SMARTIE

Synergistic Management and Advancement of Artificial Intelligence in European Higher Education

WP2 – Alliance for Artificial Intelligence in Higher Education – Setup SMARTIE

T2.2. Analysis related to adoption AI in educational process

D2.2.5 Analysis of the results - Stakeholders

2024-1-RO01-KA220-HED-000244949

Content

1. Foreword

The SMARTIE consortium conducted a short questionnaire with the goal of better understanding the extent to which organisations are open to integrate Artificial Intelligence (AI) in the development and management of both business operations and higher education initiatives.

The rapid influx of AI tools, such as ChatGPT, Turnitin, and various design applications, has prompted many organisations to reexamine traditional work processes and explore innovative ways to increase employee engagement and support business operations.

This survey provides a multifaceted view of how organisations perceive, use, and prepare for AI integration. The responses collected offer insights into:

- Geographic and institutional diversity
- Sector background and role distribution
- Current AI tool usage and integration in organisations
- The extent higher education institutions should adopt AI technologies
- Skills universities should prioritize to prepare students
- Collaboration between industry, government and universities

2. Introduction

AI is increasingly influencing organisational structures, work processes, and educational practices across Europe. The rapid development and widespread availability of AI-based tools have accelerated digital transformation, encouraging organisations to reconsider established workflows and explore new approaches to innovation, efficiency, and skills development.[1] In higher education, AI is gaining particular relevance as institutions seek to respond to changing labour market demands, evolving teaching and learning environments, and the growing need for digital and transversal competencies.[2] These developments are closely linked to European policy priorities that emphasise responsible AI adoption, lifelong learning, and stronger links between education, industry, and society[3].

In parallel, research and policy discussions highlight that the successful integration of AI depends not only on technological capacity, but also on organisational readiness, staff awareness, and strategic alignment. Differences in institutional culture, sectoral context, and available expertise continue to shape how AI is perceived and implemented. Understanding

[1] Murire, Obrain Tinashe. 2024. Artificial Intelligence and Its Role in Shaping Organisational Work Practices and Culture. Administrative Sciences 14: 316. https://doi.org/ 10.3390/admsci14120316

[2] Coimbra Group Employability Working Group, 2025. https://www.coimbra-group.eu/wp-content/uploads/AI-and-Digital-Competence-through-Higher-Education-EMP-WG-Position-Paper-.pdf

[3] European Union, 2020. https://education.ec.europa.eu/sites/default/files/document-library-docs/deap-communication-sept2020_en.pdf

these perspectives is essential for identifying gaps, opportunities, and support needs, particularly in the context of higher education institutions and organisations involved in skills development and innovation.[4]

In this context, analysing stakeholder perspectives is essential for translating strategic objectives into actionable project outcomes. The analysis identifies key patterns, challenges, and needs related to AI adoption and provides evidence to support the design of subsequent project activities, ensuring their relevance and alignment with stakeholder expectations.

3. Results of the e-questionnaires

As mentioned before, this report examines survey data from stakeholders across various European countries regarding AI use in their organisations and in higher education. It covers the current AI tool usage and integration in organisations, the extent to which higher education institutions should adopt AI technologies, skills universities should prioritize to prepare students, and the collaboration between industry, government and universities. A total of 79 participants completed the questionnaire.

The findings reveal a strong European focus, with most respondents from higher education and research roles, broad support for AI adoption, and recognition of its potential to enhance learning, administration, and student support. They also highlight ongoing gaps in applied skills, ethical awareness, and consistent AI use, alongside concerns about privacy, human interaction, and inequality. Overall, the results underscore the need for strategic planning, targeted training, ethical governance, and cross-sector collaboration to ensure responsible and effective AI integration in higher education.

3.1 Participants Profile

3.1.1 Survey Demographics

Figure 1 indicates that most respondents are from Spain, Portugal, Italy, Slovenia and Germany, indicating a strong European focus in the survey. This geographic concentration suggests that the findings may be most relevant to higher education institutions (HEIs) in these countries. However, the lack of representation from other regions could limit the generalisability of the results.

[4] Unesco, 2023. https://doi.org/10.54675/EWZM9535

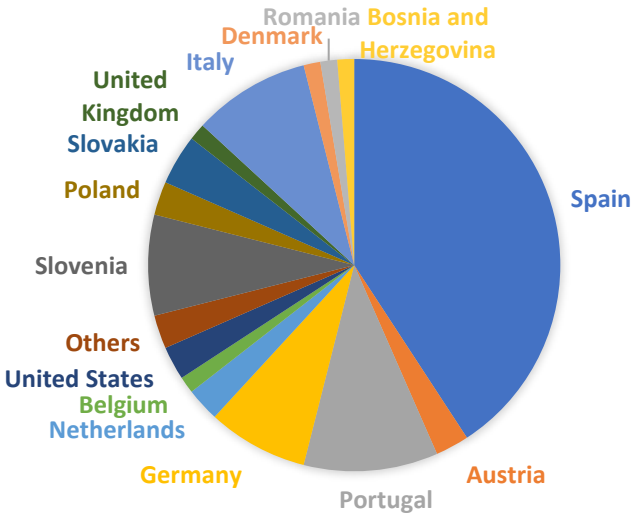

Figure 1: Countries of the respondents

3.1.2 Types of organisations or stakeholders

The majority of respondents were affiliated with educational institutions (65.4%), followed by business enterprises (7.7%) and regulatory or accreditation bodies as well as recent graduates or students (each 6.4%) (Figure 2).

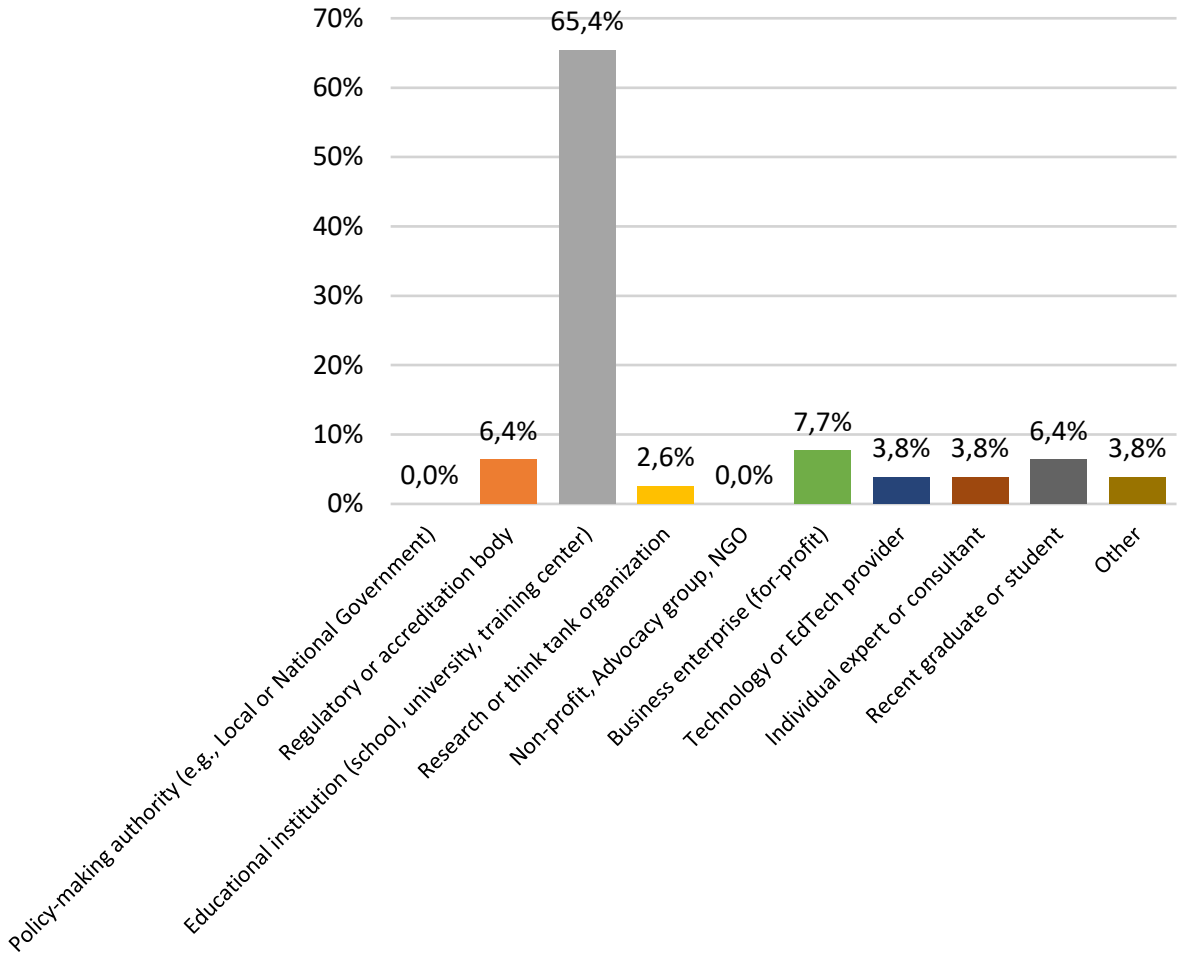

Figure 2: Types of organisations or stakeholders

Over half of the respondents worked in the education sector (51.3%), followed by healthcare (20.5%) and technology (11.5%). Smaller proportions were represented in sectors such as finance, manufacturing, and energy (each 2.6%), while no participants came from retail, telecommunications, consulting, or non-profit organisations (Figure 3).

