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EXTENDING THE CONCEPT OF DIVERSITY IN ENTREPRENEURSHIP COMPETENCE EDUCATION TO INCLUDE AI SKILLS: PUBLIC ADMINISTRATION EMPLOYEES AND EXPERTS' INSIGHTS

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Abstract

Entrepreneurship education can embrace the concept of diversity not only through the prism of demographics and identity but also through the inclusion of diverse competences. As artificial intelligence (AI) continues to transform professional practice, integrating AI skills into established frameworks can broaden the scope and relevance of entrepreneurial competences. This study aimed to determine whether AI competences should be incorporated into the "Ideas and Opportunities" domain of the Entrepreneurship Competence Framework (EntreComp). The research methodology included a public administration employee survey and an expert survey. Both groups emphasized that organizations, rather than individuals, should lead efforts to build AI competences, while experts also indicated the relevance of AI competences to EntreComp. By advocating for the integration of GenAI competences into entrepreneurship and management education, this study contributes to expanding the concept of diversity through providing evidence for embedding AI competences into established professional competence models, instead of treating AI competences as isolated digital abilities. This approach supports a form of spreading activation, where rethinking diversity at the conceptual level links professional challenges more directly to education, reshaping competence frameworks, curriculum design, and skill recognition.
Keywords: *AI, conceptual diversity, entrepreneurship education, workforce development, public administration employee survey, expert survey*

Introduction

Entrepreneurship education can be viewed as an environment for broadening the conceptual foundations of economic participation. This requires the implementation of the concepts of diversity and inclusivity into the study process, not only in terms of who to be engaged with entrepreneurship, but also in how the concept of entrepreneurship can be encoded and entrepreneurial thinking can be developed. The need to promote diversity and inclusivity

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in entrepreneurship education has been gaining momentum because entrepreneurship should become an accessible intention for people from various backgrounds (Henry et al., 2024) to boost the resilience of the workforce and ensure sustainable development.

Traditionally, the concept of inclusivity has been included in the umbrella concept of equality, diversity, and inclusivity aimed at fostering the acceptance of various types of human rights and human identities, including the principles of equal rights and mutual respect (Carew et al., 2024). However, diversity in education can also be viewed as a multidimensional concept, encompassing not only demographic aspects but also a variety of perspectives, opinions, educational frameworks, and learning models. Within this perspective, diversity can extend to the sets of competencies integrated into educational programs. This approach aligns with research on critical thinking and creativity in education, as studies suggest a strong relationship between diversity and openness to new ideas and challenges (Alvarez-Huerta et al., 2022). Openness to diversity has also been found to correlate with openness to experience, which extends to receptiveness to novel ideas and their implementation (Alvarez-Huerta et al., 2022). Therefore, incorporating diverse competences into educational curricula can contribute to the development of students' critical thinking and creativity, ultimately enhancing their ability to tackle professional challenges effectively.

The competences required for each study program are shaped by various factors, including specific qualifications and general knowledge. Given the fact that entrepreneurship is seen as a driver of economic development (Tiberius & Weyland, 2024) and that there is evidence suggesting education boosts the development of entrepreneurship (Dakung et al., 2022; Liu et al., 2025) and entrepreneurial competences (Ilyas et al., 2024), it is important for educational institutions to integrate entrepreneurship into their curricula throughout study programs to deliver the spill-over effects of spreading activation for entrepreneurial knowledge, attitudes, intentions, and competencies across various domains. The relevance of entrepreneurial skills to non-business programs (Ilyas et al., 2024; Rocha et al., 2024) lies in their ability to not only facilitate the establishment of start-ups and the management of organizations but also enhance the overall effectiveness of students and employees while strengthening their capacity to navigate various challenges in the labor market. For example, engineering students need to develop entrepreneurial skills during their studies to effectively market their products through entrepreneurial ventures (Ilyas et al., 2024). In this context, the strength of entrepreneurial skills in entrepreneurial ventures lies in their ability to drive idea development, optimize resource management, and formulate strategic and tactical approaches for successfully launching and scaling businesses. This perspective is shared by businesses. The corporate sector increasingly acknowledges the value of entrepreneurial skills in fostering a proactive, customer-focused workforce while improving profitability and efficiency (Bernado & Bratzke, 2024). Recognizing this, the European Commission (2008) emphasized the need to cultivate both entrepreneurial capacities and mindsets among students to strengthen the socioeconomic resilience of economies.

To remain relevant in dynamic business landscapes, entrepreneurial and management competences are expected to continuously evolve. Among the key factors affecting businesses are the artificial intelligence (AI) driven tools (Hyde et al., 2024). As AI algorithms increasingly handle routine tasks, freeing the space and time for problem-solving and creative activities (Wilkens, 2020), the capacity of businesses to integrate human knowledge and human operations with AI is not only essential, but it can become a source of competitive advantage (Jarrahi et al., 2023; Thottoli et al., 2025). Due to the rapid advancement of general AI (GenAI) (Teng et al., 2025) and other AI tools, businesses across industries are increasingly integrating these technologies (Kanellopoulou et al., 2025) to foster innovation, provide advanced market analytics, enable personalized customer service, optimize staff training (Enholm et al., 2022) and general operational efficiency, while also improving decision-making across organizational

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contexts (Imjai et al., 2024). GenAI's role in shaping the entrepreneurial landscape will continue to grow, making GenAI literacy a crucial skill not only for entrepreneurs and managers but also for employees seeking long-term professional sustainability. Without it, digitalization barriers can hinder both business (Uzule & Verina, 2023) and personal development. These barriers include the lack of expertise in GenAI.

Thus, embedding AI competency into workforce development is essential for fostering a culture of innovation and resilience at all organizational levels. On such grounds, it is not surprising that Ada et al. (2021) suggested that employee selection should comprise two sets of skills – technology-related and entrepreneurship skills. While technological skills enable individuals to adapt to digital transformation, entrepreneurship skills play a crucial role in enhancing managerial capacity, strategic thinking, resilience (Abdullah et al., 2018), as well as yielding creative solutions in problem-solving at the workplace. Together, these competencies not only empower employees to navigate complexity but also significantly improve organizational productivity and adaptability in rapidly evolving environments.

The integration of GenAI into entrepreneurial operations requires a framework, which will give both the context and purpose. One of the key frameworks guiding entrepreneurial skill development is EntreComp. EntreComp groups entrepreneurship competences across three areas - Ideas and Opportunities, Resources, and Into Action (Bacigalupo et al., 2016; Bernadó & Bratzke, 2024). The starting point for the consideration of the inclusion of GenAI skills is the area of *Ideas and Opportunities,* as both GenAI skills and the area focus on general activities that can be used across domains and industries. Specifically, the area focuses on creativity, vision, and the ability to identify and exploit opportunities, and GenAI skills can considerably enhance productivity of such tasks through the capacity of GenAI systems to engage in meaningful discussion and general research activities while providing data-driven insights, automating routine tasks. However, for employees to leverage GenAI effectively within this domain, employees should be able to develop such GenAI skills in pertinence to entrepreneurship contexts.

