women break the "glass ceiling", they may continue to face role constraints and be channelled into less influential functions than men following promotion (Cheng and Wang, 2023), reflecting the reproduction of gender relations within audit institutions and the resulting division of labour in expected tasks (Anderson-Gough *et al.*, 2005). In this context, technology-related audit work may be perceived as less accessible or less socially supported for women, which could reduce the extent to which PB translate into intention and increase the salience of SI as a legitimising mechanism.

Conclusion

This study confirms the transformative role that AI can play in public external auditing, especially in an environment characterised by increasing operational complexity, high workloads and growing demands for efficiency and transparency. Based on a large sample of auditors of European RAIs belonging to EURORAI, it has been shown that the IU AI is mainly determined by the perception of its PB, as well as by factors included in the UTAUT model, such as EE and SI.

One of the most relevant findings is that the perceived PB – such as task automation, big data analysis and unstructured information processing – are not only valued by auditors but are also the most influential factor in their willingness to adopt AI. These benefits mediate the effect of PE, indicating that abstract beliefs about performance improvement are insufficient on their own. Public auditors require tangible, task-specific evidence of AI's added value before forming adoption intentions. Therefore, RAI managers should avoid relying solely on generic narratives about efficiency or innovation. Instead, given auditors' higher confidence in AI for data-intensive tasks, practical actions may include pilot projects in the analysis of large data sets (e.g. anomaly detection and risk scoring), automation of routine audit procedures or text analysis of financial and administrative documents, supported by dashboards showing time savings, error reduction or improvements in audit coverage.

The results also highlight the importance of EE and SI. Auditors are more inclined to adopt AI when tools are perceived as easy to use and when their environment legitimises their use. From a practical perspective, this suggests that training and organisational strategies should prioritise usability and experiential learning rather than technical depth. Short, practice-oriented training modules focused on specific audit tasks, the use of low-code or no-code tools and peer-learning initiatives can reduce perceived complexity and foster confidence. Visible endorsement from senior management and the recognition of early adopters may further strengthen social validation and normalise AI use within audit institutions.

From a gender perspective, the findings reveal differentiated adoption mechanisms. While male auditors' intentions are more strongly driven by perceived benefits and

performance improvements, female auditors place greater weight on social acceptance and institutional support. These differences underscore the need for differentiated implementation strategies. For female auditors, mentoring networks, role-model visibility and communication emphasising organisational backing may be particularly effective. For male auditors, demonstrating measurable performance gains through pilot projects and evidence-based use cases may further reinforce adoption intention.

The study also offers implications for public policy and regulation. The relatively lower perceived benefits of AI in regulatory compliance and legal audits point to institutional uncertainty rather than a lack of technological potential. Policymakers and oversight bodies could reduce this uncertainty by issuing clearer ethical, technical and procedural guidelines for the accountable use of AI in legally sensitive audit tasks, including minimum standards for transparency, traceability and explainability. At the same time, addressing potential gender inequalities within audit institutions – by ensuring equal access to training, career progression and participation in AI-related initiatives – would contribute to a more inclusive and effective digital transformation.

Taken together, the study makes three main contributions. Theoretically, it extends the UTAUT framework by incorporating perceived PB and highlighting the moderating role of gender in public sector technology adoption. Empirically, it provides novel evidence from European external public auditors, a professional group that has received limited attention in prior research. Practically, it offers actionable guidance for RAIs, training providers and policymakers seeking to foster responsible and effective AI adoption in public auditing. By facilitating the effective adoption of AI in public auditing, the study contributes to improving audit quality, transparency and the efficient use of public resources, thereby strengthening citizens' trust in public institutions.

Like all research, this study has some limitations that should be considered when interpreting its results. Firstly, it is based on self-reported survey data, which may be subject to social desirability or subjective perception biases. Secondly, the analysis focuses on the IU AI, without assessing actual adoption behaviours, as many institutions have not yet implemented these technologies. Furthermore, although the sample is diverse in geographical and professional terms, the use of non-probabilistic sampling limits the generalisation of the findings to the whole of European public auditors. In addition, country-level institutional differences are not examined in depth.

These limitations also open several avenues for future research. Further studies could examine additional moderating variables, such as age or professional experience, and assess how organisational factors (e.g., institutional culture or resource availability) shape the effective use of AI. Moreover, as AI tools become implemented in practice, future research could investigate how auditors' perceptions evolve over time and whether AI adoption translates into measurable improvements in audit outcomes. Beyond adoption, it would also be valuable to explore why auditors perceive certain AI benefits more strongly than others, considering the role of task characteristics, organisational routines and professional norms. In addition, future research could group auditors according to the level of development of their institutional environment to assess whether adoption mechanisms differ across contextual settings. Finally, examining the cognitive mechanisms underlying gender differences in public auditing – such as risk perceptions, information-processing styles or confidence dynamics – could provide deeper insight into how gender influences technology acceptance in this domain. Advancing along these lines will strengthen understanding of technology adoption in the public sector and help maximise AI's contribution to accountability and institutional performance improvement.

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Appendix

Table A1. Survey sent to the auditors and items for each construct

Item	Statement
Effort expectancy	
EE1	It would be/is easy for me to use AI for public sector audit activities
EE2	It would be/is easy for me to learn how to use AI
EE3	It would be/is easy for me to become proficient in the use of AI
EE4	Using AI for public sector audit activities is not characterised as causing me stress
Performance expectancy	
PE1	Using AI would allow/allows me to improve public sector audit activities
PE2	Using AI would make/makes it easier to provide public sector audit services
PE3	Using AI would enhance/enhances my effectiveness in public sector audit activities
PE4	Using AI would enhance/enhances the efficiency of my job
Social influence	
SI1	People who influence my behaviour would think/think that I should use AI
SI2	People who are important to me would think/think that I should use AI in public sector audit activities
SI3	My boss thinks I should learn how to use AI for public sector audit activities
SI4	People who work with me would think/think that I should use AI in public sector audit activities
Intention to use	
IU1	I am going to start using AI for audit activities
IU2	I plan to start implementing AI in my audit activities
Potential benefits	
PB1	AI could have a greater impact on the automation of processes and controls compared to traditional working methods
PB2	AI could have a greater impact on the review and use of large volumes of data compared to traditional working methods
PB3	AI could have a greater impact on the analysis of text and unstructured documents compared to traditional working methods
PB4	AI could have a greater impact on predictive analytics and the prevention and detection of irregularities, fraud and corruption compared to traditional working methods
PB5	AI could have a greater impact on regulatory compliance and legal audit compared to traditional working methods
PB6	AI could have a greater impact on the detection and prioritisation of risk areas compared to traditional working methods
PB7	AI could have a greater impact on real-time and continuous auditing compared to traditional working methods
PB8	AI could have a greater impact on the review of financial statements, reporting and reconciliation of accounts compared to traditional working methods

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