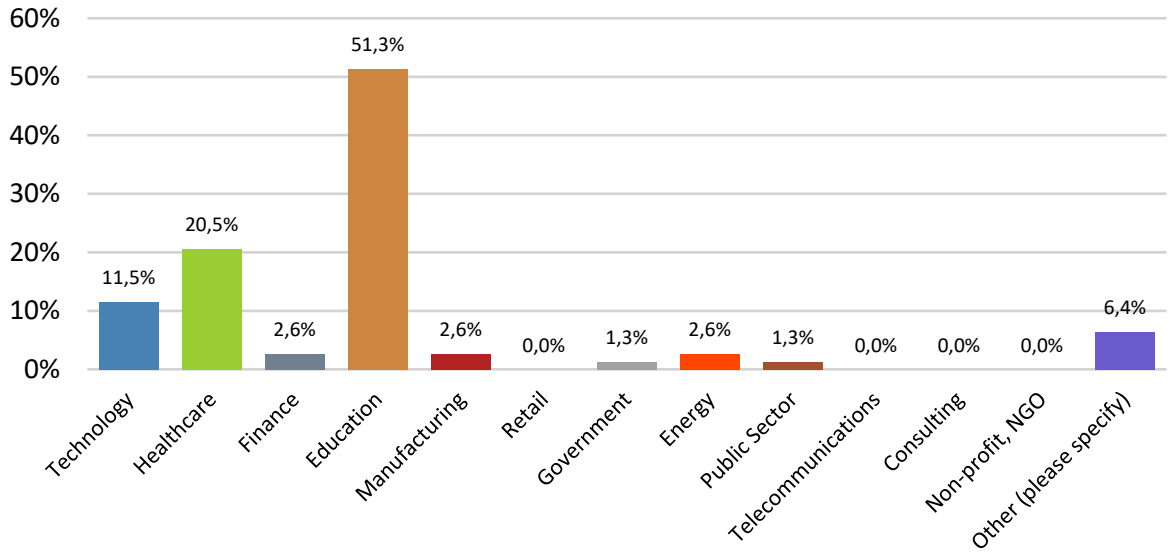

Figure 3: Sectors in which the companies are operating

3.1.3 Roles within the organisations

The respondents represented a wide range of professional roles, with a strong dominance of academic and research-related positions. Most participants identified as professors, lecturers, teachers, associate professors, and researchers, indicating that the sample is heavily rooted in the higher education and research sector. In addition, several PhD students, doctoral candidates, and full-time students were also represented, highlighting the inclusion of early-career academics.

Beyond academia, a smaller proportion of respondents held managerial and industry-related positions such as CEO, Managing Director, CFO, Project Manager, Sales Manager, Software Engineer, and Developer. A few specialized roles, including lab assistants, consultants, and digital or knowledge coordinators, further contributed to the diversity of the sample. Overall, while the distribution shows broad professional diversity, the results are clearly shaped by a strong academic and educational focus.

3.1.4 AI in the organisations

The findings show that most respondents (66.7%) reported that their organisations are currently using some form of AI. However, 15.4% indicated that their organisations do not use AI, while a notable proportion of participants (17.9%) were unsure about whether AI is being used within their organisations. This suggests that although AI adoption is already widespread, there is still a degree of uncertainty and uneven implementation across organisations.

3.1.5 Areas using AI in the organisations

AI is being applied across a variety of organisational areas, with the largest share of respondents selected “Others” (34.6%), indicating a wide range of additional or emerging use

cases (Figure 4). Among the specified areas, Product Development and Innovation showed the highest application (15.4%), followed by Healthcare and Medical (11.5%), IT and Cybersecurity and Manufacturing and Production (each 9.6%). Sales and Marketing and Data Analysis and Business Intelligence were each reported by 7.7% of respondents, while Customer Service and Finance and Accounting accounted for only 1.9% each. No AI use was reported in Operations and Supply Chains, Human Resources and Recruitment, or Legal and Compliance.

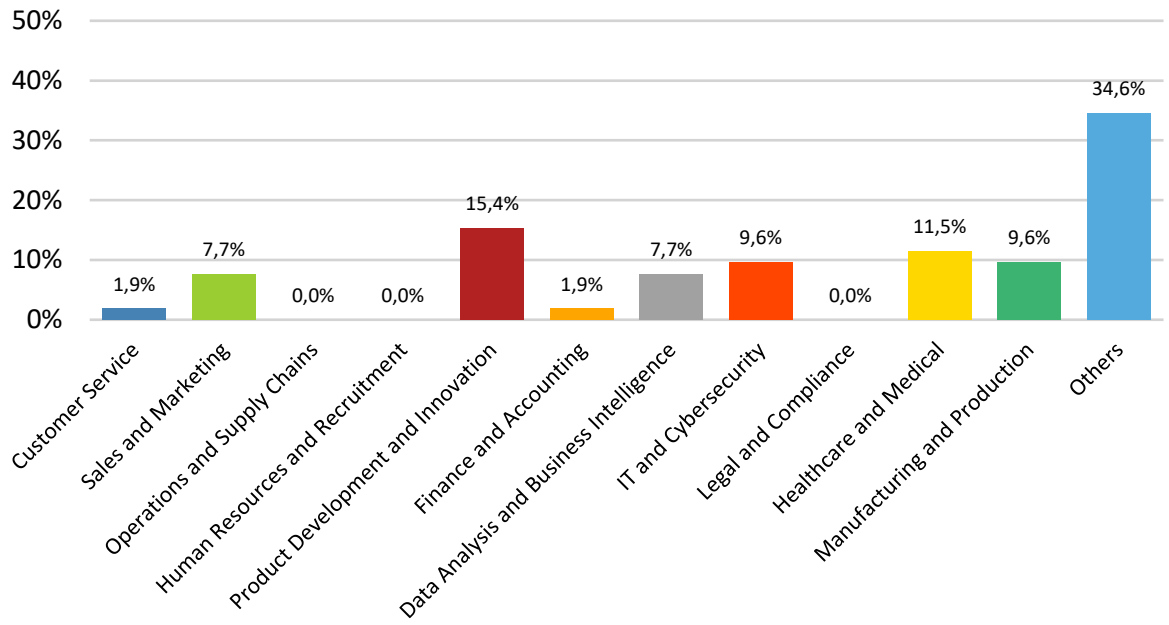

Figure 4: AI usage in organisational areas

3.1.6 Current use of AI to improve work

The responses show that AI is primarily used as a supportive tool to enhance efficiency, productivity, and quality of work. The most frequently reported applications include academic and professional writing, text editing, translation, literature search, and information structuring. Many respondents use AI for research activities such as idea generation, data analysis, feedback support, and the preparation of academic articles, study materials, and teaching resources.

In the technical and business domains, AI is widely applied in programming, software development, web applications, algorithm design, and data processing. Several participants also reported using AI for decision support, business development, marketing and communication strategies, customer interaction through chatbots, and administrative tasks. Additionally, AI is used for creative purposes such as graphic and logo design, presentation creation, and brainstorming. Overall, the results indicate that AI is mainly perceived as a tool for accelerating workflows, improving content quality, and supporting both educational and professional activities, even though some respondents still report limited or occasional use.

3.1.7 In summary

The respondent sample shows a strong European focus, with most participants coming from Spain, Portugal, Italy, Slovenia, and Germany, which may limit the generalisability of the findings to other regions. Most respondents were affiliated with educational institutions and worked primarily in the education sector, followed by healthcare and technology. In terms of professional roles, the sample was predominantly composed of academics and researchers, with only limited representation from industrial and managerial positions. Overall, the survey results mainly reflect perspectives from the higher education and research context.

Regarding the use of AI, most respondents (66.7%) indicated that their organisations currently use AI, while 15.4% reported no use and 17.9% were unsure. AI is applied across a wide range of areas, most frequently in product development and innovation, healthcare and medical contexts, IT and cybersecurity, manufacturing, sales and marketing, and data analysis. A large share of respondents also selected “other” areas, indicating diverse and emerging use cases. In everyday work practices, AI is mainly used to support writing, research, teaching preparation, programming, data analysis, translation, content creation, and administrative tasks. Overall, AI is primarily perceived as a tool for increasing efficiency, improving quality of outputs, and accelerating workflows across both academic and professional activities.

3.2 AI Integration

3.2.1 Lack of AI-related or IT skills

When asked, “From your perspective, what AI-related or IT skills and knowledge do graduates often lack when entering your sector?”, respondents highlighted several gaps. Graduates often lack critical thinking, problem-solving, and data literacy skills, as well as the ability to adapt AI concepts to real-world contexts. Many are unfamiliar with how to use AI tools responsibly, ethically, and effectively, relying on generative AI for content creation without critically evaluating the outputs. Other frequently mentioned gaps include prompt engineering, understanding the limitations of large language models, programming, and applying AI in practical scenarios. Deficiencies were also noted in collaboration between IT and other teams, design thinking for AI applications, and awareness of ethical, data protection, and bias-related issues. Overall, while graduates may have basic user-level familiarity with AI, they often lack the deeper knowledge and applied skills necessary to use AI tools critically, creatively, and responsibly in professional settings.

3.2.2 Benefits and threats of AI

When asked whether it is important for the public to be informed about the benefits and threats of AI, respondents overwhelmingly agreed that it is a crucial topic. They highlighted that understanding both the advantages and risks allows individuals to make responsible decisions, use AI tools ethically, protect their privacy and jobs, and critically evaluate AI-

generated information. Many noted that AI is already shaping daily life and the future of work, making public awareness essential for informed choices regarding which products, services, and companies to trust. Respondents also emphasized the need for knowledge about AI's limitations, ethical implications, and potential societal impacts, including biases, environmental effects, and employment risks. Overall, public understanding of AI is seen as key to ensuring responsible adoption, minimizing risks, and leveraging AI's benefits in both personal and professional contexts.

3.2.3 The respondent's familiarity with the use of AI in higher education

Most respondents (60.8%) indicated that they are somewhat familiar with the use of AI in higher education, suggesting a general awareness but not extensive expertise. A smaller proportion of participants (22.8%) reported being very familiar with AI applications in this context, while 13.9% stated that they are not familiar. Only a few respondents (2.5%) provided other specifications (Figure 5). Overall, these results indicate that while AI is recognized and somewhat understood in higher education, there is still room for increasing familiarity and knowledge among stakeholders.

