

Deliverable D 1.2

S4AI_HUB staff trained in lack of skills on AI

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1. Executive Summary

The deliverable D1.2 S4AI_HUB Staff Trained in Lack of Skills on AI focuses on addressing the gaps in artificial intelligence (AI) knowledge and skills among team members within the S4AI_HUB project. As AI technologies continue to evolve at a rapid pace, professionals must stay informed about the latest advancements, methodologies, and ethical considerations to remain competitive in the field. Recognizing the critical importance of AI competency for driving innovation and ensuring long-term sustainability, this training program was designed to equip S4AI_HUB team members with foundational AI knowledge, practical skills, and insights into real-world applications.

The two-day training program was structured to provide team members with a comprehensive understanding of AI, covering both theoretical concepts and hands-on experiences. The sessions were designed to be interactive and dynamic, incorporating real-world case studies and insights from both the private and public sectors. The goal was to familiarize participants with the entire AI development lifecycle—from the initial conceptualization and development phase to the final deployment and implementation stage.

Key training components included:

- Introduction to AI and Machine Learning (ML): Understanding fundamental concepts, key algorithms, and real-world applications.
- AI in Business and Public Sector: Exploring how AI is transforming industries, with a focus on start-ups, small and medium enterprises (SMEs), and government organizations.
- Ethical Considerations and Responsible AI: Addressing key ethical challenges in AI, including bias, transparency, and accountability.
- Case Studies & Knowledge Exchange: Examining real-world AI projects to understand best practices, potential pitfalls, and key success factors.

One of the defining features of the training was its interactive and discussion-driven approach, which encouraged participants to actively engage with the material. During the case study presentations, team members were given the opportunity to analyze AI implementations in various sectors, gaining a deeper understanding of how AI is integrated into organizational processes.

A special emphasis was placed on collaboration with start-ups, SMEs, and the public sector, highlighting the unique challenges and opportunities that arise when implementing AI solutions in different environments. By fostering a collaborative learning environment, the training facilitated knowledge-sharing and interdisciplinary engagement, allowing team members to exchange ideas and perspectives.

By addressing knowledge gaps and fostering a culture of continuous learning, S4AI_HUB is better equipped to leverage AI for innovation, operational efficiency, and strategic decision-making.

2. Abbreviations and acronyms

Abbreviation / Acronym	Description
SME	Small and medium enterprises
AI	Artificial intelligence
ML	Machine learning
NLP	Natural language processing

3. Background

The present document constitutes Deliverable D1.2: S4AI_HUB Staff Trained in Lack of Skills on AI within the framework of the Flagship Project S4AI_HUB. This deliverable is a critical component of the project's broader objectives, aiming to enhance AI-related competencies among team members and address existing skill gaps in AI technologies.

The S4AI_HUB seeks to foster AI adoption, innovation, and strategic capacity-building across different sectors. As AI continues to evolve and reshape industries, organizations must equip their workforce with the necessary knowledge and expertise to stay competitive and effectively leverage AI solutions. This deliverable directly contributes to those goals by providing a structured training program that empowers team members with essential AI skills, methodologies, and practical applications.

Through structured sessions, participants were introduced to key AI concepts, such as data-driven decision-making, neural networks, natural language processing (NLP), and AI ethics. The training incorporated real-world case studies, providing valuable insights into the challenges and best practices of AI implementation across different industries.

Furthermore, the S4AI_HUB training program aligns with broader European and global strategies aimed at bridging the AI skills gap. Many governments, institutions, and companies have recognized the importance of AI literacy in driving technological advancements and economic growth. By investing in AI education, S4AI_HUB contributes to the larger objective of creating an AI-ready workforce that can support innovation, entrepreneurship, and digital transformation.

Recognizing that AI is a continuously evolving field, S4AI_HUB also emphasizes the need for capacity-building efforts. The project encourages staff to engage in continuous education, knowledge-sharing initiatives, and collaborative research projects that will further expand their AI expertise over time.

4. Objective/Aim

This document has been prepared to provide a comprehensive overview of the training activities conducted within Work Package 1. Manage an Effective and Sustainable S4AI_HUB, Task 1.2 Capacity Building of S4AI_HUB Staff on AI issues. The primary objective of this deliverable is to address AI-related competency gaps within the S4AI_HUB team by equipping staff with the necessary skills and knowledge to effectively engage with AI technologies and contribute to the project's long-term success.