Research Aim and Research Questions

The aim of this study was to determine whether GenAI skills should be integrated into entrepreneurship competences, thereby introducing a new dimension of diversity in entrepreneurship education. The area of entrepreneurship competences that was considered relevant for the inclusion of GenAI was the area of Ideas and Opportunities of EntreComp because it is quite general in nature which makes it well-linked to the concept of GenAI, on the one hand, and on the other hand, this area focuses on the development of creativity, recognition of opportunities and creating value, where AI can be used productively.

To be able to attain the research aim, the following research questions were formulated:

- Research Question 1: What is the current level of skills in using GenAI among public administration employees?
- Research Question 2: What are the views of public administration employees on the importance of GenAI skills?
- Research Question 3: What is the experts' perspective on the inclusion of GenAI skills into entrepreneurship competencies?

The true innovation of this study lies in its expanded approach to diversity that spreads beyond equity and inclusion to embrace a pluralism of ideas and competences. Among the many facets of this broader understanding, the study focuses specifically on the applied dimension: the intersection of AI literacy and entrepreneurship competences as a response to emerging market needs. By exploring whether generative AI (GenAI) skills should be integrated into the entrepreneurship competence framework, the research introduces a new and actionable

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dimension of diversity that is rooted in technological relevance and future-oriented professional preparedness.

Research Methodology

General Background

The research draws on the EntreComp framework, which outlines essential entrepreneurial competences not only for entrepreneurs but also for the general workforce (Bacigalupo et al., 2016). However, EntreComp does not currently include AI-related skills, despite the increasing relevance of AI across all sectors. As AI becomes more embedded in daily work processes, the absence of AI competences in EntreComp raises important questions about whether and how they should be integrated.

To explore this issue, the research was divided into two stages. The first stage focused on exploring perceptions of AI skills in the workplace through a survey of public administration employees. The second stage involved a survey of experts, designed to assess their views on the outcomes of the initial survey and to determine whether AI skills are useful for the Ideas and Opportunities area of the EntreComp framework. The Ideas and Opportunities area of EntreComp emphasizes the ability to identify value creation opportunities, understand market dynamics, and generate creative solutions. These are entrepreneurship aspects that can benefit from AI use (Mumi et al., 2025).

Sample Selection

The research focused on two target groups: public administration employees and experts in business management and higher education. Public administration employees were selected due to their pivotal role in shaping both economic and social outcomes through governance. Their daily work involves diverse roles and responsibilities across various sectors, often under tight resource constraints. In such settings, professional creativity and entrepreneurial competences are essential, which is in accord with the EntreComp framework. As public administration increasingly adopts AI technologies, the level of employee competence in AI becomes an important factor influencing whether such tools enhance or hinder productivity (Agbabiaka et al., 2025). AI has the potential to increase public value when used effectively (Van Noordt & Tangi, 2023), but its benefits are closely tied to human skills. This makes public administration employees an important and potentially representative group for exploring how general workforce skills might evolve to meet the demands of AI-integrated workplaces. The participants were from various regions of Latvia, a country known for its active digitalization efforts, making it a relevant context for studying AI-related competences. The importance of this sample pertains to the views and experience of people who are already employed across various regions and sectors of the economy.

The second group, experts, was included to validate and contextualize the survey findings and to provide deeper insight into whether and how AI skills should be integrated into existing competency frameworks such as EntreComp. Experts were selected based on their ability to provide informed, experience-based perspectives on the integration of AI competences within entrepreneurial and management frameworks. The following criteria were applied to expert selection:

- Minimum 5 years of experience in the field of management, economics, or entrepreneurship
- University lecturers or experts employed in middle or senior management roles, or in senior specialist positions within companies.

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The involvement of both academic and professional staff ensured insights relevant to both education and practice. In total, 39 individuals participated in the survey, of whom 20 participants were drawn from higher education institutions, while 19 participants represented a wide range of industry sectors, including energy, software and AI development, logistics, financial services, environmental services, consulting, construction, banking, and culture. This sectoral diversity was intended to capture a broad view of how AI and entrepreneurial competencies are perceived across different organizational contexts. The expert group was divided almost equally between Latvian and Lithuanian specialists to provide a broader, yet still regionally relevant, perspective on the relevance of AI competences to the EntreComp framework. Involving experts from two neighboring Baltic States improved the potential of applicability of the findings for regional policymakers, educational institutions, and businesses considering investments in developing AI competences among current and future specialists and managers.

Instrument and Procedures

The research used two instruments: one questionnaire administered to public administration employees and another (follow-up) questionnaire completed by experts. The questionnaire was developed by the Digital Academy of the School of Public Administration, which conducted webinars on AI for public administration employees. The questionnaire included 5 question areas: (1) Frequency of AI use, (2) AI skill awareness and learning (a question on following AI updates), (3) Investment in employee AI skill development, (4) Investment in AI resources and ensuring access, and (5) AI skill effect on performance. This limited question set was a deliberate design choice aimed at maximizing the likelihood of completion by busy professionals immediately following a training session. The questionnaire was administered in the Latvian language at the end of AI-related webinars on 22 February 2024 and 21 March 2024, using a voluntary and anonymous format. Participants were employed across various sectors and regions of Latvia, providing a range of perspectives on the use and impact of AI in public service. The research data was used in accordance with the terms of a cooperation agreement between the Digital Academy and the institution affiliated with the authors of this paper.

With regard to the expert survey, the questionnaire was developed by the authors of this paper to further explore and contextualize the findings from the public administration employee survey and to determine whether AI competences are relevant to the Ideas and Opportunities area of the EntreComp framework, including their potential to support entrepreneurial thinking in AI-integrated work environments. The questionnaire consisted of 30 questions divided into 4 thematic blocks. In short, block 1 gathered background information about the participants. Blocks 2 and 3 focused on expert reflections on the public administration employee survey findings. Block 4 aimed to determine the potential usefulness of AI-related competences to the Ideas and Opportunities area of the EntreComp framework (see Table 1). Regarding the block structure, block 1 contained single-choice and open-ended questions. In blocks 2 and 4, half of the items used a 5-point Likert scale ranging from 1 (fully irrelevant) to 5 (fully relevant). The 5-point scale was chosen to introduce a midpoint response of neutral evaluation. Another half of the questions encouraged participants to explain the ratings they had provided in Likert-scale questions. Such questionnaire design is consistent with Vural et al. (2025), who first administered a 5-point scale questionnaire, which was followed up by interviews aimed to explore responses obtained through the survey. Additionally, block 4 included 1 open-ended question eliciting further general comments on the topic. Questions in block 3 were not followed by open-ended questions because similar questions appeared in block 4, where participants were asked to provide explanations for their ratings in open-ended questions.