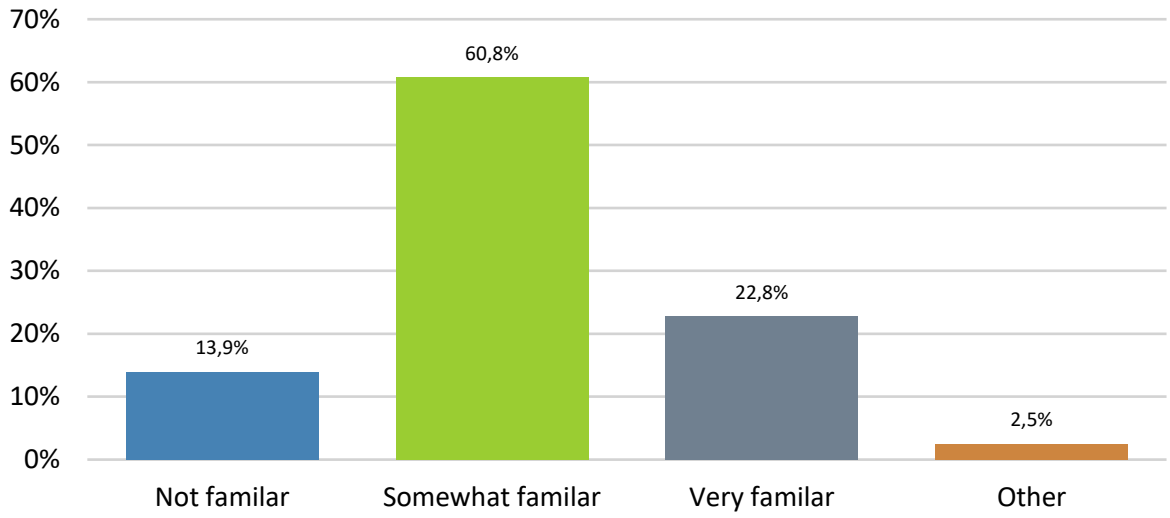

Figure 5: Familiarity with the use of AI in higher education

3.2.4 Actions to take in response to the rise of AI

When asked what actions universities and colleges should take in response to the rise of AI, respondents emphasized that institutions need to both embrace AI and educate students and staff about its responsible and ethical use. Suggested actions include integrating AI into teaching, learning, and administration, while establishing clear policies, rules, and guidelines for appropriate usage. Many highlighted the importance of faculty and student training programs, workshops, and courses to increase AI literacy, promote critical thinking, and teach practical and ethical applications of AI. Respondents also recommended using AI as a

supportive tool for lectures, assignments, and research, while monitoring and controlling outputs to prevent misuse. Overall, the consensus is that universities should proactively adopt AI, provide guidance and resources, and ensure that its use enhances education without compromising ethical standards or academic integrity.

3.2.5 The extent to which higher education institutions should adopt AI technologies

Survey findings show strong support for AI adoption in higher education. Only 1.3% believe AI should not be adopted, while 24.7% favour cautiousness, small-scale use due to ethical and governance concerns. The majority (66.2%) support strategic adoption and a smaller group (7.8%) advocate for an extensive adoption (Figure 6).

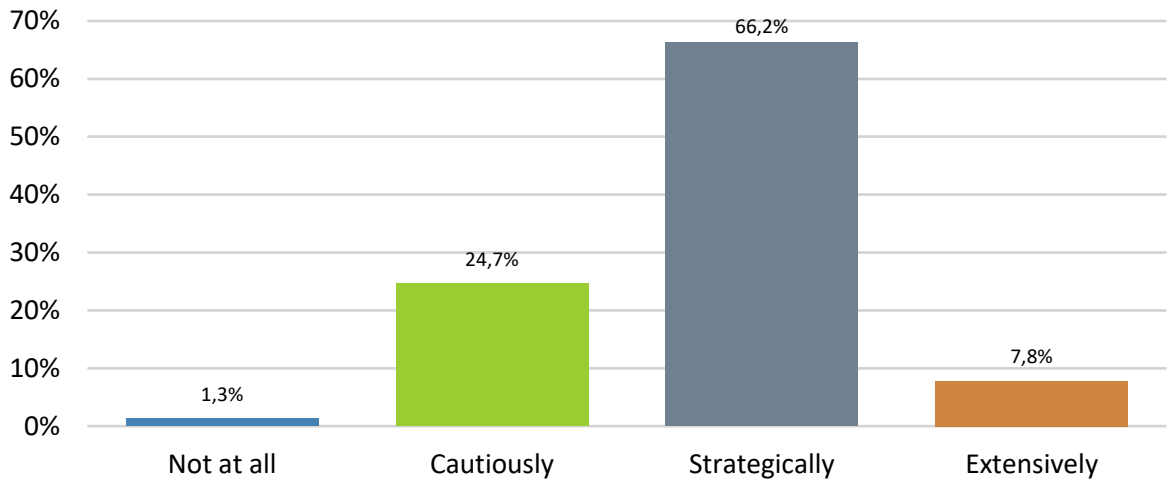

Figure 6: The extent to which higher education institutions should adopt AI technologies

3.2.6 Successful applications of AI in higher education

Responses indicate that awareness of AI in higher education is relatively high, but experiences with its benefits are more mixed. 43.0% of respondents report being aware of successful AI applications and having personally experienced positive impacts, highlighting growing recognition of AI's value in areas such as personalised learning, student support, and administrative efficiency. A further 11.4% are aware of AI initiatives but have not yet experienced direct benefits, suggesting uneven implementation or limited visibility of outcomes. Meanwhile, 27.8% say they are not aware of successful applications but are open to learning more, reflecting a significant group that could benefit from increased communication and capacity-building efforts. Only 2.5% report neither awareness nor positive impacts, while 11.4% have heard of AI but remain uncertain about its effectiveness. An additional 3.8% are unsure altogether.

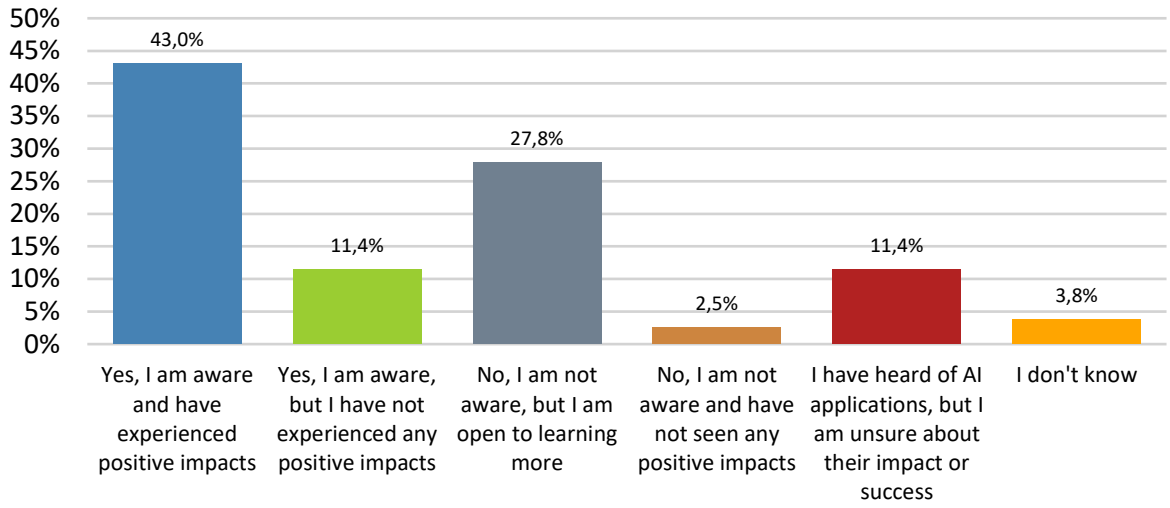

Figure 7: Awareness of successful applications of AI in higher education

3.2.7 Top three potential benefits of using AI in higher education

Survey results highlight three leading benefits of AI adoption in higher education. The most frequently selected is personalised learning experiences (55.7%), reflecting strong recognition of AI's ability to tailor instruction to individual student needs. This is followed by more efficient administrative processes (48.1%), indicating the value placed on AI-driven streamlining of routine tasks. Additionally, improved student support services such as chatbots (39.2%) are seen as a key advantage, underscoring AI's potential to enhance responsiveness and accessibility for learners (Figure 8).

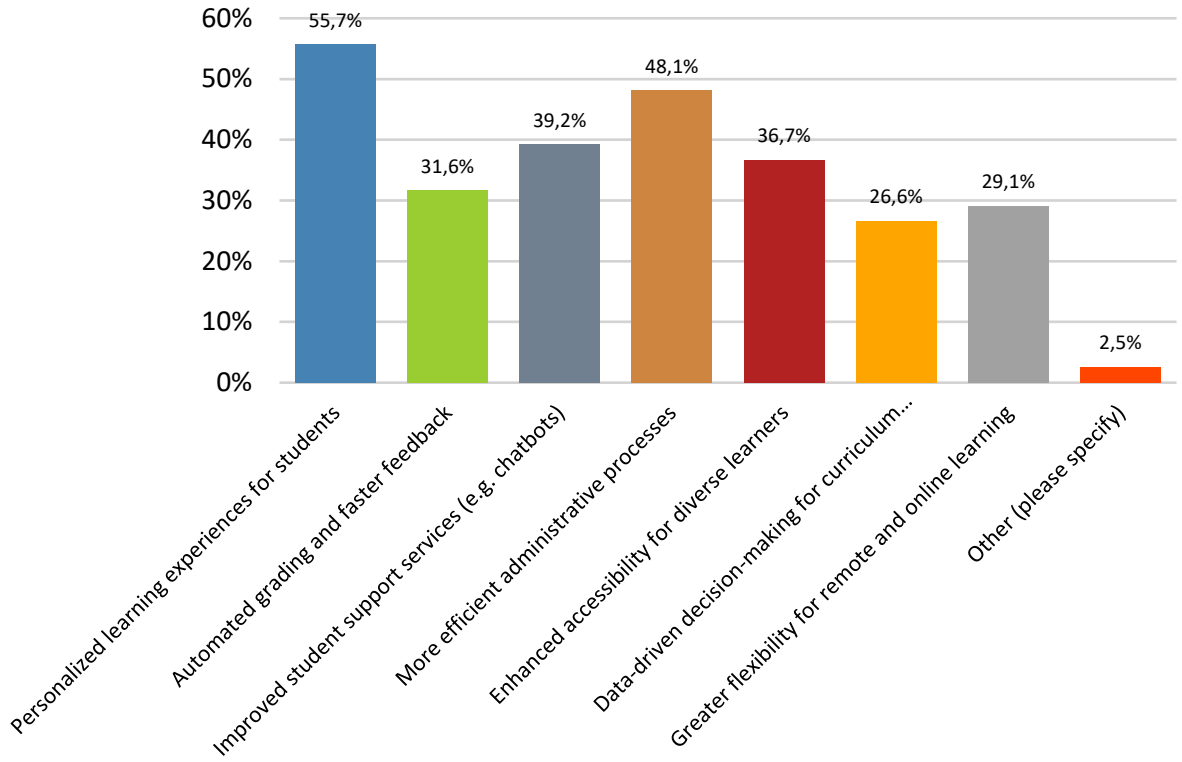

Figure 8: Potential benefits of using AI in higher education

3.2.8 Concerns about the use of AI in higher education

The concerns about the use of AI in higher education are varied. Many worry that an over-reliance on automated systems could undermine the development of students' critical thinking skills (60.8%), while others point to the potential loss of personal interaction between students and instructors (44.3%). Privacy and data security risks remain significant issues (50.6%), along with the lack of transparency in how AI systems make decisions (45.6%). As Figure 9 shows, additional concerns include the dehumanization of education (48.1%), challenges in effectively regulating and overseeing AI (46.8%), and the possibility that differences between well-resourced and under-resourced institutions may widen (25.3%).