The objectives of the training program were as follows:

- Addressing Knowledge Gaps: The training focused on bridging the gap between the current knowledge levels of S4AI_HUB staff and the skillset required to work effectively with AI technologies. By offering a mix of theoretical knowledge and practical insights, the training enabled staff to gain a solid understanding of AI fundamental concepts.
- Holistic Understanding of AI Lifecycle: The training program provided insights into the entire AI development lifecycle, from the conceptualization phase to deployment and ongoing monitoring. By incorporating case studies from the private and public sectors, the program illustrated how AI technologies are deployed across different industries, fostering a deeper understanding of their real-world applications.
- Ethical and Responsible AI Practices: Given the increasing scrutiny around AI's role in society, the training included discussions on AI ethics, data privacy, and bias mitigation strategies. It emphasized the importance of developing AI systems that are transparent, accountable, and fair, ensuring that the technology is used in a responsible manner.
- Encouraging Cross-Disciplinary Collaboration: The training program fostered collaboration between staff from different backgrounds and expertise, promoting knowledge-sharing and mutual learning. By encouraging a multi-disciplinary approach, the training created an environment conducive to cross-functional innovation.
- Supporting Strategic Objectives: In alignment with the S4AI_HUB project's broader goals, this deliverable contributes to ensuring that the hub is equipped with the knowledge and capabilities necessary to integrate AI into ongoing and future projects. By enhancing the team's expertise in AI, the training program helps to position S4AI_HUB as a leader in AI-driven innovation within the project's domain.

5. Training sessions

The S4AI_HUB Capacity Building Training was a structured two-day event designed to equip team members with a deeper understanding of AI concepts, real-world applications, and practical implementation strategies. As AI continues to transform industries and redefine the way organizations operate, it has become essential for professionals to develop a strong foundation in AI principles, tools, and methodologies. This training was designed to address knowledge gaps and encourage collaboration between AI researchers, industry experts, and public sector stakeholders.

The sessions combined theoretical learning with hands-on experience, ensuring that participants not only understood AI's underlying principles but also gained insight into how AI technologies are deployed in practice. Case studies, real-world applications, and interactive discussions were key elements of the training, allowing participants to explore the challenges and opportunities presented by AI adoption.

With a strong focus on collaboration between government, academia, and the private sector, the training also highlighted AI's role in digital transformation and improved decision-making. Participants were encouraged to think critically about AI's future, its ethical considerations, and the regulatory frameworks that guide its implementation.

5.1. Day 1: Foundations of AI and Its Applications

The first day of training laid the groundwork for understanding AI fundamentals and its vast applications across different sectors. The day began with an introductory note, where the training facilitators introduced the objectives of the S4AI_HUB Capacity Building training program. This was followed by a discussion on AI's impact on industries, highlighting the importance of continuous skill development and interdisciplinary collaboration.

A significant part of the session was dedicated to exploring the AI landscape in Serbia, providing a national perspective on AI advancements, research initiatives, and policy developments. The session outlined Serbia's role in the global AI ecosystem, emphasizing the government's commitment to fostering AI-driven innovation. Participants learned about existing AI projects, partnerships between universities and industry leaders, and Serbia's position within the European AI framework.

The training continued with a comprehensive introduction to AI fundamentals, breaking down complex concepts into digestible insights. Participants explored the core principles of AI, ML, and deep learning, gaining clarity on how AI models are trained, how they learn from data, and how they can be used to make predictions or automate processes. This session also covered the distinction between supervised and unsupervised learning, as well as the fundamentals of NLP, computer vision, and reinforcement learning.

As the training progressed, discussions expanded to cover AI ethics and regulatory considerations, focusing on the growing need for responsible AI use. Participants explored topics such as bias in AI algorithms, data privacy concerns, and compliance with AI regulations like the EU AI Act. These conversations reinforced the importance of ethical AI development and the responsibility organizations have in ensuring transparency and fairness in AI decision-making.

A key highlight of the day was the exploration of AI applications in the public sector, demonstrating how AI is being utilized to improve government services and public administration. Several case studies were presented, showcasing AI-driven innovations in healthcare, data security, and language processing. Examples included:

- AI-powered breast cancer screening models which use machine learning algorithms to enhance early detection.
- Automated anonymization tools, developed to handle sensitive government documents securely.
- Speech recognition and transcription models designed to digitize and archive historical Serbian-language materials.