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Table 1
Expert Interview Structure

Block No.	Function	Number of questions	Types of questions
1	Information about participants	8	Various types
2	Roles of employees and organizations in fostering AI skill development	8	Likert scale (1-5). Open-ended questions
3	Impact of AI skills on employee productivity and creativity	3	Likert scale (1-5)
4	Potential for developing Ideas and Opportunities competences of EntreComp through AI	11	Likert scale (1–5). Open-ended questions

The conceptual structure of the expert questionnaire, excluding question block 1, is available in Tables 2 and 3. Table 2 illustrates the alignment between the survey areas for public administration employees and the areas covered in the expert questionnaire. The relevance of AI competences to the Ideas and Opportunities area of the EntreComp framework was examined in Question Block 4. This block explored how AI-related skills contribute to employees' capacity for creativity, innovation, and value creation within public administration. The questions aimed to determine whether AI competences are perceived as essential for identifying opportunities, developing new ideas, and transforming those ideas into practical solutions in line with the goals of the EntreComp framework.

Table 2
Aligning Public Administration Employee Questionnaire Areas to Expert Questionnaire Areas

Public administration employee questionnaire areas	Expert questionnaire areas	Expert questionnaire
Investment in AI resources and ensuring access	Employee responsibility for finding time/resources for AI skill development	Question block 2
	Organizational responsibility for providing access to AI tools for ensuring employee AI skill development	
Investment in employee AI skill development	Organizational responsibility for employee AI skill development	
	Organizational responsibility for employees' continuous training for AI skill development	
	Employee responsibility for paying for AI skill development	
Skill awareness and learning	Employee responsibility for AI skill development for work	
	Employee responsibility for identifying gaps in AI skills	
	Responsibility of the content of AI training	
AI skill effects on performance	AI skills improving staff performance	Question block 3
	Insufficient AI skills posing safety risks	
	AI skills improving work-related creativity	

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Table 3
Exploring Inclusion of AI Competences in the EntreComp Area of Ideas and Opportunities

Expert questionnaire areas: Question block 4	Questions	EntreComp "Ideas & opportunities"
AI skills identifying opportunities for performance improvement and value creation	In general, can better AI skills among general staff help identify opportunities for value creation, address needs and challenges at the workplace, and foster connections or networks that lead to new opportunities? How? Why?	Spotting opportunities
AI skills developing creative responses to work challenges and increasing organizational value	Can better AI skills among staff help them develop creative solutions, improve productivity, and combine knowledge or resources to achieve valuable outcomes? How? Why?	Creativity
AI skills developing vision for improved performance and implementation of ideas into actions	Can better AI skills among staff help them develop a vision for their performance, predict possible outcomes, and understand future job requirements? How? Why?	Vision
AI skills assessing the value of work-related ideas	Can proper AI skills help staff better assess work-related values, identify ways to implement ideas in the workplace, and evaluate the potential of business ideas and performance? How? Why?	Valuing ideas
AI skills promoting sustainability and ethical actions at the workplace	Can better AI skills among staff help them understand the impact of their performance, reflect on the sustainability of their work practices, and act more responsibly in the workplace? How? Why?	Ethical and sustainable thinking

The expert questionnaire was developed in April 2024 and distributed using Google Forms during the same month as an anonymous and voluntary survey. The questionnaire was distributed in English; it was not translated into local languages, as the expert level of the target group assumed a good command of English. The questionnaire link was shared with experts affiliated with the authors' institutions as well as partner institutions. The objective was to reach professionals with relevant expertise across a network of academic and organizational contacts.

Data Analysis

The study employed both quantitative and qualitative methods of data analysis, consistent with the mixed-method design of the study. The data of the public administration employee survey was analyzed using a descriptive statistics method. Specifically, the questions regarding the frequency of AI tool use and engagement with AI updates were analyzed using *means* and *standard deviations (SD)*. These items were formulated as Likert-type scales ranging from 1 (hardly ever) to 4 (almost daily). Although the data are ordinal, they were treated as interval for descriptive purposes, following common practice in survey research. This approach assumes that the distances between scale points are approximately equal, enabling the calculation of *means* and *SD* to summarize central tendency and variability. The remaining questionnaire items were multiple-choice questions with categorical response options, lacking interval properties, which is why they were analyzed using frequency distributions. Since participants could select multiple options for a single question, the total number of responses exceeded the number of participants.

The expert survey responses were analyzed using the methods of descriptive statistics, specifically, *means* and *SD*, and content analysis, where appropriate. The application of more

advanced statistical methods, such as inferential statistics, was not methodologically justified on the following grounds. The primary research objective of the expert survey was to document and summarize expert opinions rather than to test hypotheses or build predictive models based on inferences about a larger population in accord with inferential statistical methods. As defined by Gravetter et al. (2021), inferential statistics consist of techniques aimed to produce generalizations about the populations from which they were selected. Furthermore, our sample of 39 experts might not be of sufficient size to generate robust evidence for hypothesis testing or predictive modeling, as small samples, consistent with Field (2018), increase the risk of unreliable estimates and spurious patterns.

As for the qualitative data obtained from the open-ended responses, these provided explanatory insights by revealing participants' reasoning and highlighting key themes and concepts. The responses were analyzed using a thematic summarization method (Castellanos et al., 2025), which represents a form of qualitative thematic analysis, as described by Stretton et al. (2025) and Vural et al. (2025). In this approach, themes and concepts are not imposed a priori but emerge inductively from the content itself (Stretton et al., 2025).

Research Results

Overall, 4573 participants took part in the survey. However, 4 participants did not answer any question, which is why their entries were discarded from the entire dataset. Regarding the questions on AI use and updates, there was a loss of 21%. The means and SD for the remaining responses are provided in Table 4.

Table 4
Self-Reported Engagement with AI

Item in public administration employee questionnaire	*M*	*SD*
Frequency of AI tool use	1.61	0.87
Frequency of following AI updates	1.40	0.58

The results indicated generally low engagement with AI tools and AI-related updates among the respondents. The mean score for the frequency of AI tool use suggested that most responses ranged between "hardly ever" and "rarely, but following." Similarly, the frequency of following AI updates yielded even lower engagement, with responses clustering closer to "hardly ever." The relatively low SD in both cases suggest modest variability in responses, particularly for AI updates, where the responses were more tightly concentrated around the lower end of the scale. These findings suggest limited integration of AI-related practices into the respondents' professional routines.

The subsequent question aimed to explore participants' concerns and expectations regarding the advancement of AI technologies. This question was designed to allow multiple response selections, enabling participants to express a range of perspectives rather than being restricted to a single predefined option. Consequently, the cumulative number of responses exceeds the total number of participants, as individuals could indicate multiple concerns and hopes simultaneously. This approach provides a more comprehensive representation of participants' views, capturing the complexity and multidimensional nature of their attitudes toward AI development (see Figure 1).