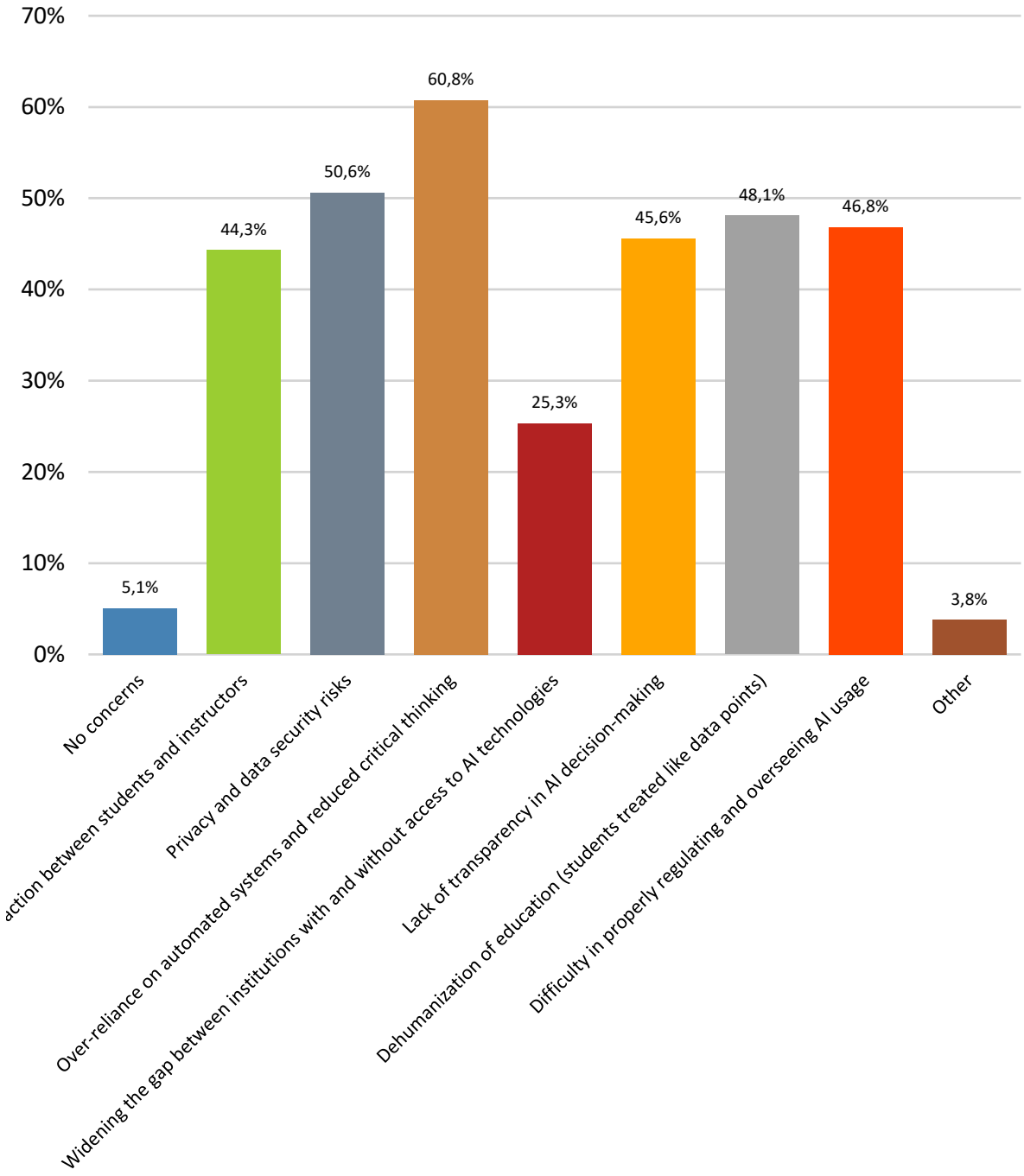

Figure 9: Concerns about the use of AI in higher education

3.2.9 Impact of AI on the role of educators

Respondents expect AI to bring meaningful changes to the role of educators in higher education. The largest share believes that educators will need to acquire new skills to work effectively with AI systems (78.5%). Many also anticipate that routine administrative tasks will increasingly be automated, which could allow educators to redirect their time toward activities that add greater value to the learning experience (53.2%).

A considerable portion of participants expects this shift to place more emphasis on mentorship and the cultivation of critical thinking skills (45.6%). At the same time, some express concerns that the growing use of AI may make student–teacher relationships less personal (34.2%). Only a small minority of respondents foresee little to no impact on the educator's role overall (3.8%).

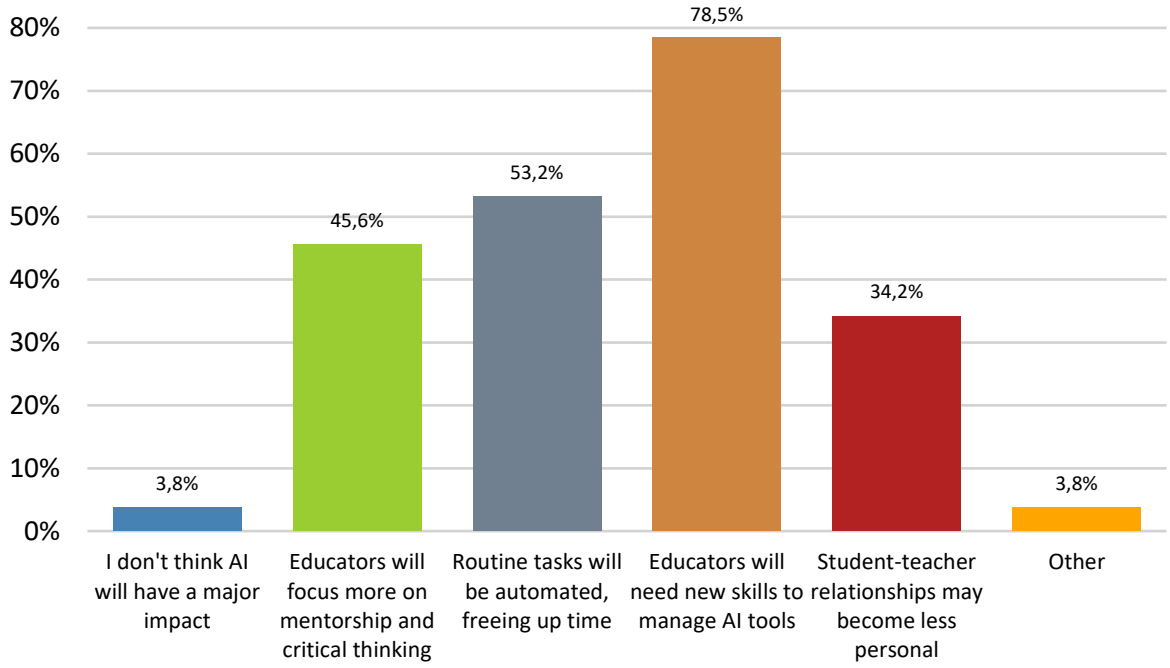

Figure 10: Impact of AI on the role of educators in higher education

3.2.10 Essential skills to prepare students for an AI-driven future

Respondents highlighted several skills that universities should prioritize to equip students for an AI-driven future. The strongest emphasis was placed on strengthening critical thinking and ethical awareness (79.5%), reflecting a broad belief that students will need the ability to assess and question automated decisions responsibly. Many participants also stressed the importance of developing AI-related knowledge and technical competencies (60.3%), as well as a solid understanding of data protection and privacy (59.0%), given the growing role of data-driven systems.

Problem-solving abilities and adaptability were also seen as key capabilities for navigating rapidly evolving technological environments (53.8%). Only a small number of respondents mentioned additional skill areas outside these main categories (2.6%).