Afterwards, the session focused on AI's growing impact on the private sector, featuring insights into how businesses are integrating AI into their operations to drive efficiency and innovation. Case studies explored:

- AI-driven customer service automation, which improves response times and enhances user experience.
- Predictive maintenance models in industrial manufacturing helping businesses anticipate equipment failures and reduce downtime.
- NLP-based topic detection models enabling companies to analyze and categorize large volumes of customer feedback and interactions.

By the end of the first day, participants had developed a theoretical foundation in AI while also gaining insights into its practical applications. The interactive discussions encouraged knowledge-sharing among participants, allowing them to relate AI concepts to their own work environments.

5.2. Day 2: AI Tools, Platforms, and Practical Use Cases

The second day of training was dedicated to hands-on learning, giving participants a deeper understanding of AI tools, platforms, and real-world use cases. The day began with a brief recap session, where key takeaways from the first day were reviewed. This allowed participants to revisit important concepts, clarify uncertainties, and engage in open discussions.

One of the most practical sessions of the training introduced participants to AI tools and platforms commonly used in industry and research. The facilitators provided information on:

- No-code AI platforms, such as Microsoft Azure AI and Google AutoML, which enable users to develop AI models without extensive programming knowledge.
- AI-assisted programming tools, including ChatGPT, Google Gemini, and Microsoft Copilot, designed to enhance productivity in coding and data analysis.
- ML frameworks, such as TensorFlow and PyTorch, which are widely used for developing and deploying AI models.

Participants were encouraged to explore these tools and consider how they could be integrated into their respective fields. The discussions highlighted the importance of selecting the right AI technology based on project needs, data availability, and budget considerations.

A key session of the day focused on AI use cases and best practices, providing participants with practical examples of how AI has been successfully implemented. The following case studies were examined:

- Customer email classification models, used in telecommunications to reduce manual workload and improve customer service efficiency.
- Predictive AI systems for industrial applications, helping organizations optimize resource allocation and anticipate maintenance needs.
- AI-driven topic detection in customer interactions, improving data-driven decision-making in businesses.

These case studies demonstrated how AI can be tailored to specific industry needs, addressing business challenges and improving workflow automation. Participants engaged in group discussions on methodologies behind these models.

The training concluded with a feedback session, where participants reflected on their learning experiences and discussed potential applications of AI within their own organizations.

The final remarks from the organizers emphasized the importance of ongoing skill development and interdisciplinary collaboration. Participants were encouraged to stay informed about emerging AI trends, seek opportunities for further learning, and contribute to building a more AI-literate workforce.

5.3. Key outcomes of the training

The two-day training provided participants with an essential understanding of AI and its practical applications. Attendees left with a greater appreciation of AI's capabilities and a clearer vision of how AI can be used to improve processes, enhance decision-making, and drive innovation. The training also fostered collaboration between participants from different backgrounds, allowing for a cross-disciplinary exchange of ideas and perspectives.

A particularly valuable aspect of the training was its focus on AI ethics and responsible development. As AI continues to evolve, ensuring that AI models are transparent, unbiased, and fair is a growing concern. The discussions around AI governance and regulatory compliance provided participants with essential knowledge on how to navigate the ethical challenges associated with AI implementation.

Another key outcome was the practical exposure to AI tools and platforms. Many participants had limited experience with hands-on AI applications before the training, so being introduced to real-world AI tools and workflows was particularly beneficial. The opportunity to see AI models in action, analyze case studies, and participate in discussions helped solidify participants' understanding of AI and its potential in various industries.

The S4AI_HUB Capacity Building Training was a successful initiative that provided participants with a strong foundation in AI, preparing them to engage more actively in AI-driven projects within their respective organizations. By combining theoretical learning with real-world applications and ethical discussions, the training equipped attendees with the knowledge and skills necessary to navigate the evolving AI landscape.

The sessions served as an initial step in fostering a culture of AI literacy, interdisciplinary collaboration, and responsible AI implementation. Moving forward, continued investments in AI education and hands-on learning experiences will ensure that professionals remain at the forefront of technological advancements, fully prepared to leverage AI for future innovation and growth.