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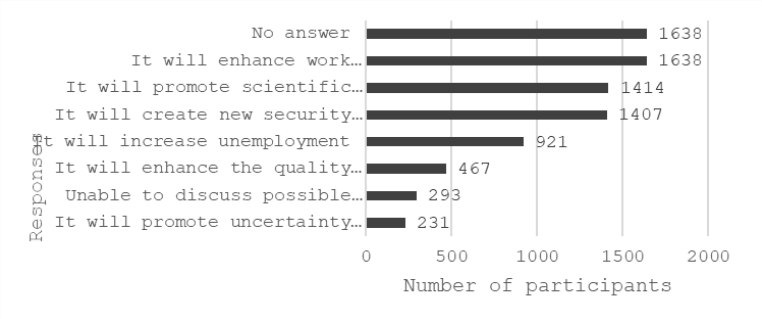
Figure 1

Key Concerns and Hopes Associated with the AI Development



The results reveal a complex mix of optimism, concern, and uncertainty. About 20.5% believe AI will enhance work efficiency and create new opportunities, making it the most frequently expressed expectation. Similarly, 17.7% anticipate that AI will promote scientific and technological progress, while 5.8% foresee improvements in the overall quality of life. Collectively, these optimistic views account for 44.0% of the responses, suggesting that nearly half of the surveyed individuals associate AI with positive societal and economic advancements. On the other hand, concerns about AI are also considerable, with 17.6% of respondents expressing concerns over new security and privacy risks, and 11.5% believing AI will increase unemployment. A smaller proportion, 2.9%, expressed their concerns that AI will promote uncertainty and dissatisfaction. Together, these concerns make up 32.0% of the responses, indicating that a substantial fraction of the population remains cautious about AI's potential negative consequences.

Uncertainty about AI's impact is evident in the survey results. A notable 20.5% of respondents did not provide an answer, while an additional 3.7% stated they were unable to discuss the possible consequences. This combined 24.2% suggests that a significant portion of individuals either lack sufficient knowledge or are undecided about AI's future role. Overall, the data suggest balanced distribution between optimism and caution, with a slight inclination toward positive expectations. However, the high percentage of non-responses highlights the need for further public discourse and education on AI's potential benefits and risks.

The next two questions related to the willingness to invest financial resources in AI tools. The first question addressed the readiness of participants to allocate personal funds to AI tools and training (Figure 2). In contrast, the subsequent question focused on organizational willingness to invest in AI tools (Figure 3).

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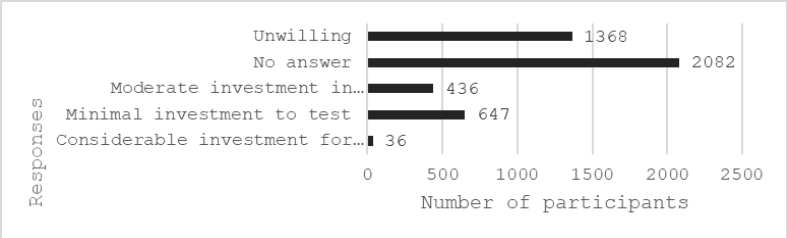
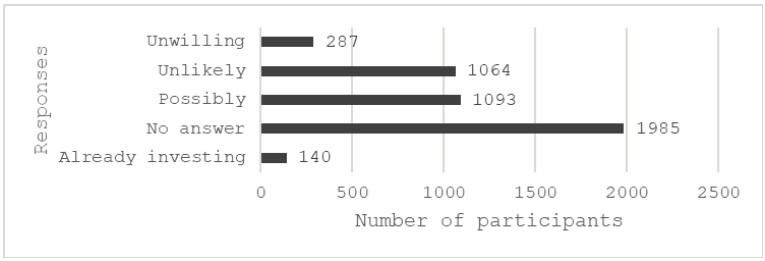
Figure 2
Respondents' Readiness to Purchase AI Tools Using Personal Funds



Among the 4,569 respondents, 24.5% expressed a willingness to invest, with 0.79% indicating a considerable investment for great value, 14.17% opting for minimal investment to test, and 9.54% willing to make a moderate investment in effective tools. In contrast, 29.93% explicitly stated their unwillingness to invest in AI tools. A significant portion, 45.57% of respondents, did not provide an answer, which could indicate indifference, uncertainty, or a lack of engagement with the subject. When analyzing only those who provided a definitive response (excluding the "No answer" category), the distribution reveals that 44.95% of engaged respondents are willing to invest in AI tools, while 55.05% are unwilling. This suggests that while there is notable interest in AI investments, a slightly larger proportion remains hesitant. The reluctance to invest could stem from various factors, such as perceived cost, lack of trust in AI effectiveness, or limited awareness of AI benefits. The high percentage of non-responses (45.57%) highlights a critical area for further investigation. It is possible that many individuals are either unfamiliar with AI tools or do not perceive them as relevant to their personal or professional needs. Future research could explore whether targeted education, exposure to successful AI implementations, or clearer value propositions could increase investment willingness among this uncertain group. Overall, the data suggests a polarized stance on AI investment, with nearly half of the respondents disengaged or undecided. While there is a substantial minority showing interest in AI adoption, the prevailing hesitation emphasizes the need for further awareness, accessibility, and trust-building measures in AI technology adoption.

Figure 3
Willingness of the Organization to Invest in AI tools



Out of a total of 4,569 responses, only 140 respondents (3.06%) indicated that their organizations have already been investing in AI tools, indicating a relatively low level of current AI adoption. A substantial proportion, 1,093 respondents (23.92%), indicated that they may possibly invest in AI tools in the future, suggesting a significant level of potential interest. However, a nearly equal percentage, 1,064 respondents (23.29%), expressed that they are unlikely to invest, demonstrating a strong presence of skepticism or hesitation. Furthermore, 287 respondents (6.28%) explicitly stated that they are unwilling to invest in AI, reinforcing

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the presence of resistance within a subset of organizations. A striking observation is that 1,985 respondents (43.44%) did not provide an answer, a significantly high proportion. This lack of response could suggest a variety of factors, including a lack of knowledge or awareness about AI, uncertainty regarding its benefits, or a general disinterest in AI investments. Given that nearly half of the organizations did not provide a response, this group represents a crucial area for further investigation, as their stance on AI adoption remains unclear. When analyzing only the respondents who provided a clear answer (excluding the "No answer" category), the results show that 6.92% of respondents pointed that their organizations had already been investing, 54.05% are open to the possibility of investing, while 26.49% are unlikely to invest, and 13.54% are explicitly unwilling. This breakdown suggests that while there is notable interest in AI investment among organizations, a substantial portion remains hesitant or resistant.

Overall, the data highlights a polarized attitude toward AI investment, with a minority actively investing, a significant portion considering it, and nearly a third expressing reluctance or rejection. The high non-response rate indicates a need for further exploration into organizational barriers to AI adoption, whether they be financial, strategic, or based on a lack of understanding of AI's potential benefits. These findings underscore a cautious approach to AI adoption and investment among public servants and their organizations, influenced by limited current use, concerns about potential risks, and a substantial degree of uncertainty or disengagement.