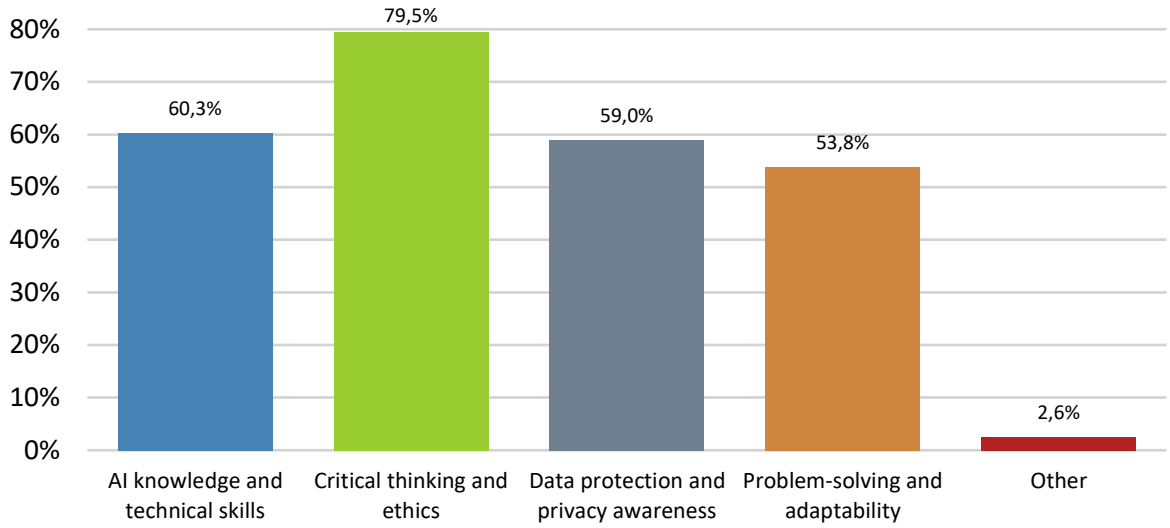

Figure 11: Essential skills

3.2.11 AI and preventing the spread of disinformation in higher education

Respondents expressed mixed views on the effectiveness of AI in preventing the spread of disinformation in higher education, such as deepfakes and fake news. A minority considered AI to be very effective (10.1%), while a larger share viewed it as somewhat effective (40.5%). Around one-fifth of participants remained neutral on the matter (21.5%). Similar proportions of respondents felt that AI would be less effective (13.9%) or not effective at all (13.9%), indicating significant uncertainty and scepticism about its ability to fully address these challenges (Figure 12).

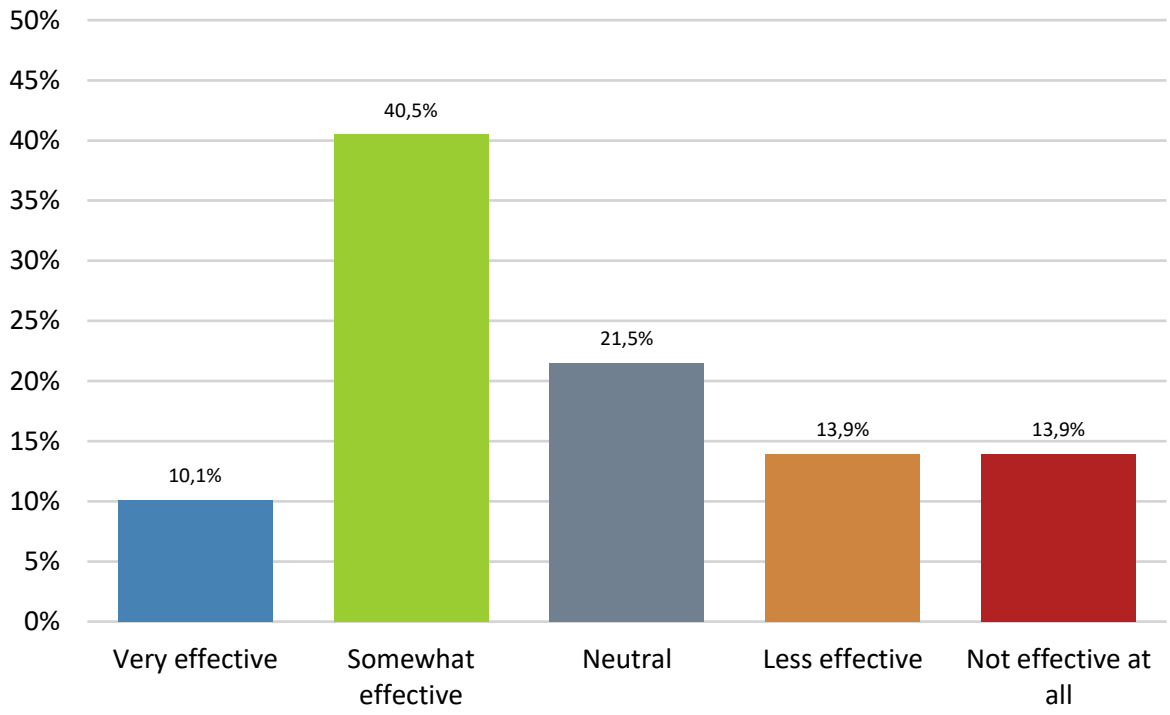

Figure 12: Effectiveness of AI in preventing the spread of disinformation in higher education

3.2.12 National or international regulations governing the use of AI in higher education

Most respondents support the higher establishment of national or international regulations governing the use of AI in education, with 82.3% answering "Yes." A smaller portion of participants believe regulations are unnecessary (10.1%), while 7.6% expressed uncertainty, indicating the need for further discussion and clarity on how such regulations should be implemented.

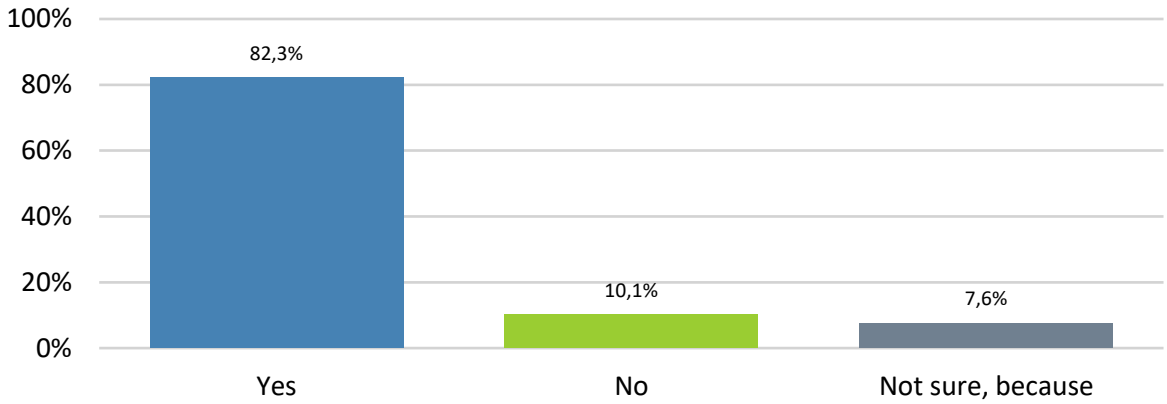

Figure 13: Establishment of national or international regulations governing the use of AI in education

3.2.13 The responsible entity for setting ethical standards for AI use in universities

When asked who should be responsible for setting ethical standards for AI use in universities, the respondents' answers were distributed as follows: 32.9% indicated that universities themselves should take the lead, 20.3% favoured government oversight, 10.1% suggested independent bodies, and 32.9% supported a joint responsibility approach. A small share, 3.8%, indicated that they could not give an answer, as further discussions and analysis should be undertaken (Figure 14).

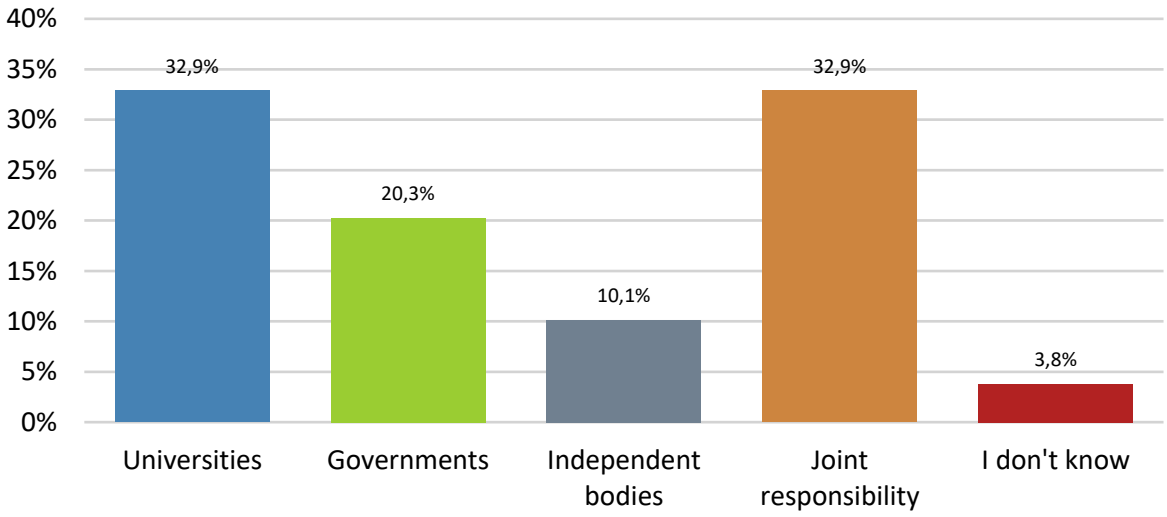

Figure 14: Responsibility for setting ethical standards for AI use

3.2.14 Safeguards to ensure fair and responsible AI use in education

Regarding the safeguards that should be in place to ensure fair and responsible AI use in education, the respondents highlighted several key measures (Figure 15). A majority (76.9%) emphasized the need for clear ethical guidelines, while 62.8% called for transparency in AI decision-making. Protections for student data privacy were considered important by 56.4%, and human oversight was supported by 55.1% of respondents. Regular audits for biases were suggested by 34.6%, and a small proportion indicated either other measures (2.6%) or that they did not know (3.8%).