6. Event feedback analysis

In this section, we present the analysis of the feedback collected from the participants of the S4AI_HUB training event. The feedback serves as a valuable tool for understanding the effectiveness of the training and identifying areas of improvement. The feedback was gathered through a post-event survey, which aimed to assess various aspects of the training experience, including content relevance, delivery methods, engagement levels, and practical applicability. By analyzing this feedback, we gain important insights into the areas that resonated most with the participants, as well as any challenges they encountered during the program.

The survey used a 5-point Likert scale, where 1 was strongly disagree and 5 was strongly agree. At the beginning, the team members were asked if their expectations were met by the training program. 80% of them gave the highest point (5) indicating the majority of the expectations were fulfilled.

The workshop met my expectations.
10 responses

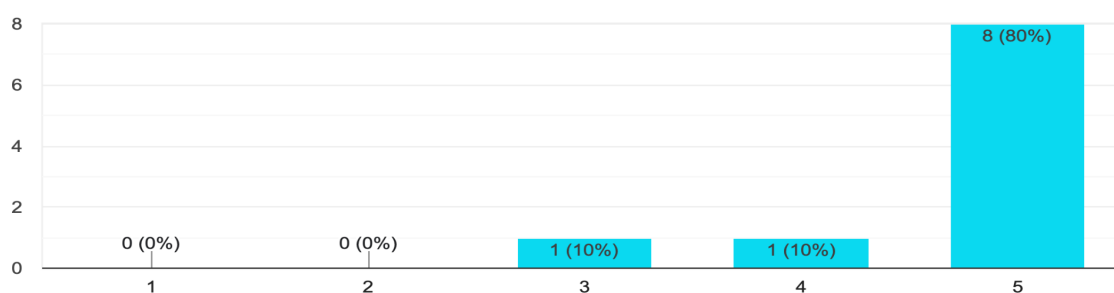


Chart 1. The workshop met my expectations

One of the key aspects evaluated was whether participants found the sessions interesting. The results were very positive, with 80% of respondents indicating that they found the training engaging. This high level of engagement suggests that the interactive format, real-world case studies, and practical applications of AI successfully captured participants' attention.

I found the workshop engaging and interesting.

10 responses

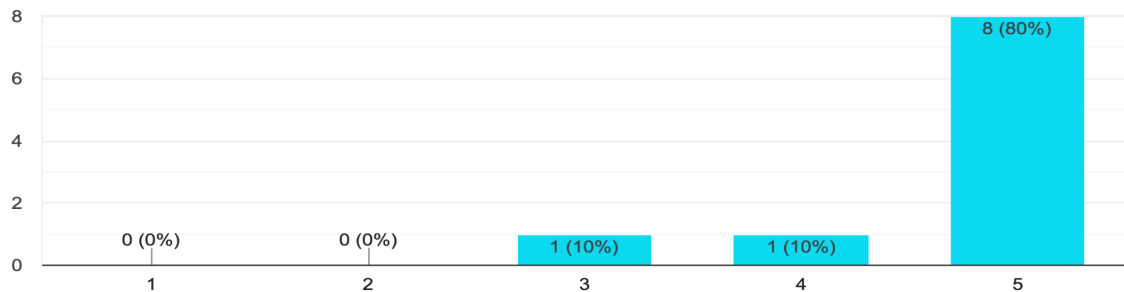


Chart 2. I found the workshop engaging and interesting

80% of respondents strongly agreed that the sessions were interactive and encouraged participation, while the remaining 20% agreed. This indicates that the majority of participants found the format engaging and appreciated the opportunity to contribute actively to the discussions and activities. The interactive nature of the sessions likely enhanced the learning experience, fostering a collaborative environment where team members could share insights, ask questions, and deepen their understanding of the subject matter. This feedback underscores the effectiveness of hands-on learning approaches in maintaining engagement and facilitating knowledge exchange.

The session was interactive and encouraged participation.