In total, the expert interview encompassed 39 participants. Figure 4 illustrates the distribution of expert positions within their organizations, distinguishing between education and business sectors and covering senior specialist, middle management, and senior management roles. The figure shows that senior specialists in education and middle managers in business were the most represented groups among participants.

Figure 4
Expert Employment Positions

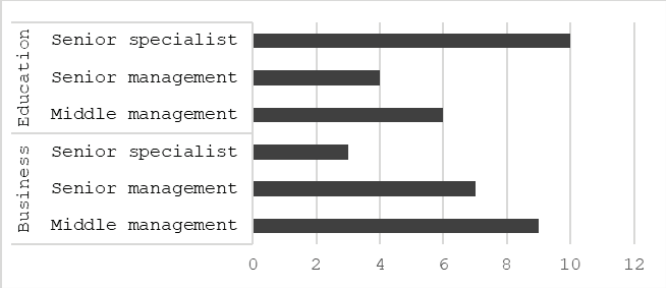

Figure 5 presents the distribution of AI competence levels among participants in relation to the frequency of AI tool use. This figure provides a structured overview of how participants' self-assessed AI competence aligns with their reported AI tool engagement. Including this breakdown is important for contextualizing subsequent results on the inclusion of AI competences in EntreComp.

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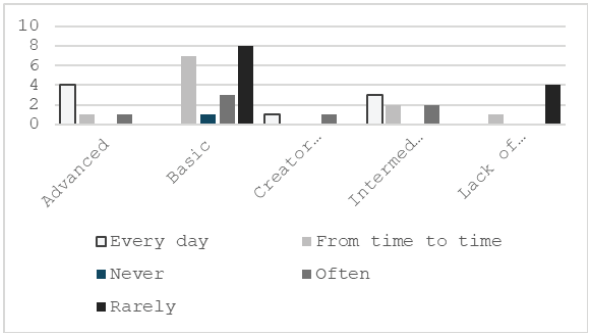
Figure 5
Levels of AI Skills and Frequency of AI use among Experts



Among the experts, 20.5% reported advanced levels of AI skills, almost 18% had intermediate levels, while almost 49% had basic AI skills. But about 12% acknowledged the lack of AI user skills. Among those who reported the advanced level of AI skills, the major tendency was to use AI daily or often. Intermediate users show moderate engagement, with 42.9% using AI daily and 28.6% using it from time to time or often, suggesting an increasing but not yet fully established dependence on AI tools. Among basic AI users, usage is more varied–36.8% use AI occasionally, but a significant 42.1% use it rarely, showing less frequent engagement with AI in their work. The least frequent AI users are those with a lack of AI knowledge, with 80% rarely using AI and only 20% interacting with it from time to time, indicating minimal integration. Overall, the trend suggests that higher AI expertise correlates with more regular AI usage, while those with basic skills or no AI knowledge engage with it infrequently, if at all.

The analysis of departmental distribution among respondents reveals a diverse range of professional backgrounds, with IT, research, sales, and business-related departments being the most prevalent. This suggests a strong representation of technology-driven roles, as well as management and economic functions. In terms of organizational specialization, universities constitute the largest sector (21.6%), followed by education-focused institutions (10.8%), which highlights the significant presence of academic and training organizations in the dataset. Additionally, e-commerce, consulting, and cultural industries each account for 5.4%, reflecting a mix of commercial, advisory, and creative sectors. The data indicates that AI and digital technologies are integrated across various domains, including finance, healthcare, logistics, and road transport, demonstrating the interdisciplinary relevance of AI skills. The high representation of education and research-oriented institutions suggests that AI is being explored not only as a tool for operational efficiency but also as a subject of study and innovation. Overall, the findings emphasize the growing importance of AI-driven competencies across diverse professional fields, with a particular focus on academia, technology, and business strategy.

Even though only about 40% of respondents have reached an adequate level of AI proficiency, their expertise remains highly relevant in discussions on entrepreneurship, business growth, and digital transformation. Their insights stem not just from technical knowledge but from extensive experience in fields where AI is increasingly shaping decision-making and strategy. For instance, 21.6% of respondents come from universities, and 10.8% are from education-focused institutions, reinforcing their role in research, teaching, and skill development. Additionally, professionals in IT, research, sales, and business functions—who collectively form a significant portion of respondents—operate at the intersection of innovation and industry demands, equipping them with a practical understanding of AI's role in enhancing productivity and competitiveness. Even among those with only basic AI skills, 36.8% use AI

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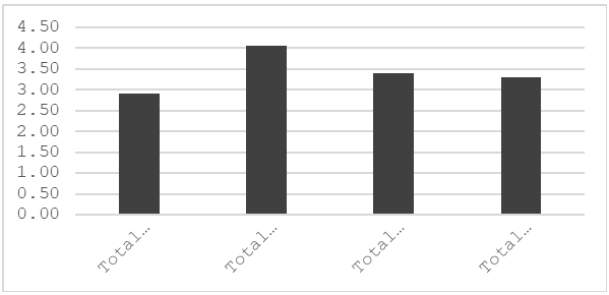
occasionally, demonstrating that exposure to AI is not limited to advanced users. Meanwhile, professionals in consulting, finance, and logistics contribute valuable perspectives on AI's economic impact, even if their AI engagement is less frequent. The fact that AI expertise varies does not diminish the significance of these professionals' viewpoints; rather, it highlights the broader reality that AI is integrated into diverse sectors at different levels. Experts provide critical assessments of AI's applications, challenges, and ethical considerations - elements that go beyond mere technical proficiency. Their ability to contextualize AI adoption within business strategies, policy frameworks, and educational advancements makes their perspectives indispensable. Even those with basic AI knowledge contribute by identifying barriers to adoption and areas where AI literacy must improve. Ultimately, expertise is not solely defined by AI skill levels but by the depth of experience and strategic insight professionals bring, reinforcing the importance of their contributions to shaping AI-driven innovation in education and business.

The next set of questions focused on various aspects of the role of AI in entrepreneurship competence development. The first question in this section explored expert views on the degree of responsibility for investing in AI tool acquisition, which is linked to the level of AI skills demonstrated by the experts. It also addressed the perceived role of AI in enhancing workplace productivity and supporting the overall importance of entrepreneurship competence (see Figure 6).

Figure 6
Expert Views on AI Skills of Employees



The data reveal that organizational responsibility received the highest rating, close to 4.0 on the scale, indicating that experts overwhelmingly believe that institutions and employers should take the lead in equipping employees with AI-related skills. In contrast, employee responsibility scored significantly lower, around 2.8, suggesting that while individual learning is important, AI skill acquisition should not be left solely to employees. This result highlights the expectation that organizations should provide training opportunities, resources, and structural support for AI adoption in the workplace.