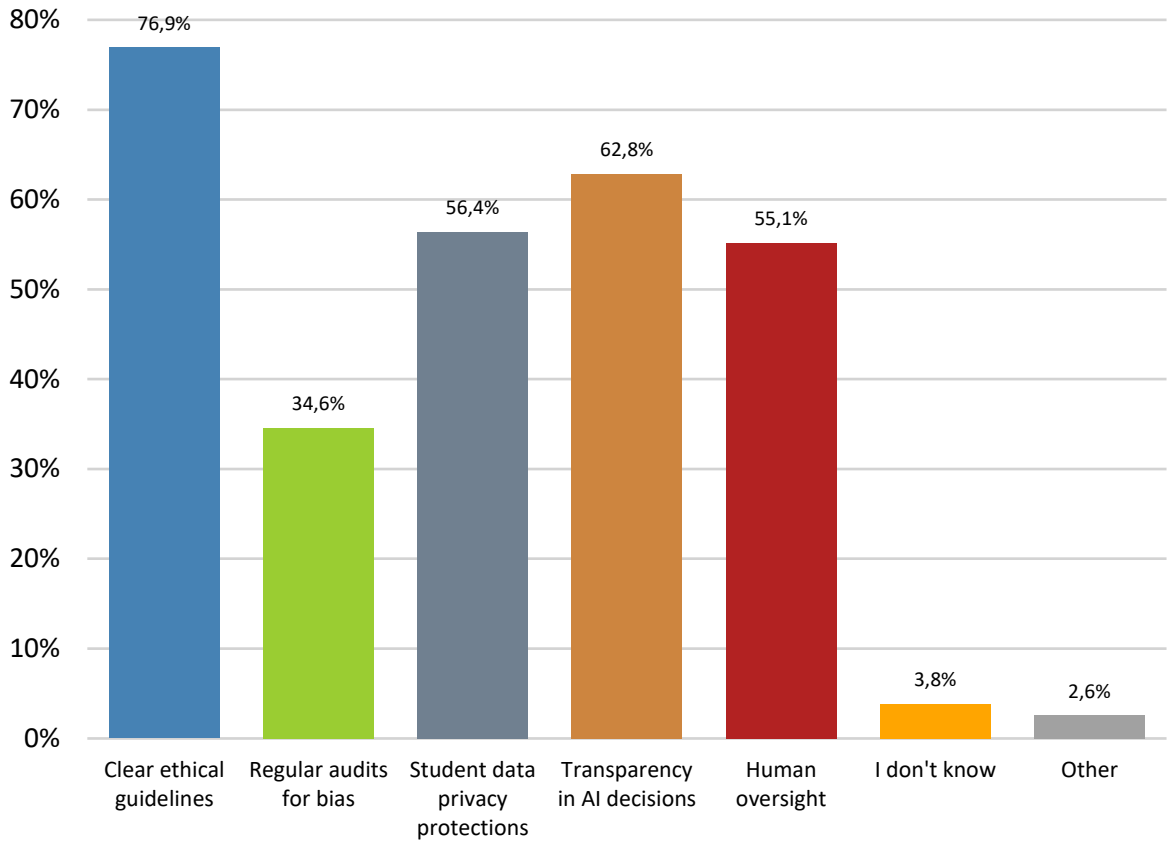

Figure 15: Safeguards to ensure fair and responsible AI use in education

3.2.15 Actions to prevent AI from increasing social or regional inequalities in access to quality education

When asked about the actions needed to prevent AI from exacerbating social or regional inequalities in access to quality education, the respondents identified several key aspects. Open sharing of AI research was considered important by 51.3% of respondents, while 48.7% highlighted the provision of free or low-cost AI platforms. Global standards for fair AI use were supported by 40.8%, and international support programs for underfunded universities by 34.2%. Partnerships between well-funded and underfunded universities were suggested by

32.9%, and government funding was identified by 30.3%. A portion of respondents (13.2%) indicated that they did not know, and no respondents selected other measures (Figure 16).

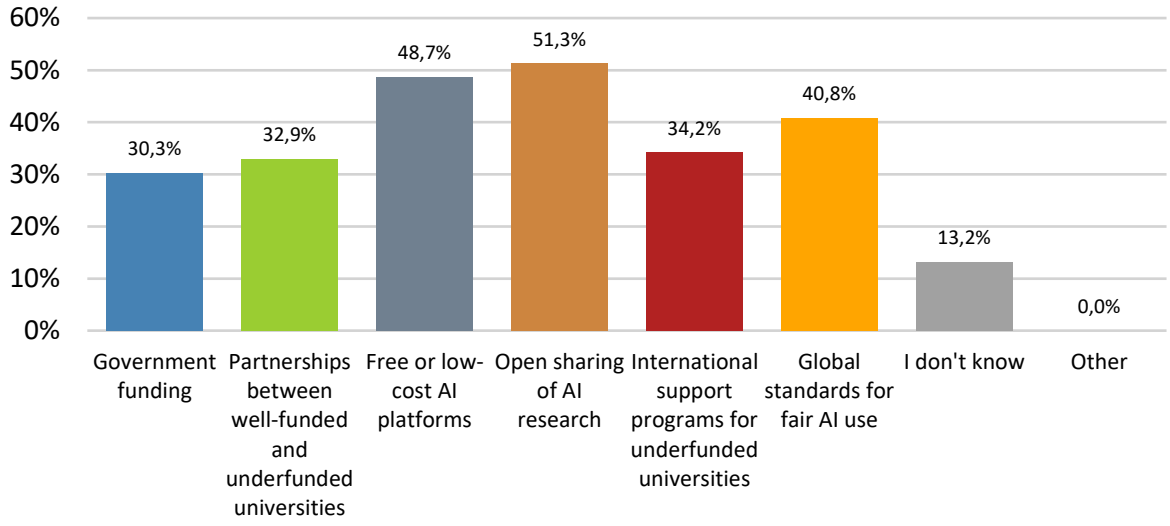

Figure 16: Needed actions to prevent AI from increasing social or regional inequalities in access to quality education

3.2.16 The role of international cooperation in shaping AI policies for higher education

Regarding the role of international cooperation in shaping AI policies for higher education, the respondents expressed varied perspectives. Nearly half (48.1%) viewed international cooperation as supportive, emphasizing its usefulness in sharing best practices while maintaining national leadership in policymaking. A significant portion (41.6%) favoured a leading role for international cooperation, suggesting it should guide and harmonize national and institutional policies. A smaller share considered its role limited (7.8%), indicating that policies should primarily reflect national or institutional priorities, and 2.6% believed that each country or institution should independently shape its own AI policy. No respondents indicated other approaches.

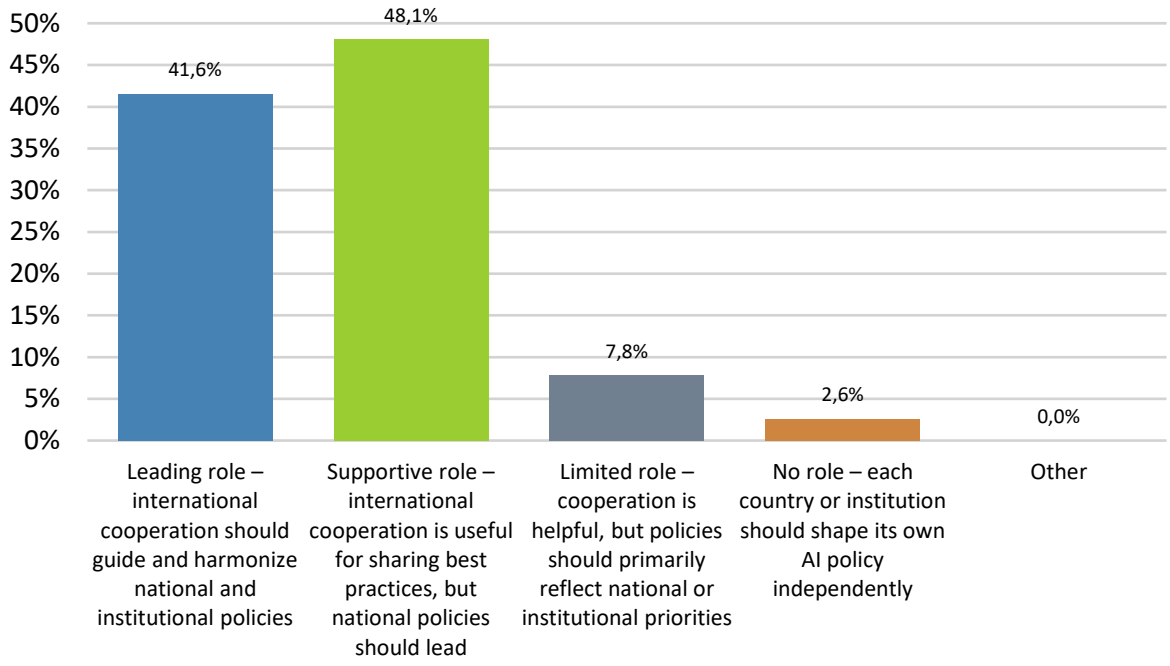

Figure 17: The role of international cooperation in shaping AI policies for higher education

3.2.17 The role of AI in the future of higher education and developments in the next five years

Respondents offered a wide range of insights regarding the future role of AI in higher education and anticipated developments over the next five years. Many highlighted AI's potential to enhance teaching and learning through personalized learning, curriculum development, interactive lessons, simulation, and feedback. Administrative and routine tasks, including exam correction, document preparation, enrolment, and summarizing missed class content, were frequently mentioned as areas where AI could improve efficiency and reduce bureaucracy.

Several responses emphasized the transformative impact of AI on educational practices, including changes in teaching methods, assessment, student-teacher interactions, and the overall learning journey. Some respondents expressed concern that AI might replace essential skill development, reduce critical thinking, or deepen inequalities if its integration is not carefully managed.

A significant theme was the importance of understanding AI's risks and benefits, using it ethically, and establishing policies and regulations to ensure responsible adoption. While some respondents were uncertain about AI's full impact due to the rapid pace of technological development, many anticipated that AI will become an increasingly integral component of higher education, support both students and educators and reshaping the preparation of academic work, research, and teaching materials.

Overall, the responses suggest that AI is viewed as a powerful, multifaceted tool that can improve efficiency, personalize learning, and enrich educational processes, but its adoption

requires careful oversight, training, and ethical guidance to maximize benefits while mitigating potential risks.

3.2.18 Essential measures for the responsible and effective integration of AI in higher education

When asked what is essential for the responsible and effective integration of AI in higher education, the respondents identified several key factors. The majority (75.6%) emphasized the importance of training for both staff and students. Clear ethical guidelines were considered critical by 64.1%, while strong data privacy protections were highlighted by 55.1%. Transparency in AI decision-making and human oversight were both supported by 51.3% of respondents. Equal access to AI was mentioned by 34.6%, and careful pilot testing by 24.4%. No respondents indicated other measures (Figure 18).