10 responses

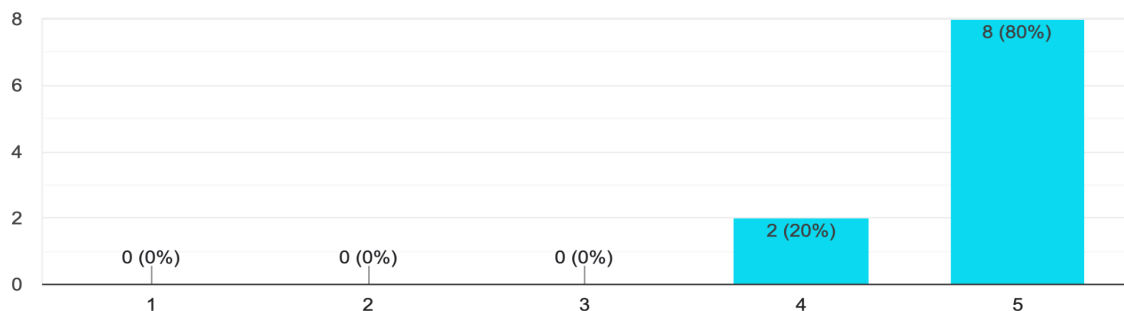


Chart 3. The session was interactive

When asked whether the sessions provided case studies or practical examples, 90% of respondents strongly agreed, while 10% agreed. This high level of agreement suggests that the inclusion of real-world examples and case studies was highly valued by the participants. It indicates that the practical application of concepts enhanced the learning experience, helping participants better understand how AI principles

can be applied in various sectors. The use of case studies likely contributed to a more comprehensive and relatable learning environment.

The workshop provided practical examples or case studies.

10 responses

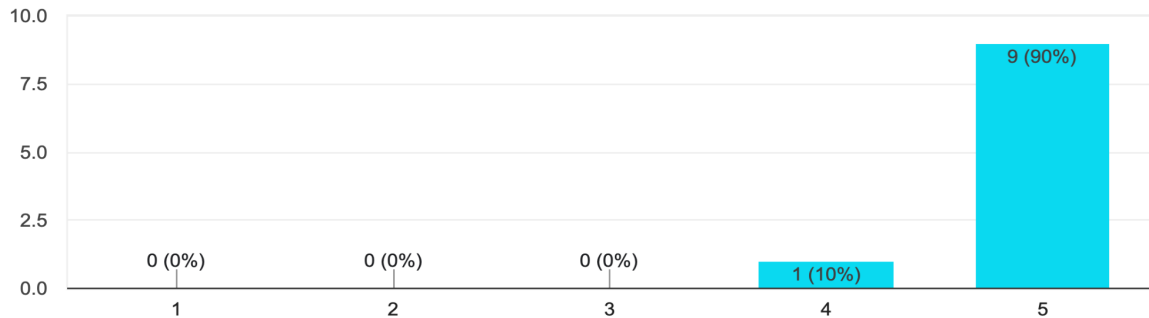


Chart 4. The workshop provided practical examples

The participants were also asked if the information was presented clearly, and the feedback was overwhelmingly positive, with 90% strongly agreeing and 10% agreeing. This suggests that the training effectively conveyed key concepts in a structured and comprehensible manner. When assessing the relevance of the topics covered, responses were slightly more varied. While 60% of participants strongly agreed and 10% agreed that the content was relevant to their professional needs, 20% remained neutral, and 10% disagreed. This indicates that while the majority found the training useful, some participants felt that certain aspects may not have been fully applicable to their specific roles or interests.

The facilitators' expertise was widely acknowledged, with 100% of respondents strongly agreeing that the trainers demonstrated deep knowledge in their respective areas. This reflects the high level of preparation and professionalism of the instructors, which contributed to the overall effectiveness of the training.

Regarding the pace of the sessions, 80% of participants strongly agreed that the flow of information was well-structured and manageable, 10% agreed, while another 10% remained neutral. This suggests that the majority of attendees were comfortable with the speed at which the material was delivered, though a small percentage may have preferred adjustments. Finally, opinions on the duration of the training were mostly positive, with 70% strongly agreeing that the allotted time was appropriate, 20% agreeing, and 10% disagreeing. While most found the duration sufficient, a small percentage of participants may have felt that either more time was needed for deeper discussions or that the schedule could have been more condensed.

Overall, the feedback indicates that the training was well-received, with high engagement, clear communication, and knowledgeable facilitators.

7. Conclusions

The S4AI_HUB Capacity Building Training was developed to address gaps in AI knowledge and skills among team members, ensuring that participants gained a strong foundation in AI concepts, applications, and ethical considerations. As AI continues to evolve and reshape industries, organizations must ensure that their workforce is equipped with the necessary expertise to leverage AI-driven innovations. Recognizing this need, the training program was designed to enhance AI competencies, facilitate interdisciplinary collaboration, and foster a culture of continuous learning within the S4AI_HUB.