The impact of AI on productivity and work creativity was rated at approximately 3.5, demonstrating that experts acknowledge AI's potential to enhance workplace efficiency and foster innovation. This suggests that AI is not only seen as a tool for automation but also as a means to improve problem-solving, decision-making, and overall job performance. Another significant aspect captured in the data is the importance of EntreComp (Entrepreneurship Competence Framework), which scored slightly above 3.2. This suggests that experts consider entrepreneurial skills - such as adaptability, critical thinking, and innovation - valuable in navigating AI-driven work environments. The recognition of EntreComp highlights the broader skill set needed to integrate AI effectively, emphasizing competencies beyond technical knowledge. Overall, the findings highlight a strong expectation for organizations to lead AI

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skill development while recognizing AI's role in enhancing workplace creativity and efficiency. While individual initiative is valued, organizational support is crucial for AI adoption. The emphasis on entrepreneurial competencies underscores the need for a well-rounded skill set, combining AI knowledge with critical thinking, innovation, and adaptability. These insights stress the importance of structured training programs and entrepreneurial thinking to fully leverage AI in the workforce.

Table 5 provides a structured summary of expert opinions on AI skill development. Expert questionnaire areas indicated in this table were obtained from Tables 2 and 3. Entries 7 and 8 of Table 2 were merged into entry 7 because the respondents claimed that the content of AI training had been the responsibility of the organizations. To obtain an overview of responses, expert questionnaire areas were categorized into four key areas: employee responsibility, organizational responsibility, productivity and work creativity, and entrepreneurial competences (EntreComp) (see entries 17-20).

Table 5
Mean Values of the Impact of AI Skills

No.	Expert questionnaire areas	*M*	*SD*	Rank
1	Employee responsibility for AI skill development for work	3.27	1.25	10
2	Employee responsibility for paying for AI skill development	2.12	1.19	15
3	Employee responsibility for finding time/resources for AI skill development	3.07	1.35	12
4	Employee responsibility for identifying gaps in AI skills	3.29	1.31	9
5	Organizational responsibility for employees' AI skill development	3.95	0.92	3
6	Organizational responsibility for providing access to AI tools for employees' AI skill development	4.12	0.93	1
7	Organizational responsibility for employees' continuous training for AI skill development	4.05	1.05	2
8	Employee AI skills improving productivity	3.63	0.92	4
9	Lower levels of employee AI skills posing security risks	3.02	1.11	13
10	Employee AI skills improving work creativity /innovations	3.54	1.07	5
11	Employee AI skills helping identify opportunities for performance improvement and creation of value	3.51	0.95	6
12	Employee better AI skills helping develop creative responses to work challenges and increase the company's value	3.41	1.14	8
13	Employee better AI skills helping develop vision for improved performance and implementation of ideas into actions	3.22	1.13	11
14	Employee better AI skills helping assess the value of work-related ideas	3.49	1.08	7
15	Employee better AI skills helping promote sustainability and ethical actions at the workplace	2.66	1.26	14
16	TOTAL AVERAGE	3.36	1.11	-
17	AVERAGE FOR EMPLOYEE RESPONSIBILITY (No.1-4)	2.94	1.27	4
18	AVERAGE FOR ORGANIZATIONAL RESPONSIBILITY (No. 5-7)	4.04	0.97	1
19	AVERAGE FOR PRODUCTIVITY AND CREATIVITY (No. 8-10)	3.40	1.03	2
20	AVERAGE FOR ENTRECOMP COMPETENCES (No. 11-15)	3.26	1.11	3

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The data indicate a moderate level of individual responsibility for AI skill development, with an average mean score of 2.94. The highest-rated items in this category were identifying personal skill gaps ($M = 3.29$) and taking responsibility for development ($M = 3.27$), suggesting that respondents expect individuals to be aware of and proactive about their AI competencies. Employees were also seen as moderately responsible for finding learning resources ($M = 3.07$). However, financial responsibility scored considerably lower ($M = 2.12$), reflecting a shared expectation that training costs should not fall primarily on employees.

In contrast, organizational responsibility received the highest overall rating ($M = 4.04$). This result indicates strong support for the concept that employers should lead AI upskilling efforts. Providing access to AI tools ($M = 4.12$), continuous training ($M = 4.05$), and general responsibility for employee AI development ($M = 3.95$) were all rated highly. Such outcomes suggest the importance of structured, organization-driven learning initiatives.

Perceptions of AI's role in workplace productivity and innovation reflected an upper-moderate level of agreement ($M = 3.40$). The highest support was for AI's potential to enhance employee productivity ($M = 3.63$) and to foster creativity and innovation ($M = 3.54$), suggesting a generally positive view of AI as a contributor to workplace performance. The belief that low AI skills may pose a security risk received moderate support ($M = 3.04$), indicating that while this concern exists, it is not as strongly emphasized as other benefits.

The EntreComp-related items received a moderate overall score ($M = 3.26$), indicating a growing recognition of AI's potential to support entrepreneurial thinking and behavior in the workplace. Respondents viewed AI as particularly helpful for identifying opportunities to improve performance ($M = 3.51$), evaluating the value of work-related ideas ($M = 3.49$), and enabling creative problem-solving ($M = 3.41$). Implementing ideas into action was also moderately supported ($M = 3.22$), suggesting that AI tools are seen as relevant throughout the innovation process. While the role of AI in promoting sustainability and ethical behavior received a lower score ($M = 2.66$), this may reflect an emerging area of interest with opportunities for future development and increased awareness.

Regarding the question on who should decide on AI training, the experts suggested leadership and department managers, human resources, the IT department, and employees. Another set of questions related to activities that could be performed using AI, which were asked as explanations for their views on areas of performance in relation to the Idea and Opportunity domain of EntreComp. Overall, answers were similar across the questions and could be grouped into five areas: (1) Innovation, sustainable value creation and ethical conduct; (2) Collaboration and knowledge sharing; (3) Automation, data analysis and decision support; (4) Predictive analytics and competitive advantage creation; and (5) Challenges and limitations (see Table 5).

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Table 6
Most Frequent Samples of Open-Ended Responses

Examples of answers				
AI skills enabling staff to:				
Identify opportunities for performance improvement and value creation.	Develop creative responses to work challenges for enhancing company value	Develop vision for the improved performance & implementation of ideas into actions	Assess the value of work-related ideas	Promote sustainability and more responsible and ethical actions at the workplace
Innovation, sustainable value creation and ethical conduct				
Fostering and creating organizational value Evaluation of ethical implications in business decisions Creative problem-solving Creating innovation, supporting brainstorming, and idea generation for innovative solutions Validating and improving work-related ideas and concepts Analyzing sustainability opportunities and aligning business practices with ethical standards Improving efficiency through sustainable practices Developing solutions to promote social responsibility Sustainable software development				
Collaboration and knowledge sharing				
Improved collaboration through shared insights, structured discussions, collective data analysis Enhancing knowledge sharing Efficient team communication and enhanced idea exchange Organized information synthesis for structured decision-making Systematic analysis of vast information for informed team decisions Engagement in sustainability initiatives and responsible practices				
Automation, data analysis, and decision support				
Process optimization Enhanced productivity through time savings and cost reduction Optimized resource allocation and reducing waste Increasing cost efficiency Expanding capacity to envision and implement performance improvements Freeing up employees to focus on high-value activities by reducing routine tasks. Identifying patterns, trends, and inefficiencies through large-scale data analysis. Providing structured, data-driven insights for informed decision-making. Translating complex data into clear implementation strategies. Monitoring progress and offering real-time feedback for continuous improvement. Assessing the potential impact and feasibility of work-related ideas. Testing decision impacts through simulations to reduce uncertainty. Identifying sustainability opportunities and ethical risks. Streamlining administrative tasks to allocate resources for sustainability initiatives. Green coding practices for more efficient operations.				
Predictive analytics and competitive advantage creation				
Creating sustainable competitive advantage Data-driven predictive modeling for structured idea evaluation. Exploring market trends and customer data to assess idea viability Predictive modeling for anticipating market trends. Strategic adjustments Data analysis for extracting insights that enhance customer satisfaction and loyalty, including personalization and customization to differentiate a company in the market. Risk assessment and cost-benefit analysis for decision-making Monitoring compliance with environmental and ethical standards. Creating transparency and accountability in operations and reporting.				