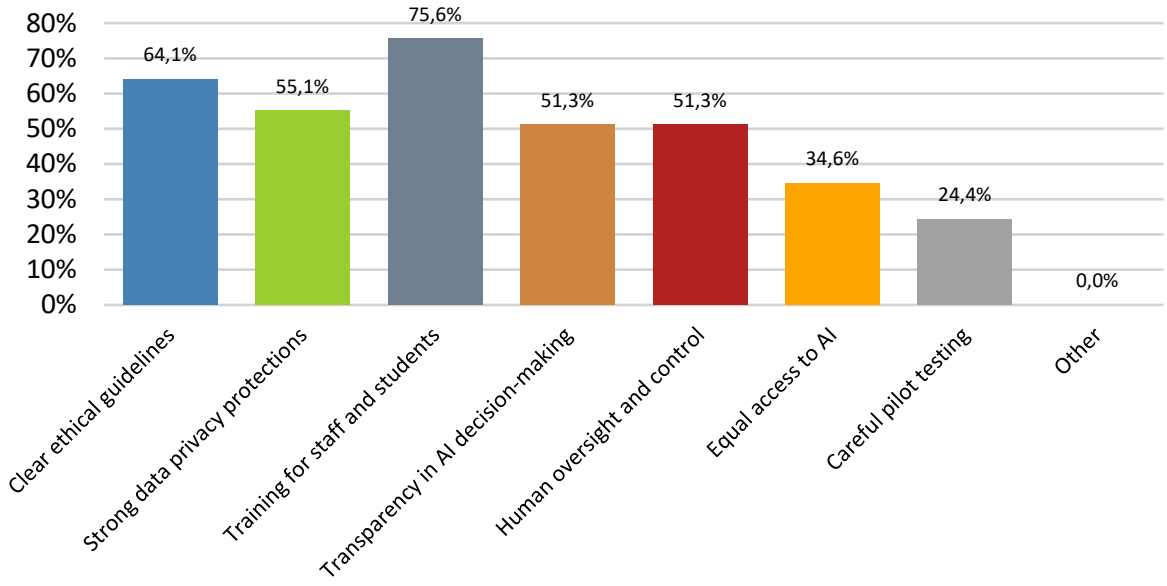

Figure 18: Essentials for the responsible and effective integration of AI in higher education

3.2.19 Skills that graduates will need in an AI-enhanced educational and workplace environment

Respondents identified a range of skills considered essential for graduates in an AI-enhanced educational and workplace environment. The majority (76.9%) emphasized the importance of critical thinking and problem-solving. Creativity and innovation in applying AI solutions were highlighted by 60.3%, while adaptability and a willingness to learn new technologies were noted by 51.3%. Proficiency with AI tools and the ability to collaborate effectively with AI systems were both considered important by 44.9% of respondents. A small proportion of respondents indicated uncertainty (1.3%) or other skills (2.6%).

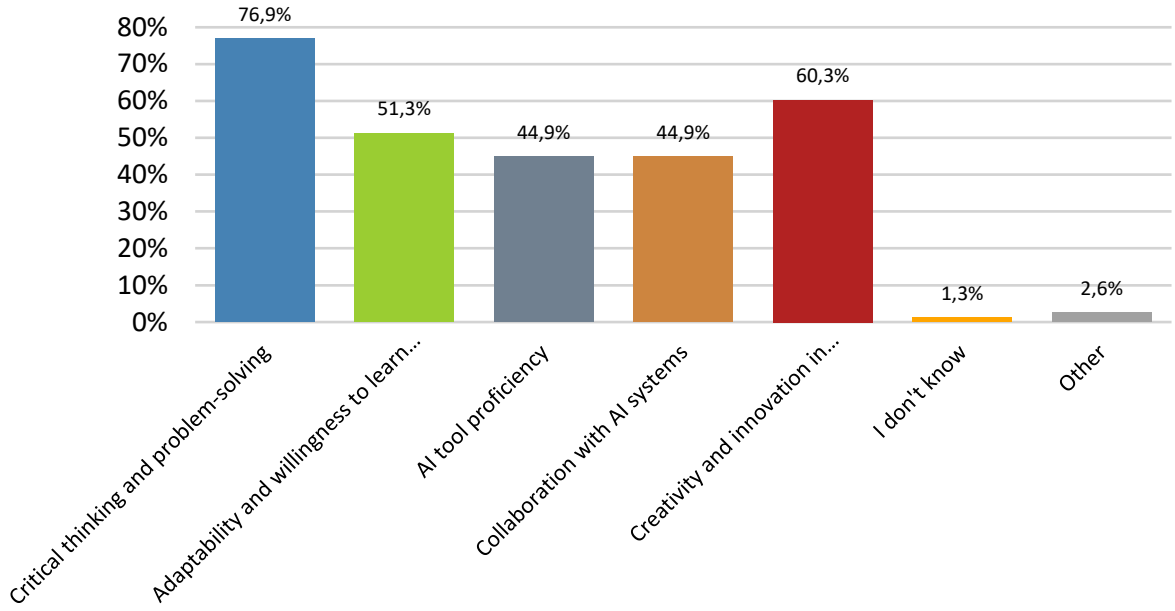

Figure 19: Skills for graduates in an AI-enhanced educational and workplace environment

3.2.20 The importance for higher education institutions to involve external stakeholders in AI-related ethical and accountability decisions

Respondents expressed varying views on the importance of involving external stakeholders in AI-related ethical and accountability decisions within higher education. A combined total of 74.4% considered it either very important (38.5%) or important (35.9%). A smaller proportion expressed a neutral stance (11.5%), while 3.8% considered it somewhat unimportant and another 3.8% not at all important. Additionally, 6.4% of respondents indicated that they did not know the level of importance (Figure 20).

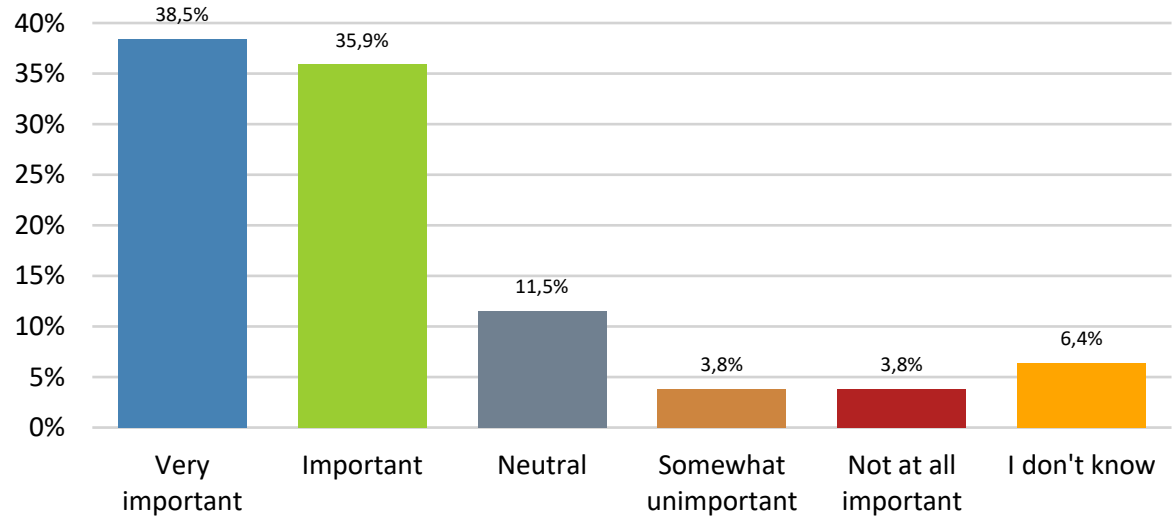

Figure 20: Importance to involve external stakeholders in AI-related ethical and accountability decisions

3.2.21 Industry and government working more closely with universities on AI integration

A strong majority of respondents (87.0%) indicated that industry and government should work more closely with universities on AI integration. A small proportion disagreed (6.5%), while an equal share (6.5%) expressed uncertainty.

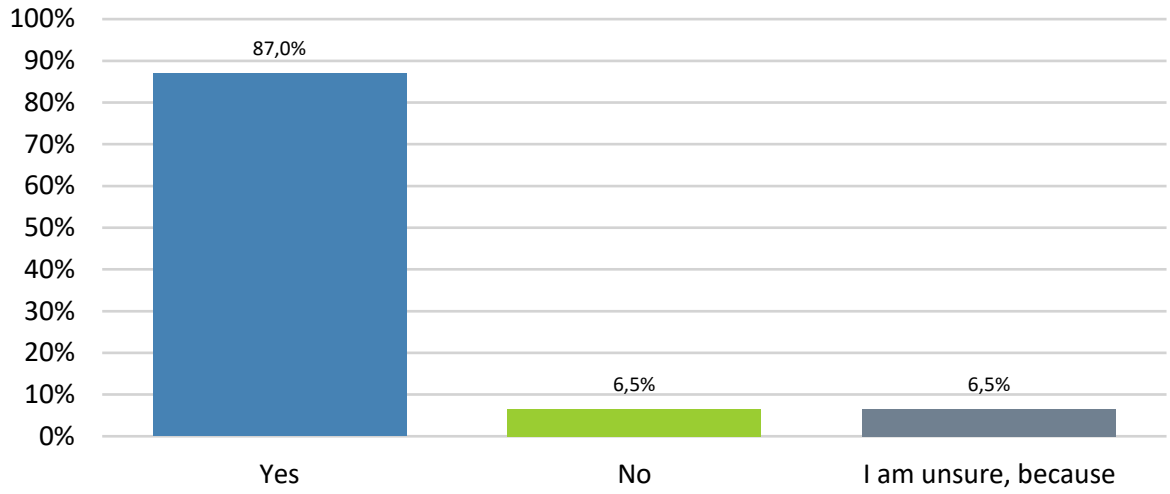

Figure 21: Opinions on whether industry and government should work more closely with universities on AI integration

3.2.22 The role of cross-sector partnerships in ensuring responsible AI integration in education

Respondents highlighted several potential roles for cross-sector partnerships, including collaboration with NGOs, businesses, and governments, in ensuring the responsible integration of AI in education. Many noted that such partnerships could enhance understanding of AI technologies, provide insights into real-world applications and workforce needs, and offer resources, funding, and technological expertise. Several responses emphasized the importance of ethical guidelines, legislation, and adherence to best practices, as well as promoting data privacy, accessibility, and inclusive learning opportunities.