The primary challenge that this training aimed to address was the lack of AI expertise among staff. Many participants entered the training with varying levels of AI knowledge, making it essential to design a structured and inclusive learning approach. To bridge this knowledge gap, the training incorporated both theoretical and practical elements, allowing participants to gain hands-on experience with AI tools while also understanding the ethical and regulatory frameworks that guide responsible AI use.

The objective of this deliverable was to provide participants with an understanding of AI fundamentals, introduce real-world AI applications, and explore AI's role in both the public and private sectors. The training also aimed to strengthen the participants' ability to critically assess AI-driven projects, ensuring they could apply what they learned to future initiatives within S4AI_HUB.

A combination of interactive presentations, case studies, group discussions, and hands-on exercises was used to deliver the training. This methodology ensured that participants were not only learning AI concepts in a theoretical sense but were also exposed to real-world use cases that demonstrated how AI is applied across different industries. Special emphasis was placed on ethical AI development, AI governance, and regulatory frameworks, preparing participants to engage with AI in a responsible and informed manner.

The findings from the training sessions indicate that participants gained significant value from the program. The feedback collected from attendees highlighted that 80% of participants found the training engaging, 90% strongly agreed that case studies and practical examples enhanced their learning, and 100% acknowledged the expertise of the trainers. The results confirm that the program successfully provided a well-balanced mix of theoretical knowledge and practical application, making AI concepts more accessible and applicable to participants' professional roles.

Despite the overwhelmingly positive reception, some limitations were noted. The primary challenge was the varying levels of prior AI knowledge among participants, which made it challenging to tailor the content to meet everyone's expectations. While the training was designed to be inclusive, some participants indicated that they would have benefited from additional in-depth sessions on specific AI technologies or more advanced hands-on exercises. Additionally, a small percentage of attendees felt that the training duration could have been extended to allow for deeper exploration of key topics.

The best solution to these challenges is to implement a tiered training approach in the future through the hub. This would involve offering introductory, intermediate, and advanced AI training sessions, allowing participants to choose sessions based on their existing skill levels. Additionally, incorporating more hands-on exercises and interactive workshops would further enhance engagement and the practical application of AI concepts.

Overall, the S4AI_HUB Capacity Building Training successfully met its planned objectives by equipping participants with essential AI knowledge and fostering a collaborative learning environment. The training provided a strong foundation for AI adoption within the organization and positioned participants to actively contribute to AI-driven projects.

Moving forward, the findings from this deliverable are helpful for the planning and implementation of future training initiatives. It is recommended that additional AI capacity-building programs be introduced, with an emphasis on specialized AI applications, technical upskilling, and interdisciplinary collaboration. Furthermore, future projects could explore the integration of AI mentorship programs, where participants can receive guidance from experienced AI professionals beyond the training sessions.

For long-term sustainability, it will be crucial to continue investing in AI literacy, research collaborations, and workforce development to ensure that S4AI_HUB remains at the forefront of AI-driven innovation. Expanding partnerships with academic institutions, industry leaders, and government agencies will further strengthen the project's impact and help bridge the AI skills gap on a broader scale.

8. Appendices

Appendix 1- Agenda



The Institute for Artificial
Intelligence Research and
Development of Serbia

Fruskogorska 1
21000 Novi Sad, Serbia
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T.1.2. Capacity Building of Serbian European Digital Innovation Hub STAFF on AI

DAY 1

Friday, March 21, online, https://meet.institutonline.ai/edih_ivi_workshop

- 09:00 Welcome and Introductions
- 09:30 AI Landscape in Serbia
- 10:30 Coffee Break
- 11:00 AI Fundamentals (Key Concepts and AI Applications)
- 12:30 Lunch Break
- 13:30 AI in Key Sectors – Collaboration with Governmental Institutions (Case Studies and Best Practices)
- 14:30 Coffee Break
- 15:00 AI in Key Sectors – Collaboration with the Private Sector (Case Studies and Best Practices)



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T.1.2. Capacity Building of Serbian European Digital Innovation Hub STAFF on AI

DAY 2

Friday, March 28, online, https://meet.institutonline.ai/edih_ivi_workshop

- 09:00 Recap and Discussion from Day 1
- 09:15 AI Tools and Platforms for Industry and Public Services
- 10:30 Coffee Break
- 11:00 AI Tools and Platforms - Use Cases
- 12:30 Final Discussion
- 13:30 Closing Remarks by the Coordinator



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