Challenges and limitations
Acquisition of proper competencies by employees for creativity, self-organization, and motivation
Limited resources for verifying automated decisions and solutions
Repetition of existing data patterns restricting originality
Security risks, biases, and inefficiencies from improper AI tool usage or tool quality
Need for continuous monitoring to ensure productivity gains
Balancing human expertise with AI technological integration
Importance of effective training for decision-making and performance
Policy adjustments for technology adoption in organizations
Human oversight as the foundation of ethical standards
Sustainability challenges due to high energy consumption
Reduced creativity and critical thinking from automation dependence

The results indicated that the adoption of AI capabilities in the workplace drives creativity, sustainable growth, and ethical responsibility by strengthening business value, encouraging innovative problem-solving, facilitating idea development, and supporting responsible corporate practices through environmental consciousness and ethical governance. Team collaboration and knowledge transfer are improved through well-structured discussions, analytical insights, and seamless communication, fostering teamwork and enabling well-informed choices while reinforcing engagement in sustainability efforts. Automation, data-driven insights, and strategic guidance enhance workflow efficiency, reduce repetitive workloads, detect operational trends, refine decision-making processes, and optimize resource utilization to maximize impact. Forecasting techniques and market positioning leverage predictive analytics, industry trend evaluations, risk mitigation, and adaptive strategies, helping businesses stay ahead of challenges, tailor customer experiences, and uphold compliance with ethical and environmental regulations. Despite these advantages, barriers and risks persist, such as the need for specialized workforce training, vulnerabilities in security and decision biases, constraints in verifying automated solutions, and excessive dependence on AI, which may stifle originality and contribute to energy-intensive practices. Striking a balance between human expertise and AI implementation is key to ensuring responsible, effective, and forward-thinking integration of technology in business operations.

Additional comments included these ones. The integration of AI skills in the workplace brings both opportunities and challenges, influencing key areas such as innovation, efficiency, decision-making, ethical responsibility, and collaboration. AI enables employees to optimize productivity by automating routine tasks, analyzing large datasets, and predicting trends, ultimately enhancing decision-making and competitive advantage. Additionally, AI fosters innovation and value creation by assisting in idea validation, facilitating brainstorming, and supporting strategic problem-solving. However, AI alone does not generate creativity - it remains a tool that enhances human capacity rather than replacing intuition and experience. Ethical concerns and responsible AI usage play a crucial role in ensuring sustainability, with AI contributing to resource conservation and compliance monitoring while also posing risks such as bias and over-reliance on automation. Moreover, collaboration and knowledge-sharing improve when AI tools assist in organizing information, enhancing transparency, and supporting team-based decision-making. Nonetheless, AI education and training remain critical, as many employees lack the depth of understanding needed to fully harness AI's capabilities. While AI is a powerful tool, its effectiveness depends on the organization's culture, leadership commitment, and employees' motivation to use it strategically. Therefore, businesses should approach AI adoption with a clear purpose, continuous learning opportunities, and ethical considerations, ensuring that AI enhances human decision-making rather than replacing it.

Overall, the results indicate that organizations, rather than employees, are expected to take the lead in AI skill development. The data also highlights AI's potential to enhance productivity

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and work creativity, though its role in security remains a secondary concern. Finally, AI skills are recognized as important for entrepreneurial competencies, particularly in identifying opportunities and implementing ideas, but their impact on ethical and sustainable workplace practices remains less clear. These findings underscore the need for structured organizational training programs and strategic AI integration to maximize workplace innovation and efficiency.

Discussion

Overall, the results suggest that it may be reasonable to incorporate GenAI skills into entrepreneurship competences. This aligns with Bernadó and Bratzke (2024), who argued that entrepreneurship competences should reflect rapid technological advancements by including technical digital competences in entrepreneurial success and considering AI skills relevant to value creation in entrepreneurship. As AI becomes increasingly embedded in strategic functions of businesses, like opportunity recognition, product development, and customer engagement, the inclusion of AI-related skills within entrepreneurship competences and education should not be viewed as an optional but rather imperative choice (Saleem et al., 2024).

The first research question pertained to the current level of GenAI user skills among public administration employees. The findings revealed that GenAI skills among public administration employees ranged from a low to moderate level, with uneven distribution, which might be connected to the reported limited hands-on experience and expressed unfamiliarity with GenAI tools beyond basic awareness. The reported barriers included the lack of structured training, unclear institutional support, and absence of use-cases relevant to their daily professional roles. While a small segment demonstrated initiative and interest in self-learning, this was the exception rather than the typical response. These findings align with Sandoval-Almazan et al. (2024), who found that most respondents in their study of 38 public service managers in Mexico rated their AI skills as basic, while suggesting that productive AI use would require new skill sets. In parallel, Alijoyo et al. (2025) and Tiron-Tudor et al. (2025) claimed that a relatively low level of AI skills among marketing and accounting professionals was related to the lack of proper training. Furthermore, Chang (2025) found that public administration employee confidence and preparedness were closely tied to organization-led training and institutional support, with those who received such training reporting higher psychological readiness and job-specific self-efficacy. That study reinforced the idea that public employees rely on institutional structures for developing new competences. Such outcomes support the findings of this research that most public administration employees view GenAI training as an institutional responsibility; thus, reflecting a broader expectation that organizations should ensure their employees are equipped with skills for emerging technological demands. The same conclusion extrapolates on educational contexts – students may expect to receive AI training relevant to both their occupation and general management activities.