Others highlighted the potential for mutual knowledge transfer, cross-sector training, and developing AI tools that address social and educational challenges. Some respondents also mentioned that partnerships could support governance, oversight, and the creation of transparent and socially beneficial practices. A small number of respondents were uncertain or saw limited roles for external stakeholders, but overall, the responses indicate a strong perception that collaboration across sectors can play a critical role in shaping ethical, effective, and inclusive AI integration in higher education.

3.3 Role of Organisations

3.3.1 The methods each organisation can contribute to the responsible development and implementation of AI in higher education

Respondents identified multiple ways their organisations could contribute to the responsible development and implementation of AI in higher education. Commonly mentioned actions included developing and applying ethical guidelines, providing training and education for staff and students, and conducting research on AI's impact on learning outcomes. Several responses highlighted the importance of pilot testing AI tools, supporting inclusive and transparent applications, and integrating AI responsibly into teaching and learning processes without undermining critical thinking or foundational knowledge.

Other contributions noted were participation in collaborative projects, including EU-funded initiatives, offering platforms or resources for AI use, and promoting awareness of AI's risks and benefits. Some respondents emphasized aligning AI use with accreditation standards, ethical standards, and social values, while others highlighted the role of universities in shaping public perception, fostering practical experience, and facilitating access to AI tools. Overall, responses indicate that organisations see their role as encompassing education, research, guideline development, practical implementation, and ethical oversight, aiming to ensure that AI enhances higher education responsibly and effectively.

3.3.2 Methods to encourage your company to engage more with AI initiatives in higher education

Respondents indicated several factors that could encourage their organisations to engage more with AI initiatives in higher education. As seen in Figure 22 the majority (62.3%) cited funding opportunities as a key motivator, followed by shared research opportunities (50.6%) and access to talent pipelines (32.5%). Policy incentives were identified by 24.7% of respondents. A portion of respondents (19.5%) indicated uncertainty, and 1.3% selected other factors.

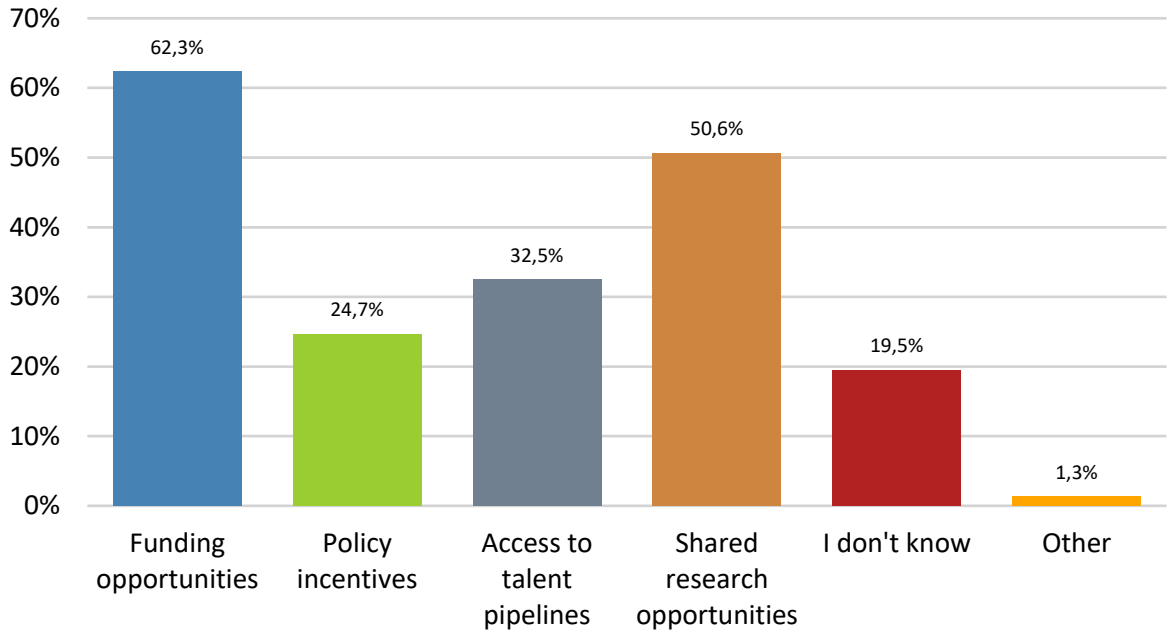

Figure 22: Methods that would encourage your company to engage more with AI initiatives in higher education

3.3.3 The level of preparedness for each sector to collaborate with higher education institutions on AI-related initiatives

Respondents expressed a range of perspectives regarding the preparedness of their sector to collaborate with higher education institutions on AI-related initiatives. Several indicated that their sector is well-prepared or very prepared, noting existing experience, interest, and ongoing engagement in knowledge sharing, pilot programs, and co-development of solutions. Others described their sector as cautiously optimistic or fairly prepared, emphasizing that while foundational steps have been taken, further training, experience, and adaptation are needed for full integration.

A notable portion of respondents reported that their sector is not prepared or only partially prepared, highlighting the need for additional capacity-building, education, and strategic planning before effective collaboration can be achieved. Overall, the responses suggest a mixed but generally positive outlook, with sectors recognizing both the opportunities and the ongoing work required to enable productive partnerships with higher education institutions on AI initiatives.

3.3.4 Challenges in collaborations between each sector and higher education institutions around AI adoption

Respondents identified a variety of challenges in fostering collaboration between their sector and higher education institutions around AI adoption. Funding and resource constraints were frequently mentioned, including limited time, insufficient budgets, and the need for training personnel. Several highlighted ethical and regulatory considerations, emphasizing the importance of responsible AI use, data protection, and alignment with legal frameworks.

Other challenges included differences in skills, knowledge, and perspectives between academic and industry stakeholders, technological complexity, and the need for improved AI literacy. Respondents also noted coordination and communication barriers, including aligning timelines, expectations, and priorities across sectors. A few mentioned potential risks of misuse, such as academic dishonesty or overreliance on AI tools.
Overall, the responses suggest that successful collaboration requires addressing resource limitations, ethical guidelines, skill development, and effective coordination, alongside a shared understanding of AI's opportunities and risks.

3.3.5 Opinions on increased public investment in AI research and development in the education sector

Most respondents expressed strong support for increased public investment in AI research and development within the education sector. Many emphasized that public funding is important to ensure ethical, equitable, and socially beneficial AI applications, as well as to promote accessibility and trustworthiness. A small minority expressed opposition or uncertainty, while a few noted that support depends on maintaining ethical principles and responsible use. Overall, the responses indicate broad recognition of the value of public investment in advancing AI in education.

3.3.6 Additional comments, concerns, or recommendations regarding the use of AI in higher education

Most respondents did not provide additional comments or recommendations regarding the use of AI in higher education. Among those who did, several emphasized the importance of ethical, inclusive, and evidence-based approaches to AI integration. Some highlighted the need for co-creation of AI solutions with educators and students, ensuring that regulatory and pedagogical frameworks evolve alongside technological developments. A few respondents expressed concerns about overreliance on AI and potential risks, including data protection and the broader impact on critical thinking and independence in learning. Overall, while most respondents had no further input, the comments that were provided underscore the importance of ethical oversight, inclusivity, and careful implementation in AI adoption within higher education.

4. Conclusion

The stakeholder survey provides a comprehensive overview of current perceptions, practices, and expectations regarding the integration of AI in higher education and related organisational contexts. The results reveal a strong European focus, with most respondents representing higher education institutions and research-oriented roles. While this ensures in-depth insights from the academic sector, it also highlights the need to further broaden

stakeholder engagement in future activities, particularly by strengthening the involvement of industry, public authorities, and non-academic sectors.

Overall, AI adoption is already well underway, with a majority of respondents indicating that their organisations make use of AI tools, primarily to support efficiency, research, teaching preparation, programming, and administrative tasks. At the same time, a notable share of respondents reported uncertainty about AI use within their organisations, pointing out the uneven implementation and varying levels of awareness. This suggests that AI integration often occurs in an informal or decentralised manner, underlining the importance of clearer strategies, communication, and institutional guidance.

The findings related to higher education show broad support for the strategic adoption of AI technologies. Stakeholders largely agree that universities should actively engage with AI while ensuring ethical use, transparency, and academic integrity. Respondents highlighted personalised learning, improved administrative efficiency, and enhanced student support as key potential benefits. However, these opportunities are accompanied by significant concerns, particularly regarding data privacy, loss of human interaction, overreliance on automated systems, and the potential erosion of critical thinking skills. These concerns reinforce the need for balanced, human-centred approaches to AI integration.

A recurring theme throughout the survey is the importance of skills development. Respondents consistently emphasised critical thinking, ethical awareness, problem-solving, adaptability, and AI-related competencies as essential for both students and educators. While basic familiarity with AI tools is becoming more common, there remains a clear gap in applied, critical, and responsible use of AI, especially among graduates entering the workforce. This highlights the need for targeted training, curriculum development, and continuous professional development within higher education institutions.

The survey results also underline a strong support for regulatory frameworks and ethical standards at national and international levels. Most respondents favour shared responsibility among universities, governments, and other stakeholders, supported by clear ethical guidelines, transparency, human oversight, and data protection measures. Concerns about inequality further stress the importance of ensuring equal access to AI technologies, supporting underfunded institutions, and promoting international cooperation.

Finally, the findings demonstrate a clear consensus on the value of cross-sector collaboration. Respondents strongly support closer cooperation between universities, industry, government, and other stakeholders to ensure responsible, effective, and inclusive AI integration. While sectors differ in their level of preparedness, there is a shared recognition that successful collaboration requires sufficient funding, aligned expectations, ethical safeguards, and ongoing capacity building.

In conclusion, the survey confirms that AI is widely perceived as a transformative yet complex force in higher education. Its successful integration depends not only on technological advancement, but on strategic planning, skills development, ethical governance, and sustained collaboration. These insights provide a solid evidence base for the next phases of

the Erasmus+ project, SMARTIE, supporting the development of activities and outputs that are relevant, realistic, and aligned with stakeholder needs and European priorities.