As AI systems such as government chatbots increasingly assume roles traditionally held by public administration employees, it becomes essential that public employees are adequately trained to understand, collaborate with, and oversee these technologies. Li and Wang (2024) emphasize that citizens already perceive chatbots as public administration employee agents, which places new demands on human staff to navigate AI-supported service delivery environments with competence and confidence. Without proper training, public administration employees may struggle to anticipate chatbot behavior, respond effectively to hybrid workflows, or ensure accountability; thus, underscoring the urgency of integrating AI-specific skills into public sector training programs. To address this skills gap, foundational GenAI modules should be introduced across public servant training programs and higher education programs relevant to both public servant activities and general business management. These modules should emphasize practical usage, including data interpretation, content generation, and task

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automation relevant to public administration, policy innovation, and business development and management. Integrating real-world policy scenarios into GenAI use will help contextualize its relevance, building both confidence and competence among future and acting public administration employees and business administration related professions.

The second research question pertained to the views of public administration employees on the importance of GenAI skills. Public administration employees demonstrated a generally positive attitude toward GenAI's potential, pointing to its usefulness in improving efficiency, creativity, and informed decision-making. However, their optimism was tempered by concerns over data security, ethical use, and job displacement. There was also an undercurrent of institutional uncertainty as respondents were unsure whether their organizations were willing to formally support AI learning or reward its use in professional contexts. These outcomes align with Adigwe et al.'s (2024) findings on possible shifts in work placement, which, according to Kanbach et al. (2023), may be particularly relevant to white collar job holders. Similar to this research outcomes, having surveyed 38 public managers in Mexico's local government, Sandoval-Almazan et al. (2024) found that they were quite open to AI use due to its potential to boost effectiveness, creativity, and decision-making within public sector roles. Thus, there is a discrepancy between the perceived importance and actual preparedness to use AI, reinforcing the need for structured, forward-thinking AI training in public administration and entrepreneurship education. As for the AI-related ethical concerns highlighted in this research, similarly, Bowen (2024) found that public professionals were increasingly expected to assume the ethical responsibilities of AI systems, especially as developers might overlook ethical concerns. The study emphasized that users, including those in public service roles, should be trained to understand not just how AI functions, but how to apply it ethically, ensuring transparency, fairness, and accountability. Bowen (2024) argued that without such competence, AI risked being deployed in ways that might undermine public trust and amplify social risks. Such findings reinforce the need for ethical AI training to be included in the overall AI training.

This duality calls for a pedagogical framework that not only teaches AI tools but critically engages learners with the social and ethical dimensions of GenAI. Public administration and entrepreneurship curricula should include reflexive components, such as discussions, ethical case studies, and scenario simulations that allow learners to explore the implications of AI in real-world contexts. Embedding this approach into both formal education and professional training will help educate not just competent GenAI users but also ethical and reflective practitioners.

The third research question explored the experts' perspectives on the inclusion of GenAI skills in entrepreneurship competences. There was strong consensus among experts that GenAI should be viewed as a core entrepreneurial competence, not an optional technical add-on. Also, experts argued that the responsibility for developing GenAI literacy should mostly apply to organizations rather than individuals, which is consistent with the public servants' perspectives, obtained in this research, as well as Chang (2025). Further reinforcing this perspective, Zheng et al. (2025) found that AI tools, such as AI-clones, could strengthen learners' abilities in presentation, self-regulation, and confidence. Such abilities are directly applicable to entrepreneurial tasks, such as pitching ideas, communicating value, and influencing stakeholders. These findings suggest that GenAI can act not only as a technological aid but as a pedagogical catalyst for boosting entrepreneurial competences.

Conclusions and Implications

This study examined whether generative AI (GenAI) skills should be integrated into entrepreneurship competence frameworks, with the broader aim of expanding the concept of diversity in entrepreneurship and management education. The findings support this proposition:

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GenAI skills are increasingly relevant not only to entrepreneurial and management activities but also to a wide range of professional roles. Given that EntreComp is designed to support entrepreneurs, managers, and individuals in the workplace, integrating AI-related competences into its structure aligns with the realities of today's evolving work environments. Importantly, insights from public administration employees and experts, who recognized the growing importance of AI for professional problem-solving, innovation, and performance, highlighted that GenAI skills are becoming foundational for navigating complex tasks, identifying opportunities, and contributing creatively within organizational contexts.

Integrating GenAI into entrepreneurship education thus expands the definition of diversity beyond demographic categories to include emerging, high-impact professional competences. Crucially, if diversity is to be more than a demographic ideal, it must extend to the very content and structure of education - what is taught, how skills are conceptualized, and which competences are prioritized. In this light, the integration of GenAI is not simply a response to technological change but a deeper pedagogical evolution. It reflects what cognitive science might call *spreading activation*: when diversity is genuinely embraced, it permeates the entire educational system, triggering shifts in curriculum design, conceptual frameworks, and institutional priorities.

However, this transformation can only succeed if educational ecosystems proactively equip students and academic staff with the tools to thrive in an AI-augmented economy. Expanding access to GenAI learning opportunities, particularly in non-business disciplines, can foster a more inclusive, adaptive, and innovation-driven workplace culture across sectors. To support this transition, training curricula should embed GenAI toolkits within modules focused on professional challenges, innovation processes, and idea development. Educational institutions should co-design these modules with input from industry, public sector organizations, and AI practitioners to ensure contextual relevance and practical application. Implementation may begin with microcredentials, AI proficiency certificates, or embedded assessments that provide formal recognition of AI capabilities. These steps will help bridge the gap between education and practice, reinforcing the strategic role of GenAI across both entrepreneurial and organizational landscapes–and advancing a richer, more integrated vision of diversity in education.

While this study highlighted the conceptual and pedagogical importance of integrating GenAI into entrepreneurship competence frameworks, entrepreneurship and management education, it did not explore in depth the practical or institutional barriers to implementation, such as financial constraints, infrastructure gaps, or curriculum restructuring challenges. These issues, though important, were intentionally left beyond the scope of this research because it was essential to determine whether there was a justified need for such integration in the first place. While integration of AI competences with entrepreneurship and management education may entail reallocating resources, rethinking educational structures, and developing interdisciplinary teaching models, it is part of a broader shift already underway. Specifically, digital technologies are becoming increasingly integrated into the learning process, and education systems should evolve to support intermediate and advanced AI competences tailored to specific specializations. This may involve transitioning toward modular learning formats, with courses co-designed by cross-functional teams. Such a model could help produce more adaptive, multidisciplinary professionals capable of leveraging GenAI meaningfully within their respective fields. In this context, future research should address the practical dimensions of GenAI integration: institutional readiness, funding models, policy implications, and pedagogical strategies for domain-specific AI training. These inquiries will be essential for translating conceptual integration into scalable, equitable, and effective educational practices.

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Author contribution statement

K. Uzule conceived the concept of the paper, wrote and edited all sections of the paper, co-designed the expert questionnaire, conducted data analysis.

A. Ulbinaite co-designed and co-distributed the expert questionnaire in Lithuania, co-wrote Introduction.

J. Dehtjare co-wrote Introduction, co-edited references, co-distributed the expert questionnaire in Latvia

N. Verina co-designed and co-distributed the expert questionnaire in Latvia, obtained the public employee survey data and the permission to use it.

B. Kitanovikj co-wrote Introduction and Conclusions.

Declaration of Interest

The authors declare no competing interests.

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